

2025-2026

Visit Carolina.com for new products and current pricing.

CAROLINA
UNLEASH LEARNING*

Transform a Passion for Science into Career Readiness

BioTechBuilder is a CTE biotechnology course in a box, complete with curriculum, kits, and a path to industry-recognized microcredentials.





BioTechBuilder









Prepare Students for Workplace Success

Prepare students to think critically and solve problems in tomorrow's workplace with Carolina STEM Challenge® kits. These kits incorporate STEM concepts and skills as students take on real-world design challenges in an exciting tournament-style format.

Learn more on pages 647, 782, and 889.



decision-making abilities in a safe, controlled setting with our wide selection of health care simulators. These teaching tools allow students to practice

Simulators at Carolina

New Health Science

Help your students build real-world skills and

These teaching tools allow students to practice procedures, diagnose conditions, and collaborate with colleagues.

Explore our shopping list to select the best simulators for your classroom.





Browse our CTE buying guides.

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Teacher's Choice

At Carolina, we thrive on teacher feedback. This icon signifies that the item is preferred by teachers (based on feedback from sales, reviews, and comments) and is often a staple for their classrooms.

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.

The products in this catalog are intended to be used in schools by educators to teach science and mathematics to their students. These products are not toys or games but are professional products for educational use by students under the direct supervision of their educators.





This catalog is printed in the USA. Catalog text is printed on recycled paper containing a minimum of 10% post-consumer waste. ©2024 Carolina Biological Supply Company



Macrobiology/Living

666773 Ponix Future Farmer Kit (in use; plants not included) 666771 Ponix Mini Hydroponic Garden (in use; plants not included)

Microscope Slides

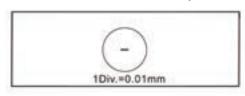
New! Stage Micrometer Slide

Use this glass microscope slide to take measurements or to calibrate your micro-

scope and/or camera attachment. The 25×75 -mm slide features a fine line scale with a total length of 1 millimeter (mm). Scale has 100 divisions (at 0.01-mm intervals), marked with clear grid lines for easy viewing.

632910

Each **\$23.50**





X Ruler 100 × 0.01mm=1mm

Cultures



152066 Chlorella Algae Beads

New! Ponix® Hydroponic Systems

Hydroponics is an engaging way for students to learn about STEM, nutrition, and sustainability, and to think creatively about community and global food systems. Ponix® hydroponic systems are an easy way to introduce hydroponics to your students. The **Mini Hydroponic Garden** is a small self-growing hydroponic system that lets students grow fresh and healthy greens, fruits, and herbs in the classroom anywhere, anytime. It can grow up to 6 plants per month and includes light panel, water basin, operational panel, adjustable light post, and grower's kit. The **Future Farmer Kit** is a vertical hydroponic farm designed as a hands-on learning experience for schools and other learning environments. It can grow up to 96 plants per month and includes PVC frames and connectors, lights, water system, 6 grow towers, and casters. For both, seeds are needed but not included. Go to **Carolina.com** for more features and details.

666771 Mini Hydroponic Garden Each **\$179.00 666773** Future Farmer Kit Each **\$3,495.00**

New! Algae Beads

Algae beads are fun to make, but sometimes there just isn't time. These are made from our concentrated stocks and are ready for immediate use in the classroom. Add a pH indicator and place in bright light to watch the effect of photosynthesis on acid in the water. Remove from the light and respiration will re-acidify the surrounding water. The beads are robust and don't break down quickly. Can be stored for several weeks in the refrigerator and reused multiple times. Simply rinse the beads with deionized or spring water. Choose from **Cyanobacteria**, **Anabaena** and **Green Algae**, **Chlorella**. Sold in packs of 200. Visit **Carolina.com** for more details.

151711 Cyanobacteria, *Anabaena* Pack of 200 **\$36.00 152066** Green Algae, *Chlorella* Pack of 200 **\$36.00**

Allied Health & Health Sciences



700119 Carolina Healthcare Simulations: Urinalysis Kit

New! Carolina® Healthcare Simulations: Urinalysis Kit

In the Carolina® Healthcare Simulations kit series, students practice clinical skills, techniques, and procedures related to a case study they have received for a patient who presents with relevant symptoms. For the Urinalysis Kit, the case study describes a college student who is experiencing pain in her pelvic region and is extremely tired. Students first analyze her chart and make an initial assessment of her condition. Then during the investigation, students simulate a urinalysis by testing synthetic urine for color, pH, specific gravity, glucose, and proteins. The investigation concludes with students applying their laboratory analyses and using digital resources to develop a final diagnosis and treatment plan for the college student. Kit is designed for 10 groups of students. Visit Carolina.com for additional details and a complete list of kit materials. Includes 1-year access to digital resources that support 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

700119 Per kit **\$185.00**



View more Carolina® Healthcare Simulations kits, including Best of STEM® Award winner Blood Typing Kit, on page 312.





695679 No-Contact Infrared Body Thermometer

New! No-Contact Infrared Body Thermometer

High-quality no-contact thermometer with convenient trigger-style grip for rapid screenings. Produces an accurate reading in less than 2 sec. Additional features: switchable scale (Fahrenheit and Celsius), large backlit color-coded display with fever warning, and 50-reading memory. Meets international standards for accuracy. Powered by 2 AAA batteries (included). Two-year warranty. Size, $5^9/_{10} \times 1^7/_{10} \times 3^7/_{10}$ "; wt, 4.6 oz (with batteries).

695679 Each **\$64.25**





694745 Proscope Standard Otoscope

New! Proscope[™] Standard Otoscope

High-quality otoscope features bayonet locking head, knurled handle, and removable $3 \times$ magnifying lens and insufflator fitting. Includes autoclavable, polypropylene ear specula in 2.5-, 3.5-, and 4.5-mm sizes, and zippered storage case. Instrument size, $7^{1}/_{2}^{1}$; wt, approx. 7 oz. **Note:** *Requires 2 C alkaline batteries (not included).*

694745 Each \$85.95

Physiology



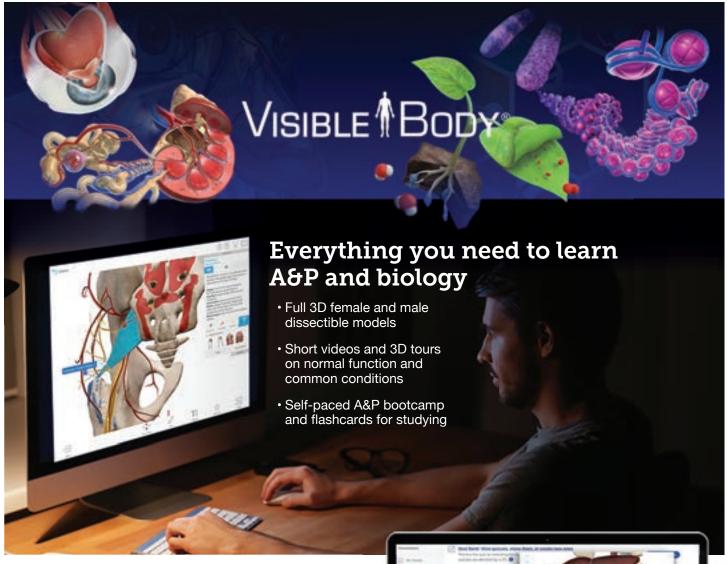
695985 Economy Refractometer

New! Economy Refractometer

For measuring serum protein, specific gravity, and refractive index of fluids. Easy-to-use kit includes refractometer (17.5 cm L), pipet, cleaning cloth, calibration screw-driver, manual, and carrying case. Eyepiece rotates to focus. Measurement range: 0–12 g/dL (serum protein), minimum graduation value 0.2 g/dL; 1.000–1.050 sg (specific gravity of urine), minimum graduation value of 0.002 sg; 1.3330–1.3600 nd (refractive index), minimum graduation value 0.0005 nd.

695985 Each \$75.00

See more physiology products on the next page.



Visible Body Suite in use (computer not included)

New! Visible Body® Suite

Visible Body® Suite provides a web-based, comprehensive 3D exploration of health science and general biology—no safety goggles or fancy equipment required! With its full 3D dissectible anatomy and biology models, interactive physiology simulations, short animations, self-paced A&P bootcamp, and flashcards for studying, VB Suite is the ultimate one-stop shop for learning and understanding the life sciences. One-year license. For more details, visit visiblebody.com/carolinalabs.

 493765
 Site License for 1–150 Users
 Each
 \$3,750.00

 493766
 Site License for 151–250 Users
 Each
 \$5,750.00

 493767
 Site License for 251–500 Users
 Each
 \$6,750.00

Have more than 500 users?

Contact Carolina at product@carolina.com for more information about discounted school or institution licenses.

Cross-platform access—share saved student content across devices

- Use your Internet browser to access anatomy and biology content on any computer—no software installation is required.
- Download the Visible Body® mobile app to your phone or tablet for anatomy reference and studying on the go.

4 CAR@LINA®

Biotechnology

New! How Do Polygenic Risk Scores Stack Up? Kit A unique experience that teaches graphing literacy and genetics

The kit uses authentic data and graphical representations to address 2 central questions: How are traits, such as disease risk, distributed across a population? And how can identifying an individual's risk shape health care decision-making? Recent advances have led to models that combine the impact of genetic risk factors for an individual developing a particular disease into a single calculation known as a polygenic risk score. To help students understand how these models can affect health decisions, the activity employs 3-dimensional boxes to represent normal and skewed population curves. Students use these curves to examine polygenic risk scores and assess a person's risk for 2 different complex diseases. In addition to teaching essential data and

graphing skills, the activity also highlights a weakness in current genomic research—lack of diversity—with the hope of equipping the next generation of researchers, health care workers, and consumers to address this critical issue. Kit equips a class of 30 students; visit Carolina.com for a complete list of kit materials.

214828 Per kit \$75.00

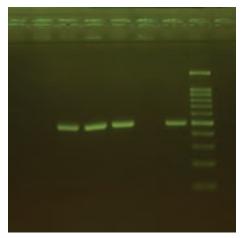
214828 How Do Polygenic Risk Scores Stack Up? Kit (in use)

New! Taq Polymerase Production and Validation Amplification Kits Run PCR using *Tag* polymerase produced and validated by your students

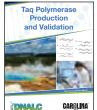
Advanced—For experienced high school and college classes; requires some technical skill.

With this one-of-a-kind kit, students purify *Taq* polymerase, an enzyme used in polymerase chain reactions, from bacteria engineered to produce it, then test the enzyme's activity by performing PCR with it. As students gain hands-on experience with PCR, they learn the same lab skills used in the biotechnology workplace. Each kit equips 24 students working in groups of 3 and supplies sufficient materials for each of the 24 students to produce and validate their own *Taq* polymerase. The kit also features additional resources to help teach PCR and support students, including a paper model activity simulating the first 2 cycles of PCR, a visual lab procedure complementing the written protocol, and information on the lab's real-world connections to actual lab techniques and careers. All kits also come with free 1-year access to digital resources that support 3-dimensional instruction. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of the perishable materials.*

	,			
211		Taq Polymerase Production and Validation Amplification Kit (with voucher)	Each	\$99.95
	165P	Taq Polymerase Production and Validation Amplification Kit (with perishables)	Each	\$99.95
211	166	Taq Polymerase Production and Validation Amplification and Electrophoresis		
		Kit with <i>Carolina</i> BLU Stain (with voucher)	Each	\$145.00
211	166P	Tag Polymerase Production and Validation Amplification and Electrophoresis		
		Kit with CarolinaBLU Stain (with perishables)	Each	\$145.00
211	167	Tag Polymerase Production and Validation Amplification and Electrophoresis		
		Kit with GelGreen Stain (with voucher)	Each	\$170.00
211	167P	Tag Polymerase Production and Validation Amplification and Electrophoresis		
		Kit with GelGreen Stain (with perishables)	Each	\$170.00



Gel from 211167 Taq Polymerase Production and Validation Amplification and Electrophoresis Kit with GelGreen Stain



Physical Science

New! SkriLab® Skrinter 3D Printer

user-friendly interface and powerful software, students can create complex designs and produce high-quality 3D prints with ease. The 3D Skrinter's advanced features—such as end-of-filament detection to prevent material waste, integrated camera to remotely monitor the printing process, and accepting a range of filaments (PLA, PETG, and ABS)—make it a versatile tool for learning and experimentation. Includes free access to Skriware® Creator and 3D Playground online software packages. Out of the box, plugged in, Wi-Fi® connected and logged in to Skrimarket, it's ready to go. Dimensions: $16^{1}/_{10} \times 18^{1}/_{2} \times 24^{8}/_{10}$ " ($410 \times 470 \times 630$ mm). 100-230 V, 50/60 Hz. Start your 3D Skrinter printing journey with Skriware® 3D Printer PLA Filaments, sold separately. The set of 10 spools (750 g each) in assorted colors gives you an eco-friendly printing solution and the material is a breeze to print with. Want to integrate the 3D Skrinter into your lesson plans? A Skriware® Academy Full License, also sold separately as a one-time purchase (no subscription required), has everything you need to deploy fascinating lessons and engage your students in the world of 3D printing, robotics, and programming without the hassle of creating lessons from scratch. Skriware® Academy is a comprehensive teacher support platform designed to make teaching with Skriware® tools easy and accessible. The platform offers video tutorials; e-courses in modeling and 3D printing, robotics, and programming; lesson scenarios, student worksheets, and syllabuses with guidelines for the teacher; and much more. It also lets you share worksheets and presentations via Microsoft Teams® and Google Classroom™. License is sold only to schools, which can assign up to 10 users within their account. Visit Carolina.com for more details. Note: These products can only be sold and distributed within the US and Canada.

The 3D Skrinter is a state-of-the-art 3D printing system that allows students to bring their ideas to life. With its

756650 SkriLab Skrinter 3D Printer
 Each
 \$4,499.00 756651 Skriware 3D Printer PLA Filaments
 Set of 10
 \$549.00 756655 Skriware Academy Full License
 Each
 \$1,749.00



756650 SkriLab Skrinter 3D Printer

New! Vernier® Go Direct® Sensors

Why Choose Go Direct® Sensors?

With more than 50 sensors to choose from, the Go Direct® family of sensors offers an affordable solution that includes free software. And Go Direct® sensors are easy to use—just connect a sensor to your device and start collecting data.

What You Need to Get Started

1. Go Direct® Sensor

These versatile sensors connect to your device via Bluetooth® wireless technology or USB.

2. Device

Go Direct® sensors connect to a wide variety of devices commonly used in classrooms, including Chromebook® computers, desktop and laptop computers, compatible mobile devices, and LabQuest® 3.

3. Vernier Graphical Analysis® App

This free data-collection app facilitates student understanding with real-time graphs of experimental data. No additional software purchase is necessary.

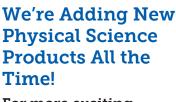
Go to Carolina.com to see our full line of Vernier® Go Direct® Sensors.











For more exciting physical science products, visit Carolina.com.





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Inquiries in Science

Get a FREE digital teacher's

manual with any Inquiries in

Science® kit purchase. Display the

digital manual on an interactive

whiteboard, print it on demand

and to your specifications, and

make and save notes. The digital

manual is accessed through Carolina's eLearning portal,

Carolinascienceonline.com.

Look for an email after purchase with your access code to this

valuable resource!



Inquiries in Science® Biology Series

Grades 9-12.a

Inquiries in Science® is our exclusive series of hands-on kits specifically designed to help high school students understand abstract, hard-to-grasp science concepts. The series tracks well with most textbooks, and kit topics reflect state science standards and extensive educator input. Since Inquiries in Science® is modular, you can use the kits individually, as a strand, or as a series to teach biology.

The 5E Learning Cycle

Field-tested in classrooms nationwide, Inquiries in Science® employs guided inquiry based on the 5E learning cycle of engage, explore, explain, extend, and evaluate. This inquiry-based approach also promotes STEM (science, technology, engineering, and math) practices. It enables students to:



- Consider a real-world question or problem
- Plan and conduct an investigation and gather data
- Understand the science concept by analyzing data and communicating findings
- Apply their findings to the original real-world question or problem and master the science concept

Inquiries in Science® helps students build critical-thinking and problem-solving skills,

and encourages creativity, collaboration, and teamwork. It creates an environment in which you and your students work together as active learners.

Inquiries in Science® Components

- Kit—Includes lab supplies (enough for at least 30 students working in groups) plus teacher's manual.
- Kit Refill—Replenishes consumed materials.
- Digital Teacher's Manual—FREE with kit purchase.

Inquiries in Science® Biology Series Kits

View complete kit descriptions at Carolina.com.

*Refill includes a voucher for living or perishable material. Redeem the voucher for delivery of these materials at your convenience at Carolina.com/livingform, by phone at 800.334.5551, or by fax at 800.222.7112.

Title	Description	Item No.	Each	Refill Item No.	Each
Inquiries in Science®: Complete Biology Series Lab Package	Contains all 18 kits in the series	<u>^</u> 3251100	\$4,058.00		
Inquiries in Science®: Cell Biology Lab Package Included kits:	Contains all 5 kits in the Cell Strand	<u>^</u> 3251101	\$1,083.90		
Synthesizing Macromolecules Kit	Model the formation of carbohydrates, lipids, nucleic acids, and proteins; perform tests for monosaccharides, starches, and proteins; measure how environmental factors influence enzyme activity	△ ²251023	\$204.30 🛕	² 251072	\$116.48
Examining Cellular Transport Kit	Explore osmosis and diffusion using a semipermeable cell membrane model and examine how concentration, molecular size, surface area, and volume relationships affect these processes	<u>^</u> 3251022	\$270.36 🛕	³ 251070	\$170.54
Investigating Cell Types Kit	Explore the cell as the basic unit of life; design an experiment to test cellular responses to environmental changes	<u>^</u> 3251001	\$211.95 <u>^</u>	3251075* 3251051	\$48.92 \$49.92
Cycling Through Mitosis Kit	Explore the cell cycle and how a typical body cell divides using models, prepared slides, and video	<u>^</u> 3251003	\$252.32 🛕	³ 251053	\$97.63
Energizing Cells Kit	Using aquatic plants, learn how cells use an aerobic or anaerobic process to generate energy	251004	\$239.21	251077* 251054	\$89.41 \$89.95

MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

Inquiries in Science Inquiries in Science® Biology Series Kits

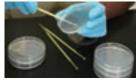
Living Organisms

Title	Description	Item No.	Each	Refill Item No.	Each
Inquiries in Science®: Genetics Lab Package Included kits:	Contains all 4 kits in the Genetics Strand	<u></u> \$251102	\$911.75		
Discovering Nucleic Acids Kit	Model DNA replication, transcription, and translation; explore types of genetic mutations and the effects mutations have on proteins	1 3251005 1 3251005	\$239.78	1 3 251055*	\$123.62 \$124.62
Investigating Forensics Kit	These crime scene-based activities help students develop skills in presumptive blood testing, blood typing, and DNA fingerprinting	△ ³251024	\$210.78	△ ³ 251074	\$163.51
Comprehending Genetic Inheritance Kit	Plant and score Wisconsin Fast Plants® to explore genetic inheritance	△ ³251020	\$229.85	251067	\$154.85
Understanding Reproduction and Chromosomes Kit	Introduce students to asexual and sexual reproduction, the basics of chromosome structure, karyotyping, and genetic disorders	251007	\$299.94	251079* 251056	\$55.16 \$55.16
Inquiries in Science®: Ecology Lab Package Included kits:	Contains all 4 kits in the Ecology Strand	1 ³ 251103	\$958.88		
Interacting Populations Kit	Observe organism relationships; design a microorganism ecosystem and study the organism interactions within it	^²251019	\$346.59	^ 2251069* ^ 2251089	\$231.59 \$231.59
Exploring the Nitrogen Cycle Kit	Create a working nitrogen cycle using living organisms and investigate environmental connections between fish, nitrifying bacteria, and plants	<u>^</u> 1251010	\$312.70	251082* 251059	\$144.30 \$142.30
Analyzing Population Growth Kit	Model how the population of a bird species changes over time; explore and build mathematical models of population growth and generate J-and S-shaped population curves	251420	\$147.61	251457	\$97.22
Building Ecological Pyramids Kit	Analyze animal remains to determine food chains and energy flow; explore environmental impact based on students' own food selections	251011	\$238.37	251090	\$75.38
Inquiries in Science®: Evolution Lab Package Included kits:	Contains all 3 kits in the Evolution Strand	<u>^</u> 1251104	\$640.45		
Simulating Darwinian Theory Kit	Observe how natural selection affects a population; learn that mutations gene flow, genetic drift, and selective mating affect a population	, <u>^</u> 1251013	\$271.44	<u>^</u> 1251061	\$189.89
Changing Over Time Kit	Introduce modern technologies that aid in the classification of phylogenic relationships and explore the anatomical similarities between evolutionarily related oranisms	c 251014	\$212.61	251083* 251062	\$137.26 \$135.26
Classifying Across the Kingdoms Kit	View live representatives from each of the 6 major kingdoms; study binomial nomenclature and work with dichotomous keys to determine the kingdom and further classification of various organisms	<u></u> 1251015	\$204.61	251084* 1251063	\$109.51 \$111.00
Inquiries in Science®: Physiology Lab Package Included kits:	Contains both kits in the Physiology Strand	<u>^</u> 1251105	\$570.20		
Observing Form and Function Kit	Develop students' knowledge of the unity and diversity of life and the connection between form and function in all organisms	<u>^</u> 1251016	\$403.62	1 251064* 1 251085	\$312.83 \$312.83
Behaving Like Animals Kit	Give your class an opportunity to investigate animal behavior firsthand; students become behavioral analysts as they study isopods	<u>^</u> 1251021	\$212.42	<u>^</u> 1251068* <u>^</u> 1251088	\$119.73 \$119.73











↑ California Proposition 65 ↑ WARNING: Cancer – www.P65Warnings.ca.gov

*Refill includes a voucher for living or perishable material. Redeem the voucher for delivery of these materials at your convenience at Carolina.com/livingform, by phone at 800.334.5551, or by fax at 800.222.7112.







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Reptiles
Chick Embryology

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.



The Largest Assortment of Live Organisms

From amoebas to zebra fish, Carolina offers a wider range of living organisms than any other supplier. Truly a one-stop shop for living organisms, Carolina is also the exclusive supplier of unique products such as Wisconsin Fast Plants®, WOWBugs, and specially developed cultures. Unlike most companies, we grow, collect, and ship our own live materials.



Experts to Provide Support

Carolina has the most knowledgeable and experienced staff in the biological supply industry. These experts are available by phone and email to answer your questions about our live organisms. You also have unlimited access to what we know via detailed support documents, videos, and our comprehensive website, Carolina.com.

Information Center

Choices for Kits with Live/Perishable Materials

Carolina now offers 2 ordering options for selected kits and kit refills containing live organisms and/or perishable materials. Look for product descriptions that use these identifiers:

- With perishables—The live/ perishable materials are included when the kit or refill is shipped to you.
- With voucher—The kit or refill includes a voucher to request the live/perishable materials later.
 Return the voucher to Carolina via mail, fax (800.222.7112), or website (Carolina.com/livingform). We ship you the live/perishable materials at no additional charge.

Educational Use Notice

Products labeled and/or advertised "for educational use only," including all bacteria, fungi, and viruses, may only be used for educational purposes. Commercial use, resale, and research use for other than educational purposes, are all prohibited. Unauthorized uses must be recalled and destroyed. All orders are subject to Carolina's Terms and Conditions found at Carolina.com/help/terms-of-use.

Living Organisms

If you are not satisfied with your living organisms, you must notify Customer Service within 30 days for a replacement, refund, or credit. When ordering living organisms, please:

- Include the name of the instructor using the material.
- Specify a ship date. Customers requesting orders without ship dates will be notified and the orders held until ship dates are received.

International Customers

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

Hawaii Restriction Notice

Shipment of livinvg materials (viruses, algae, bacteria, plants, protozoa, insects, and other animals) into HI is restricted. Please contact the Hawaii Department of Agriculture (808.832.0566) before ordering this material, and if necessary, provide us with import permits and other pertinent information.

Releasing Organisms

Carolina provides living organisms for educational purposes only. As a general policy, we do not advocate the release of organisms into the environment. In some states, it is illegal to release organisms, even indigenous species, without a permit. The intention of these laws is to protect native wildlife and the environment

After completing classroom activities, we suggest that organisms be:

- Maintained in the classroom
- Donated to another classroom or science department
- With parental permission, adopted or taken home by students
- Donated to a nature center or zoo
- . Disposed of humanely, as a last resort

USDA Permit

Restricted animals and plants may be obtained by completing a USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds. This form is available from Customer Service (800.334.5551) or from our website at Carolina.com/usda. The permit-approval process may take up to 30 days.

International customers: other permits may be required for restricted shipments; please contact us for more information.

To obtain a copy of a permit for a specific living organism required by your state, visit Carolina.com/help/permits.

10 CAR@LINA®

Bacterial Viruses

Don't Worry, You Can't Catch These Viruses

- Safe—nonpathogenic to humans
- Ready to use-virus cultures for infecting bacteria or plants
- · Fast-often overnight results
- Flexible—for a variety of virus studies, including immunology, genetics, and biotechnology



Kits & Sets

All viruses are for educational use only.

Bacteriophage Plaque Morphology Kits

These kits are designed to initiate and teach handling of plaque-forming bacteriophages. Special attention is given to serial dilution and the production of plaques by the agar-layer technique.

During **The Effect of Mutation on Plaque Morphology and Disease Progression Kit**, students look at the difference in plaque morphology between plates infected with the 2 strains of coliphage. They then observe how small mutations in the genome of a bacteriophage can change the progression of its infection of its host bacteria. With the **Host Specificity and Plaque Morphology Kit** students plate 2 different bacteriophages on 2 different host bacteria. Afterward, they observe that Φ X174 is only able to infect one of the host bacteria and that the plaques formed by the 2 different phages are very different in size. The kits are suitable for individual projects or class exercises (instructions are written for 1 to 2 groups of 4 students each). Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order either kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Refrigerate coliphage until use; do not freeze. Keep bacteria culture and agar at room temperature.*

124311 The Effect of Mutation on Plaque Morphology and Disease Progression

Kit (with voucher)

ach **\$99.95**

124311P The Effect of Mutation on Plaque Morphology and Disease Progression

Kit (with perishables)

Each **\$99.95**

124316 Host Specificity and Plague Morphology Kit (with voucher)

Each **\$120.00**

124316P Host Specificity and Plaque Morphology Kit (with perishables)

Each **\$120.00**

Exploring Bacteriophages: The Effect of Mutation on Plaque Morphology and Disease Progression



From 124311 The Effect of Mutation on Plaque Morphology and Disease Progression Kit

www.carolina.com

Bacteriophage Media

Carolina® media are prepared from the finest ingredients and are delivered sterile, ready for use. Any culture medium supplied in our phage kits is available on *custom order*. Please call for quote on peptone and tryptone broths, plates of base layer agar, and tubes of soft agar.

Plaque Assay Plating Set

Contains 20 sterile petri dishes, 20 tubes of soft agar, and 6 bottles of tryptone base layer agar sufficient to prepare 20 bacteriophage assay plates for titer determinations and plaque morphology studies. With instructions.

124730 Per set \$99.95

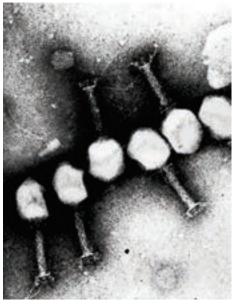
124730 Plaque Assay Plating Set



Bacteriophage Cultures

Our bacteriophages are routinely and individually tested for quality and titer. The following phages are supplied as filtered (sterile) peptone broth suspensions of high relative infective titer (10⁹ to 10¹¹ plaque-forming particles/mL) in screw-cap vials. Each vial contains 5 mL; proven titer is noted on the label. **Note:** *Refrigerate coliphage until use; do not freeze.*

Organism	Description	Item No.	Pkg	Each
Coliphage T2 (T2r+)	Wild type; used most frequently in genetic studies.	124325	Vial	\$20.40
Coliphage T4 (T4r+)	Wild type; less sensitive to ultraviolet radiation than T2.	124330	Vial	\$20.40
Coliphage T4r	Rapid lysis; nonreverting plaque morphology mutant of T4.	124335	Vial	\$20.40
Coliphage ФX174	Minute polyhedral form, 25-nm diam, with circular, single- stranded DNA; a close relative of S13 phage; good for plaque morphology and demonstrating effect of cations on phage growth.	124425	Vial	\$20.40
Coliphage T4rllA	Point mutation in cistron A segment 5; very low reversion rate to wild type (about 10-8) as measured by plaque formation in <i>E. coli</i> K12 (lambda).	124521	Vial	\$20.40
Coliphage T4rllA	Deletion mutation (narrow range) within cistron A segment 3.	124529	Vial	\$20.40



Electron Micrograph of 124330 Coliphage T4 (T4r+)

Bacteriophage Hosts

Organism	Description	Item No.	Pkg	Each
Escherichia coli B	An optimum host organism for all T coliphages. These bacteria are cultured on tryptone agar slants in screw-cap tubes.	124300	Tube	\$13.90
Escherichia coli C	An optimum host for $\Phi \mathbf{X}$ coliphages; will also support T2 growth. These bacteria are cultured on tryptone agar slants in screw-cap tubes.	124400	Tube	\$13.90
Escherichia coli K12	Lysogenic for coliphage lambda. Supports reproduction of wild-type phage T4 resulting in lysis, but T4/II mutants are unable to form plaques on this bacterial strain. These bacteria are cultured on tryptone agar slants in screw-cap tubes.	124500	Tube	\$13.90
Escherichia coli W3104	Lysogenic for coliphage lambda. Ultraviolet radiation very effective in prophage induction.	124600	Tube	\$13.90
Escherichia coli C600	Plaques are formed on this strain by coliphage lambda and T-series. Good indicator host for phage lambda released from <i>E. coli</i> W3104 (item #124600) in studies of lysogeny.	124605	Tube	\$13.90

Techniques for Searching Bacteris yalance of Endorschaft on Endorschaft on CARGUNA

121150 Basic Bacteriophage Culture Set A

Basic Bacteriophage Culture Set A

Recommended for introducing students to virulent bacterial viruses. Knowledge of techniques in handling bacteriophage is essential in modern genetics and genetic engineering. Set contains 5 mL each of high-titer phages T4 and T4*r* with 1 agar culture of *E. coli* B. Includes general information booklet. **Note:** *Refrigerate coliphage and antiserum until use; do not freeze. Keep bacteria culture and agar at room temperature.*

121150 Per set \$52.85

Basic Bacteriophage Culture Set B

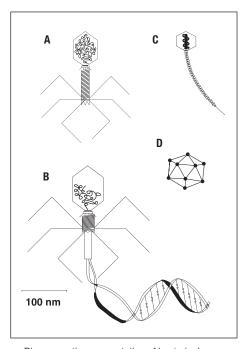
Recommended for introducing students to virulent bacterial viruses. Knowledge of techniques in handling bacteriophage is essential in modern genetics and genetic engineering. Set contains 5 mL each of high-titer phages T4r and Φ X174 with 1 agar culture each of $E.\ coli\ B$ and $E.\ coli\ C$. Includes general information booklet. **Note:** Refrigerate coliphage and antiserum until use; do not freeze. Keep bacteria culture and agar at room temperature.

121160 Per set \$68.15

Carolina Teacher Tips

Refrigerate coliphages until use; do not freeze. Keep bacteria and agar at room temperature.

Looking for sterilization equipment? See page 77.



Diagrammatic representation of bacteriophages (A) T2 intact (sheath extended), (B) T2 showing expulsion of DNA through the central core (sheath contracted), (C) lambda intact, and (D) ΦX174 intact, surface view, double scale; T2 and lambda are drawn to the scale indicated.

Viruses

Plant Viruses

Tobacco Mosaic Virus

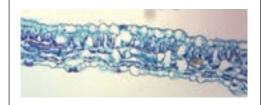
Tobacco mosaic virus (TMV), representative of the tobamovirus group, affects nearly 200 known genera of plants and causes severe damage in tomato and tobacco crops. Because of the economic significance, TMV has been the subject of vigorous investigation. The physical and chemical nature and the penetration-replication infection cycle of the viral particle are well understood. TMV currently serves as an important research model in molecular biology and biotechnology.

The infective TMV particle is a rigid rod, 300 nm L, consisting of single-stranded RNA wrapped within a protective coat of protein. The coating enables the virus to survive adverse environmental conditions. As such, TMV is very stable; frozen or lyophilized diseased plant tissue may remain infectious indefinitely.

TMV poses no health hazard to students handling it in the laboratory.

Living Organisms

Tobacco Mosaic Virus Microscope Slide



Tobacco Mosaic Virus, sec.

 $12\mbox{-}\mu\mbox{m},$ sec., infected leaf including damaged and healthy areas.

293866 Each \$7.55 12+ Each \$7.30

Carolina Teacher Tips

Tips on Propagating Viruses

- Propagating a virus is an easy, routine procedure if the host is susceptible to infection.
- Select a host that is genetically susceptible, such as a strain of bacteria known to support the growth of the bacteriophage being studied.
- Be sure the host cells have high metabolic activity so they are physiologically susceptible as well.
- Bacteria in logarithmic growth, young insect larvae, and newly expanded primary leaves are excellent hosts for the appropriate viruses.

TMV Infectivity Assay Kit

A safe introduction to virology for a class of 20 to 40 students. Students inoculate newly grown host plant primary leaves with tobacco mosaic virus (TMV). Necrotic local lesions that develop on the inoculated leaf indicate the infectivity of the virus and the susceptibility of the host. Students can also explore conditions that might affect infectivity/susceptibility by: (1) serially diluting the TMV inoculum; (2) using a buffer as diluent; and (3) heating the virus or host leaf. Kit includes all materials needed to conduct the exercises except water. With instructions. **Note:** Kit contains perishable material (\lozenge item). Kit and perishable material will ship separately and may arrive on different days. Keep sap frozen until use. Allow 9 to 10 days for assay plants to grow from seed; local disease symptoms appear on leaves 4 to 5 days after inoculation.

Kit includes:

Tobacco Mosaic Virus Frozen in Sap◊ Host Plant Seeds (pinto bean) 30 Peat Pots Bag Potting Soil TMV Buffer Solution

126000 Per kit \$131.55

- 30 Plastic Vials 30 Dropping Pipets
- 10 Vials Abrasive Powder 50 Foam Applicators
- 10 Straight Pins



126000 TMV Infectivity Assay Kit

Teacher Resources

Virus Posters

 18×24 ". These posters bring viruses up close and personal without the threat of contamination. *Virus I* shows the 3-D structure of these well-known viruses: adenovirus, the virus that causes hand, foot, and mouth disease; tobacco mosaic; influenza; HIV; smallpox; *Ebola*; and bacteriophage P22. *Virus II* shows 4 ways that viruses enter animal cells and describes the step-by-step process of influenza virus replication. *Virus III* covers bacteriophages and follows the lytic and lysogenic cycles of replication; phages shown include filamentous phages Phi 29, P22, and T4. Laminated.

 126200
 Virus I
 Each
 \$33.20

 126201
 Virus II
 Each
 \$33.20

 126202
 Virus III
 Each
 \$33.20



Living Organisms Bacteria

Kits & Sets

All bacteria are for educational use only.



154746 Pigmented Bacteria Plate Cultures Set

Pigmented Bacteria Set

Four pigmented bacteria. Choose either tube or plate cultures.

Micrococcus luteus (yellow) Serratia marcescens D1 (red) Sarcina aurantiaca (orange-yellow) Rhodococcus rhodochrous (pink)

154745 Tube Cultures Set Each **\$54.20 154746** Plate Cultures Set Each **\$65.60**

Bioluminescent Bacterium Kit

Beginning—Easy to perform; requires no experience in microbiology.

Light up your students'

understanding of bioluminescent organisms. Students transfer *Vibrio fischeri* onto photobacterium agar, incubate the cultures in the dark at room temperature, and observe the bioluminescence the next day. Includes *V. fischeri* tube culture, 10 tubes of photobacterium agar, metal inoculating loop, and instructions.

154750 Per kit \$31.35



Introductory Bacteria Set

Three bacteria representing the common bacterial shapes of rods, spheres, and spirals. These 3 species grow well on nutrient agar and can be viewed using 450× magnification (high power). Choose either tube or plate cultures. Includes Bacillus subtilis (rods), Micrococcus luteus (spheres), and Rhodospirillum rubrum (spirals).



154755 Introductory Bacteria Tube Cultures Set

154755 Tube Cultures Set Each **\$39.90 154756** Plate Cultures Set Each **\$50.20**

High School Bacteria Collection

Seven tube cultures representing different chemical and morphological groups. These cultures grow on nutrient agar except where noted.

Bacillus megaterium Branhamella catarrhalis (brain heart infusion agar) Micrococcus luteus Pseudomonas fluorescens Rhodospirillum rubrum Serratia marcescens Sporosarcina ureae

154707 Per set \$93.75



Advanced High School Bacteria Collection

Twelve tube cultures representing different chemical and morphological groups.

Bacillus megaterium Branhamella catarrhalis Clostridium sporogenes Lactobacillus acidophilus Micrococcus luteus Pseudomonas fluorescens Rhodospirillum rubrum Serratia marcescens Aquaspirillum serpens Sporosarcina ureae Streptomyces griseus Vibrio fischeri

154706 Per set \$162.75





154615 Gram-Stain Comparison Set

Gram-Stain Comparison Set

A selection of 5 bacterial tube cultures representing the cell wall makeup determined by the Gram-stain method, which is used as the first step in identifying a bacterium.

Bacillus cereus (Gram-positive rod)
Branhamella catarrhalis (Gram-negative coccus)
Micrococcus luteus (Gram-positive coccus)
Rhodospirillum rubrum (Gram-negative spiral)
Serratia marcescens (Gram-negative rod)

154615 Per set \$69.25



154613 Gram-Negative Morphology Set

Gram-Negative Morphology Set

Five tube cultures representing a variety of Gramnegative morphologies.

Aquaspirillum serpens (spiral)
Branhamella catarrhalis (encapsulated coccus)
Enterobacter aerogenes (small rod)
Rhodospirillum rubrum (spiral)
Vibrio anguillarum (curved rod = vibroid)

154613 Per set \$69.25



154614 Gram-Positive Morphology Set

Gram-Positive Morphology Set

A selection of various Gram-positive bacteria. Tube cultures.

Bacillus megaterium (rod)
Clostridium sporogenes (rod)
Lactococcus lactis (cocci in chains)
Lactobacillus acidophilus (rod)
Micrococcus luteus (cocci in clusters or tetrads)
Sarcina aurantiaca (cocci in packets)
Staphylococcus epidermidis (cocci in clusters)

154614 Per set \$93.90

Mixed Suspension of Introductory Bacteria

Broth culture containing Bacillus subtilis, Micrococcus luteus, and Rhodospirillum rubrum. Useful for isolating a pure culture from a mixture or for observing different shapes of bacteria after staining.

154760 Per culture \$24.65

Mixed Suspension of Pigmented Bacteria

good for teaching the Gram-staining technique. Broth culture of Micrococcus luteus and Serratia marcescens.



Culturing & Isolating Techniques



154601 Carolina Environmental Sampling Kit (with prepared bottles)

Carolina® Environmental Sampling Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Introduce your students to the fascinating world of microbes. Students investigate environments of their choice for the presence of bacteria and fungi. They learn to describe the characteristics of colonies that grow from their samples. All materials provided to sample both liquid (e.g., drinking water) and solid (e.g., your file cabinet) environments. Includes complete instructions and your choice of prepared bottles or prepared plates.

Kit (with prepared bottles) Each 154603 Kit (with prepared plates) \$115.55 Each



Student Materials Set: Bacteria

Design your own experiment. Basic materials for the individual student or 10 groups in a classroom to culture a variety of bacteria. Collect them from the environment or select a particular bacterium for your project. Includes 2 bottles of nutrient agar, 10 sterile petri dishes, sterile applicator sticks for collecting and inoculating the dishes, 10 alcohol pads, an autoclavable disposal bag, and 1-year access to digital resources that support 3-dimensional instruction.

154600 Per set \$32.75



154676P Bacterial Anaerobe Culture Kit (with perishables)

154727P Bacterial Investigative BioKit (with perishable)

Bacterial Anaerobe Culture Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Introduces students to the laboratory procedures and techniques for culturing anaerobic bacteria. Students observe and compare growth among anaerobic (Clostridium acetobutylicum, C. butyricum, and C. sporogenes), facultative anaerobic (Escherichia coli), and aerobic (Micrococcus luteus) bacteria in the absence or presence of free oxygen. Visit Carolina.com for kit materials lists. Note: Order kit with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria cultures at room temperature; do not incubate or refrigerate.

154676 Kit (with voucher) Each \$106.10 154676P Kit (with perishables) Each \$106.10

Bacterial Investigative BioKit®

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30 students to investigate various environments for the presence of bacteria and fungi. Students learn to describe colony characteristics and note the effect of different temperatures and agars on bacterial (Bacillus cereus) growth. Visit Carolina.com for kit materials lists. Note: Order kit with perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Keep bacteria culture at room temperature: do not incubate or refrigerate.

154727 Kit (with voucher) Each \$139.80 Kit (with perishable) 154727P Each \$139.80

Staining Techniques



154728 Gram Stain and Bacterial Morphology Kit



Gram Stain and Bacterial Morphology Kit A

Beginning—Easy to perform; requires no experience in microbiology.

Prokaryotes

For 32 students in 8 groups. Bacteria stain differently because they vary in cell-wall composition. This easy-to-use Gram stain kit allows you to view Gram-positive bacteria (blue) versus Gram-negative bacteria (pink) for bacteriological identification. Kit includes bacterial cultures that represent all 3 bacterial morphologies (rods, spheres, and spirals) so students can use classification to identify the bacteria. Requires the use of a microscope with an oil-immersion lens (not included). Includes detailed instructions. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request materials. Sold only to schools and businesses.

154728 Kit (with voucher) Each \$97.50 154728P Kit (with perishables Each **\$97.50**



154757 Simple Stain Kit

Simple Stain Kit

Beginning—Easy to perform; requires no experience in microbiology.

Start with the basics of bacteriology. Using simple staining techniques, students examine bacteria and identify their basic morphology.

Bacillus megaterium Tube Culture Micrococcus Iuteus Tube Culture Rhodospirillum rubrum Tube Culture Bacteria, Yeast, and Blood Prepared Slide Microscope Slides Inoculating Loop

Needed but not included: Microscope with a 40× Objective Bunsen Burner

154757 Per kit \$41.20

Crystal Violet Stain (1%) with Dropper Bibulous Paper China Marker Carolina® Immersion Oil

Autoclave Disposal Bag Instructions

Staining Tray Clothespin



154708C High School Microbiology Stain Kit

High School Microbiology Stain Kit A

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Bacteria are so small that little of their structure or cellular organelles can be studied unless they are stained. Students perform simple Gram, capsule, and endospore stains. Requires the use of a microscope equipped with an oil-immersion lens. Note: This item includes hazardous chemicals that will incur additional shipping charges.

Kit includes:

Bacillus subtilis Tube Culture Branhamella catarrhalis Tube Culture Micrococcus luteus Tube Culture Pseudomonas fluorescens Tube Culture Rhodospirillum rubrum Tube Culture Metal Inoculating Loop Brain Heart Infusion Agar 4 Tubes Nutrient Agar Bibulous Paper Methylene Blue, 30 mL

154708C Per kit \$159.85

Hucker Ammonium Oxalate Crystal Violet, 30 mL Ethanol (95%), 120 mL Safranin Counter Stain, 30 mL Microscope Slides Congo Red, 30 mL Malachite Green, 30 mL Maneval Stain 30 ml Gram Iodine 30 ml Autoclave Disposal Bag



Control of Microorganisms

Living Organisms



Antibiotic Sensitivity Kit A

Beginning—Easy to perform; requires no experience in microbiology.

Antibiotics are chemicals produced by one microbe that inhibit other microbes. Students study the effect of 6 different antibiotics on a Gram-positive bacterium and a Gram-negative bacterium. Exercise requires 3 consecutive days to complete. Perfect for introducing beginner students to microbiology and antibiotic production. **Demonstration Kit** is for individual use by the teacher or a student; **Classroom Kit** is designed for a class of 30 students working in groups of 3. Both kits include comprehensive teacher's manual with reproducible student guide, as well as FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D. Note:** Order the kit with the perishable materials (all & items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables. Keep bacteria cultures at room temperature; do not incubate or refrigerate. Refrigerate antibiotic disks until use; do not freeze.

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Kits include	e:	Demonstration	Kit	Classroom I	Kit
Bacillus cere	eus Broth Culture⟨>	1		1	
Escherichia	coli Broth CultureÔ	1		1	
Antibiotic Dis	sk Magazines (ampicillin,	2 disks of eac	h	50 disks of ea	ach
chloramp	henicol, gentamycin, penicillin	١,			
streptomy	/cin, and tetracycline)◊				
Nutrient Aga	ır (20-mL tube)	2		-	
Nutrient Aga	ır (125-mL bottle)	-		4	
Sterile Petri	Dishes	2		20	
Control Disk	s (white)	1		30	
Metal Force	os	1		11	
Autoclave Di	isposal Bag	1		1	
Teacher's M	anual with Reproducible	1		1	
Student Guid	de				
154747	Demonstration Kit (with	voucher)	Each	\$60.00	
154747P	Demonstration Kit (with	perishables)	Each	\$60.00	
154740	Classroom Kit (with your	. ,	Each	\$185.60	
154740P	,	,		\$185.60	
134740P	Classroom Kit (with peri	silables)	Each	A100.00	



Sensitivity Disk Student Kit

Beginning—Easy to perform; requires no experience in microbiology.

Designed for individual study or teacher demonstration of antibiotic and disinfectant inhibition of a common bacterium. Requires 2 to 3 days from setup to completion. With teacher instructions.

Kit includes:

Bacillus cereus Broth Culture

2 Plates Nutrient Agar

Bacitracin Antibiotic Disk (low concentration)

Tetracycline Antibiotic Disk (high concentration)

Sterile Applicator Sticks

Control Disk

7 Colored Paper Disks

Alcohol Prep Autoclave Disposal Bag

154738 Per kit \$28.15



154738 Sensitivity Disk Student Kit





See page 23 for an exciting kit focused on antibiotic resistance:
The Tragic Case of Stan.



Carolina offers a variety of antibiotic disks and dispensers. View them on pages 72–73.



Carolina BioKits®: Antiseptic Versus Disinfectant Sensitivity Kit

Do your students understand the relative effectiveness of disinfectants and antiseptics? Both contain chemical compounds that either inhibit or kill microorganisms. This kit enables students to discover through experimentation the relative effectiveness of 5 common disinfectants and antiseptics on *Escherichia coli*, a Gram-negative bacterium, and *Bacillus cereus*, a Gram-positive bacterium. The **Demonstration Kit** is for a teacher or student working individually; the **Class**-

room Kit is for a class of 30 students working together in 10 groups of 3. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria cultures at room temperature; do not incubate or refrigerate.*

155001	Demonstration Kit (with voucher)	Each	\$53.90
155001P	Demonstration Kit (with perishables)	Each	\$53.90
155000	Classroom Kit (with voucher)	Each	\$117.00
155000P	Classroom Kit (with perishables)	Each	\$117.00

155000P Carolina BioKits: Antiseptic Versus Disinfectant Sensitivity Classroom Kit (with perishables)



821042 Introduction to Sterile Technique Kit

Introduction to Sterile Technique Kit

Allow your students to practice important sterile lab skills for studying microorganisms. Students perform 2 sterile exercises: the transfer of sterile nutrient broth to a culture tube and the transfer of sterile nutrient broth from a culture tube onto a nutrient agar plate. Students must be able to perform both of these exercises without introducing unwanted microorganisms and understand the use of a positive control. Kit includes materials sufficient for 10 groups of 3 students. Visit Carolina.com for a complete list of kit materials.

821042 Per kit \$113.30

We label each bacteria culture with genus and species name, medium on which it is cultured, and temperature for optimal growth.



Explore the effects of pH on microbial growth

> 154716P pH Tolerance of Microbes Kit (with perishables)

pH Tolerance of Microbes Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. All microbes have an optimal pH range within which they thrive. They also have a minimum and maximum pH beyond which they cannot grow. Students observe the effect of pH (ranging from 3 to 11) on microbial growth. Requires 2 to 3 days from setup to completion. **Note:** Order the kit with the perishable materials (all \lozenge items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria and fungi cultures at room temperature; do not incubate or refrigerate.

Fach

Each

\$131.70

Kit includes:

Bacillus brevis Plate Culture(\rightarrow Bacillus coagulans Plate Culture(\rightarrow Micrococcus luteus Plate Culture(\rightarrow Penicillium chrysogenum Plate Culture(\rightarrow Pseudomonas fluorescens Plate Culture(\rightarrow Saccharomyces cerevisiae Plate Culture(\rightarrow 2 Serological Pipets (5 mL)

154716 Kit (with voucher) **154716P** Kit (with perishables)

5 Bottles Nutrient Agar with 0.5% Dextrose Potassium Hydroxide, 1 N (10 mL) Hydrochloric Acid, 1 N (10 mL) 36 Sterile Applicator Sticks 40 Sterile Petri Dishes Autoclave Disposal Bag Teacher Instructions \$131.70

18 CAROLINA

Prokaryotes Biochemical Testing



154717P Enteric Biochemical Detective Kit (with perishables)

Enteric Biochemical Detective Kit A²

Intermediate—Easy to perform: requires some basic training in microbiology.

For a class of 30. Introduces students to the use of biochemical characteristics for differentiating 4 closely related bacteria. Using their collected data, students then identify one of these bacteria labeled as an unknown. Citrate utilization, hydrogen sulfide production, butanediol fermentation, and mixed acid fermentation tests are conducted. Tests are completed in 5 days. Note: Order the kit with the perishable materials (all \(\rightarrow\) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria cultures at room temperature; do not incubate or refrigerate. Keep agar and reagents at room temperature.

Kit includes:

Citrobacter freundii Agar Slant Culture(> Enterobacter aerogenes Agar Slant Culture() Escherichia coli Agar Slant Culture(> Serratia liquefaciens Agar Slant Culture(> Unknown Bacteria Agar Slant Culture (E. coli)()

5 Tubes Kligler's Iron Agar(>

5 Tubes Simmons Citrate Agar(>

5 Tubes MR-VP Broth()

Methyl Red Reagent⟨>

Barritt Reagent A◊

Barritt Reagent BO

5 Sterile Test Tubes

5 Sterile Serological Pipets (1 mL)

15 Dropping Pipets (1 mL)

Metal Inoculating Loop

Metal Inoculating Needle Autoclave Disposal Bag

Teacher Instructions

Needed but not included:

37° C Incubator

154717 Kit (with voucher) Each \$128.95 154717P Kit (with perishables) Each **\$128.95**

154715P Bacterial Biochemical Identification Kit (with perishables)

Bacterial Biochemical Identification Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. Students conduct simple tests for polymer hydrolysis using 3 Bacillus species that look identical in culture and in morphology. Students conduct starch, lipid, and protein degradation tests on the bacteria to detect the difference in the 3. Tests are completed in 48 hours. Note: Order the kit with the perishable materials (all \(\rightarrow\) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria cultures at room temperature; do not incubate or refrigerate. Refrigerate spirit blue agar plates until use; do not freeze.

Kit includes:

Bacillus brevis Agar Slant Culture(> Bacillus cereus Agar Slant Culture() Bacillus subtilis Agar Slant Culture(> 10 Plates Spirit Blue Agar 2 Bottles Potato Dextrose Agar 2 Bottles Skim Milk Agar Gram Iodine (30 mL) 20 Divided Y Petri Dishes

20 Sterile Petri Dishes

40 Sterile Applicator Sticks

Autoclave Bag

Teacher Instructions

Needed but not included:

30° C Incubator

154715 Kit (with voucher) Each \$134.00 154715P Kit (with perishables) Each \$134.00

Living Organisms



154710P Bacterial Fermentation Kit (with perishables)

Bacterial Fermentation Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. One method of identifying bacteria is to determine the biochemical pathways they utilize. The ability or inability of a bacterium to ferment carbohydrates helps to identify it. Students conduct biochemical tests for dextrose, lactose, and sucrose fermentation. Requires 2 class periods. Note: Order the kit with the perishable materials (all \(\rightarrow\) items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria cultures at room temperature; do not incubate or refrigerate.

Kit includes:

Bacillus subtilis Agar Slant Culture() Citrobacter freundii Agar Slant Culture(> Lactococcus lactis Agar Slant Culture() Micrococcus Iuteus Agar Slant Culture(> Serratia liquefaciens Agar Slant Culture(> 10 Tubes Phenol Red Dextrose Broth 10 Tubes Phenol Red Lactose Broth 10 Tubes Phenol Red Sucrose Broth 5 Metal Inoculating Loops Autoclave Disposal Bag Teacher Instructions

Needed but not included:

37° C Incubato

154710 Kit (with voucher) \$126.95 Fach 154710P Kit (with perishables) Each \$126.95

must-have for college microbiology labs

A

Detection & Differentiation

EnteroPluri

The EnteroPluri offers a convenient, accurate solution to rapid identification of members of the Enterobacteriaceae and other Gram-negative, oxidase-negative bacteria. Each self-contained plastic tube has 12 compartments containing distinct culture media, plus an inoculating wire to simultaneously inoculate all media in the sections and complete 15 standard biochemical tests. After incubating the tube for 18-24 hours at 36° C ±1°, the user evaluates color changes of the different media (a combination of positive and negative reactions), forms a 5-digit code, and uses the EnteroPluri Codebook to identify the microorganism. Choose from a Pack of 10 or a Pack of 25 individual EnteroPluri tubes.

801024 EnteroPluri Tubes Pack of 25 \$810.00 801025 EnteroPluri Tubes Pack of 10 \$325.00 801026 EnteroPluri Codebook \$34.95 Fach



801024 EnteroPluri

Living Organisms

Microbial Genetics



154696 Bacterial DNA Extraction E. coli Kit

Bacterial DNA Extraction E. coli Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

Excellent for all levels of teaching. Demonstrates the DNA extraction process of freeze-dried cells. Cell walls are broken with a detergent, and the DNA is extracted onto a spooling rod. The exercise helps students visualize DNA and understand some of its properties. A hot water bath, test tubes, and 70 to 95% alcohol are needed but not supplied. Requires 1 to 2 class periods to complete. Kit contains enough materials for a class of 30 students or for 6 separate teacher demonstrations. Refill contains the perishable materials needed to rerun the classroom kit. Includes instructions. Visit Carolina.com for complete lists of kit materials. Note: Once the lysozyme has been activated, it must be used immediately to ensure successful extraction of DNA from the M. luteus.

154696 Kit Each **\$116.40 154697** Refill Each **\$57.35**



154769P Temperature-Dependent Gene Expression Kit (with perishable)

Temperature-Dependent Gene Expression Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 32. Students explore the effects of environmental change on the regulation of gene expression. A gene involved in producing a red pigment is turned on (expressed) at room temperature, causing the bacteria to appear red. It is turned off (not expressed) at 37° C, causing the bacteria to appear white. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Keep bacteria culture at room temperature; do not incubate or refrigerate.

154769 Kit (with voucher) Each **\$75.95 154769P** Kit (with perishable) Each **\$75.95**

Environmental Microbiology



766300 Carolina Environmental Microbiology Kit

Carolina® Environmental Microbiology Kit

Introduces a student to the study of microbes in the immediate environment. Suitable for a class of up to 30 students and may be used at any educational level. Students learn to pour plates, isolate molds and bacteria from a variety of sources, make plate counts of bacterial colonies, and prepare slides for microscopic examination. With student instructions and teacher's manual; visit Carolina.com for a complete list of kit materials. **Note:** A microscope, preferably with an oil-immersion lens, is needed but not included.

766300 Per kit \$87.50

Rhizobium Inoculum

A bacteria and soil preparation for mixing with leguminous seed before planting to obtain nodule formation and nitrogen fixation. Works well with clover and alfalfa seed (not included). Shipped as a 6-oz package containing enough inoculum for 50 to 60 lb of seed. For seed, order item #158282 Alfalfa Seed.

154719B Each \$25.15



154719B Rhizobium Inoculum

Rhizobium Inoculum with Clover Seed

Beginning—Easy to perform; requires no experience in microbiology.

For 30 students. Members of the bacterial genus *Rhizobium* exist in a symbiotic relationship with leguminous plants (peas, clover, and soybeans). The *Rhizobium* species grow in nodules on the roots of the plants and fix atmospheric nitrogen. This supplies the plant



154720 Rhizobium Inoculum with Clover Seed

with nitrates and the bacteria with energy and a favorable environment. When legumes are plowed under, significant amounts of nitrates are added to the soil. Students plant clover seeds that have been inoculated with the *Rhizobium* bacteria. After 5 to 6 weeks, the nodules on the roots can be observed. The exercise requires 5 to 6 weeks from setup to completion. Teacher must supply potting soil and pots. With instructions.

154720 Per set \$17.25



154721 Carolina Microbial Cycling of Nitrogen BioKit

Carolina® Microbial Cycling of Nitrogen BioKit® 112

Advanced—For students with moderate experience in microbiology.

For a class of 30. The nitrogen cycle involves a series of complex processes, most of which are mediated by soil microbes. Students collect 6 soil samples and conduct biochemical tests for the ammonification, nitrification, and denitrification steps of the nitrogen cycle. Required, but not included, are concentrated sulfuric acid, spot plates, and a balance. The procedures require 3 weeks from setup to completion. With teacher instruction manual, overhead transparency, 30 student guides for part 1, and 30 student guides for part 2.

BioKit® includes:

- 7 Tubes Nitrate Broth
- 7 Tubes Nitrate-Formation Broth
- 7 Tubes Nitrite-Formation Broth
- 7 Tubes Peptone Broth 78 Dropping Pipets

154721 Per kit \$177.80

Nessler Reagent Trommsdorf Reagent Nitratesmo Test Paper Strips 6 Specimen Cups Autoclave Disposal Bag

Living Organisms



154731 Hand Soap Evaluation Kit

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Hand Soap Evaluation Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Do those antibacterial hand soaps work as well as the advertisements promise? Are they as effective as the old standby soaps in killing the bacteria on our hands? Students collect bacteria from their hands and then test various hand soaps for their effectiveness in killing these bacteria. The exercise requires 3 days from setup to completion. With teacher instructions. **Note:** The soaps to be tested must be supplied by the instructor.

Kit includes:

- 3 Bottles Nutrient Agar
- 15 Tubes Nutrient Broth
- 15 Alcohol Preps
- 30 Differently Colored Paper Disks

154731 Per kit **\$83.65**

15 Sterile Petri Dishes

5 Pairs Forceps

10 Pkgs Sterile Applicator Sticks Autoclave Disposal Bag



Carolina® Winogradsky Column Set

Intermediate—Easy to perform; requires some basic training in microbiology.

A simple means of encouraging and demonstrating the growth of soil microbes such as protozoa, fungi, bacteria, and algae. Interrelationships of these microbes can be observed over a 6-week period. Soil sample must be field collected. The apparatus can be reused. Includes plastic column, solid rubber stopper, calcium carbonate, calcium sulfate, teacher instructions, and free 1-year access to digital resources that support 3-dimensional instruction.

703490 Per set \$20.70



Looking for an easy way to culture bacteria?

See the LaMotte[®] BioPaddles[®] (items #653577, #653578, #653579, and #653580) on page 612.

See pages 24-25 for our selection of Glo Germ™ kits and accessories.

Living Organisms

Food Microbiology

Spicy Inhibitors Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30 students working in groups of 3. For centuries, spices have been used to preserve foods because they contain natural substances that act as inhibitors. Students grow 5 common food spoilage microbes on black pepper, clove, and chili powder agars and examine the inhibitory effect of these common spices on the microbes' growth and/or sporulation. Application to food spoilage prevention and the history of the spice trade is discussed and can be easily integrated into a multidisciplinary educational approach. Students practice aseptic technique and microbe culturing. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request materials. Keep bacterial and fungal cultures at room temperature; do not incubate or refrigerate.

154711 Kit (with voucher) Each **\$116.50 154711P** Kit (with perishables) Each **\$116.50**



154711P Spicy Inhibitors Kit (with perishables)

Foiling Spoilage with Chemical Preservatives Kit

Advanced—For students with moderate experience in microbiology.

For a class of 30. Chemicals that prevent bacterial or fungal spoilage have been used for centuries. Students observe the effects of 4 chemical preservatives—sorbic acid, sodium nitrite, sodium benzoate, and propionic acid—on 6 food spoilage microorganisms. Requires 8 days from setup to completion. **Note:** Order the kit with the perishable materials (all \lozenge items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria and fungi cultures at room temperature; do not incubate or refrigerate.

Kit includes:

Bacillus cereus Plate Culture(>
Micrococcus luteus Plate Culture(>
Micrococcus luteus Plate Culture(>
Penicillium chrysogenum Plate Culture(>
Pseudomonas fluorescens Plate Culture(>
Rhizopus stolonifer Plate Culture(>
Saccharomyces cerevisiae Plate Culture(>
Propionic Acid Agar, 0.1%
Sodium Benzoate Agar, 1%
Sodium Nitrite Agar, 1%
Sorbic Acid Agar, 0.1%
Control Agar
36 Sterile Applicator Sticks
40 Sterile Petri Dishes
Autoclave Disposal Bag

Teacher Instructions

154662 Kit (with voucher) Each \$109.50
154662P Kit (with perishables) Each \$109.50



From 154662P Foiling Spoilage with Chemical Preservatives Kit (with perishables)

Prokaryotes Medical Microbiology



154980P The Tragic Case of Stan: Laboratory Case Study Classroom Kit (with perishables)



154665 Epidemic Simulation Classroom Kit

Living Organisms

The Tragic Case of Stan: Laboratory Case Study

Investigate infectious diseases safely with this laboratory case study kit. Students examine bacterial growth, applying hands-on skills to learn and practice safe microbiological techniques, including plate streaking, Gram staining, and basic bacterial culturing. Once they master those skills, they then examine antibiotic susceptibility, design an experiment to test for it, and learn to interpret their results.

This unique kit was created by scientists at the Center for Translational Science Education at Tufts University. It provides students with a robust learning experience that addresses antibiotic resistance, a real medical problem facing hospitals around the world. Classroom Kits include a week's worth of lessons and enough materials for 30 students working in 10 groups of 3. Classroom Kit (with perishables) comes with prepared media plates. Classroom Kit (with voucher) comes with melt-and-pour agar and sterile plates for your convenience. Single-Station Kit (with perishables) comes with prepared media plates and enough materials for a single student group. Replacement Bacterial Cultures for the kit are sold separately. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Refrigerate antibiotic disks and bacterial freezes until use; do not freeze.

↑ 154980P Classroom Kit (with perishables) Each \$239.30 ↑ 154982 Classroom Kit (with voucher) Each \$239.30

154984P Single-Station Kit (with perishables)

Each **\$97.10**

Replacement Bacterial Cultures

Each **\$47.85**



154981

Beginning—Easy to perform; requires no experience in microbiology.

The ease with which pathogens can spread through a population is very relevant today as we cope with the AIDS epidemic. Using diluted acids and bases as "body fluids," students engage in a classroom simulation of a spreading epidemic. They then figure out who the original "carrier" was. Students can complete the simulation in 1 class period. The **Demonstration Kit** is designed for use by 1 class of 30; the **Classroom Kit** for use by 4 separate classes of 30 each. A **Classroom Refill Kit** replenishes all the consumables in the Classroom Kit. With teacher instructions.

Kit includes:		
Solution A (acid)	Dropping Pipets	Student Data
Solution B (base)	(1 mL)	Sheet(s)
Phenol Red	Screw-Cap Tubes	Envelope(s)
Solution	Marking Pen(s)	

 154665R
 Demonstration Kit
 Each
 \$47.15

 154665
 Classroom Kit
 Each
 \$176.75

 154666
 Classroom Refill Kit
 Each
 \$26.50

Glo Germ™

The spread of germs, while easy to describe, is difficult for students to visualize. Glo Germ™ provides a hands-on, visually captivating way to show students how germs spread by contact with people and objects. Glo Germ™ glows under ultraviolet (UV) light so you can track it wherever it goes. It contains tiny plastic particles activated by UV light, revealing themselves as glowing spots and smears on hands and other surfaces that Glo Germ™ contacts.

Glo Germ™ is particularly useful at the beginning of cold and flu season as a way to educate students (and faculty) about the importance of proper hand washing. First, students rub Glo Germ™ gel or liquid on their hands and view them under a UV light. What they see are "germs." Students can then wash their hands and view them under a UV light again to see if the "germs" disappear. Have students touch objects in the classroom while "contaminated" with Glo Germ™, then do some detective work with a UV light. They will be surprised where the "germs" end up!

Glo Germ™ Kits



154629 Glo Box Kit

Glo Box Kit

This kit comes with a redesigned Glo Box that allows you to conduct Glo Germ™ demonstrations even in brightly lit surroundings. The Glo Box blocks ambient light, providing a vivid display of artificial germs, and features a soft, foldable shell for flat storage and transport. Kit also includes a 4-oz container of Glo Germ™ Powder (item #154682), an 8-oz bottle of Glo Gel (item #154689), and a compact, lightweight, 21-LED UV Lamp (item #154631) that comes complete with 3 AAA batteries. This visual tool is a perfect way to teach proper hand washing, aseptic techniques, and general infection control protocols. CAUTION: UV light can cause damage to the eyes if looked at directly. It should only be used to observe the effectiveness of this test.

154629 Per kit \$164.80

Kit features a redesigned collapsible Glo Box and a super bright LED UV lamp (both sold separately).



154688 Glo Germ Kit with Gel

j Glo Germ™ Kit with Gel

Beginning—Easy to perform; requires no experience in microbiology.

Need mobility? This Glo Germ™ kit sets you free from electrical outlets. The kit contains a battery-operated LED ultraviolet light, an 8-oz bottle of Glo Gel (item #154689), and a 4-oz bottle of Glo Germ™ Powder (item #154682). The ultraviolet light uses 3 AAA batteries (included) and is about 3³/₄" long. The wavelength of this ultraviolet light is not adequate for germicidal use. **CAUTION:** *UV light can cause damage to the eyes if looked at directly. It should only be used to observe the effectiveness of this test.*

154688 Per kit \$102.95



Prokaryotes



154680 Glo Germ Kit

Glo Germ[™] Kit

Beginning—Easy to perform; requires no experience in microbiology.

How clean are your hands? This kit is excellent for teaching aseptic techniques such as proper hand washing and surface cleaning. Apply liquid or powder directly to hands or to a work surface. The student works through a normal cleaning routine and then views the hands or surface area under an ultraviolet lamp for remaining "germs." Kit includes a battery-operated LED UV lamp, an 8-oz bottle of liquid, and a 4-oz container of powder. The lamp uses 3 AAA batteries (included) and is 3³/4" long. No electrical outlet is required, so the kit can be used anywhere. The wavelength of this ultraviolet light is not adequate for germicidal use. **CAUTION:** *UV light can cause damage to the eyes if looked at directly. It should only be used to indirectly observe the effectiveness of this test.*

154680 Per kit \$98.45



154679 Glo Germ Mini Kit

Glo Germ[™] Mini Kit

This disposable kit is designed to teach 30 to 50 students proper hand-washing techniques. It's ideal for smaller groups or one-time training sessions. Kit contains a 2-oz bottle of Glo Gel, a mini ultraviolet light, and an informative trainer's manual. **CAUTION:** *UV light can cause damage to the eyes if looked at directly. It should only be used to observe the effectiveness of this test.*

154679 Per kit \$15.50

Prokaryotes Glo Germ[™] Accessories

Living Organisms



154681 Glo Germ Liquid



154682 Glo Germ Powder



154689 Glo Gel

Glo Germ™ Liquid

Oil-based liquid for demonstrating proper handwashing technique. Apply a small amount to hands, perform a normal hand-washing procedure, and then view hands under ultraviolet light for remaining "germs." Each 8-oz bottle is good for 75 to 100 applications.

154681 Per bottle \$26.55

Glo Germ[™] Powder

Used to demonstrate proper surface cleaning and the spread of "germs." Sprinkle the powder on the surface to be tested and smear it around the test area. Follow with normal surface cleaning and then view the surface area under ultraviolet light for remaining "germs." Each 4-oz container is good for many cleanings since only a small amount is used each time.

154682 Each \$26.55

Glo Gel

If staining is a concern, use Glo Gel to demonstrate proper hand-washing techniques. The gel is more user friendly than Glo Germ™ oil-based liquid and shows up brilliant white under UV light. Each 8-oz bottle provides 75 to 100 applications.

154689 Per bottle \$26.00

UV Lamps

lamp to detect Glo Germ[™], light up your GloFish® (items #145253 through #145257; items #145264 through #145266), or illuminate your Green Gene Colony Transformation Kit (items #211080 through #211082P) organisms! Lightweight, compact anodized black metal case protects the LED bulbs and features a push button that toggles the light on and off. Comes with wrist strap and AAA batteries. About 33/4" long. The wavelength of this ultraviolet light is not adequate for germicidal use. Available with 9 or 21 LED Bulbs. CAUTION: UV light can cause damage to the eyes

154683 9 LED Bulbs **154631** 21 LED Bulbs Each

Use this powerful little mid-range, long-wavelength flashlight (356 nanometers) LED if looked at directly. Each \$59.45

Compact LED lamp provides bright UV light for many hours of use.



154683 UV Lamp



154683 UV Lamp

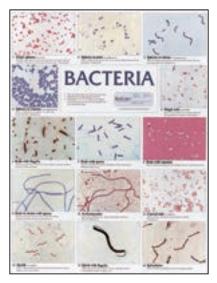
This cold and flu season, shine a light on germs with Glo Germ™.



Carolina Pledge: **Excellent Customer Support**

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.

Teacher Resources

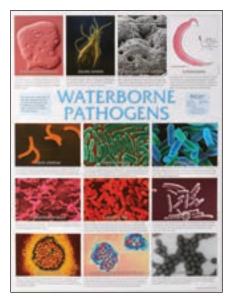


578305 Bacteria

Bacteria

 18×24 ". Color photomicrographs magnified 3,100×. Organisms shown are *Neisseria gonorrhoeae, Streptococcus pneumoniae, Streptococcus pyogenes, Staphylococcus epidermidis, Escherichia coli, Proteus vulgaris, Clostridium botulinum, Klebsiella pneumoniae, Bacillus subtilis, Streptomyces, Vibrio cholerae, Rhodospirillum rubrum, Spirillum volutans*, and *Treponema pallidum*. Laminated.

578305 Each \$32.65



154667 Waterborne Pathogens

Waterborne Pathogens

 18×24 ". Color pictomicrographs magnified $44 \times$ to more than 2 million \times . Organisms shown are *Entamoeba histolytica*, *Giardia lamblia*, *Cryptosporidium parvum*, Schistosomes, *Vibrio cholerae*, *Salmonella typhi*, *Shigella* spp., *Campylobacter jejuni*, *Legionella* spp., *Escherichia coli*, Hepatitis A and E, Norwalk and Norwalk-like viruses, and rotaviruses. Laminated.

154667 Each \$32.65



126201, 126200, and 126202 Virus Posters (*left to right*)

Virus Posters

 18×24 ". These posters bring viruses up close and personal without the threat of contamination. *Virus I* shows the 3-D structure of these well-known viruses: adenovirus, the virus that causes hand, foot, and mouth disease; tobacco mosaic; influenza; HIV; smallpox; *Ebola*; and bacteriophage P22. *Virus II* shows 4 ways that viruses enter animal cells and describes the step-by-step process of influenza virus replication. *Virus III* covers bacteriophages and follows the lytic and lysogenic cycles of replication; phages shown include filamentous phages Phi 29, P22, and T4. Laminated.

 126200
 Virus I
 Each
 \$33.20

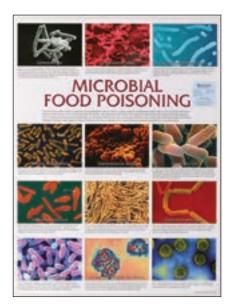
 126201
 Virus II
 Each
 \$33.20

 126202
 Virus III
 Each
 \$33.20

Microbial Food Poisoning

18 × 24". Color pictomicrographs magnified 6,000× to more than 2 million×. Organisms shown are Salmonella spp., Campylobacter jejuni, Vibrio parahaemolyticus, Yersinia entercolitica, Staphylococcus aureus, Escherichia coli, Clostridium botulinum, Bacillus cereus, Clostridium perfringens, Listeria monocytogenes, Norwalk and Norwalk-like viruses, and rotaviruses. Laminated.

154668 Each \$32.65



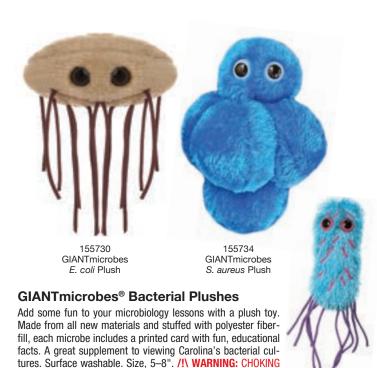


294060 Discovering Bacteria Types Self-Study Unit

Discovering Bacteria Types Self-Study Unit

Slide shows 3 typical bacterial forms in separate smears. Unit includes a self-study card and labeled photograph with descriptive text.

294060 Each \$13.50



For more classroom fun, see our plush protists and viruses, too! Search GIANTmicrobes® on Carolina.com for our complete selection.

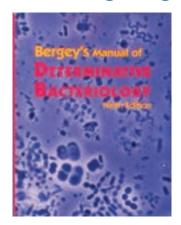
Each \$14.05

Each **\$14.05**

155732 GIANTmicrobes

P. aeruginosa Plush

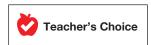
Living Organisms



Bergey's Manual of Determinative Bacteriology

Grade 9–College. John G. Holt, PhD. 1994 (9th ed). 816 pages. Based on the data contained in the 4-volume Bergey's Manual of Systematic Bacteriology. Readers will find short general descriptions that encompass all organisms by groups, shape and size, Gram reaction, other pertinent morphological features, motility and flagella, relations to oxygen, basic type of metabolism, carbon and energy sources, habitat, and ecology. Includes discussions of difficulties in identification, keys or tables to genera and species, genus descriptions, synonyms, other nomenclatural changes, and numerous illustrations. Soft cover.

451010 Each \$250.00



See our large selection of bacteria cultures beginning on page 29.



562160 Altay Bacterium Set

Altay® Bacterium Set

Greatly enlarged. This set of 4 models (together on 1 base) illustrates the anatomical complexity of a generalized prokaryote. The cell wall, cytoplasmic membrane, cellular organelles, and flagellum are well rendered. Included are separate block models of the cell walls of Gram-positive and Gram-negative bacteria. A bacterial spore is also included, opened to reveal details of the spore coat and interior structures. Mounted on durable polymer base. Comes with numbered key to identify 40 structures. Size, $52 \times 38 \times 11$ cm.

562160 Each \$308.80

155730 Escherichia coli Plush

155734 Staphylococcus aureus Plush

HAZARD—Small parts. Not for children under 3 yrs.

155732 Pseudomonas aeruginosa Plush Each \$14.05

Carolina® Bacteria Cultures: Growing Strong

- Over 100 different cultures
- For every level of study
- Pure and high-quality
- Easy-to-use media

Bacteria: Essential Tools for Today and Tomorrow

Our top-quality products make it easy to incorporate bacteria into your science curriculum. Not only do we have more than 100 bacteria cultures to choose from, but the selections are suitable for use at multiple skill levels—from beginner to graduate study. Variety offers another advantage, giving you the choice of economical tube culture, freeze-dried MicroKwik Culture®, or convenient plate culture.

The benefits of working with these bacteria cultures extend well beyond the classroom. The aseptic techniques needed to transfer cultures and streak plates are fundamental workplace skills needed for many of today's medical and technical careers. Bacteria also have wide applications in the food and chemical industries because of their highly diverse metabolic activities. Foods as dissimilar as yogurt and chocolate depend upon bacterial fermentations in their production.

Students can learn about the impact of bacteria on carbon and nitrogen cycles as well. Bacteria are involved in many of the events that make life possible for other organisms, including humans. Fossils of prokaryotes similar to today's bacteria have been found in 3.5 billion-year-old rocks. A mastery of bacteria is the key to understanding life on Earth in the past, present, and future.

About Our Cultures

Bacteria cultures are labeled by genus and species name, media on which they are cultivated, and temperature for optimal growth. All Gram staining is based on 24-hour cultures. All cultures are guaranteed as to species and purity. Special packing and transportation costs are extra for animal and human pathogens.

Carolina® MicroKwik Culture®

Since a MicroKwik Culture® can be refrigerated, you can order it ahead of time for use on short notice.

These freeze-dried cultures are listed with our regular bacteria cultures on the following pages.

Note: Each MicroKwik Culture® comes with 5 mL of rehydration medium.

Educational Use Notice

Products labeled and/or advertised "for educational use only," including all bacteria, fungi, and viruses, may only be used for educational purposes. Commercial use, resale, and research use for other than educational purposes are all prohibited. Unauthorized uses must be recalled and destroyed. All orders are subject to Carolina's Terms and Conditions found at Carolina.com/help/terms-of-use.

For culture media, see the Media & Supplies section beginning on page 63.

†Plant Pathogen. Customers at all shipping locations outside NC must obtain USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds, at Carolina. com/usda, or call Customer Service at 800.334.5551. Approval may take up to 30 days. International customers may need other permits.

Restricted Bacteria

Pathogen (Human or Animal). Cannot be shipped to high schools, preparatory schools, or individuals, in accordance with guidelines of the US Department of Health and Human Services.

Individual Cultures

Escherichia coli

Gram- rods. The most widely studied bacterium, *E. coli* can be used in combination with *Bacillus megaterium* or *Micrococcus luteus* for Gram staining.

155065 Per tube **\$13.75**

Micrococcus luteus

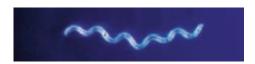
Gram+. Excellent as an example of cocci or spherical-shaped bacterial cells, *M. luteus* colonies are yellow pigmented.

155155 Per tube \$13.75



155155 Micrococcus luteus

Living Organisms



155300 Rhodospirillum rubrum

\pmb Rhodospirillum rubrum

Gram—. An example of a spiral-shaped bacterium, *R. rubrum* is photosynthetic and requires light. Colonies are pink to gray.

155300 Per tube **\$13.75**

Carolina® Bacteria Cultures

Organism	Description	Medium	Temp	ltem No.	Pkg	Each
Acinetobacter calcoaceticus Strs (streptomycin sensitive)‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, nonmotile rods	Brain Heart Infusion Agar	30° C	154821A	Vial	\$21.20
Alcaligenes faecalis‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram–, motile cocci, or coccal rods; intestinal flora	Nutrient Agar	37° C	154835A	Vial	\$21.20
Aquaspirillum itersonii	Gram-, motile spirals; isolated from pond water	Nutrient Agar	25 to 30° C	154837	Tube	\$13.75
Aquaspirillum serpens	Gram-, motile spirals; isolated from fresh water	Nutrient Agar	25 to 30° C	154838	Tube	\$13.75
Bacillus cereus	Gram+, motile rods; common spore forming	Nutrient Agar	30° C	154869	Plate	\$17.10
Bacillus cereus	Gram+, motile rods; common spore forming	Nutrient Agar	30° C	154870	Tube	\$13.75
Bacillus cereus	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	30° C	154870A	Vial	\$21.20
Bacillus cereus	Gram+, motile rods; common spore forming	Nutrient Broth	30° C	154872	Tube	\$13.75
Bacillus coagulans	Gram+, motile rods; acid tolerant; causes food spoilage; recommended for college level and above	Tryptic Soy or Nutrient Agar	37° C	154885	Tube	\$13.75
Bacillus megaterium	Gram+, motile, very large rods	Nutrient Agar	30° C	154900	Tube	\$13.75
Bacillus megaterium	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	30° C	154900A	Vial	\$21.20
Bacillus sphaericus	Gram variable, motile, spore-forming rods	Nutrient Agar	30° C	154908	Plate	\$17.10
Bacillus stearothermophilus	Gram+, motile, thermophilic rods	Tryptic Soy Agar	55° C	154910	Tube	\$13.75
Bacillus subtilis	Gram+, spore-forming, motile rods; antibiotic producer	Nutrient Agar	30° C	154921	Tube	\$13.75
Bacillus subtilis	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	30° C	154921A	Vial	\$21.20
Bacillus subtilis	Gram+, spore-forming, motile rods; antibiotic producer	Nutrient Agar	30° C	154922	Plate	\$17.10
Bacillus thuringiensis	Gram+, motile rods; crystals within cell body pathogenic to some insects (Lepidoptera)	Nutrient Agar	30° C	154926	Tube	\$13.75
Branhamella (Moraxella) catarrhalis	Gram-, nonmotile, encapsulated, paired cocci	Tryptic Soy Agar or Brain Heart Infusion Agar	37° C	154928	Tube	\$13.75
Branhamella (Moraxella) catarrhalis	MicroKwik Culture®: freeze-dried cells plus medium	Tryptic Soy Agar or Brain Heart Infusion Agar	37° C	154928A	Vial	\$21.20
Chromobacterium violaceum‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram–, motile rods; violet pigment	Nutrient Agar	30° C	154931A	Vial	\$21.20

Color Key:

Red: Pathogen (human, animal, or plant).
Blue: Carolina® MicroKwik Culture®.

All Gram staining is based on 24-hour cultures.

See more Carolina® Bacteria Cultures on the next page.

Living OrganismsCarolina® Bacteria Cultures (continued)

Organism	Description	Medium	Temp	Item No.	Pkg	Each
Citrobacter freundii	Gram-, motile rods; intestinal flora	Nutrient Agar	30° C	154941	Tube	\$13.75
Clostridium acetobutylicum	Gram+, motile, anaerobic rods; recommended for college level and above	Thioglycollate Medium	37° C	154960	Tube	\$13.75
Clostridium butyricum (C. beijerinckii)	Gram+, motile, anaerobic rods	Reinforced Clostridial Medium	37° C	154965	Tube	\$13.75
Clostridium sporogenes	Gram+, motile, anaerobic rods; putrid odor	Thioglycollate Medium	37° C	154995	Tube	\$13.75
Clostridium sporogenes	MicroKwik Culture®: freeze-dried cells plus medium	Thioglycollate Medium	37° C	154995A	Vial	\$21.20
Corynebacterium pseudodiphtheriticum	Gram+, nonmotile rods; normal throat flora	Brain Heart Infusion Agar	37° C	155010	Tube	\$13.75
Corynebacterium xerosis	Gram variable, nonmotile rods; inhabits skin and mucous membranes of humans	Brain Heart Infusion Agar	37° C	155015	Tube	\$13.75
Deinococcus radiophilus	Gram+, nonmotile, cocci, forms red-orange colonies	TGYM Agar	30° C	155019	Tube	\$13.75
Enterobacter aerogenes	Gram-, motile rods; intestinal flora; for culturing <i>Dictyostelium</i> discoideum, <i>Didymium nigripes</i> , and <i>Stemonitis flavogentia</i>	Nutrient Agar	30° C	155030	Tube	\$13.75
Enterobacter aerogenes	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	30° C	155030A	Vial	\$21.20
Enterobacter aerogenes	Gram-, motile rods; intestinal flora	Nutrient Broth	30° C	155031	Tube	\$13.75
Enterobacter cloacae	Gram-, motile rods; found in soil, water, sewage	Nutrient Agar	30° C	155032	Tube	\$13.75
Enterococcus faecalis (Streptococcus faecalis)‡	MicroKwik Culture®: freeze-dried cells plus medium	Dextrose Starch Agar or Brain Heart Infusion Agar	37° C	155600A	Vial	\$21.20
Escherichia coli	Gram- rods; common, widely studied intestinal organism; K-12 strain	Nutrient Agar	37° C	155065	Tube	\$13.75
Escherichia coli	MicroKwik Culture®: freeze-dried cells plus medium; K-12 strain	Nutrient Agar	37° C	155065A	Vial	\$21.20
Escherichia coli (nonmucoid)	Gram- rods; for culturing Dictyostelium discoideum	Lactose Agar	37° C	155066	Tube	\$13.75
Escherichia coli	K–12 strain	Nutrient Agar	37° C	155067	Plate	\$17.10
Escherichia coli	K–12 strain	Nutrient Broth	37° C	155068	Tube	\$13.75
Escherichia coli B	Gram- rods; T-series phage host	Nutrient Agar	37° C	155070	Tube	\$13.75
Escherichia coli B	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	37° C	155070A	Vial	\$21.20
Flavobacterium capsulatum	Gram-, nonmotile: encapsulated rods; psychrophilic	Skim Milk	25° C	155083	Tube	\$13.75
Klebsiella pneumoniae‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram–, nonmotile, encapsulated rods	Nutrient Agar	37° C	155095A	Vial	\$21.20
Lactobacillus acidophilus	Gram+, nonmotile rods; used in production of <i>acidophilus</i> milk; recommended for college level and above	Tomato Juice/Yeast Extract/Milk Broth	37° C	155110	Tube	\$13.75
Lactobacillus acidophilus	MicroKwik Culture®: freeze-dried cells plus medium; recommended for college level and above	Tomato Juice/Yeast Extract/Milk Broth	37° C	155110A	Vial	\$21.20
Lactococcus lactus (Streptococcus lactis)	Gram+, nonmotile cocci in chains; common in milk	Tomato Juice/Yeast Extract/Milk Broth or Brain Heart Infusion Agar	37° C	155610	Tube	\$13.75
Lactococcus lactus (Streptococcus lactis)	MicroKwik Culture®: freeze-dried cells plus medium	Tomato Juice/Yeast Extract/Milk Broth or Brain Heart Infusion Agar	37° C	155610A	Vial	\$21.20
Micrococcus luteus	Gram+, nonmotile cocci in clusters; yellow pigment	Nutrient Agar	25° C	155155	Tube	\$13.75
Micrococcus luteus	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	25° C	155155A	Vial	\$21.20
Micrococcus luteus	Gram+, nonmotile cocci in clusters; yellow pigment	Nutrient Agar	25° C	155156	Plate	\$17.10
Micrococcus luteus	Gram+, nonmotile cocci in clusters; yellow pigment	Nutrient Broth	25° C	155157	Tube	\$13.75

Already have bacteria cultures but need to identify them? See our media stains and reagents on pages 70–71.

Carolina® Bacteria Cultures (continued)

Living Organisms

Organism	Description	Medium	Temp	Item No.	Pkg	Each
Micrococcus roseus	Gram+, nonmotile cocci in clusters; rose pigment	Nutrient Agar	25° C	155160	Tube	\$13.75
Mycobacterium phlei‡	MicroKwik Culture®: freeze-dried cells plus medium; not readily stainable, nonmotile, acid-fast rods	Brain Heart Infusion Agar	37° C	155170A	Vial	\$21.20
Mycobacterium smegmatis‡	MicroKwik Culture®: freeze-dried cells plus medium; not readily stainable, nonmotile, acid-fast rods	Brain Heart Infusion Agar	37° C	155180A	Vial	\$21.20
Neisseria sicca	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, nonmotile cocci; for best results use a CO ₂ incubator	Brain Heart Infusion Agar	37° C	155209A	Vial	\$21.20
Neisseria subflava	MicroKwik Culture®: freeze-dried cells plus medium; for best results use a $\rm CO_2$ incubator	Brain Heart Infusion Agar	37° C	155210A	Vial	\$21.20
Proteus mirabilis‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, motile rods	Nutrient Agar	37° C	155239A	Vial	\$21.20
Proteus vulgaris‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram–, motile rods; intestinal flora	Tryptic Soy Agar or Broth	37° C	155240A	Vial	\$21.20
Pseudomonas aeruginosa‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, motile rods; diffusible pigment produced	Nutrient Agar	37° C	155250A	Vial	\$21.20
Pseudomonas fluorescens	Gram-, motile rods; associated with food spoilage	Nutrient Agar	25° C	155255	Tube	\$13.75
Pseudomonas fluorescens	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	25° C	155255A	Vial	\$21.20
Pseudomonas fluorescens	Gram-, motile rods; associated with food spoilage	Nutrient Agar	25° C	155256	Plate	\$17.10
Rhizobium leguminosarum	Gram-, motile rods; nodules in roots of legumes; fixes nitrogen	Rhizobium X Agar	25° C	155270	Tube	\$13.75
Rhizobium radiobacter (Agrobacterium tumefaciens)	Gram-, motile rods; causes crown gall disease on many plants	Nutrient Agar	25° C	154825	Tube	\$13.75
Rhodococcus (Mycobacterium) rhodochrous	Gram+, nonmotile rods; rose pigment; not acid-fast	Nutrient Agar	25° C	155175	Tube	\$13.75
Rhodococcus (Mycobacterium) rhodochrous	Gram+, nonmotile rods; rose pigment; not acid-fast	Nutrient Agar	25° C	155176	Plate	\$17.10
Rhodospirillum rubrum	Gram-, motile, photosynthetic spirals; pink to gray pigment; light exposure necessary	Tryptic Soy Agar/ Nutrient Agar	25° C	155300	Tube	\$13.75
Rhodospirillum rubrum	Gram-, motile, photosynthetic spirals; pink to gray pigment; light exposure necessary	Nutrient Agar	25° C	155301	Plate	\$17.10
Rhodospirillum rubrum	Gram-, motile, photosynthetic spirals; pink to gray pigment; light exposure necessary	Nutrient Broth	25° C	155302	Tube	\$13.75
Salmonella enteritidis (S. choleraesuis subsp. choleraesuis serotype Enteritidis)‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, motile rods	Nutrient Agar	37° C	155350A	Vial	\$21.20
Salmonella typhimurium (S. choleraesuis subsp. choleraesuis serotype Typhimurium)‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, motile rods	Nutrient Agar	37° C	155351A	Vial	\$21.20
Sarcina aurantiaca	Gram+, nonmotile cocci; strain of <i>Micrococcus luteus</i> ; orange colonies	Nutrient Agar	25° C	155400	Tube	\$13.75
Sarcina lutea	Gram+, nonmotile cocci; strain of <i>Micrococcus luteus</i> ; yellow colonies	Nutrient Agar	25° C	155420	Tube	\$13.75

Color Key:

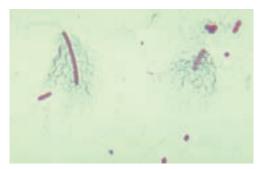
Red: Pathogen (human, animal, or plant).
Blue: Carolina® MicroKwik Culture®.

See our Gram staining supplies and reagents on page 70.

Restricted Bacteria

†Plant Pathogen. Customers at all shipping locations outside NC must obtain USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds, at **Carolina.com/usda**, or call Customer Service at 800.334.5551. Approval may take up to 30 days. International customers may need other permits.

‡Pathogen (Human or Animal). Cannot be shipped to high schools, preparatory schools, or individuals, in accordance with guidelines of the US Department of Health and Human Services.



155240A Proteus vulgaris

See more Carolina® Bacteria Cultures on the next page.

Carolina® Bacteria Cultures (continued)

Organism	Description	Medium	Temp	Item No.	Pkg	Each
Serratia liquefaciens	Gram-, motile rods; colorless; most prevalent <i>Serratia</i> species found	Nutrient Agar	30° C	155448	Tube	\$13.75
Serratia marcescens	Gram-, motile rods; pigment varies from pale pink to bright red	Nutrient Broth	t Broth 25° C 155		Tube	\$13.75
Serratia marcescens	Gram-, motile rods; pigment varies from pale pink to bright red	Nutrient Agar	25° C	155450	Tube	\$13.75
Serratia marcescens	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	25° C	155450A	Vial	\$21.20
Serratia marcescens	Gram-, motile rods; pigment varies from pale pink to bright red	Nutrient Agar	25° C	155451	Plate	\$17.10
Serratia marcescens D1	Gram-, motile rods; stable red pigment; suitable for UV light experiments	Nutrient Agar	25° C	155452	Tube	\$13.75
Serratia marcescens D1	Gram-, motile rods; stable red pigment; suitable for UV light experiments	Nutrient Broth	25° C	155453	Tube	\$13.75
Serratia marcescens 933	Gram-, motile rods; colorless mutant	Brain Heart Infusion Agar	25° C	155454	Tube	\$13.75
Serratia marcescens D1	Gram-, motile rods; stable red pigment; suitable for UV light experiments	Nutrient Agar	25° C	155455	Plate	\$17.10
Serratia marcescens WCF	Gram-, motile rods; colorless mutant	Brain Heart Infusion Agar	25° C	155456	Tube	\$13.75
Shigella flexneri‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram-, nonmotile rods	Nutrient Agar	37° C	155470A	Vial	\$21.20
Sporosarcina ureae	Gram+, motile, endospore-forming cocci	Nutrient Agar	25° C	155518	Tube	\$13.75
Staphylococcus aureus (coagulase positive)‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram+, nonmotile cocci in irregular clusters; clots blood plasma	Brain Heart Infusion Agar	37° C	155554A	Vial	\$21.20
Staphylococcus simulans (S. aureus) (coagulase negative)‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram+, nonmotile cocci in irregular clusters; does not clot blood plasma	Nutrient Agar	37° C	155555A	Vial	\$21.20
Staphylococcus epidermidis	Gram+, cocci, nonmotile, clusters	Nutrient Agar	37° C	155556	Tube	\$13.75
Staphylococcus epidermidis	MicroKwik Culture®: freeze-dried cells plus medium	Nutrient Agar	37° C	155556A	Vial	\$21.20
Staphylococcus epidermidis	Gram+, cocci, nonmotile, clusters	Nutrient Broth	37° C	155557	Tube	\$13.75
Streptococcus agalactiae‡	MicroKwik Culture®: freeze-dried cells plus medium; Group B streptococcus; beta hemolytic, Gram+, nonmotile cocci in pairs	Tryptic Soy Agar with 5% Sheep Blood	37° C	155690A	Vial	\$21.20
Streptococcus pneumoniae‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram+, nonmotile pairs of cocci; for best results use a CO2 incubator when culturing this bacterium	Tryptic Soy Agar with 5% Sheep Blood	37° C	155620A	Vial	\$21.20
Streptococcus pyogenes‡	MicroKwik Culture®: freeze-dried cells plus medium; Gram+, nonmotile pairs or chains of cocci	Tryptic Soy Agar with 5% Sheep Blood	37° C	155630A	Vial	\$21.20
Streptococcus salivarius	MicroKwik Culture®: freeze-dried cells plus medium; Gram+, nonmotile cocci in chains; recommended for college level and above	Tryptic Soy Agar with 5% Sheep Blood or Dextrose Starch Agar	37° C	155640A	Vial	\$21.20
Streptomyces griseus	Gram+, nonmotile, coenocytic hyphae; produces antibiotic streptomycin	ISP Agar 2	25° C	155705	Tube	\$13.75
Vibrio anguillarum	Gram-, motile, curved rods; marine and freshwater organisms; recommended for college level and above	Enriched Nutrient Agar	25° C	155721	Tube	\$13.75
Vibrio fischeri	Gram-, motile, curved rod; bioluminescent	Photobacterium Agar	25° C	155722	Tube	\$13.75
Vibrio fischeri	Gram-, motile, curved rod; bioluminescent	Photobacterium Agar	25° C	155723	Plate	\$17.10
Vibrio natriegens	Gram-, motile, curved rod; 10-15 min doubling time	Nutrient Agar, 1.5% NaCl	26° C	155724	Tube	\$13.75
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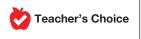
Restricted Bacteria

†Plant Pathogen. Customers at all shipping locations outside NC must obtain USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds, at **Carolina.com/usda**, or call Customer Service at 800.334.5551. Approval may take up to 30 days. International customers may need other permits.

‡Pathogen (Human or Animal). Cannot be shipped to high schools, preparatory schools, or individuals, in accordance with guidelines of the US Department of Health and Human Services.

Color Key:

Red: Pathogen (human, animal, or plant). Blue: Carolina® MicroKwik Culture®.



All Gram staining is based on 24-hour cultures.

Cyanobacteria (Blue-Green Algae)

Sets & Kits

Cyanobacteria Mixture

Five representative cultures in one bottle: *Gloeocapsa, Oscillatoria, Anabaena, Fischerella*, and *Gloeotrichia*. Enough material for a class of 30 students.

199980 Per culture \$18.55

Cyanobacteria Set

Six individual, representative cultures.

Anabaena Eucapsis Fischerella Spirulina Merismopedia Tolypothrix





Compelling Cyanobacteria



151845 Nostoc

Cyanobacteria are a group of bacteria that utilize photosynthetic pigments. The ancestors of these organisms are thought to have triggered the Great Oxidation Event, introducing oxygen into the atmosphere of the early Earth. They are a diverse set of organisms. Some can fix nitrogen (item #151910 Synechocystis nigrescens). Others form symbiotic relationships with fungi, forming lichens (item #151845 Nostoc). Many are being investigated as food sources for humans and animals (item #151900 Spirulina major), but overgrowth of some species can cause disruption of aquatic ecosystems.

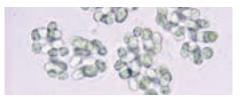
Cyanobacteria Cultures

Each cyanobacteria culture contains enough material for a class of 30 students. For your convenience, we list culture media, optimum growth temperature, and light level. Low light level: 50 to 100 foot-candles of light or light from the ceiling.

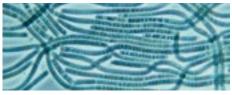
Organism	Description	Medium	Light Level	Temp	Item No.	Each
Anabaena	Shows heterocysts and akinetes	Alga-Gro® Freshwater	Low	22° C	151710	\$9.95
Eucapsis	Cubed colonies	Allen's	Low	22° C	151768	\$9.95
Fischerella	Branching filaments	Soil-Water	Low	22° C	151770	\$9.95
Gloeocapsa	Cells in gelatinous sheath	Allen's	Low	22° C	151800	\$9.95
Gloeotrichia	Tapered filaments	Alga-Gro® Freshwater	Low	22° C	151810	\$9.95
Lyngbya	Unbranched filaments	Alga-Gro® Freshwater	Low	22° C	151830	\$9.95
Merismopedia	Flat-celled sheet	Soil-Water	Low	22° C	151835	\$9.95
Nostoc	Contorted filaments	Alga-Gro® Freshwater	Low	22° C	151845	\$9.95
Oscillatoria	Long, unbranched filaments	Alga-Gro® Freshwater	Low	22° C	151865	\$9.95
Spirulina major	Spiralled trichomes; marine	Alga-Gro® Seawater	Low	22° C	151900	\$9.95
Synechocystis nigrescens	Model organism for carbon and nitrogen assimilation	Enriched Sea- water Media	Low	22° C	151910	\$9.95
Tolypothrix	False branching	Soil-Water	Low	22° C	151935	\$9.95



151710 Anabaena



151800 Gloeocapsa



151865 Oscillatoria

Living Organisms Archaea

Take Science to Extremes With Our Exclusive Model Microbe

 Safe Simple to use

Great for teaching biology, genetics, and lab skills

Halobacterium sp. NRC-1 is what you've been waiting for! This colorful model microbe and member of Archaea, the 3rd domain of life, is ideal for classroom study. Nonpathogenic and easy to manipulate, Halobacterium grows in medium so salty that few other conventional microbes can survive it. The organism's love of salt and its ability to survive extremes of desiccation, radiation, and oxygen stress have long made it a fascinating subject of study.

We offer a range of kits that contain everything you need to use *Halobacterium* in your classroom. Our kits were developed in conjunction with Dr. Shil and Priva DasSarma of the University of Maryland Biotechnology Institute, Center of Marine Biotechnology.



From 154776 Antibiotics in Action



Archaea

Cultures





(Halobacterium)

Halobacterium sp. NRC-1

Cultures & Media



Archaea (Halobacterium) Kits



From 154776 Antibiotics in Action

Basic Microbiology Skills Part 1

154771 Basic Microbiology Skills Part 1

Beginning—Easy to perform; requires no experience in microbiology.

Teach your students how to grow microbes on an agar plate using the safe, visually stimulating microbe, Halobacterium sp. NRC-1. Students learn the sterile and plate-streaking techniques used in biotechnology and the food and medical industries by following stepby-step instructions. This kit allows students at any level to practice sterile technique with a safe microbe. Your students will enjoy seeing the exciting results of their newly found skills. Can be used to teach AP® Biology, biotechnology, and microbiology. Developed by Dr. Shil and Priya DasSarma in collaboration with Carolina Biological Supply Company. Designed for 32 students. Contains perishable materials.

content); motile rods. An aerobic, pink-pigmented halophile; culture at 42° C. (May also be cultured at 37° C.) 154800 Tube Culture (Halobacterium broth)

\$13.75

Gram-negative (difficult to stain due to high salt

154801 Plate Culture (Halobacterium agar) Each \$17.10

Each

154777 Culture Packet of Brine Salt Inclusions \$18.00 Fach

775950 Halobacterium Agar, 135-mL Bottle Per bottle \$10.45

10+ Bottles Each \$9,40 821449 Halobacterium Broth, 5-mL Tube

Pack of 10 \$23.90 10+ Packs Each \$21.50

Antibiotics in Action

Intermediate—Easy to perform; requires some basic training in microbiology.

Introduce your students to antibiotics and a technique that tests microbes for antibiotic resistance. Students create a lawn of Halobacterium sp. NRC-1 and determine which antibiotics the microbe is susceptible to by looking for a lack of microbial growth around antibiotic-impregnated disks. Halobacterium sp. NRC-1 is ideal for this application since it can only grow in high-salt conditions that virtually eliminate the possibility of creating antibiotic-resistant microbes pathogenic to humans. Designed for 32 students working in pairs.

Kit includes:

Antibiotic Disks Halobacterium Agar Liquid Halobacterium Culture Rulers Petri Dishes Blank Disks Cotton Applicator Sticks Forceps **Pinets**

154776 Per kit \$136.75

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.

Kit includes:

Halobacterium Agar Halobacterium Culture Petri Dishes

Inoculation Loops for Streaking Teacher's Manual with Masters for Student Worksheets

Needed but not included:

Hand Lens or Dissecting Scope

Bunsen Burner Resealable Plastic Bags or Boxes

154771 Per kit \$113.30

Algae

First-Class Cultures

Over 50 Years of Reliable, Available, Pure Unialgal Cultures

- Always pure
- Always viable
- Always available



About Our Cultures

We have been providing unialgal cultures to educators for over 50 years and were the first to offer many of the common algae used in classrooms around the world today. Our professional staff has decades of hands-on experience in producing pure, quality cultures and giving educators world-class technical support. Each unialgal culture contains enough material for a class of 30 students. For your convenience, we list culture media, optimum growth temperatures, and either Low or High light levels (Low: 50 to 100 foot-candles of fluorescent light or fluorescent light from the ceiling; High: 200 to 400 foot-candles of fluorescent light 18 to 24" from the culture). Visit Carolina.com to download our FREE Carolina® *Culturing Algae* manual (type "culturing algae" in the search field, then click the Resources tab).

Carolina Teacher Tips

Look throughout the Protozoa section for helpful hints and answers to frequently asked questions about protozoa. If you have any additional questions, please call our toll-free technical support number (800.334.5551) or email us at carolina@carolina.com. We will try our best to either answer your questions or direct you to the appropriate source.

Living OrganismsIndividual Cultures

Green Algae

Each unialgal culture contains enough material for a class of 30 students. For your convenience, we list culture media, optimum growth temperatures, and either Low or High light levels (Low: 50 to 100 foot-candles of fluorescent light or fluorescent light from the ceiling; High: 200 to 400 foot-candles of fluorescent light 18 to 24" from the culture).

Organism	Description	Medium	Light Level	Temp	Item No.	Each
Ankistrodesmus	Spindle-shaped cells	Alga-Gro® Freshwater	High	22° C	151955	\$9.95
Chlamydomonas	Large form	Soil-Water	High	22° C	152030	\$9.95
C. reinhardi (+)	Wild type, crosses with item #152041	Soil Extract Agar	High	22° C	152040	\$14.00
C. reinhardi (–)	Wild type, crosses with item #152040	Soil Extract Agar	High	22° C	152041	\$14.00
Chlorella	On liquid; best for teaching	Alga-Gro® Freshwater	High	22° C	152069	\$9.95
C. vulgaris	Bacteria-free	Proteose Agar	High	22° C	152075	\$14.00
Chlorococcum hypnosporum	Nonmotile; unicellular; prominent chloroplasts and pyrenoids	Bristol's Medium	High	22° C	152091	\$9.95
Cladophora	Freely branched; marine	Alga-Gro® Seawater	High	22° C	152105	\$9.95
Closterium	Elongated, single-celled desmid	Alga-Gro® Freshwater	High	22° C	152115	\$9.95
Coleochaete	Disk with unbranched seta	Alga-Gro® Freshwater	High	22° C	152128	\$9.95
Cosmarium	Desmid	Alga-Gro® Freshwater	High	22° C	152140	\$9.95
Cyanophora paradoxa	Protozoan with a blue-green symbiont	EREM	Low	22° C	151750	\$9.95
Dunaliella salina	Halophilic flagellate; marine	Alga-Gro® Seawater	High	22° C	152160	\$9.95
E. elegans	Free-swimming colony	Soil-Water or EREM	High	22° C	152235	\$9.95
Gonium pectorale	4- to 32-cell colony	Soil-Water	High	22° C	152264	\$9.95
Haematococcus	Unusual flagellate	Alga-Gro® Freshwater	High	22° C	152280	\$9.95
H. pluvialis	Forms cysts when environmental conditions are unfavorable	Alga-Gro® Freshwater	Low	22° C	152282	\$9.95
Hydrodictyon	Nets of multinucleated cells	Chlamydomonas	Low	22° C	152300	\$9.95
Micrasterias	Large desmid	Soil-Water	High	22° C	152345	\$9.95
Mougeotia	Related to Spirogyra	Alga-Gro® Freshwater	High	22° C	152360	\$9.95
Oedogonium	Macrandrous; homothallic	Alga-Gro® Freshwater	High	22° C	152400	\$9.95
Pandorina morum (+)	Crosses with item #152415 (available at Carolina.com)	Soil-Water or EREM	High	22° C	152414	\$9.95
Pediastrum	Interesting polygonal cells	Soil-Water	High	22° C	152430	\$9.95
Platymonas	Four flagella in pairs; marine	Alga-Gro® Seawater	High	22° C	152475	\$9.95
Protococcus	Terrestrial algae; grows on damp wood	EREM	High	22° C	151312	\$9.95
Scenedesmus	Four cells with spines	Alga-Gro® Freshwater	High	22° C	152510	\$9.95
Selenastrum capricornutum	Lunate cell	Alga-Gro® Freshwater	High	22° C	152520	\$9.95
Selenastrum capricornutum	Lunate cell; bacteria free	Bristol's Agar	High	22° C	152521	\$14.00
Spirogyra*	Spiral chloroplasts	Alga-Gro® Freshwater	High	22° C	152525	\$9.95
Staurastrum	Triangular desmid	Alga-Gro® Freshwater	High	22° C	152540	\$9.95
Tetraselmis	Food organism; 4 flagella; marine		High	22° C	152610	\$9.95
Ulothrix	Unbranched filament	Alga-Gro® Freshwater	High	22° C	152640	\$9.95
Ulva	Young germlings; marine; Note: Cannot be shipped into WI	Alga-Gro® Seawater	High	22° C	152645	\$9.95
Volvox aureus*	Cytoplasmic connections the size of flagella	Alga-Gro® Freshwater or Soil-Water	High	22° C	152655	\$9.95
V. barberi*	Thick cytoplasmic connections	Soil-Water	High	22° C	152660	\$9.95
V. globator*	Thick cytoplasmic connections	Alga-Gro® Freshwater or Soil-Water	High	22° C	152665	\$9.95
Zygnema	Cells with 2 stellate chloroplasts	Alga-Gro® Freshwater	High	22° C	152695	\$9.95

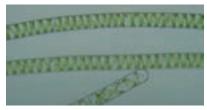


Chlorella

A nonmotile freshwater green alga that is spherical in shape. Used in AP® Biology Lab 12 to measure primary productivity under different light conditions. Interesting history as a potential human food source.

152069 Per culture **\$9.95**

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.

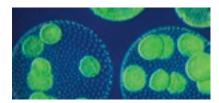


152525 Spirogyra

Spirogyra

Probably the most widely known of all freshwater algae, we recommend this filamentous green alga as a means of introducing students to making and viewing slides of algae. The name Spirogyra refers to its chloroplasts, which form spirals in each of its cells. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

152525 Per culture \$9.95



152655 Volvox aureus

Volvox aureus

This colonial green alga forms spherical colonies consisting of hundreds of biflagellate cells. The coordinated beating of the flagella propels the colony through the water with a graceful rolling motion. Recommended as an example of colonial algae. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

152655 Per culture \$9.95

*These species should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

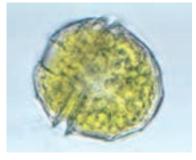
Ne



152282 Haematococcus pluvialis



153095 Synedra



153290 Peridinium



153360 Ectocarpus

Living Organisms

Euglenoids

Organism	Description	Medium	Light Level Temp	Item No.	Each
Euglena acus	Slow swimmer	Soil-Water + Pea	Low 22° C	152785	\$9.95
E. gracilis	Active, good grower	Soil-Water + Pea	Low 22° C	152800	\$9.95
Phacus	Flattened, heart-shaped cell	Soil-Water	Low 22° C	152845	\$9.95

Diatoms

Organism	Description	Medium	Light Level	Temp	Item No.	Each
Chaetoceros gracilis	Marine centric diatom; used in shrimp and mollusk mariculture as a food source	Erdschreiber's	High	22° C	153111	\$9.95
Cyclotella	Small marine centric diatom	Alga-Gro® Seawater	High	22° C	153020	\$9.95
Navicula	Pinnate diatom	Alga-Gro® Freshwater	High	22° C	153045	\$9.95
Synedra	Pinnate diatom	Alga-Gro® Freshwater	High	22° C	153095	\$9.95
Thalassiosira	Auxospores in culture; marine	Alga-Gro® Seawater	High	22° C	153110	\$9.95

Golden-Brown Algae

Organism	Description	Medium	Light Level	Temp	Item No.	Each
Isochrysis	Flagellate; marine	Soil Seawater	High	22° C	153180	\$9.95
Nannochloropsis	Food organism; nonmotile cells; marine	e Alga-Gro® Seawater	High	22° C	153220	\$9.95
Synura	Radially arranged colony of cells	Soil-Water	High	22° C	153210	\$9.95

Dinoflagellates

Organism	Description	Medium	Light Level	Temp	Item No.	Each
Amphidinium	Flagellate; marine	Alga-Gro® Seawater	Low	22° C	153240	\$9.95
Gymnodinium	Naked; marine	Alga-Gro® Seawater	Low	22° C	153260	\$9.95
Peridinium	Large freshwater form	Soil-Water	High	22° C	153290	\$9.95
Pyrocystis	Bioluminescent dinoflagellate; marine	Bioluminescent Dinoflagellate	High	22° C	153305	\$9.95

Brown Algae

Organism	Description	Medium	Light Level	Temp	Item No.	Each
Dictyota	Ribbonlike blades; marine	Alga-Gro® Seawater	High	22° C	153354	\$9.95
Ectocarpus	Branched thallus, zoospores; marine	Alga-Gro® Seawater	High	22° C	153360	\$9.95
Sphacelaria	Large-celled, branched thallus; marine	Alga-Gro® Seawater	High	22° C	153420	\$9.95

Red Algae

	Organism	Description	Medium	Light Level	Temp	Item No.	Each
	Acrochaetium	Monaxial thallus; marine	Alga-Gro® Seawater	Low	22° C	153465	\$9.95
	Bangia	Unbranched thallus; marine	Alga-Gro® Seawater	Low	22° C	153510	\$9.95
	Batrachospermum	Freshwater	Soil-Water	Low	22° C	153515	\$9.95
	Callithamnion	Monaxial with free filaments; marine	Alga-Gro® Seawater	Low	22° C	153525	\$9.95
	C. byssoides	Mated to demonstrate sexual reproduction; marine	Alga-Gro® Seawater	Low	22° C	153520	\$9.95
	Polysiphonia	Polysiphonous construction; marine	Alga-Gro® Seawater	Low	22° C	153580	\$9.95
	Porphyridium	Liquid culture; marine	Alga-Gro® Seawater	Low	22° C	153599	\$9.95
!	Rhodomonas salina	Marine; micro algae	Alga-Gro® Seawater with Soil-Water	Low	20° C	153597	\$10.75
	Rhodymenia	Branched blades; marine	Alga-Gro® Seawater	Low	22° C	153635	\$9.95

Collected Algae

Each culture contains enough material for a class of 30 students. **Note:** *Collected algae are not necessarily free of unidentified organisms.* Visit **Carolina.com** to download our FREE Carolina® *Culturing Algae* manual (type "culturing algae" in the search field, then click the Resources tab).

Freshwater



151241 Chara



151287 Field-Collected Mixed Diatoms



151321 Spirogyra

Chara

Each culture contains enough material for a class of 30 students.

151241 Per culture \$12.25

Field-Collected Mixed Diatom

Contains unidentified genera. This culture of locally collected freshwater specimens provides enough material for a class of 30 students.

151287 Per culture \$12.95

Spirogyra

Collected from our ponds. Each culture contains enough material for a class of 30 students.

151321 Per culture \$11.60

Tropical Marine



151448 Acetabularia

Terrestrial

Protococcus

Protococcus sp. Grows on trees. Each culture contains enough material for a class of 30 students.

151311 Per culture **\$11.60**



Acetabularia

Attached to natural substrate. Other algae also present. Can be kept in saltwater aquarium. Freshly collected and shipped from Florida (allow 2 weeks for delivery). Each culture contains enough material for a class of 30 students. **Note:** Cannot be shipped into AK. Cannot be exported.

151448 Per culture \$39.80

Sargassum

A generous portion, freshly collected and shipped from Florida (allow 2 weeks for delivery). Each culture contains enough material for a class of 30 students. **Note:** Cannot be shipped into AK. Cannot be exported.

151445 Sargassum

151445 Per culture **\$39.80**

Cold Water

Seaweed

A generous portion of marine algae, freshly collected and shipped from Maine. Each culture contains enough material for a class of 30 students. **Note:** Allow 2 weeks for delivery. Ulva cannot be shipped into WI. Cannot be exported.

151410	Chondrus	Each	\$35.75
151415	Fucus	Each	\$52.15
151420	Laminaria	Each	\$52.15
151425	Porphyra	Each	\$56.45
151430	Ulva	Each	\$35.75
151435	Set (our choice of 6 genera)	Each	\$301.35



151415 Fucus



151420 Laminaria

Cultured Algae (Unialgal Cultures)

We culture and maintain a large selection of different unialgal strains under rigidly controlled conditions. A unialgal culture contains a single, pure alga initially isolated as a single clone. While bacteria may be present in a unialgal culture, there are no other algal contaminants. Each unialgal culture is guaranteed for purity and genus and includes enough material for a class of 30 students. Visit Carolina.com to download our FREE Carolina® *Culturing Algae* manual (type "culturing algae" in the search field, then click the Resources tab).

Special Mixtures

The following are special mixtures of algae (our choice) in 1 bottle. Each culture contains enough material for a class of 30 students.

Desmid and Diatom Mixture

Special mixture contains 4 of the following 6 cultures: *Closterium, Cosmarium, Staurastrum, Netrium, Synedra*, and *Navicula*. Culture mixture contains enough material for a class of 30 students.

151211 Per culture \$11.50

Marine Diatom Mixture

Special mixture of *Cyclotella* and *Thalassiosira* shipped in a 2-oz bottle. Enough material for a class of 30 students.

151367 Per culture **\$21.85**

Diatom Mixture

A culture mixture of *Navicula* and *Synedra*. Each culture contains enough material for a class of 30 students.

151366 Per culture \$11.50

Desmid Mixture

A special mixture of 3 of the following 4 cultures: *Closterium, Cosmarium, Netrium,* and *Staurastrum.* Each culture contains enough material for a class of 30 students.

151261 Per culture \$11.50

Volvocales Mixture

A mixture of *Chlamydomonas*, *Eudorina*, *Gonium*, *Pandorina*, and *Volvox* showing development of colonial organization, with enough material for a class of 30 students. Includes a simple dichotomous key to the genera for each student. **Note:** *Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.*

151221 Per culture \$18.20



151211 Desmid and Diatom Mixture, 151216 Algae Survey Mixture, and 151367 Marine Diatom Mixture



151221 Volvocales Mixture

Living Organisms



Algae Survey Mixture

A mixture of 6 representative genera, with enough material for a class of 30 students. Includes a simple dichotomous key to the genera for each student.

151216 Per culture **\$18.20**

Green Algae Mixture

Five representatives of green algae: *Chlorella, Scenedesmus, Selenastrum, Ulothrix,* and *Volvox.* Enough material for a class of 30 students.

151370 Per culture \$18.20

Marine Dinoflagellate Mixture

Three representative dinoflagellates: *Amphidinium, Gymnodinium,* and *Prorocentrum.* Enough material for a class of 30 students.

151372 Per culture **\$18.20**

Red Algae Mixture

Special mixture of *Acrochaetium, Agardhiella*, and *Polysiphonia* shipped in a 2-oz container. Enough material for a class of 30 students.

151380 Per culture **\$21.85**

Kits & Sets



151610 Chlamydomonas Mating Kit

Chlamydomonas Mating Kit

Chlamydomonas demonstrate an unusual form of sexual reproduction in which both gametes are identical in size and appearance. Here, a (+) culture and a (-) culture are provided, along with mating solution and instructions for demonstrating isogamous reproduction.

151610 Per kit \$33.70



151500 Algae Culture Kit

Algae Culture Kit

Introduces the techniques of culturing algae. Sufficient material to allow students to grow 4 cultures of 5 different algae. Includes *Oscillatoria, Oedogonium, Closterium, Synedra,* and *Volvox*.

151500 Per kit \$69.75



151521 Algae Representative Set

Algae Representative Set

A selection of 8 algae cultures.

Lyngbya Spirogyra
Closterium Euglena gracilis
Synedra Peridinium
Vaucheria Synura

151521 Per set \$75.60

See more kits and sets on the next page.

gonium foveol

a-Gro® Freshwi

na Biological Supply

ington, North C

High School Algae Sets

High School Algae Sets contain those algae most often used in teaching introductory or advanced biology. Sets contain sufficient materials for 30 students. Visit Carolina.com to download our FREE Carolina® Culturing Algae manual (type "culturing algae" in the search field, then click the Resources tab).

Basic High School Algae Set

Five cultures; the basic minimum for an introductory biology course.

Chlamydomonas Oedogonium Spiroavra Oscillatoria

151505 Per set \$46.70

High School Algae Set

Ten cultures selected to give a brief survey of algal types.

Anabaena Oscillatoria Chlamydomonas Spirogyra Chlorella Synedra Closterium (desmid) Volvox Euglena

Oedogonium

151507 Per set **\$93.00**

Advanced High School Algae Set

Twenty cultures selected to meet the needs of any biology course. Excellent survey of algal types and diversity.

Anabaena **Nostoc** Spirogyra Chlamydomonas Synedra (diatom) **Oedogonium Illothrix** Chlorella **Oscillatoria** Closterium (desmid) Pandorina Ulva (seaweed) Ectocarpus (seaweed) Peridinium (dinoflageliate) Volvox

Polysiphonia (seaweed) Euglena Gloeocapsa Scenedesmus

Micrasterias (desmid)

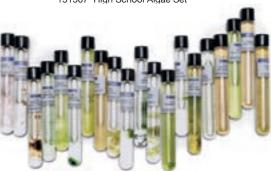
151510 Per set **\$183.50**



151507 High School Algae Set



151510 Advanced High School Algae Set



Algae Bead Photosynthesis Kit A

For a class of 30 students working in groups of 3. Looking for a way to brighten your photosynthesis lessons? Use algae beads! In this activity, students learn how to make their own algae beads and get hands-on experience developing and testing a hypothesis. They begin by learning about the correlation between light wavelength and photosynthesis. From there, student groups form hypotheses about how different colored light filters affect photosynthesis rate. Finally, they test their hypotheses using colored filters, their algae beads, and a bicarbonate indicator solution.



206100P Algae Bead Photosynthesis Kit

Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. This lab activity addresses the following Next Generation Science Standards*: HS-LS1-5 and HS-LS1-6. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.

206100 Kit (with voucher) Each \$119.00 206100P Kit (with perishable) Each \$119.00

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.



New! Algae Beads

Algae beads are fun to make, but sometimes there just isn't time. These are made from our concentrated stocks and are ready for immediate use in the classroom. Add a pH indicator and place in bright light to watch the effect of photosynthesis on acid in the water. Remove from the light and respiration will re-acidify the surrounding water. The beads are robust and don't break down quickly. Can be stored for several weeks in the refrigerator and reused multiple times. Simply rinse the beads with deionized or spring water. Choose from Cyanobacteria, Anabaena and Green Algae, Chlorella. Sold in packs of 200. Visit Carolina.com for more details.

151711 Cyanobacteria, Anabaena Pack of 200 \$36.00 152066 Green Algae, Chlorella Pack of 200 \$36.00

Algae Culture Media

Living Organisms

Remember!

Algae should be cultured within 5 days of receipt. Be sure you have ordered your algae culture media, too!

Alga-Gro® Freshwater Medium

Rapidly gives dense cultures and is nearly universal for culturing freshwater algae. Buffered at pH 7.8. Sterile. Available in 1-qt and 1-gal sizes.

153752 1 qt Each **\$24.40 153753** 1 gal Each **\$75.50**

Alga-Gro® Seawater Medium

Excellent for culturing marine algae. Pasteurized. Available in 1-qt and 1-gal sizes.

153754 1 qt Each **\$24.40 153755** 1 gal Each **\$75.50**



153752 Alga-Gro Freshwater Medium, 1 qt



Alga-Gro® Concentrated Medium

Sterile enrichment for seawater and springwater. Almost a universal algal medium. Available in a **Pack of 12 Tubes** (1 tube makes 1 L) and in a sterile **500-mL Bottle** (1 bottle makes 25 L).

153751 Pack of 12 Tubes Each **\$52.95 153758** 500-mL Bottle Each **\$84.85**

Chlamydomonas Medium

A sterile, liquid medium for culturing *Chlamydomonas* in the flagellated stage. 1 qt.

153760 Each \$25.35

Bioluminescent Dinoflagellate Medium

Specifically formulated to keep bioluminescent dinoflagellates healthy in your classroom or research lab. 1 L. 153757 Each \$27.50

153760

Chlamydomonas Medium



153790 Soil-Water Supernant

Soil-Water Supernant

Concentrated extract of garden soil for use as an enrichment in algal culture media. 8-oz jar.

153790 Each \$11.65

Soil-Water Medium

Ready to use for culturing algae. 8-oz jar.

153785 Each \$11.65



153785 Soil-Water Medium

Carolina Teacher Tips

How to Maintain Algae in Your Classroom

DO

- Keep at room temperature (22° C)
- · Loosen caps on tubes
- Use sterile culture vessels
- Use sterile pipets
- · Subculture within 5 days of receiving
- Provide correct light intensity
- · Use suitable medium
- Read Carolina® *Culturing Algae* manual (free download from **Carolina.com**)

DON'T

- · Put in refrigerator
- · Wash glassware in detergent
- Keep temperature over 30° C (lethal to algae)

Algae as Food

Algae Food Source

Freshwater *Nannochloropsis* grown in Alga-Gro® Freshwater Medium. Excellent for filter feeding organisms such as *Daphnia* sp. and *Moina* sp. 1 qt.

142337 Each \$31.95

Algae: Live Food for Freshwater Invertebrates

Four individual cultures for feeding freshwater invertebrates such as daphnia, rotifers, and filter feeders. Includes *Ankistrodesmus, Chlorella, Scenedesmus*, and *Selenastrum*.

151590 Per set \$39.15



142337 Algae Food Source



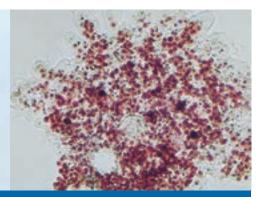
151590 Algae: Live Food for Freshwater Invertebrates

Living Organisms Protozoa

Protozoa Cultures







- Quality: Products are pure and uncontaminated.
- Service: We can ship most orders the day they are received.
- Preparation: Cultures arrive ready to use.
- Care: We supply complete care guides.

Protozoa: The Key to Learning How It All Works

Our company was founded on the development and shipment of protozoan cultures, and we continue to refine this process. We have a reputation for pure, high-quality

cultures and few replacements. Product diversity is a priority. Helpful resources are another way we extend exemplary service. Go to Carolina.com and download the Carolina® Protozoa and Invertebrates Manual (type "protozoa and invertebrates" in the search field, then click the Resources tab), which provides complete care instructions. This tradition of innovation and excellence defines our efforts to help teachers—and students—succeed.

Protozoans play a significant role in life science education. These single-cell organisms demonstrate all the essential life processes—feeding, digestion, growth, movement, and reproduction—normally associated with multicellular eukaryotic organisms such as animals. These microscopic organisms show students the basic properties of living matter.

When ordering, make sure you order a sufficient quantity of each culture based on the number of students in your class or classes. For example, if you are ordering

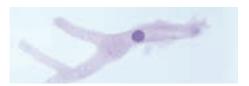
for a class of up to 30 students, order 1 culture; for 31 to 60 students, order 2 cultures; for 61 to 90 students, order 3 cultures; etc.

Download our Protozoan Identification App for iPhone®, iPad®, and iPod touch® • Topical content—On identification and anatomy of selected protozoans • Innovative practice tool-Interactive practice sections for initial learning and reinforcement • Quality review tool—Stunning Carolina images, videos, study sheets, and a game to reinforce concepts • Affordable-Lite version is FREE Available from the App StoreSM—Search for "Carolina Biological Supply" CAROLINA We **GUARANTEE** safe arrival of all living materials

Please give us the expected use date for your cultures and allow sufficient time for proper handling. If no delivery date is given, our department will contact you to obtain a delivery date.

Individual Cultures

Living Organisms



131306 Amoeba proteus

Amoeba proteus

This organism is excellent for demonstrating movement by pseudopodia, action of the contractile vacuole, and protoplasmic streaming.

131306 Per culture \$9.95



131554 Paramecium caudatum

Paramecium caudatum

A good choice for a first experience in culturing a protozoan, P. caudatum is used to demonstrate feeding on bacteria, yeast, and other small particles. It shows avoidance responses to stimuli including touch and chemicals.

131554 Per culture \$9.95



131768 Euglena

Euglena

This organism is photosynthetic and shows positive phototaxis. When enclosed by an opaque cover with a hole in it and exposed to light, the rich culture will develop a green spot where the light enters.

131768 Per culture \$9.95

Carolina Teacher Tips

The Amoebae Are Hiding!

Because they are amorphous (shapeless) and nonpigmented, Amoeba proteus (item #131306) can be difficult to find in the shipping container. To find them, remove the lid from the shipping container and allow the bottle to remain undisturbed for 30 minutes. The amoebae suspended in the liquid medium will settle to the bottom. After 30 minutes, quickly pour three-fourths of the liquid from the shipping container into another vessel (use a clean vessel as the decanted liquid may contain amoebae). Using a dissecting microscope or stereomicroscope, focus on the bottom of the shipping container. The amoebae should be easily observed moving along the bottom of the container.



131000 Basic Protozoa Set



cium in 3 separate cultures. 131000 Per set \$29.10



131008 Protozoa Survey Set

Protozoa Survey Set

Consists of 6 individually labeled

cultures.

Amoeba Spirostomum Eualena Paramecium

131008 Per set \$55.90

Sarcodines

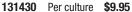
Each culture contains enough material for a class of 30 students. Please state the expected use date and allow sufficient time for proper handling.

Helpful Ordering Hint: To ensure you order enough living materials for the number of students in your class, order 1 culture for up to 30 students. 2 cultures for 31 to 60 students, 3 cultures for 61 to 90 students, etc.

Organism	Description	Medium	Temp	Item No.	Each
Actinosphaerium	An interesting heliozoan with radiating axopodia	Carolina® Springwater	22° C	131302	\$9.95
Amoeba proteus	Great for demonstrating amoebae structure and locomotion	Chilomonas + Wheat Seed with Carolina® Springwater	22° C	131306	\$9.95
Arcella vulgaris	Secretes a shell and has lobose pseudopodia	Carolina® Springwater	22° C	131310	\$9.95
Chaos (Pelomyxa) carolinensis	Large multinucleate amoebae	P. multimicronucleatum with Carolina® Springwater	22° C	131324	\$9.95
Difflugia lobostoma	Feeds on single-chloroplast <i>Spirogyra</i> by attaching to the ends of fragmented strands and pulling out and engulfing the chloroplasts	Carolina® Springwater and Single-Chloroplast Spirogyra	22° C	131334	\$9.95

Blepharisma

An excellent choice for use by amateur microscopists! Moves more slowly than paramecia and the rosy color makes it easy to observe. Coloration is dependent on exposure to light during the culture process.



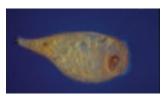


131430 Blepharisma

Stentor coeruleus

Vivid blue pigmentation and sessile nature make this protist hard to miss. Students will want to observe its adoral zone membranellae, a ciliated organ that creates a vortex to pull food particles into the cytostome.

131598 Per culture **\$9.95**



131598 Stentor coeruleus

Ciliates

Each culture contains enough material for a class of 30 students. Please state the expected use date and allow sufficient time for proper handling.

Helpful Ordering Hint: To ensure you order enough living materials for the number of students in your class, order 1 culture for up to 30 students, 2 cultures for 31 to 60 students, 3 cultures for 61 to 90 students, etc.

Organism	Description	Medium	Temp	Item No.	Each
Blepharisma	Two interesting features can be studied in this rose-colored ciliate: the effect of light on pigmentation and the normal occurrence of giants	Wheat Seed + Carolina® Springwater	22° C	131430	\$9.95
Bursaria truncatella	One of the largest ciliates known; feed ciliates such as paramecium or <i>Spirostomum</i> and digestion can be studied	Carolina® Springwater + Ciliates (e.g., <i>Parame-</i> <i>cium</i> or <i>Spirostomum</i>)	22° C	131434	\$9.95
Colpidium striatum	A small ciliate, easily cultured in large numbers in simple media; one of the chief food organisms for many other protozoa	Protozoan Pellet + Wheat Seed + Carolina® Springwater	22° C	131452	\$9.95
Didinium	One of the better-known examples of a predator-prey relationship, as it feeds exclusively on paramecia	Paramecium multimicronucleatum	22° C	131460	\$9.95
Dileptus sp.	A striking ciliate that uses toxicysts on its long, flexible proboscis to capture prey	Carolina® Springwater + Wheat Seed	22° C	131466	\$9.95
Euplotes	An interesting ciliated protozoan with a bandlike macronucleus and regionally grouped cirri	Carolina® Springwater + Wheat Seed	22° C	131480	\$9.95
Paramecium (for newly hatched fish)	P. multimicronucleatum is generally supplied; the organism is characterized by a single macronucleus and 3 or 4 micronuclei	Carolina® Springwater + Wheat Seed (Protozoan Pellets can be added as extra nutrients)	22° C	131540	\$9.95
Paramecium multi- micronucleatum, Conjugating	Two separate cultures, each containing a mating type for conjugation	Protozoan Pellets	22° C	131558	\$19.85
Paramecium aurelia	One of the smaller species with a macronucleus and 2 small micronuclei	Carolina® Springwater + Wheat Seed (Protozoan Pellets can be added as extra nutrients)	22° C	131546	\$9.95
Paramecium bursaria	An excellent example of symbiosis; green in color because of zoochlorella in its cytoplasm	Protozoan Pellets	22° C	131548	\$9.95
Paramecium caudatum	Has a massive macronucleus and a compact micronucleus	Carolina® Springwater + Wheat Seed (Protozoan Pellets can be added as extra nutrients)	22° C	131554	\$9.95
Paramecium tetraurelia	Used extensively in research for genetic studies; large in size (as large as 120 $\mu m)$ with a macronucleus and micronucleus	Protozoan Pellets + Carolina® Springwater	22° C	131560	\$9.95
Spirostomum	Has highly developed lengthwise myonemea	Carolina® Springwater + Wheat Seed	22° C	131590	\$9.95
Stentor coeruleus	The blue stentor with its macronucleus	Chilomonas + Wheat Seed	22° C	131598	\$9.95
Tetrahymena pyriformis	Bacteria-free tube culture	Tetrahymena Medium	22° C	131620	\$12.30
Vorticella	A stalked, bell-shaped, peritrichous ciliate	Field collected (may contain other organisms), not recommended for culturing	22° C	131660	\$11.35

The Competitive Paramecia!

For competition studies between species of paramecia, we suggest using *Paramecium multimicronucleatum* (item #131540) and *P. aurelia* (item #131546). Both are hardy species, easily cultured on wheat seed medium. The 2 paramecia are also easily distinguished because of the drastic difference in their size.

Shooting Trichocysts!

Did you know you could induce paramecia (item #131540) to discharge their trichocysts? Add a small drop of vinegar to a drop of liquid medium containing active cells on a slide. Trichocysts are capsule-like organelles that paramecia extrude in response to certain environmental stimuli (e.g., chemical, mechanical, or electrical). Although their exact function is unknown, trichocysts may act as anchoring devices or defense mechanisms.

Customer Review

"Specimen arrived on time and was of great quality. They were very lively and suited my purposes perfectly."

High School Biology Teacher



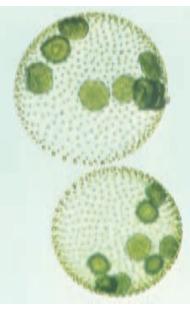
Protists Flagellates

Each culture contains enough material for a class of 30 students. Please state the expected use date and allow sufficient time for proper handling. **Note: Volvox** (items #131860 and #131864) should not be shipped over a weekend. Carolina recommends that you request these items to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

				Item	
Organism	Description	Medium	Temp	No.	Each
Chilomonas	One of the main food organisms of many other protozoa, particularly <i>Amoeba</i> proteus	Carolina® Springwater + Wheat Seed	22° C	131734	\$9.95
Chlamydomonas	Single, biflagellated cells	Soil-Water	22° C	131738	\$9.95
Dinoflagellates	A cellulose envelope covers the body and the brown chromatophores	Soil-Water	22° C	131750	\$9.95
Eudorina	A colonial species characterized by 16 to 32 spherical, biflagellated cells	Soil-Water	22° C	131760	\$9.95
Euglena	Single, biflagellated cells	Euglena Medium Concentrate	22° C	131768	\$9.95
Pandorina	Free-swimming colony of 4 to 32 cells in the form of a hollow sphere	Soil-Water	22° C	131830	\$9.95
Peranema	An interesting, nonphotosynthetic flagellate that feeds on decaying organic matter	Wheat Seed + Egg Yolk (small amount) + Carolina® Springwater	22° C	131838	\$9.95
Pyrocystis	Bioluminescent dinoflagellate; marine	Bioluminescent Dinoflagellate	22° C	153305	\$9.95
Trichonympha and Pyrsonympha**	Flagellated protozoa living symbiotically in the hindgut of termites; shipped in live termites	Not recommended for culturing	22° C	131850	\$23.25
Volvox sp.	Multicellular colony differentiated into somatic or reproductive cells that represent a distinct labor division and may represent a transition linking unicellular animals and the metozoa; daughter colonies are released when mature	Alga-Gro® Freshwater or Soil-Water	22° C	131860	\$9.95
Volvox globator	Large colonies with thick, cytoplasmic connections	Alga-Gro® Freshwater or Soil-Water	22° C	131864	\$9.95



131760 Eudorina



131864 Volvox globator

Vitachrome®—Prestained Living Organisms

Carolina's Vitachrome[®] living organisms are *prestained* for classroom use. The sharp, clear staining of these cultures provides a dramatic means for the presentation of internal structure. The prestained living organisms are excellent for teaching and photomicrography.

Individual Cultures

Vitachrome® Amoeba proteus 131308 Per culture \$11.15

Vitachrome® Chaos (Pelomyxa) 131326 Per culture \$11.15

Vitachrome® Paramecium 131542 Per culture \$11.15

Vitachrome® Hydra 132796 Per culture \$13.35

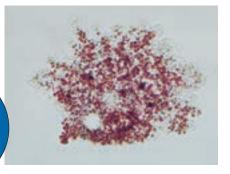
Vitachrome® Planaria 132912 Per culture \$17.15



Vitachrome® Set

A set of 3 cultures: Vitachrome® *Amoeba*, Vitachrome® *Paramecium*, and Vitachrome® *Hydra*.

131002 Per set \$33.65



131308 Vitachrome Amoeba proteus

Customer Review

"I like the Vitachrome® amoebas. They are much easier for the students to find and lead to many 'Oh, wow' exclamations."

University Biology Professor

^{**}Residents of OR must apply for a USDA permit to receive this material; Canadian customers must apply for a Canadian Department of Agriculture permit.

Protozoa Mixtures

Each mixture contains enough living organisms for a class of 30 students.

Customer Review

"My students and I were absolutely thrilled with this product! The protozoans were beautiful, healthy, and easy to see, and I was able to use it for almost a week with several classes ... I will definitely order this again and would recommend to any colleague!"

High School Biology Teacher



Amoeba from 131934 Protozoan Mixture

Protozoan Mixture

A single culture containing *Amoeba*, *Paramecium*, *Chilomonas*, *Stentor*, *Euglena*, and *Volvox*.

131934 Per culture \$16.65



131940 Protozoa Survey Mixture

Protozoa Survey Mixture

Mixture includes a single culture containing 6 representative genera and a simple dichotomous key to the genera for each student.

131940 Per culture \$17.80

Flagellate Mixture

A single culture containing our choice of 5 forms.

131990 Per culture \$16.65

Infusoria Mixture

A mixture of ciliates, flagellates, and other microinvertebrates for use in inoculating an infusion such as that produced by our Hay Infusion Kit (item #131206). Order 1 culture for each gallon of infusion.

132000 Per culture \$17.80

Debris and Plankton Collection

Unidentified. From an established pond. **132050** Per culture **\$17.80**

Protozoan Mystery Mixture

A single culture containing 3 or more unidentified forms.

131950 Per culture \$17.80

Ciliate Mixture

A single culture containing our choice of 5 forms.

131980 Per culture \$16.65



187102 Carolina EcoKits: Biodiversity (with voucher)

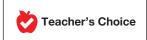
Carolina EcoKits®: Biodiversity A

- . Study the biodiversity of a simulated pond
- · Identify organisms using a dichotomous key
- Calculate the Simpson index of diversity for different pond levels

Grades 9–12. Students create a simulated pond using 2 culture mixtures and then identify the protists and algae found in their pond using a dichotomous key. Sampling the top, middle, and bottom of the pond, students compare the biodiversity of the various layers using both species richness and the Simpson index for biodiversity. Kit accommodates a class of up to 32 students working in pairs. Note: Order the kit withe perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

 187102
 Kit (with voucher)
 Each
 \$102.50

 187102P
 Kit (with perishables)
 Each
 \$102.50





A single culture containing *Volvox, Hydra,* planaria, or *Daphnia* (our choice), diatoms, and many unicellular plants. **Note:** *Should not be shipped over a weekend.* Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

132060 Per culture \$17.80



132010A Carolina Pond Mystery Mix

Carolina® Pond Mystery Mix

Investigate the diversity of pond microorganisms with this unique dried mixture—just add springwater to bring it to life! The mixture contains a variety of materials and nutrients to support microorganism growth and food chains. Your students can observe bacteria and other single-celled organisms within 24 hours after adding water; larger microinvertebrates will appear within a week. Mix includes bacteria, protoga, algae, rotifers, ostracods, and others. Comes with instructions and illustrations of some of the more commonly seen organisms. Safely stores for years in dried form without special handling.

132010A Each \$15.00

Protozoa Sets

Paramecium Comparative Study Set

Help students identify anatomical differences useful in taxonomic classification. Set includes *P. multimicronucleatum*, *P. aurelia*, and *P. bursaria* in 3 separate cultures.

131060 Per set \$28.80

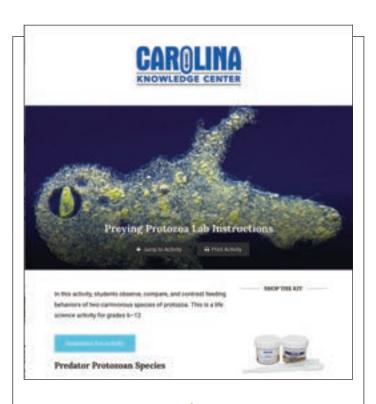


131060 Paramecium Comparative Study Set

Preying Protozoa Set

Our choice of 2 of the following 3 cultures that prey on *Paramecium: Bursaria, Didinium,* or *Chaos.* Individually labeled cultures contain sufficient food organisms for students to observe the capture and ingestion process. For additional food, order a culture of *Paramecium* (item #131540).

131004 Per set \$18.15



Visit Carolina.com/knowledge and type "131004" in the search field to find FREE lab instructions for the Preying Protozoa Set.

Living Organisms When You Need Them

Carolina typically ships live materials on Mondays—Wednesdays and uses the most economical shipping methods to ensure proper delivery. However, to meet your needs we can ship on any weekday and, when requested, use a premium shipping method (some of which are not available to all locations).

Living Organisms



()

Basic Protozoa Set

Includes Amoeba, Euglena, and Paramecium in 3 separate cultures.

131000 Per set \$29.10



Customer Review

"Use this every year to study protists, cell structure, and diversity. Populations are good in quality and quantity."

High School Biology Teacher



Protozoa Survey Set

Consists of 6 individually labeled cultures.

Amoeba Paramecium Stentor Euglena Spirostomum Volvox

131008 Per set \$55.90



131025 Easy-View Protozoa Set

Easy-View Protozoa Set

The 5 organisms in this set are specially selected for easy viewing under older, low-resolution microscopes. *Chaos (Pelomyxa)* is stained with Vitachrome®; other cultures are not stained.

Blepharisma Spirostomum Stentor coeruleus Volvox globator Vitachrome® Chaos (Pelomyxa)

131025 Per set \$46.70



Brown Planaria

General Invertebrate Set Tiny aguatic wonders

- Recommended for comparative studies
- Includes representatives from a variety of invertebrate phyla
- Perfect for dichotomous key exercises

These 8 individually labeled cultures represent invertebrates commonly used in high school and college biology courses.

Aeolosoma Daphnia
Amoeba Paramecium
Brown Hydra Rotifers
Brown Planaria Vinegar Eel

132575 Per set \$74.90



Includes 9 individual cultures representing the 3 main classes of protozoa.

 Sarcodines:
 Flagellates:
 Ciliates:

 Amoeba
 Euglena
 Blepharisma

 Arcella
 Pandorina
 Paramecium bursaria

 Actinosphaerium
 Peranema
 Euplotes

131055 Per set **\$84.10**



131001 Protozoa Pigmentation Set

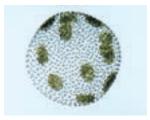
Protozoa Pigmentation Set

Includes 3 protozoa, each exhibiting vivid color variations because of pigmentation differences. One culture each of *Blepharisma* (rose), *Euglena* (green), and *Stentor* (blue).

131001 Per set \$30.35



Euglena



Volvox



131020 Protozoa Set

Protozoa Set

Includes the following 15 individually labeled cultures.

Actinosphaerium Euglena
Amoeba Euplotes
Arcella Paramecium
Blepharisma Spirostomum
Chlamydomonas Stentor
Didinium Volvox
Dileptus Vorticella
Eudorina

131020 Per set \$140.30



Protozoa Review Sets



Amoeba, Paramecium, and Euglena Review Set

For a class of 30. A separate culture of *Amoeba, Paramecium*, and *Euglena* and a pad of 30 Bioreview® Sheets for each.

131085 Per set \$53.20

Customer Review

"The protists were all healthy on arrival.

Amoeba were a bit hard for my 7th graders to catch with a pipette, but using the Carolina slideshow about careful pipetting and locating amoeba in the sample helped a lot. My kids loved watching all 3 types move about . . ."

Middle School Biology Teacher

Feed Your Protozoa

One simple and exciting activity associated with protozoa observation is actually feeding protozoa. The slow-moving *Amoeba* and the blue ciliate *Stentor*, when fed *Chilomonas*, provide hours of enjoyment and education.



Feed Your Amoeba

All ages can enjoy watching *Amoeba* use pseudopodia to slowly creep toward its food source, *Chilomonas*. Students will be intrigued to see how the pseudopodia can bulge from virtually anywhere to consume the fast-swimming flagellate. Set includes living *Amoeba* and *Chilomonas* cultures. With instructions.

131101 Per set \$20.35



Feed Your Stentor

Easily observed by all ages, the blue ciliate, *Stentor*, is exciting to watch when *Chilomonas* is added as a food source. Observe as *Stentor's* adoral zone creates a vortex to pull food particles into its cytostome. Set includes living *Stentor* and *Chilomonas* cultures. With instructions.

131102 Per set \$20.35

Carolina® Protozoa Slide Sets

Each Carolina® Protozoa Slide Set includes a living protozoan culture and a prepared microscope slide (w.m.) of the same protozoan. The living culture is enough for 30 students. Each set also includes 30 plastic concavity (culture) slides, 100 unbreakable plastic coverslips, and a disposable plastic pipet. Some sets include Protoslo®, a clear liquid for slowing motile protozoa.

Item No.	Set Name	Description	Set Includes	Each
130803	Amoeba Set	Our most popular protozoan culture; great for demonstrating amoebae structure and locomotion	Live culture (item #131306) Prepared slide (item #295384)	\$42.35
² 130824	Euglena Set	Phytoflagellate that possesses chlorophyll and exhibits autotrophic nutrition; set includes Protoslo®	Live culture (item #131768) Prepared slide (item #295666) Protoslo® (item #885141)	\$42.35
130827	Mixed Protozoan Set	Single culture containing <i>Amoeba</i> , <i>Paramecium</i> , <i>Chilomonas</i> , <i>Euglena</i> , <i>Stentor</i> , and <i>Volvox</i>	Live culture (item #131934) Prepared slide (item #295276)	\$42.35



130803 Carolina Protozoa Amoeba Slide Set

Living Organisms Protozoa Kits



Carolina® Minipond Ecosystem Kit

An outdoor habitat for microorganisms. This maintenance-free habitat simulates a pond, yet can be brought into the classroom for study of microscopic algae and protists. Activities include discovering pond traffic and observing the organisms' shapes and feeding habits. Kit requires the use of a microscope and can be modified for younger students by incorporating the inexpensive item #972767 Carolina® Student Microscope (30×). Kit includes a mini pond container, pond substrate, protozoan mixture, algae mixture, pH test strips, nutrient solution, slides, and coverslips. With instructions.

131207 Per kit \$71.45

structures and organelles, and then

name the type of drawn cell or virus

and describe its characteristics. Next,

students trade drawings and practice

Structure and Function Kit: The Evolution of Eukaryotes, Prokaryotes, and Viruses For a class of 30 working in groups of 3. This kit contains 3 activities that highlight the structure and function of eukaryotes, prokaryotes, and viruses. In the first activity, students design a cell or virus by selecting traceable

131210 Structure and Function Kit: The Evolution of Eukaryotes, Prokaryotes, and Viruses (with voucher)

classification using a dichotomous key. In the second activity, students practice microscope techniques and hone their observation skills by documenting various morphologies of bacteria and the parasitism of tobacco mosaic virus on a leaf. In the third activity, students observe Amoeba feeding on Chilomonas, allowing them to visualize functioning organelles and the concept of endocytosis. Provided background information illuminates the leading theories of evolution and the relationship among eukaryotes, prokaryotes, and viruses. Note: Order the kit with the perishable materials (all \(\rightarrow \) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

Kit includes:

Chilomonas() **Dropping Pipets** Vitachrome® Amoeba◊ Structure and Function Tracing Paper Pencils

Slide Set Microscope Slides Kit (with voucher) Each \$97.85 Kit (with perishables) Each **\$97.85** Teacher Instructions and

Reproducible Student Guide



131194 Cell Study BioKit

Cell Study BioKit® A

For a class of 30. Introduces the cell, its basic structure, and general concept. Includes Amoeba, Euglena, onion, elodea tips, cork, microscope slides, coverslips, forceps, razor knives, toothpicks, pipets, Protoslo®, stain, and teacher's manual with reproducible student guide. Note: Elodea tips cannot be shipped into AK, AL, IL, IN, MA, ME, MI, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped E. canadensis, E. najas, or Chara, depending on availability. Canadian orders require a permit from the Canadian government.

131194 Per kit \$64.95



For a class of 30 students. Includes all materials for producing a gallon of hay infusion. The infusion can be used to mass culture many species of protozoa and other microinvertebrates. Includes timothy hay (Phleum pratense), plastic culture aguarium, springwater, and instructions.

131206 Per kit \$37.85

131210

131210P

Living Organisms

Phagocytosis and Vacuole Formation in Tetrahymena Kit A2

Advanced—For students with moderate experience in microbiology.

For a class of 30. Developed by Donna Bozzone, Saint Michael's College. *Tetrahymena* is ideal for studying phagocytosis and vacuole formation. This cell behavior is quite dramatic and easy to observe with a compound microscope (not included). When hungry *Tetrahymena* encounter food, they use their moving cilia to maintain a current of extracellular fluid and sweep material into each cell's buccal cavity (mouth). The receiving vacuole fills with food particles and fluid and pinches off. *Tetrahymena* ingest a wide variety of materials—including but not limited to bacteria, yeast, India ink, carbon particles, carmine, latex beads, polystyrene beads, and heat-coagulated egg albumin. Teacher instructions included.



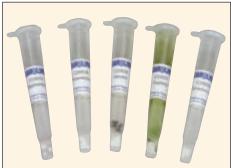
Tetrahymena

Kit includes:

Tetrahymena Culture Tubes
Tetrahymena Medium Microscope Slides/Cover Glasses
Protoslo® India Ink
Centrifuge Tubes Graduated Plastic Pipet

131182B Per kit \$96.70

Demoslides



131006 Protozoa Demoslide Set

Protozoa Demoslide Set

No preparation necessary. Simply place the compressed viewing chamber of the Demoslide containing the live protozoan specimen under a microscope and observe anatomical characteristics and locomotive techniques. Great for individual student experiments. Set of 5 different protozoans.

Blepharisma Spirostomum Euglena Stentor Paramecium

131006 Per set \$20.55

Demoslides

Demoslide

130877

130880

A unique, easy-to-use culture tube for observing microscopic protozoa. Simply fill a Demoslide with a protozoan of your choice, place the compressed viewing chamber under a microscope, and observe anatomical characteristics and locomotive techniques.

131005	Demoslides	Pack of 5	\$9.85
131011	Demoslides	Pack of 30	\$36.00
131012	Demoslides	Pack of 120	\$155.00
New! 131013	Demoslide Stage Adapter	Each	\$8.95

Customer Review

Best way to get a first look at protists

"I was skeptical, but wound up impressed. Very healthy cultures, very easy to observe using a compound microscope. Large numbers of protozoa which are not in shock from being placed on a slide, subjected to soap or squished by a coverslip. I had students take remarkable photos and videos through the eyepiece using their iPads. A really nice way to view these organisms."

High School Biology Teacher

Demoslide Microorganism Sets

Features the unique Demoslide—a convenient, easy-to-use culture tube for studying microscopic organisms. The Demoslide's tapered tube has a compressed viewing chamber at its tip. Simply transfer a living microorganism of your choice to a Demoslide and place the compressed viewing chamber under a microscope to observe anatomy and locomotion. Each set includes a living microorganism culture, a pipet, and 5 empty Demoslides.

130850	Amoeba proteus Set	Each	\$20.55
130856	Chilomonas Set	Each	\$20.55
130859	Chlamydomonas Set	Each	\$20.55
130862	Euglena Set	Each	\$20.55
130865	Mixed Protozoa Set	Each	\$20.55
130868	Mixed Rotifers Set	Each	\$20.55
130871	Paramecium		
	<i>multimicronucleatum</i> Set	Each	\$20.55
130874	Spirostomum Set	Fach	\$20.55

Stentor coeruleus Set

Volvox Set



130859 Chlamydomonas Demoslide Set

Each

Each

\$20.55

\$20.55

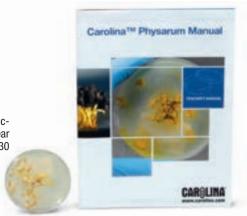
Living OrganismsSlime Molds (Myxomycetes)

Slime Mold Review Sets

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Each set provides a living slime mold culture and culturing instructions. The *Physarum* Review Set also includes a teacher's manual and free 1-year access to digital resources. The *Dictyostelium* Review Set includes a pad of 30 *Dictyostelium* life cycle Bioreview® Sheets.

155770 *Dictyostelium* Review Set Each **\$26.65 155774** *Physarum* Review Set Each **\$26.65**





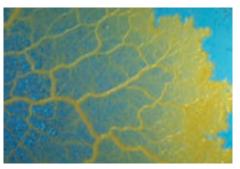
155774 Physarum Review Set

Slime Mold Cultures

Each culture contains enough material for a class of 30 students.

Helpful Ordering Hint: To ensure you order enough living materials for the number of students in your class, order 1 culture for up to 30 students, 2 cultures for 31 to 60 students, 3 cultures for 61 to 90 students, etc.

Organism	Description	Medium	Temp	Pkg	Item No.	Each
Dictyostelium discoideum	Pseudoplasmodium composed of separate cells	Lactose Agar + E. coli (nonmucoid)	25° C	Tube	155995	\$13.75
Dictyostelium discoideum	Pseudoplasmodium composed of separate cells	Dictyostelium Agar + E. coli (nonmucoid)	25° C	Plate	155996	\$17.10
Physarum polycephalum Sclerotium	Inactive, dried P. polycephalum	2% Agar with Old Fashioned Quaker® Oats	25° C	Box	156190	\$16.95
Physarum polycephalum Plasmodium	Active <i>P. polycephalum;</i> yellow plasmodium exhibits protoplasmic streaming	2% Agar with Old Fashioned Quaker® Oats	25° C	Plate	156193	\$17.10
Didymium nigripes	Exhibits protoplasmic streaming; forms sporangia readily	Cornmeal Agar (half strength) + Enterobacter aerogenes	25° C	Plate	156002	\$17.25



156190 Physarum polycephalum Sclerotium

Slime Mold Kits

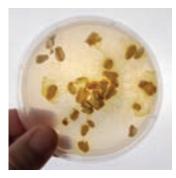


155775 Slime Mold Growing Kit

Slime Mold Growing Kit

Grade 3 and up. Is it a plant, an animal, or a fungus? Scientists don't agree on how to classify the slime molds, but regardless of their classification, they are fun critters to study in the classroom. Feed this slime mold oat flakes and watch it creep across its petri dish! This kit will leave an indelible impression on your students. With instructions and enough materials for starting 5 cultures.

155775 Per kit \$53.95



Supporting Your 3-Dimensional Instruction

Carolina offers some of the best high-value science kits available. The labs in these kits allow students to apply science concepts while engaging in science and engineering practices.

Kits include:

- Teacher's manual with instructional materials that support 3-dimensional learning and the NGSS
- Student guide with sensemaking questions and artifacts
- Materials for the hands-on activities
- Subscription to digital resources



155825 Physarum Culture Kit

Physarum Culture Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. What is it? A protist? An animal? Despite its confusing taxonomic status, the creeping slime mold *Physarum polycephalum* is still an attention getter for your students. Students can follow through the life cycle observing the active plasmodial stage and the inactive sclerotial stage. With teacher instructions and 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. **Note:** *Upon receipt of kit, break seal on plate culture and store at room temperature away from direct light. For best results, use plate culture within 2–3 days of receipt.* **155825** Per kit **\$55.80**

Chemotaxis in Slime Molds



155825B Chemotaxis in Physarum polycephalum Kit

Chemotaxis in Physarum polycephalum Kit

Advanced—For experienced high school and college classes; requires some technical skill.

For a class of 30. Developed by Donna Bozzone, Saint Michael's College. With this kit, students design experiments to test the ability of *Physarum* to respond to various chemical stimuli. *P. polycephalum*, a plasmodial slime mold, is an excellent organism for exploring chemotaxis. Many microorganisms, and certain specialized cells in complex multicellular organisms, respond to chemical cues and either move toward or away from chemical signals. With teacher instructions.

155825B Per kit \$69.80

Living Organisms



155824P Dictyostelium Culture Kit (with perishables)

Dictyostelium Culture Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

Dictyostelium discoideum, a cellular slime mold, has been studied by mycologists, molecular and cellular biologists, and those who enjoy observing unusual microorganisms. The exercise requires 3 to 5 days from setup to completion. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep bacteria and fungus cultures at room temperature; do not incubate or refrigerate.

155824 Kit (with voucher) Each **\$87.00 155824P** Kit (with perishables) Each **\$87.00**



155850P Discovering Movement and Chemotaxis in a Slime Mold Kit (with perishables)

Discovering Movement and Chemotaxis in a Slime

Grades 9–12. In this 2-part kit, students observe 2 phenomena: cytoplasmic streaming and the locomotive movement of *Physarum polycephalum* plasmodium. Based on these observations, students make claims about how *Physarum* responds to its environment. They are asked to consider the mechanisms that drive the movement of *Physarum* and predict how it will respond to several different substances. Students work as a class to design a testing strategy to determine the effects of the 5 substances on the locomotion of the plasmodium. They use the evidence to evaluate their predictions. Kit accommodates 10 student groups and includes FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*

155850 Kit (with voucher) Each **\$119.80 155850P** Kit (with perishables) Each **\$119.80**

Carolina® Springwater

Pasteurized Springwater

Used to culture protozoa. 1-qt bottle.

Culture Media & Ingredients

Item No.	Item Name and Description	Qty	Each
132315	Tetrahymena Medium A sterile medium in a screw-cap tube for culturing bacteria-free <i>Tetrahymena</i> . Unit of 10 tubes.	Per unit	\$24.85
132320	Euglena Medium Concentrate One vial of concentrate for making 1 gal of medium.	Per vial	\$6.15
132350	Liquid Protozoan Nutrient Concentrate An excellent medium for most ciliates, developed and used in our own labs. A unit contains 100-mL bottle of sterile concentrate, which makes 1 L of medium.	Per bottle	\$15.80
132385	Timothy Hay Used to prepare the classical hay infusion or for use with wheat seed as a medium for protozoa. 4-oz bag.	Per bag	\$9.15
132425	Wheat Seed Wheat seed autoclaved to prevent germination (devitalized). Used in media for protozoa, turbellaria, and oligochaetes. 4-oz jar.	Per jar	\$5.55

The water we use for making protozoan and algal media and for maintaining hydra, planaria, and aquaria. Does not contain lethal

metal ions often present in tap water. 1-gal bottle.

Protists For Quieting Protozoa



885141 Protoslo Quieting Solution

Protoslo® Quieting Solution A2

This clear solution slows the movement of protozoa to keep them in focus and in the field of view, while preserving characteristic motion. In 15-mL dropper bottle.

885141 Per bottle \$8.95



131016 MicroAquarium

MicroAquarium™

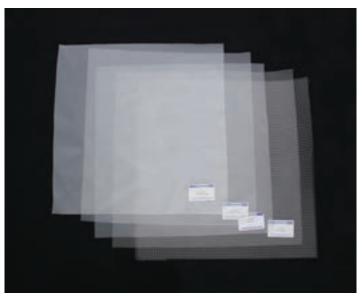
132450

132458

Use with a microscope, hand lens, or as a photographic chamber!

This innovative chamber allows for maintaining and studying a great variety of small aquatic organisms for extended periods of time. Organisms can be viewed with a hand lens (not included). The ease and versatility of this chamber allows students of all ages and ability levels to observe behaviors of both protozoans and macroscopic animals. Size, $75 \times 50 \times 4$ mm. With stand and instructions.

131016 Each **\$9.85 131017** Pack of 10 **\$92.65**



652223 Laboratory Sifting Mesh Basic Set

Laboratory Sifting Mesh

Per bottle

Per bottle

\$9.95

\$10.15

Designed for cleaning or separating organisms in an aquatic field collection. Sifters also have a wide range of other lab uses such as separating fern spores from ruptured sporangial cases. Made of durable monofilament nylon, each sifter is 30 cm (12") square. **Basic Set** includes 1 of each mesh size except 70-µm Mesh (item #652222N).

652222K	0.12-mm Mesh	Each	\$47.60
652222F	0.5-mm Mesh	Each	\$47.60
652222C	1.18-mm Mesh	Each	\$47.60
652222R	37-µm Mesh	Each	\$50.00
652222N	70-µm Mesh	Each	\$50.00
652222M	95-µm Mesh	Each	\$47.60
652223	Basic Set	Each	\$245.00

Fungi Fungi

Fungi Cultures

- · Wide selection of cultures
- Available in tube culture, plate culture, or MicroKwik Culture[®]
- In stock when you need them

Carolina® MicroKwik Culture®

Since a MicroKwik Culture® can be refrigerated, you can order it ahead of time for use on short notice.

These freeze-dried cultures are listed with our regular fungi cultures on the following pages.

Pure Cultures—Guaranteed

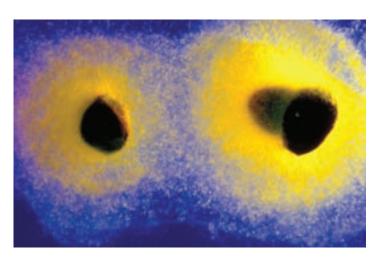
Every culture is guaranteed for purity and genera. Our wide selection includes Chytrids, Zygomycetes, Ascomycetes, and Basidiomycetes. Cultures are available in an economical tube culture, a convenient plate culture, or a freeze-dried MicroKwik Culture® for easy storage. We maintain a large inventory of cultures in stock for immediate delivery, so you can always depend on getting the one you need when you need it. Our cultures are also available in kits and sets.

A Versatile Teaching Tool

Fungi can help you teach many topics in ecology, genetics, biochemistry, and other disciplines. They are important decomposers, helping recycle organic materials in food webs, which makes them great subjects for ecological studies. Students can culture them for genetic studies. For studies in biochemistry, students can investigate the role yeasts play in the production of wine, beer, and baked goods.

Educational Use Notice

Products labeled and/or advertised "for educational use only," including all bacteria, fungi, and viruses, may only be used for educational purposes. Commercial use, resale, and research use for other than educational purposes are all prohibited. Unauthorized uses must be recalled and destroyed. All orders are subject to Carolina's Terms and Conditions found at Carolina.com/help/terms-of-use.









Fungi cultures are labeled by name and media on which they are cultivated. All cultures are guaranteed for purity and genera. For care instructions and study tips, go to **Carolina.com** and download our **Techniques for Studying Bacteria and Fungi** manual (type "bacteria and fungi" in the search field, then click the Resources tab).



Kits & Sets

All fungi are for educational use only.

Fungal Survey

Fungi Survey Set

Four tube cultures representing 4 classes of fungi: Oomycete (Saprolegnia or Achlya), Zygomycete (Rhizopus stolonifer), Ascomycete (Sordaria fimicola), and Basidiomycete (Coprinus cinereus).

155817 Per set \$49.40



155817 Fungi Survey Set

Basic Mold Showplate Set

Plate cultures of 3 of the more common fungi: Aspergillus niger, Penicillium notatum, and Rhizopus stolonifer.

155823 Per set \$47.65



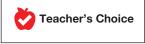


155822 Ascomycete Fruiting Set

Ascomycete Fruiting Set

The presence or absence of a fruiting body, or ascocarp, is used to classify the Ascomycetes. Set includes 1 example of each type of ascocarp (plate culture): apothecia (*Anthracobia muelleri*), cleistothecia (*Eurotium chevalieri*), naked asci (*Schizosaccharomyces octosporus*), and perithecia (*Sordaria fimicola*). A microscope is required.

155822 Per set \$63.10





155796 High School Fungi Set (plate culture not pictured)

High School Fungi Set

Eleven tube cultures and 1 plate culture representing 11 orders and 12 different families. Demonstrates the diverse morphology found among the fungi.

Achlya Dictyostelium Physarum
Aspergillus Penicillium Rhizopus
Chaetomium Phlyctochytrium Saccharomyces
Coprinus Phycomyces Sordaria

155796 Per set \$159.40





155819 Basidiomycete Set (large fungi are shipped in jar cultures)

Not Edible!

Basidiomycete Set

Representing 3 orders are 3 jar cultures ready to fruit: *Coprinus cinereus* (mushroom); *Nidularia pulvinata* (bird's nest fungus); and *Schizophyllum commune* (bracket fungus). You may need to allow time for fruiting bodies to appear. An illustration of gill fungus life cycle and instructions are included. **Note:** *These fungi are not edible.*

155819 Per set \$58.25

Life Cycle Studies



155800P Pilobolus Kit (with perishables)

Pilobolus Kit

Beginning—Easy to perform; requires no experience in microbiology.

The popular "shotgun" fungus, *Pilobolus crystallinus*, grows on herbivore dung. Herbivores will not graze near their own dung, so the spores must be propelled beyond this "zone of repugnance." The sporangia bend toward the sun and "shoot" their spore mass in that direction. Students grow *Pilobolus* until sporangia are mature. Then they place the culture inside a container with a small hole to allow in light. The sporangia will all be propelled toward the hole. Requires about 10 days to conduct the exercise. The adaptation of this interesting fungus to its unique habitat is explained in the teacher's instructions. **Note:** *Order the kit with the perishable materials (all items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep fungus culture at room temperature; do not incubate or refrigerate. Keep agar plates refrigerated until use; do not freeze.*

Kit includes:

Pilobolus crystallinus Plate Culture⟨>
10 Plates Rabbit Dung Agar⟨>
Sterile Disposable Scalpel
10 Aluminum Foil Sheets

10 Containers with Lids Autoclave Disposal Bag Teacher Instructions

155800 Kit (with voucher) Each **\$57.20 155800P** Kit (with perishables) Each **\$57.20**



From 155806 Zygospore Demonstration Plate (Phycomyces blakesleeanus)

Zygospore Demonstration Plates

Show your students how conjugation fungi reproduce sexually by the fusion of gametes from 2 opposite mating types (+ and -) to form zygospores. Choose a plate culture showing the zygospores formed at the junction of the + and - mycelia of *Phycomyces* or *Rhizopus*.

 155806
 Phycomyces
 Each
 \$31.60

 155807
 Rhizopus
 Each
 \$31.60

Genetic Studies



Sordaria Demonstration Cross Plate

Intermediate—Easy to perform; requires some basic training in microbiology.

A cross of *Sordaria fimicola* wild type and the mutant tan strain for demonstrating genetic crossing over. For use with classic Advanced Placement® Biology Mitosis and Meiosis Lab or as a separate refresher demonstration from the exercises found in our *Sordaria* genetics kits (item #155847 and item #155848). **Note:** The culture is shipped on Fridays only and is ready to use the following Wednesday, Thursday, or Friday. Please allow 2 weeks' advance notice with specific Friday shipping date.

155846 Per plate \$32.60

Advanced Placement[®] is a trademark registered and/or owned by the College Board[®], which was not involved in the production of, and does not endorse, this product.



Ö

Sordaria Genetics Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. Students culture the 3 *Sordaria* strains and then set up cross plates of wild type \times mutant tan and wild type \times mutant gray. The gene to centromere distance for tan and gray genes can then be calculated. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep fungi cultures at room temperature; do not incubate or refrigerate.*

155848 Kit (with voucher) Each \$103.00 155848P Kit (with perishables) Each \$103.00 Visually observe the genetics of fungi with this kit.



155848P Sordaria Genetics Kit (with perishables)

Sordaria Genetics Plate Culture Set

Includes the 3 *Sordaria fimicola* strains (wild type, mutant gray, and mutant tan) for genetic crossing studies.

155858 Per set \$47.95



155858 Sordaria Genetics Plate Culture Set

Sordaria Genetics BioKit®

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. Students cross the wild-type *Sordaria* strain with the mutant tan strain. Hybrid asci are produced containing 4 dark- and 4 light-colored ascospores. Students then use tetrad analysis to calculate the gene to centromere distance in map units for the mutant tan gene. The exercise requires about 10 to 14 days from setup of cross plates to completion. Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep fungi cultures at room temperature; do not incubate or refrigerate.*

155847 Kit (with voucher) Each **\$156.75 155847P** Kit (with perishables) Each **\$156.75**



155847P Sordaria Genetics BioKit (with perishables)

Carolina Teacher Tips

QUESTION: How do I know when my Sordaria plate is ready for use?

ANSWER: Use a wooden toothpick to scrape a few perithecia from the plate periphery, where the 2 strains have grown together. Place the perithecia on a microscope slide, add a drop of water, and gently press down on them with a coverslip. The perithecia should break open with gentle pressure and you should see asci with spores (they resemble bubblegum balls in a wrapper). You also should see a color difference between the 2 spore types in their crossover arrangement.

Here are some signs the Sordaria asci are not ready to be used:

- You must use a lot of pressure to break open the perithecia (the black spheres).
- The spores are greenish in color.
- You see only the dark, sac-like perithecia and no asci with spores.

If the culture is not ready, continue to incubate the plate at 25° C (77° F) and repeat the testing process until the asci mature and rupture easily on the slide. If the culture is still not ready on Friday, the plate can be refrigerated over the weekend. Allow the plate and culture to come to room temperature before rechecking on Monday.

Fungi Biochemical Studies



202208 Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads

Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads Kit

For 32 students working in groups of 4. This kit introduces students to the cycling of carbon from glucose to carbon dioxide in aerobic and anaerobic conditions. Students develop a model based on initial observations in an open system. After measuring the volume of carbon dioxide evolution over time in a closed system, and observing an indicator for the presence of oxygen, they graph the rate of carbon dioxide evolution and revise their models. Kit provides enough consumable materials for 2 class sections and includes a 1-year single teacher subscription to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202208 Per kit \$72.60



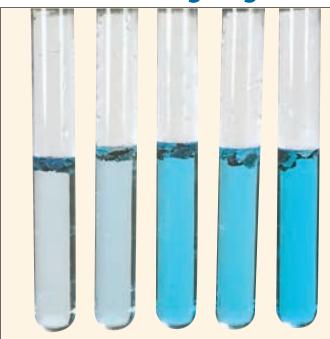
Bioluminescent Fungus Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Dubbed "foxfire" by hunters in the Appalachian Mountains, the fungus *Armillariella mellea* emits a low-level bioluminescence. The phenomenon can be observed 1 to 2 weeks after subculturing and lasts about 8 weeks. Room must be completely dark to observe the bioluminescence. Includes a plate culture of *Armillariella mellea*, 10 plates of bread crumb agar, a sterile disposable scalpel, an autoclave disposal bag, and culturing instructions.

155798 Per kit \$48.90

Living Organisms



From 155820 Carolina Air Pollution Assay Kit



Carolina® Air Pollution Assay Kit Illustrate the effects of air pollution on lichens

Intermediate—Easy to perform; requires some basic training in microbiology. For a class of 30. Lichens are extremely sensitive to air pollution. A decrease in their numbers in a particular location is an indication of increasing air pollution. Students stain a lichen sample and then subject it to various cation solutions. The speed with which the dye is leached out of the lichen correlates with the speed at which these cations from polluted air are taken up by lichen in nature. The exercise can be completed in 2 class periods. A paper punch is required,

Kit includes:

Foliose Lichen Sample Screw-Cap Test Tubes Methylene Blue Solution Cadmium Chloride Solution

but not included. With teacher instructions.

Lead Chloride Solution Lithium Chloride Solution Manganese Chloride Solution Sodium Chloride Solution Zinc Chloride Solution Windex® (control)

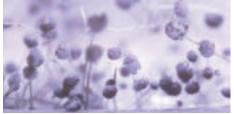


155820 Carolina Air Pollution Assay Kit

Living Organisms Individual Cultures



Penicillium notatum



Rhizopus stolonifer (+)



Pilobolus crystallinus

Penicillium notatum

Recommended for study as an Ascomycete and the source of penicillin, one of the early antibiotics. Discovered by Alexander Fleming, penicillin was first widely used in WWII and is credited with saving the lives of many wounded service members. Available in tube culture, plate culture, or MicroKwik Culture®.

 156155
 Tube
 Each
 \$13.75

 156157
 Plate
 Each
 \$17.10

 156155A
 MicroKwik Culture
 Each
 \$21.20

Rhizopus stolonifer (+)

Known as black bread mold, the Zygomycete *Rhizopus* is our recommendation for introducing students to fungi. It is also the best known of our cultures. Available in tube culture, plate culture, or MicroKwik Culture®.

 156222
 Tube
 Each
 \$13.75

 156223
 Plate
 Each
 \$17.10

 156222A
 MicroKwik Culture
 Each
 \$21.20

Pilobolus crystallinus

Known as the shotgun fungus because it discharges its entire mature sporangium a distance of several centimeters. That discharge is usually toward a source of light, so it is recommended for demonstrating phototropic response in a fungus. Plate culture.

156207 Each \$17.10

Fungi Cultures

Organism	Description	Pkg	Rank	Medium	Temp	Item No.	Each
Achlya	Reproduces sexually by oospores and asexually by zoospores	Tube	Oomycetes	Split Cucumber Seed in Lake Water	25° C	155900	\$13.75
Allomyces arbuscula	Alternation of generations	Tube	Chytrids	Split Cucumber Seed in Lake Water	25° C	155910	\$13.75
Allomyces arbuscula (n)	Gametophytic stage	Plate	Chytridiomycetes	Emerson YpSs Agar	25° C	155911	\$17.10
Allomyces arbuscula (2n)	Sporophytic stage	Plate	Chytridiomycetes	Emerson YpSs Agar	25° C	155912	\$17.10
Allomyces arbuscula Combination	n and 2n on same plate	Plate	Chytridiomycetes	Emerson YpSs Agar	25° C	155914	\$17.10
Armillariella mellea	Bioluminescent hyphae; demonstrates rhizoids	Plate	Basidiomycetes	Bread Crumb Agar	25° C	155928	\$17.10
Arthrobotrys conoides	Nematode-trapping fungus	Plate	Deuteromycetes	Cornmeal Agar	25° C	155930	\$17.10
Aspergillus flavus	Conidia yellow to yellow-green when young	Plate	Ascomycetes	Sabouraud Dextrose Agar	25° C	155935	\$17.10
Aspergillus niger	Common airborne contaminant, occasionally pathogenic on squash; black conidia	Tube	Ascomycetes	Potato Dextrose Agar	25° C	155945	\$13.75
Aspergillus niger	MicroKwik Culture®: freeze-dried spores plus medium	Vial	Ascomycetes	Potato Dextrose Agar	25° C	155945A	\$21.20
Aspergillus niger	Common airborne contaminant, occasionally pathogenic on squash; black conidia	Plate	Ascomycetes	Potato Dextrose Agar	25° C	155946	\$17.10
Candida albicans	Causes thrush, candidiasis; reproduces by budding; demonstrates dimorphism; forms germ tubes in serum cultures grown at 37° C	Tube	Ascomycetes	Yeast Malt Agar	25° C	155965	\$13.75
Chaetomium globosum	Cellulose-destroying fungus	Tube	Ascomycetes	V8® Juice Agar and Sterile Paper	25° C	155973	\$ 13. 7 5
Coprinus cinereus	Inky cap mushroom	Tube	Basidiomycetes	Potato Dextrose Agar with Rabbit Dung	25° C	155979	\$13.75
Cyathus stercoreus	A bird's nest fungus; vase-shaped fruiting body; large culture ready to fruit	Jar	Basidiomycetes	Nutrient Straw/Dirt	25° C	155986B	\$21.20

Color Key:

Red: Pathogen (human, animal, or plant).
Blue: Carolina® MicroKwik Culture®.



155986B Cyathus stercoreus, a bird's nest fungus, showing the peridium and peridioles representing the fruit body of this genus

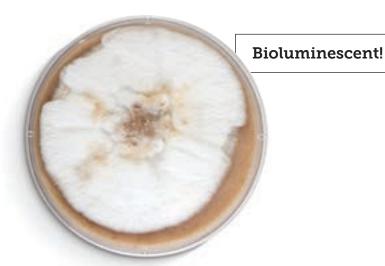


Fungi

Fungi Cultures (continued)

Living Organisms

Organism Eurotium chevalieri	Description Perfect stage of Aspergillus chevalieri; demonstrates both cleistothecia and conidia; this organism is for use with the laboratory manual for Starr and Taggart's Biology: The Unity and Diversity of Life, 10th ed., J. W. Perry and D. Morton; Wadsworth Publishing Co., Belmont, CA	Pkg Plate	Rank Ascomycetes	Medium Honey Peptone Agar	Temp 25° C	Item No. 156032	Each \$17.10
Fusarium oxysporum	Causes tomato wilt; conidia produced on sporodochium	Tube	Deuteromycetes	Potato Dextrose Agar	25° C	156033	\$13.75
Panellus stipticus	Bioluminescent saprobe	Plate	Basidiomycetes	Bread Crumb Agar	25° C	156135	\$17.10
Penicillium camemberti	Camembert cheese organism	Plate	Ascomycetes	Potato Dextrose Agar	25° C	156141	\$17.10
Penicillium chrysogenum	Common source of penicillin	Plate	Ascomycetes	Potato Dextrose Agar	25° C	156146	\$17.10
Penicillium italicum	Causes blue mold on citrus fruits	Tube	Ascomycetes	Potato Dextrose Agar	25° C	156152	\$13.75
Penicillium notatum	Source of penicillin; high yield	Tube	Ascomycetes	Potato Dextrose Agar	25° C	156155	\$13.75
Penicillium notatum	MicroKwik Culture®: freeze-dried spores plus medium; high yield	Vial	Ascomycetes	Potato Dextrose Agar	25° C	156155A	\$21.20
Penicillium notatum	Source of penicillin; high yield	Plate	Ascomycetes	Potato Dextrose Agar	25° C	156157	\$17.10
Penicillium roqueforti	Roquefort cheese organism	Plate	Ascomycetes	Potato Dextrose Agar	25° C	156161	\$17.10
Phlyctochytrium (Spizellomyces) dolichospermus	Posteriorly flagellated zoospores; produces apophysis and rhizoids within host wall; agar surface must be wet	Tube	Chytrids	Emerson YpSs Agar	25° C	156170	\$13.75
Phycomyces blakesleeanus (+)	Phototropic; produces sporangiophores of up to 7 cm; mates with – strain (item #156181) to produce zygospores held by suspensors with horn-like projections	Tube	Zygomycetes	Potato Dextrose Agar	25° C	156180	\$13.75
Phycomyces blakesleeanus (–)	Mates with + strain (item #156180) to produce zygospores held by suspensors with horn-like projections	Tube	Zygomycetes	Potato Dextrose Agar	25° C	156181	\$13.75
Phycomyces blakesleeanus (+)	Phototropic; produces sporangiophores of up to 7 cm; mates with – strain (item #156183) to produce zygospores held by suspensors with horn-like projections	Plate	Zygomycetes	Potato Dextrose Agar	25° C	156182	\$17.10
Phycomyces blakesleeanus (-)	Mates with + strain (item #156182) to produce zygospores held by suspensors with horn-like projections	Plate	Zygomycetes	Potato Dextrose Agar	25° C	156183	\$17.10
Pilobolus crystallinus	Shotgun fungus found on dung; phototropic; light exposure necessary	Plate	Zygomycetes	Rabbit Dung Agar	25° C	156207	\$17.10



156135 Panellus stipticus



156180 Phycomyces blakesleeanus (+)

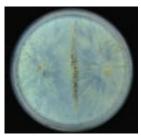


Plate showing line of zygospores formed at the juncture of plus and minus mycelia of 156180 and 156181 Phycomyces blakesleeanus

See more fungi cultures on the next page.

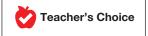
Fungi Cultures (continued)

Organism	Description	Pkg	Rank	Medium	Temp	Item No.	Each
Rhizopus stolonifer (+)	Black bread mold; laboratory contaminant; + mating strain	Tube	Zygomycetes	Potato Dextrose Agar	25° C	156222	\$13.75
Rhizopus stolonifer (+)	MicroKwik Culture®: freeze-dried spores plus medium	Vial	Zygomycetes	Potato Dextrose Agar	25° C	156222A	\$21.20
Rhizopus stolonifer (+)	+ Mating strain	Plate	Zygomycetes	Potato Dextrose Agar	25° C	156223	\$17.10
Rhizopus stolonifer (–)	Black bread mold; laboratory contaminant; – mating strain	Tube	Zygomycetes	Potato Dextrose Agar	25° C	156224	\$13.75
Rhizopus stolonifer (-)	MicroKwik Culture®: freeze-dried spores plus medium	Vial	Zygomycetes	Potato Dextrose Agar	25° C	156224A	\$21.20
Rhizopus stolonifer (-)	- Mating strain	Plate	Zygomycetes	Potato Dextrose Agar	25° C	156225	\$17.10
Rhodotorula rubra	Red yeast	Tube	Deuteromycetes	Yeast Malt Agar	25° C	156230	\$13.75
Saccharomyces cerevisiae	Baker's yeast	Tube	Ascomycetes	Yeast Malt Agar	30° C	156250	\$13.75
Saccharomyces cerevisiae	MicroKwik Culture®: freeze-dried cells plus medium	Vial	Ascomycetes	Yeast Malt Agar	30° C	156250A	\$21.20
Saccharomyces cerevisiae var. ellipsoideus	Wine yeast	Tube	Ascomycetes	Yeast Malt Agar	30° C	156251	\$13.75
Saccharomyces cerevisiae	Baker's yeast	Plate	Ascomycetes	Yeast Malt Agar	30° C	156252	\$17.10
Saprolegnia	Some parasitic on aquatic organisms; reproduces sexually by oospores and asexually by zoospores	Tube	Oomycetes	Split Cucumber Seed in Lake Water	25° C	156270	\$13.75
Saprolegnia	Some parasitic on aquatic organisms; reproduces sexually by oospores and asexually by zoospores	Plate	Oomycetes	Cornmeal Agar	25° C	156271	\$17.10
Schizosaccharomyces octosporus	Naked asci	Tube	Ascomycetes	Yeast Malt Agar	30° C	156280	\$13.75
Schizosaccharomyces octosporus	Naked asci	Plate	Ascomycetes	Yeast Malt Agar	30° C	156281	\$17.10
Schizosaccharomyces pombe	Model organism in molecular and cell biology; fission yeast	Tube	Ascomycetes	Yeast Malt Agar	30° C	156282	\$13.75
Sordaria fimicola Wild Type	For genetic studies	Tube	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156290	\$13.75
Sordaria fimicola Wild Type	MicroKwik Culture®: freeze-dried spores plus medium	Vial	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156290A	\$21.20
Sordaria fimicola Wild Type	For genetic studies	Plate	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156291	\$17.10
Sordaria fimicola Mutant Gray	For genetic studies	Plate	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156293	\$17.10
Sordaria fimicola Mutant Tan	For genetic studies	Tube	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156294	\$13.75
Sordaria fimicola Mutant Tan	MicroKwik Culture®: freeze-dried spores plus medium	Vial	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156294A	\$21.20
Sordaria fimicola Mutant Tan	For genetic studies	Plate	Ascomycetes	Cornmeal-Glucose- Yeast Agar	25° C	156295	\$17.10



Our Sordaria Genetics BioKit® (item #155847) allows students to study crossing over in meiosis. The results are striking. Students collect data on the number of crossover vs. noncrossover events and calculate a map distance from the gene locus involved to the centromere of the chromosome. See the Sordaria Genetics BioKit® on page 58.

Color Key: Red: Pathogen (human, animal, or plant). Blue: Carolina® MicroKwik Culture®.



Media & Supplies

Media

- Free of antibiotics, pesticides, and other chemicals
- · Sterility tested
- · Quality assured

We offer microbiological media and animal blood products for laboratory use only. Blood used is free of antibiotics, pesticides, and other chemicals. All media are quality assured before shipment, and media and blood products are thoroughly sterility tested.

All generally used formulations are available; however, we will be glad to quote on additional products and custom formulations. We urge that, whenever possible, items be set up on standing orders. Media are usually shipped by ground and occasionally by motor freight. Blood, sera, and plasma are shipped for overnight delivery on Tuesday of each week. If you do not specify a delivery date, we will ship at once.

Living Organisms



Melt to about 60° C.

Carolina® "Long-Life" Media Kits

- No autoclave needed
- · No special equipment or training required
- · No wasted media

Each bottled media kit contains petri dishes and prepared bottled media for pouring 20 plates. Unopened media bottles have a 9- to 12-month shelf life. Pour as needed to reduce amount of expired media.



Pour and let cool—plates are ready for use in minutes.



Inoculate and incubate. Results obtained in 18 to 24 hours.



821045 Nutrient Agar Media Kit

821040 Tryptic Soy Agar Media Kit



821046 Multi-Section Nutrient Agar Media Kit

Nutrient Agar Media Kit

This economical, all-inclusive kit is perfect for science fair projects. An industry standard for nearly a century, nutrient agar supports a broad spectrum of microorganisms, including yeasts and molds. Kit contains prepared, bottled media and petri dishes to pour 20 plates. No autoclaving required!

821045 Per kit \$39.55

Tryptic Soy Agar Media Kit

Another science fair favorite, this economical, all-inclusive kit features tryptic soy medium, a general, all-purpose cultivation medium. Although suitable for aerobes and anaerobes, it is not the medium of choice for anaerobes. Kit contains prepared, bottled media and petri dishes to pour 20 plates. No autoclaving required!

821040 Per kit \$39.55

Multi-Section Nutrient Agar Media Kit

Order in bulk for your lab and save!

This economical kit provides enough bottles of prepared nutrient agar and materials for 60 plates. Nutrient agar supports a broad spectrum of microorganisms, including yeasts and molds. Requires no autoclaving; simply melt and pour the agar, allow students to use the applicators to inoculate the plates, and incubate. Results are obtained in 18 to 24 hours. Visit Carolina.com for a complete list of kit materials.

821046 Per kit \$109.50

Classroom Media Kits



766300 Carolina Environmental Microbiology Kit

Carolina® Environmental Microbiology Kit

Introduces a student to the study of microbes in the immediate environment. Suitable for a class of up to 30 students and may be used at any educational level. Students learn to pour plates, isolate molds and bacteria from a variety of sources, make plate counts of bacterial colonies, and prepare slides for microscopic examination. With student instructions and teacher's manual; visit Carolina.com for a complete list of kit materials. **Note:** Sold only to schools and businesses. A microscope, preferably with an oil-immersion lens, is needed but not included.

766300 Per kit \$87.50



652704 Carolina Bacterial Pollution of Water Kit

Carolina® Bacterial Pollution of Water Kit

Students learn about the importance of clean water in human health, water treatment for microbial contamination, and 1 of the methods used to test the safety of water for human use. They then collect water samples and test them for chlorine and chloramines, bacteria, and coliform bacteria. Students next do research to discover the number of coliform bacteria allowed in water for various human activities. They gain valuable skills and experience in sterile technique and plating and culturing bacteria. This kit is designed for 10 groups of students working in groups of 3. Visit Carolina.com for complete lists of kit materials.

652704 Per kit \$82.50

Petrifilm® Microbiological Media

No preparation

No wasted media

• Extended shelf life of 1 year (unopened)

A microbiological media "plate" consists of 2 clear plastic film sheets with sterile medium in between. This super-thin layer of medium supports the growth of microorganisms just like the surface of an agar plate. A class set stacks in the same space as 1 petri dish! Petrifilm® plates can be counted on a standard colony counter or other magnified light source.

Store unopened Petrifilm® plate pouches at a temperature of 8° C (46° F). Return unused plates to pouch and store resealed pouches in a cool, dry place for no longer than 1 month. Expiration dates and lot numbers are noted on each package of Petrifilm® plates.

Petrifilm® Coliform Count Plate

For coliform enumeration. The red indicator dye in the plates colors all colonies. Top film traps gas produced by coliforms. Petrifilm® All-Purpose Spreader (item #824100, pack of 5) needed but not supplied.

824030 Pack of 25 \$94.00

Petrifilm® Coliform Count Plate/Enterobacteriaceae Count Plate

For enterobacteriaceae enumeration; includes all coliform organisms and non-glucose-fermenting noncoliforms such as *Salmonella, Shigella,* and *Yersinia.* Petrifilm® All-Purpose Spreader (item #824100, pack of 5) needed but not supplied.

824040 Pack of 25 \$102.50

Petrifilm® E. coli/Coliform Count Plate

Two tests in one for *E. coli* and coliform enumeration. Plate contains glucuronidase indicator for confirmed detection of *E. coli*. Eliminates the need for the 9-tube MPN method. Results are produced in 24 to 48 hours instead of the usual 4 to 5 days. Petrifilm® All-Purpose Spreader (item #824100, pack of 5) needed but not supplied.

824020 Pack of 25 \$94.00

Petrifilm® Yeast and Mold Count Plate

For yeast and mold population determination. Antibiotics incorporated into the plate prevent bacterial growth. Petrifilm® All-Purpose Spreader (item #824100, pack of 5) needed but not supplied.

824010 Pack of 50 \$103.70

Petrifilm® Aerobic Count Plate

For total aerobic population determination. Red indicator dye in plates colors all colonies, providing better contrast for easier counting. Petrifilm® All-Purpose Spreader (item #824100, pack of 5) needed but not supplied.

824000 Pack of 50 \$94.00

Petrifilm® All-Purpose Spreader

Suitable for use with Petrifilm® plates except yeast and mold count plates. Spreader is reusable.

824100 Pack of 5 \$10.90



824000 Petrifilm Aerobic Count Plate



824100 Petrifilm All-Purpose Spreader

Media & Supplies Prepared Media Plates

All of our prepared media plates—including top-selling Nutrient Agar (item #821862)—are carefully evaluated to verify their ability to support the characteristic growth of appropriate organisms and are thoroughly tested for sterility.

Media plates are very perishable. Unless you specify otherwise, we will ship prepared media plates on Mondays, Tuesdays, or Wednesdays. Please provide ship date for summer orders.

When you receive your media plates, refrigerate them immediately between 2 and 8° C.

Carolina Teacher Tips

Media plates are highly perishable.

Use them within 1 month of receipt for best results. All media plates include the expiration date.

One-Part Plates, 100 × 15 mm

Item Name	Item No.	Pack of 10 Each	10+ Packs Each
Agar (non-nutrient)	821182	\$29.55	\$26.60
Anaerobe Blood Agar• †	821192	\$45.00	\$40.50
Brain Heart Infusion Agar	821282	\$34.70	\$31.25
Chocolate Agar (with VX)• †	821342	\$29.55	\$26.60
Columbia Agar with 5% Sheep Blood• †	821402	\$35.90	\$32.30
Columbia Colistin Nalidixic Acid Agar with 5% Sheep Blood• † Columbia CNA Agar with 5% Sheep Blood.	821422	\$34.70	\$31.25
Cornmeal-Dextrose-Peptone Agar	821423	\$34.70	\$31.25
Eosin Methylene Blue Agar (EMB Agar)	821522	\$29.55	\$26.60
Levine Eosin Methylene Blue Agar (Levine EMB Agar)	821662	\$25.75	\$23.20
MacConkey Agar	821682	\$25.95	\$23.35
Mannitol Salt Agar	821702	\$28.75	\$25.90
Mueller Hinton Medium	821762	\$25.95	\$23.35
Mueller Hinton Medium with 5% Sheep Blood• †	821782	\$29.55	\$26.60
Nutrient Agar	821862	\$25.99	\$23.40
Nutrient Agar, 1.5%	821872	\$29.55	\$26.60
Phenylethanol Agar with 5% Sheep Blood• †	821882	\$32.90	\$29.60
Photobacterium Agar	821426	\$34.70	\$31.25
Potato Dextrose Agar	821902	\$32.90	\$29.60
Rabbit Dung Agar	821427	\$34.70	\$31.25
Sabouraud Dextrose Agar	821942	\$29.55	\$26.60
Spirit Blue Agar	821428	\$32.90	\$29.60
Starch Agar, 1% For testing starch hydrolysis capability of bacteria.	821996	\$34.70	\$31.25
Tryptic Soy Agar	822022	\$25.99	\$23.40
Tryptic Soy Agar with 5% Sheep Blood• †	822042	\$29.95	\$26.95
Tryptic Soy Agar with 10% Sheep Blood• †	822142	\$35.90	\$32.30

†These prepared media should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

·Worried about having your students work with blood agars?

Blood agars improve the growth of fastidious (picky) microbes and determine hemolytic reactions. These agars should be used at the college and university level only.

If your experiment requires blood agar, substitute the same type of agar without blood. This substitution helps ensure safety in your lab, and lessens the chance of fastidious pathogen growth.

This recommendation is from the American Society for Microbiology, Washington, DC, and the Centers for Disease Control and Prevention in Atlanta.

For microbe-specific testing, try our flexible dual-agar LaMotte® BioPaddles® at Carolina.com.

Living Organisms



Serratia marcescens growing on 821862 Nutrient Agar

Nutrient Agar

- Supports a broad spectrum of microorganisms
- Comes in a convenient 10-pack of sterile, ready-to-use plates

An industry standard for nearly a century, this excellent prepared media supports a wide range of microorganisms. Each plate has an imprinted lot number and expiration date to ensure quality and viability for you and your students.

821862 Pack of 10 **\$25.99** 10+ Packs Each **\$23.40**

Customer Review

"The nutrient agar plates are a great way to supplement curriculum, especially in a biology class. Way to go, Carolina!"

Biology Student



Contact Plates

One-part, 65 \times 15-mm culture plate with 10-mm grid in bottom. Prepared with tryptic soy agar. Lecithin and Tween 80° are added to neutralize disinfectants. These plates make it easy to test surfaces for microorganisms as the agar surface is slightly raised. The cover is removed and the agar is applied directly to the surface to be tested. The plate is then incubated and the number of colonies counted using the grid.

823002 Pack of 10 **\$48.50** 10+ Packs Each **\$43.65**

Prepared Media Tubes

- Sterile, ready-to-use media
- No autoclave needed

Each tube of prepared medium is carefully tested for sterility and to verify its ability to support the characteristic growth of appropriate organisms. Unless you specify otherwise, we will ship prepared media tubes on Mondays, Tuesdays, or Wednesdays. Please provide ship date for summer orders. When you receive your media, refrigerate immediately between 2 and 8° C. All prepared media tubes are sold in packs of 10 unless otherwise indicated.

Item Name	Item No.	Per Pack	10+ Packs Each
Bile Esculin Agar Slant	824522	\$29.55	\$26.60
Blood Agar See Tryptic Soy Agar with 5% Sheep Blood Slant.			
Brain Heart Infusion Agar Slant	824592	\$28.75	\$25.90
Brain Heart Infusion Broth	824582	\$37.80	\$34.00
Decarboxylase Broth Moeller Lysine	825142	\$37.80	\$34.00
Decarboxylase Broth Moeller Ornithine	825152	\$37.80	\$34.00
Halobacterium Broth	821449	\$23.90	\$21.50
Kligler Iron Agar Slant	825462	\$28.75	\$25.90
Litmus Milk	825522	\$32.90	\$29.60
Motility Indole Ornithine Medium Agar (MIO Medium)	825862	\$28.75	\$25.90
Motility Test Medium Agar without TTC	825902	\$34.70	\$31.25
Motility Test Medium Agar with TTC	825903	\$34.70	\$31.25
MR-VP Medium	825922	\$34.70	\$31.25
Nitrate Broth with Durham Tube	826082	\$42.25	\$38.00
Nutrient Agar Slant	826102	\$26.00	\$23.40
Nutrient Broth	826122	\$26.00	\$23.40
Nutrient Gelatin Agar	826142	\$29.55	\$26.60
Oxidation Fermentation Medium Dextrose Agar (OF Medium Dextrose)	826182	\$45.00	\$40.50
Peptone Iron Agar	826289	\$35.90	\$32.30
Phenol Red Broth Base Dextrose with Durham Tube	826382	\$32.90	\$29.60
Phenol Red Broth Base Lactose with Durham Tube	826442	\$39.90	\$35.90
Phenol Red Broth Base Maltose with Durham Tube	826452	\$45.00	\$40.50
Phenol Red Broth Base Mannitol with Durham Tube	826462	\$45.00	\$40.50
Phenol Red Broth Base Sucrose with Durham Tube	826512	\$37.80	\$34.00
Phenylalanine Agar Slant	826642	\$29.55	\$26.60
Simmons Citrate Agar Slant	826942	\$28.75	\$25.90
Skim Milk Medium	821438	\$24.95	\$22.45
Snyder Test Agar	774442	\$38.05	\$34.25
Sulfide Indole Motility Medium Agar (SIM Medium)	826922	\$27.95	\$25.15
Thioglycollate Medium, Fluid	827032	\$32.90	\$29.60
Tomato Juice/Yeast Extract Milk Medium	821439	\$24.95	\$22.45
Triple Sugar Iron Agar Slant	827442	\$26.35	\$23.70
Tryptic Soy Agar Slant	827302	\$27.95	\$25.15
Tryptic Soy Agar with 5% Sheep Blood Slant• †	827312	\$35.90	\$32.30
Tryptic Soy Broth, 5 mL	827372	\$26.00	\$23.40
Tryptic Soy Broth, 10 mL	827376	\$28.75	\$25.90
Tryptone Broth, 9 mL	827390	\$23.90	\$21.50
Urea Agar Slant	827462	\$28.75	\$25.90
Urea Broth†	827482	\$34.70	\$31.25

[†]These prepared media should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Media & Supplies



826382 Phenol Red Broth Base Dextrose with Durham Tube



Worried about having your students work with blood agars?

Blood agars improve the growth of fastidious (picky) microbes and determine hemolytic reactions. These agars should be used at the college and university level only.

If your experiment requires blood agar, substitute the same type of agar without blood. This substitution helps ensure safety in your lab, and lessens the chance of fastidious pathogen growth.

This recommendation is from the American Society for Microbiology, Washington, DC, and the Centers for Disease Control and Prevention in Atlanta.

Media & Supplies

Prepared Media Bottles

No autoclave needed

· Free booklet on bottled media included

Each glass bottle of bacteriological medium contains 125 mL of ready-to-use material, except where noted. This amount is sufficient for pouring up to 5 plates or 15 to 20 tubes. The bottle is sealed to prevent contamination and drying. All bottles are glass, except where noted.

	Item Name	Item No.	Per Bottle	10+ Bottles Each
	Agar, 2% (non-nutrient)	156395	\$10.45	\$9.40
	Brain Heart Infusion Agar	775720	\$10.45	\$9.40
	Cornmeal-Glucose-Yeast (Sordaria) Agar	156352	\$10.45	\$9.40
	Crossing (Sordaria) Agar	156354	\$10.45	\$9.40
	Dnase Agar	775929	\$10.45	\$9.40
	Eosin Methylene Blue Agar (EMB Agar)	775932	\$10.45	\$9.40
	Halobacterium Agar In a 135-mL bottle.	775950	\$10.45	\$9.40
	MacConkey Agar	776350	\$10.45	\$9.40
	Mannitol Salt Agar	776295	\$11.95	\$10.75
	Mueller Hinton Agar	776354	\$10.45	\$9.40
	Nutrient Agar	776360	\$10.45	\$9.40
Ö	Nutrient Agar In a 125-mL plastic bottle.	776362	\$10.45	\$9.40
Ö	Nutrient Agar In a 500-mL glass bottle.	776364	\$28.60	\$25.75
Ö	Nutrient Agar In a 500-mL plastic bottle.	776366	\$28.60	\$25.75
Ö	Nutrient Broth	776380	\$11.95	\$10.75
Ö	Nutrient Broth In a 125-mL plastic bottle.	776382	\$11.95	\$10.75
	Nutrient Agar, 1.5% NaCl In a 125-mL glass bottle.	776352	\$10.45	\$9.40
	Nutrient Agar, 1.5%	776370	\$10.45	\$9.40
	Nutrient Agar, 1.5% In a 125-mL plastic bottle.	776372	\$10.45	\$9.40
	Nutrient Agar, 1.5% In a 500-mL glass bottle.	776374	\$31.30	
	Phenylethanol Agar Selective medium for Gram-positive bacteria.	776410	\$10.45	\$9.40
	Photobacterium Agar Sediment usually occurs in this medium.	155762	\$10.45	\$9.40
	Potato Dextrose Agar	776520	\$10.45	\$9.40
	Sabouraud Dextrose Agar	776560	\$10.45	\$9.40
	Skim Milk Agar	155763A	\$10.45	\$9.40
	Tryptic Soy Agar	776800	\$10.45	\$9.40
	Tryptic Soy Agar In a 125-mL plastic bottle.	776802	\$10.45	\$9.40
	Tryptic Soy Agar In a 500-mL glass bottle.	776804	\$28.60	
	Tryptic Soy Broth	776840	\$10.45	\$9.40
	Yeast Malt Agar General culture medium for yeasts, molds, and other aciduric microorganisms.	777200	\$10.45	\$9.40

We Do Special Requests

Don't see the culture medium you need? Carolina can create a special order medium in as little as 2 weeks. Call 800.334.5551 for a quote.

Living Organisms



776362 Nutrient Agar



741246 Polystyrene, Disposable, Sterile Petri Dishes, 60 × 15 mm, Pack of 20

Ö

Polystyrene, Disposable, Sterile Petri Dishes

Petri performers

- Wide range of sizes allows multiple uses
- Nonbreakable plastic provides durability
- Excellent optical clarity and strength give superior performance

The quality of your students' work depends on the quality of their lab supplies. So protect their specimens with these strong, sterile, round dishes packed in sealed plastic sleeves. Case quantities available on Carolina.com.

741246	60 × 15 mm	
	Pack of 20	\$7.10
	25+ Packs Each	\$6.35
741248	100 × 10 mm	
	Pack of 30	\$14.00
	25+ Packs Each	\$12.15
741250	100 × 15 mm	
	Pack of 20	\$6.70
	25+ Packs Each	\$5.90
741252	100 × 20 mm	
	Pack of 20	\$11.85
	20+ Packs Each	\$11.25
741254	150 × 15 mm	
	Pack of 20	\$30.85
	5+ Packs Each	\$30.35

Petri-Seal[™]

Ideal for petri dishes, tubes, and well plates. Five-mil-thick seal stretches, conforms, and stays in place. Waterproof, chemical resistant, and leaves no adhesive residue. Seal withstands temperatures 30 to 77° C and intermittent to 100° C. Blue. Size, 1/2" × 108 ft.





199278D Petri-Seal (in use)

Living Organisms Dehydrated Media

- Popular choices available in 100-g and 500-g sizes
- Certificate of Analysis available upon request

The dehydrated bacteriological media offered here are the finest quality available. They are convenient to use, uniform in composition, and stable to spoilage. Other dehydrated media are available; we will be glad to quote your needs.

Premeasured Dehydrated Media

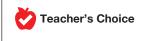
Premeasured packs of dehydrated media save time. These media are offered in sets of 6 packs; each pack is sufficient for preparing the indicated volume of medium.

Nutrient Agar

789640 6 × 100-mL Set Each \$31.00 789642 6 × 500-mL Set Each \$84.65



Increase speed and accuracy with a Bottle Top Dispenser. Learn more on page 114.



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Item Name	Description	Item No.	Qty	Each
Brain Heart Infusion Broth	Use 37 g per liter.	781761	500-g Pkg	\$192.00
Brain Heart Infusion Agar	Use 52 g per liter.	781781	500-g Pkg	\$182.10
Cornmeal Agar	Use 17 g per liter.	742460	100-g Pkg	\$64.60
Eosin Methylene Blue Agar (EMB Agar)	Use 36 g per liter.	783080 783081	100-g Pkg 500-g Pkg	\$66.35 \$203.60
Hektoen Enteric Agar	Use 76 g per liter.	783751	500-g Pkg	\$234.70
Kligler Iron Agar	Use 52 g per liter.	783940	100-g Pkg	\$64.60
Levine Eosine Methylene Blue Agar (Levine EMB Agar)	Use 38 g per liter.	784201	500-g Pkg	\$102.00
Litmus Milk	Use 100 g per liter.	784281	500-g Pkg	\$205.60
MacConkey Agar	Use 50 g per liter.	784480 784481	100-g Pkg 500-g Pkg	\$58.50 \$135.95
Mannitol Salt Agar	Use 111 g per liter.	784640 784641	100-g Pkg 500-g Pkg	\$54.30 \$78.65
Motility Test Medium	Use 22 g per liter.	784901	500-g Pkg	\$171.15
MR-VP Medium	Use 17 g per liter.	784920 784921	100-g Pkg 500-g Pkg	\$66.35 \$102.00
Mueller Hinton Agar	Use 38 g per liter.	784940 784942	100-g Pkg 500-g Pkg	\$58.50 \$182.10
Nitrate Broth	Use 9 g per liter.	785261	500-g Pkg	\$192.00
Nutrient Agar	Use 23 g per liter.	785301	500-g Pkg	\$129.00
Nutrient Agar, 1.5%	Use 31 g per liter.	785321	500-g Pkg	\$144.75
Nutrient Broth	Use 8 g per liter.	785360 785361	100-g Pkg 500-g Pkg	\$54.30 \$135.95
Nutrient Gelatin	Use 128 g per liter.	785381	500-g Pkg	\$135.95
Phenol Red Broth Base	Use 15 g per liter.	785881	500-g Pkg	\$108.55
Phenol Red Dextrose Broth	Use 20 g per liter.	785941	500-g Pkg	\$97.10
Phenol Red Lactose Broth	Use 20 g per liter.	785981	500-g Pkg	\$108.55
Phenol Red Sucrose Broth	Use 20 g per liter.	786101	500-g Pkg	\$108.55
Phenylalanine Agar	Use 23 g per liter.	786160	100-g Pkg	\$151.00
Phenylethanol Agar	Use 43 g per liter.	786201	500-g Pkg	\$144.75
Photobacterium Broth	Use 66 g per liter.	786229	100-g Pkg	\$74.15
Potato Dextrose Agar	Use 39 g per liter.	786340 786341	100-g Pkg 500-g Pkg	\$47.40 \$144.75
Sabouraud Dextrose Agar	Use 65 g per liter.	786781	500-g Pkg	\$94.10
SIM Medium	Use 30 g per liter.	787020 787021	100-g Pkg 500-g Pkg	\$54.30 \$118.75
Simmons Citrate Agar	Use 24 g per liter.	787040 787041	100-g Pkg 500-g Pkg	\$84.65 \$118.75
Snyder Test Agar	Use 65 g per liter.	787081	500-g Pkg	\$187.20
Spirit Blue Agar	Use 35 g per liter.	787160	100-g Pkg	\$274.60
Starch Agar	Use 25 g per liter.	787320 787321	100-g Pkg 500-g Pkg	\$66.35 \$292.75
Thioglycollate Medium, Fluid	Use 30 g per liter.	787800 787801	100-g Pkg 500-g Pkg	\$54.30 \$84.65
Triple Sugar Iron Agar	Use 60 g per liter.	788281	500-g Pkg	\$97.10
Tryptic Soy Agar	Use 40 g per liter.	788420 788421	100-g Pkg 500-g Pkg	\$41.00 \$84.65
Tryptic Soy Broth	Use 30 g per liter.	788441	500-g Pkg	\$64.60
Urea Broth	Use 39 g per liter.	788761	500-g Pkg	\$108.55
Yeast Malt Agar	Use 41 g per liter.	789200	100-g Pkg	\$64.60

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Media & Supplies

Media Ingredients & Culture Additives

	Item Name	Item No.	Qty	Each
New!	Bile Salts #3	795001	100-g Pkg	\$166.00
	Lipase Substrate Tube For use with spirit blue agar.	798352	30 mL	\$19.95
	Malt Extract	794740	100-g Pkg	\$16.75

Living Organisms

Carbohydrates

Item Name	Item No.	Qty	Each
L-(+)-Arabinose	797441	25-g Pkg	\$74.15
D-(+)-Galactose	797541	25-g Pkg	\$28.80
D-Mannitol (Mannite)	797721	25-g Pkg	\$12.75
D-(+)-Xylose	797982	25-g Pkg	\$12.55

Difco® Bacto® Agar

Bacto® Agar is a solidifying agent in which extraneous matter, pigmented portions, and salts have been reduced to a minimum. Bacto® Agar is used in preparing microbiological, bacteriological-grade culture media. With instructions.

156783B 100-g Pkg Each **\$87.90 156783C** 500-g Pkg Each **\$422.00**

156783B Difco Bacto Agar, 100 g



Peptone 794260 100-g Pkg
Each **\$78.35**

794260 Peptone



Animal Blood Products

Drawn from fasted animals, blood and plasma products are free of antibiotics and preservatives other than any added anticoagulants. The blood and plasma are satisfactory for virological and serological work and for use in microbiological culture media. Pooled blood is drawn from several animals (i.e., several sheep for sheep blood), mixed together, and then aliquoted out. All fibrin is removed mechanically, not chemically, for defibrinated blood. Pooled blood is stored under refrigeration at 2 to 8° C. Pooled plasmas are stored frozen. Blood and plasma are shipped at ambient temperature. **Orders cannot be cancelled within 1 week of requested delivery. Note:** These products are for laboratory use only and are restricted to colleges and universities.

Product shelf life depends on the blood or plasma product used. Here's how long you can expect your blood or plasma product to last once you receive it:

- · Citrated products, 2 weeks
- Defibrinated products, 3 weeks
- · Alsever solution products, 4 weeks



828920 Sheep Blood, Alsever, 50 mL

Pooled Animal Bloods

Bovine Blood, Citrated

Contains sodium citrate.

828570 50-mL Btl Each **\$57.70 828574** 100-mL Btl Each **\$71.00**

Bovine Blood, Defibrinated Lacks fibrin.

828514 100-mL Btl Each \$70.00

Sheep Blood, Citrated

Contains sodium citrate.

828950 50-mL Btl Each **\$59.30 828954** 100-mL Btl Each **\$81.75**

Sheep Blood, Alsever

Contains equal parts of whole blood and Alsever solution.

828920 50-mL Btl Each **\$58.65 828924** 100-mL Btl Each **\$71.80**

Sheep Blood, Defibrinated

Lacks fibrin.

 828890
 50-mL Btl
 Each
 \$65.50

 828894
 100-mL Btl
 Each
 \$78.25

 828900
 500-mL Btl
 Each
 \$189.30

Pooled Normal Plasmas

Rabbit Plasma, Citrated

Contains sodium citrate.

829804 50-mL Btl Each \$274.40

Sheep Plasma, Citrated

Contains sodium citrate.

829864 100-mL Btl Each \$66.35

Carolina Teacher Tips

Sheep blood is closest to human blood.

Living Organisms Microbiology Supplies

Media Stains & Reagents



821051 Large Gram Stain Set

🖒 Large Gram Stain Set 🕰

Includes 500 mL each of crystal violet, Gram iodine, decolorizer (95% ethanol), and safranin counterstain for use in Gram differentiation of bacteria.

821051 Per set \$87.15

🥌 Gram Stain Kit 🔥

For in vitro diagnostics. Includes all chemicals needed for Gram differentiation of bacteria.

Kit includes:

30 mL Crystal Violet Solution, Hucker's 30 mL Safranin Counterstain

30 mL Gram lodine 120 mL Ethanol, 95% (decolorizer)

821050 Per kit \$36.75



821050 Gram Stain Kit



892305 Introductory Microbiology Stain Set

Introductory Microbiology Stain Set A

Staining materials and instructions for simple (methylene blue), Gram, acid-fast, capsule, and spore staining of bacteria; 25 mL of each stain.

Acid Alcohol, 500 mL Copper Sulfate (20%) Ethanol, 500 mL Fuchsin Basic

Gram Iodine Hucker's Ammonium

Hucker's Ammonium Oxalate Crystal Violet Loeffler Alkaline Methylene Blue Safranin Counterstain

Ziehl Carbol Fuchsin (1%)

892305 Per set \$76.00



Basic Stain Set A

Ten common stains in solution; 25 mL of each stain.

Alum Carmine Eosin Y
Bismark Brown Fast Green
Crystal Violet Hematoxylin

892261 Per set \$90.00

Methyl Green Methylene Blue Neutral Red Safranin



892281 Comprehensive Stain Set

Comprehensive Stain Set 🔥

Twenty common stains in solution; 25 mL of each stain.

Aceto-Carmine Cochineal Erythrosin Hem

Aceto-Carmine Cochineal
Alum Carmine Congo Red
Bismark Brown Crystal Violet
Carbol Fuchsin Eosin Y

Fast Green Fuchsin Acid Fuchsin Basic

Hematoxylin Methyl Green id Methylene Blue isic Neutral Red Orange G Safranin Sudan IV Wright

892281 Per set \$178.95

Living Organisms



834520 Ziehl-Neelsen Stain Kit

Ziehl-Neelsen Stain Kit

Includes 250 mL each of carbol fuchsin Ziehl-Neelsen, decolorizer, methylene blue, and complete instructions for acid-fast staining of mycobacteria by the Ziehl-Neelsen method.

834520 Per kit \$133.90



🤭 MR-VP Test Kit 🕰

Using MR-VP Medium (item #825922) and the materials provided in this kit, bacteria can be differentiated through the methyl red and Voges-Proskauer reactions. Includes instructions. **Note:** *Sold only to schools and businesses.*

Kit includes:

30 mL Methyl Red Indicator

30 mL α -Napthol Solution

30 mL Potassium Hydroxide Solution

821054 Per kit \$22.15

Individual Stains

	Item Name	Description	Pkg	Item No.	Each
•	India Ink Stain	For visualizing encapsulated microorganisms, such as <i>Cryptococcus neoformans</i>	25-mL Bottle	834440	\$83.00
	lodine-Potassium lodide Solution	For differentiating bacteria based on their ability to hydrolyze starch	30-mL Bottle	869051	\$7.95
	Kovac's Reagent	Identifies bacteria capable of producing indole using the enzyme tryptophanase; with instructions	30-mL Bottle	871389	\$20.90
	Lactophenol Cotton Blue	For wet mounts in the examination of yeasts and molds, serving as a mounting fluid and stain	0.5-mL Dropper Bottle	834445	\$5.35
Ö	Maneval's Stain	For staining negatively charged structures of bacteria red	30-mL Bottle	873785	\$11.40
	Nitrate Reagent A	For differentiating microorganisms based on their ability to reduce nitrates to nitrites; with instructions	100-mL Bottle	834495	\$65.35
	Nitrate Reagent B	For differentiating microorganisms based on their ability to reduce nitrates to nitrites; with instructions	100-mL Bottle	834496	\$63.85
Ö	Oxidase Reagent	For detecting oxidase enzymes; with instructions	30-mL Bottle	834481	\$39.00
	Wright-Giemsa Stain, Fucillo	For red blood cell morphology and white blood cell differentiation	1-L Bottle	1 898570 1 898570	\$68.00



834445 Lactophenol Cotton Blue



873785 Maneval's Stain



834495 Nitrate Reagent A



871389 Kovac's Reagent

Living Organisms

Antibiotic Disks & Dispensers

Please note: BBL® and Difco® disk dispensers are not interchangeable. BBL® magazines work only in BBL® dispensers.



Antibiotic Sensitivity Disk Set

BBL®. High concentrations. Set includes 1 magazine of 50 disks of each agent (without dispenser):

Chloramphenicol (30 mcg) Erythromycin (15 mcg) Kanamycin (30 mcg) Neomycin (30 mcg) Novobiocin (30 mcg) Penicillin G (10 units) Streptomycin (10 mcg) Tetracycline (30 mcg)

805081 Per set \$130.00

Blank, Sterile Antibiotic Sensitivity Disk

BBL[®]. Disks are ¹/₄" in diameter. **805091** Vial of 50 **\$17.15**



805091 Blank, Sterile Antibiotic Sensitivity Disks

Self-Tamping Sensi-Disc[™] Dispenser

BBL®. With 1 stroke of this dispenser's handle, you can deliver up to 8 antibiotic disks onto a petri plate and tamp them into place. For added convenience, leave the antibiotic magazines in the dispenser

and place the entire apparatus inside its storage container charged with desiccant.

Store the container in a refrigerator and the dispenser is ready for its next use.

the dispenser is ready for its next use. **Note:** For use with BBL® antibiotic magazines only.

806605 Each \$1,250.00

806605 Self-Tamping Sensi-Disc Dispenser



Antibiotic Magazines

BBL®. Each disposable magazine contains 50 disks of 1 agent.

	Antibiotic Magazine	Item No.	Each	10+ Each
	Amoxicillin with Clavulanic Acid, 20 mcg/10 mcg	806014	\$20.95	\$18.85
	Ampicillin, 10 mcg	806016	\$18.75	\$16.90
	Bacitracin, 10 units	806022	\$20.95	\$18.85
	Chloramphenicol, 30 mcg	806058	\$17.15	\$15.45
	Ciprofloxacin, 5 mcg	806059	\$20.95	\$18.85
	Erythromycin, 15 mcg	806136	\$18.75	\$16.90
	Gentamicin, 10 mcg	806152	\$18.75	\$16.90
	Kanamycin, 30 mcg	806182	\$18.75	\$16.90
<u>^</u> 2	Neomycin, 30 mcg	806258	\$17.10	\$15.40
	Penicillin, 10 units	806296	\$18.75	\$16.90
<u>^</u> 2	Streptomycin, 10 mcg	806376	\$18.75	\$16.90
	Sulfamethoxazole with Trimethoprim, 23.75 mcg/1.25 mcg	806420	\$20.95	\$18.85
<u>^</u> 2	Tetracycline, 30 mcg	806476	\$18.75	\$16.90
	Vancomycin, 30 mcg	806492	\$18.75	\$16.90

One-Part Plates, 150 × 15 mm

Mueller Hinton Agar

For standardized antibiotic sensitivity testing. Conforms to Kirby-Bauer specifications.

822922 Pack of 10 **\$46.10** 10+ Packs Each **\$41.50**

Economy Antibiotic Disks

Pick any of these antibiotic magazines to test antibiotic sensitivity. Each disposable magazine contains 50 disks of 1 agent as well as a reclosable cap for storage. Magazine includes expiration date to ensure quality and viability. Disks are 1/4" in diameter.

Itom		
No.	Each	10+ Each
806493	\$15.15	\$13.65
806494	\$15.15	\$13.65
806495	\$15.15	\$13.65
806496	\$15.15	\$13.65
^² 806497	\$15.15	\$13.65
<u>^</u> 2 806498	\$15.15	\$13.65
806500	\$15.15	\$13.65
806502	\$15.15	\$13.65
	806493 806494 806495 806496 \$\textstyle{\Lambda}^2\ 806497 \$\textstyle{\Lambda}^2\ 806498 806500	No. Each 806493 \$15.15 806494 \$15.15 806495 \$15.15 806496 \$15.15 ▲² 806497 \$15.15 ★² 806498 \$15.15 806500 \$15.15

Ö

Antibiotic Disk Mini Set

Get this affordable set of 5 different high-concentration antibiotics: ampicillin, chloramphenicol, penicillin, streptomycin, and tetracycline. Set includes 1 magazine of 50 disks of each agent, a FREE antibiotic dispenser, and a reclosable cap for storage. Each magazine includes expiration date to ensure quality and viability. Disks are ¹/₄" in diameter.

806499 Per set \$64.45



Blank, Sterile Antibiotic Sensitivity Disks

Vial of sterile blank disks that can be used as a control for your antibiotic sensitivity studies. Disks are 1/4" in diameter.

806491 Vial of 250 \$51.80

Antibiotic Disk Dispenser

This handy plastic dispenser, used for individual disk magazines, makes the placement of antibiotic disks on plates quicker and easier.

806490 Each \$19.20 10+ Each \$17.30



Living Organisms



Economy Antibiotic Disks



Complete
15 tests for
identification
simultaneously!

Detection & Differentiation

EnteroPluri

The EnteroPluri offers a convenient, accurate solution to rapid identification of members of the Enterobacteriaceae and other Gram-negative, oxidase-negative bacteria. Each self-contained plastic tube has 12 compartments containing distinct culture media, plus an inoculating wire to simultaneously inoculate all media in the sections and complete 15 standard biochemical tests. After incubating the tube for 18-24 hours at 36° C $\pm 1^{\circ}$, the user evaluates color changes of the different media (a combination of positive and negative reactions), forms a 5-digit code, and uses the *EnteroPluri Codebook* to identify the microorganism. Choose from a **Pack of 10** or a **Pack of 25** individual EnteroPluri tubes.

 801024
 EnteroPluri Tubes
 Pack of 25
 \$810.00

 801025
 EnteroPluri Tubes
 Pack of 10
 \$325.00

 801026
 EnteroPluri Codebook
 Each
 \$34.95



801024 EnteroPluri, Pack of 25

Living Organisms

Media & Supplies



Items from 805748 Kirby-Bauer Turbidity Standards Set

Kirby-Bauer Turbidity Standards Set

Includes the Wickerham Card (item #805746) and a McFarland standard 0.5. Together they facilitate the preparation of bacterial and yeast suspensions for disk diffusion and other tests that require a specified McFarland turbidity.

805748 Per set \$65.30

Wickerham Card

The **Wickerham Card** is 2×3 " plastic laminated card with thick black and white lines to facilitate the preparation of bacterial and yeast suspensions when comparing the turbidity to a McFarland standard. A handy visual aid to be used for the preparation of inoculums for disk diffusion and other tests that require a specified McFarland turbidity. **McFarland Standard** is 8 mL.

805746 Wickerham Card Each **\$28.95 805747** McFarland Standard Each **\$44.10**



BBL[®] Staphyloslide[™] Latex Test Kit

Use this kit to perform latex slide agglutination tests for the differentiation of staphylococci that possess clumping factor and/or Protein A, which is usually present with *Staphylococcus aureus*, from other staphylococci that lack these factors. Kit contains materials for 100 tests.

801044 Per kit **\$236.90**

Cell Culture Supplies



727030 Tissue Culture Flasks

Tissue Culture Flask

Sterile. A flask with a 25-cm² area designed for the growth of monolayers. Manufactured from optically clear virgin polystyrene and treated for optimal cell attachment. Features an anti-tip skirt for increased stability and printed lot numbers for ease of traceability. Sterilized by gamma radiation and certified non-pyrogenic. Has a canted neck and a phenolic-style cap.

727030 Pack of 20 \$54.15



703418 Dual-Chamber Plastic Cellometer

Dual-Chamber Plastic Cellometer®

This disposable cell-counting chamber features an improved Neubauer counting grid mounted onto a 1 \times 3" (25 \times 75-mm) plastic slide. The dual counting chamber includes a sample introduction port, counting grid, and air evacuation port. Counting duplicate samples or control/unknown samples is possible on the same slide. No coverslip is required, avoiding counting errors.

703418 Each \$11.50

Specimen Collection/Transport

831922 Sterile-Collection Swab with Tip Protector

Sterile-Collection Swab with Tip Protector

This convenient, sterile, cotton-tipped swab includes an aerated tip protector. Perfect for applications where samples need to be protected until deposited, such as cheek cell collecting and environmental sampling. The reclosable, ventilated cap protects samples during transport and allows them to air-dry if needed. Swabs have a 6" wooden shaft and are sterile within their own envelopes unless opened. Pack of 50 individually wrapped swabs.

831922 Per pack \$56.00

Sterile Tubes

Borosilicate glass tubes with black phenolic rubber-lined caps. Presterilized for adding sterile culture media or for use as sample-collecting vessels. Can be autoclaved if needed. Size, 16×125 mm. Sold in packs of 10.

808940 Per pack \$29.60



808940 16 × 125-mm Sterile Tubes

Living Organisms

Calgiswab®

Sterile. **Note:** Swab is tipped with calcium alginate, which behaves similarly to cotton. It has no adverse effects on the bacterial transfer and is biodegradable in the human system.

831911 Plastic Shaft

(individually wrapped) Box of 100 **\$36.75**

831920 Wooden Shaft (individually

wrapped)

Box of 100 \$58.55



831920 Calgiswabs, Wooden Shaft



831610 BBL CultureSwab Plus

BBL® CultureSwab™ Plus

This is the ultimate agar gel swab for transport of aerobic or anaerobic organisms. It has a patented hourglass tube design, a 5-mL gel column, and features amies gel without charcoal. Single swab. Sterile packaged.

831610 Pack of 50 \$131.20

Sterile Specimen Cup

Each 4.5-oz polypropylene cup comes with a polyethylene cap. Shatterproof, leakproof, and odor resistant. Graduation on molded exterior. Sterile; packaged individually.

831940 Each \$1.95



Specimen Cup

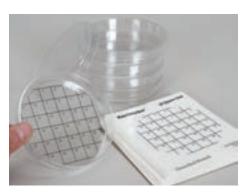
Counters & Readers



eCount[™] Colony Counter

Never miss or double-count colonies again with an easy-to-use handheld colony counter that combines an electronic counter with a Sharpie® pen. The pen-sized instrument automatically beeps or flashes and leaves a mark every time the felt pen tip contacts the culture dish. Enjoy the touch controls for multiple counts, sums, counting up or down, and more! Balanced for easy manipulation, this ergonomic counter accepts both fine and extra-fine point Sharpie® pens. Easily change pens and use different colors for separate colony counts. Counter includes a fine-point Sharpie® pen and weighted stand.

703448 Each \$415.00



703442 PetriStickers (petri dishes not included)

PetriStickers™

An alternative to expensive colony counters for doing short-term work. Allows petri dishes to be individually labeled in grids or sectors. Made with water-resistant ink, substrate, and adhesive; label remains firmly attached at temperatures from 4 to 42° C.

703442 Pack of 36 \$56.10



199851 HPC Total Count Sampler

HPC Total Count Sampler

Perform routine microbiological analysis of liquids and surfaces for levels of bacteria, yeast, or mold with this easy-to-use sampler. Just add a small sample of liquid to the presterilized sampler or wipe a surface with the swab, and then incubate, identify, and count colonies. The sampler is stored at room temperature and eliminates the need to pour and streak plates—saving you time and money! With instructions. **Note:** For best results, please use within 12 months of receipt.

199851 Each \$14.40

Visit Carolina.com to view additional counters.

Living OrganismsInoculating Supplies





Wooden, fabric-tipped applicator sticks, 2 per package. For transferring or collecting microbial cultures. Pack of 10 contains 20 sticks; box of 100 contains 200 sticks.

703032 Pack of 10 Each **\$7.95 703033** Box of 100 Each **\$29.85**



703034 Sterile Plain-Tip Applicator Sticks

Sterile Plain-Tip Applicator Stick

Wooden, plain-tipped applicator sticks, 2 per package. For transferring or making prepared slides of microbial cultures. Box contains 100 packages (200 sticks).

703034 Per box **\$35.00**



703038 Sterile Disposable Inoculating Loops

Sterile Disposable Inoculating Loops

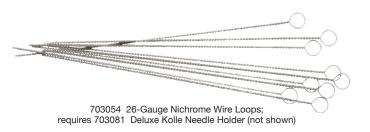
Eliminates the need for open flame in the lab. Shipped in sterile container that easily recloses. Accurately calibrated. Flexible for easy use. Not individually wrapped.

703036 1.0-μL Tip Pack of 25 **\$8.15 703038** 10.0-μL Tip Pack of 25 **\$6.50**



703060 Nichrome Wire Inoculating Loop

703058 Nichrome Wire Inoculating Needle



Nichrome Wire Inoculating Loop

Three inches of twisted 25-gauge nichrome wire with 5-mm loop mounted in an 8" aluminum handle.

703060 Each \$3.85 10+ Each \$3.45

Nichrome Wire Inoculating Needle

Three inches of 25-gauge nichrome wire mounted in an 8" aluminum handle.

703058 Each \$5.00 10+ Each \$4.50

Nichrome Wire Loops

Kolle Needle Holder

Accommodates 26-gauge wire. **703080** Each **\$17.25**

Three-inch twisted inoculating loops constructed of nichrome wire with 3-mm-diam loop. Requires item #703081 Deluxe Kolle Needle Holder (not included).

703052 24-Gauge Pack of 12 **\$23.70 703054** 26-Gauge Pack of 12 **\$23.70**



703080 Kolle Needle Holder



703081 Deluxe Kolle Needle Holder



Deluxe Kolle Needle Holder

Brass rod fitted with insulating sleeve. Screw chuck directs wire into holder for a fast, easy connection. Accommodates 24- and 26-gauge wire. Overall length, 8".

Aluminum rod fitted with insulating sleeve and screw chuck. Overall length, 101/2".

703081 Each \$29.40

Lazy-L-Spreaders[™]

Designed to simplify and quicken bacterial culture work to reduce risk of contamination. Ideal for all types of microbiology research; especially useful in the distribution of dilutions for colony counting. A presterilized disposable item that does not require flaming, autoclaving, or lost time waiting for an instrument to cool down. Packaged in sterile pouches of 10; package contains 50 pouches.

703414 Per pkg \$91.65

Glass Spreader

Designed for smooth-surface inoculation of media plates. Constructed of 5-mm-diam glass rod with polished ends. Spreader has a 130-mm handle and a 50-mm spreader segment with a 90° bend.

703413 Each **\$8.35**



Living Organisms

Bacti-Spreader

Bobbitt Laboratories. Stainless-steel rod bent to facilitate spreading bacterial dispersions evenly over an agar plate.

703412 Each \$8.95



Sterilization Equipment

Carolina® Infrared Bacteria Sterilizer

Sterilize instruments in just 5 to 7 seconds—without an open flame and the risk of infectious splatter and contamination. The Carolina® Infrared Bacteria Sterilizer uses an asbestos-free ceramic core heater element to provide 1,500° F (815° C) of infrared heat. It sterilizes platinum loops, needles, glass tubes, pipet mouths, and many other instruments. Compact and convenient, the sterilizer is a great choice for use in anaerobic and aerobic chambers. Its heater element is safely enclosed to protect users from accidental contact; a handy "standby" temperature setting extends the element's usable life. Replace the **Sterilizer** heater element with **Replacement Heater Element**. The ergonomic **Tilt Sterilizer** improves efficiency and reduces fatigue. The **Tilt Sterilizer XL** (35-mm-diam chamber) sterilizes larger tube and flask mouths. Optional accessories for the Sterilizer and Tilt Sterilizer only: **Loop Holder Attachment**, which keeps loop handles from overheating and melting during sterilization; and **Slide Dryer Attachment**, for drying up to 3 slides quickly and safely.

Sterilize loops, needles, and culture tube mouths quickly and easily.



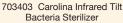




703402 Slide Dryer Attachment









703399 Carolina Infrared Tilt Bacteria Sterilizer XL



703400 Carolina Infrared Bacteria Sterilizer

Biohazard Waste Containers

For convenient disposal of biological and biohazardous lab waste. Containers are reusable and can be
autoclaved with autoclave bag in place. Leakproof
sides and bottom comply with US OSHA Standard
29 CFR Part 1910.1030 for use as protection
against blood-borne pathogens. One-handed
cover operation limits exposure to infectious
materials. Space-saving design for use on
the lab bench or in the fume hood. Will not
rust, dent, or puncture. Wide base limits risk
of container tipping over. Supplied with a safehandling procedures insert from the manufacturer. Autoclave bags must be purchased separately.

831660 1¹/₂-gal (5.5-L) Capacity Each **\$231.75 831665** 5-gal (19-L) Capacity Each **\$293.55**



831665 Biohazard Waste Container, 5-gal (19-L) Capacity

Clavies® Autoclavable Bags

Bel-Art[®]. For maximum protection and convenience when disposing of biological and biohazardous lab waste. Transparent autoclave bags are made of 0.05-mm-thick (0.002") polypropylene. Steam-autoclavable at 121° C (250° F). Can be used with Biohazard Waste Containers (item #831660 and item #831665).

831640 10 × 15" Case of 100 **\$121.90 831642** 24 × 30" Case of 100 **\$262.15**



831642 Clavies Autoclavable Bags, 24 × 30"

Clavies® Autoclavable Bags work well with Carolina® Automatic Autoclaves. View these autoclaves on page 1023.

Eliminate

installation

costs with a

ductless fume

hood.

Living OrganismsFume Hoods



Purair® 5 Ductless Fume Hood

The Purair® 5 from Air Science® USA provides a high level of operator protection by exceeding OSHA, ANSI, and all relevant international standards. Its ductless design eliminates installation costs and allows the unit to be positioned over a sink or a benchtop apparatus. The Purair® 5 operates quietly and recirculates filtered air, minimizing the impact on your lab heating and air conditioning costs. Available in widths of 24", 36", or 48"; internal height, 23³/s". 120 V, 60 Hz. One-year manufacturer warranty

(excludes consumables such as filters and lights). **Note:** To place an order for this fume hood you must order a filter separately; fume hood does not include filter. Tray is also not included; it must be special ordered if desired. Please allow 6 weeks for delivery.

 199735
 24" W × 27" D × 35" H Unit
 Each
 \$3,934.60

 199736
 36" W × 27" D × 35" H Unit
 Each
 \$5,356.00

 199737
 48" W × 27" D × 35" H Unit
 Each
 \$5,306.70

199735 Purair 5 Ductless Fume Hood

EDU[™] Series Ductless Fume Hood, ADA Compliant

The EDU™ Series Ductless Fume Hood from Air Science® USA provides 360° visibility while protecting the user, classroom, and observers from hazardous vapors generated on and above the work surface. Its ductless design eliminates installation costs. The hood unit is mounted to a mobile cart, which allows wheelchair access to the workstation. Controls are mounted in a handheld remote box that can be placed adjacent to or inside the work area. Features constant face velocity of 100 fpm and a multiplex filtration system that keeps users safe in a variety of applications (filters sold separately). ADA compliant. Includes 1-year manufacturer warranty (excludes consumables, such as filters and lights). Dimensions: internal height, 38"; external, 34" W \times 27²/₅" D \times 87" H. Wt, 234 lb. 120 V, 60 Hz. **Note:** Please allow 6 weeks for delivery.

199746 Each \$6,300.00

ADA Compliant



199746 EDU Series Ductless Fume Hood, ADA Compliant



Visit Carolina.com for our complete line of biosafety cabinets; ducted, ductless, and demonstration fume hoods; and filters.





Plants

Plants

Plant the Seed of Learning

- · Highest quality and widest variety
- · Expert handling and shipping
- Full range of plant care accessories
- An unconditional guarantee

Whether you need plants for instruction or research, kindergarten or college, Carolina has a wide selection, all guaranteed to arrive in excellent condition. We offer monocot and dicot seeds for germination study and for demonstrating basic cotyledon differences. Our plant tissue culture supplies help students understand key science concepts through handson, real-world activities. We also carry a range of accessories such as plant growth carts and lights to get your plants going and to keep them growing strong. For large quantities of growing supplies, contact us at 800.334.5551 for a quote.

Alive. On Time. Guaranteed.

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四月日日

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We offer free online care guides to help you care for your organism properly. Find them at Carolina.com/careguides.

Lab Sheets Online

To access FREE lab activities for some of our popular organisms, visit Carolina.com/labsheets.

Information Center

Living Organisms

If you are not satisfied with your living organisms, you must notify Customer Service within 30 days for a replacement, refund, or credit. When ordering living organisms, please:

- . Include the name of the instructor using the material.
- · Specify a ship date. Customers requesting orders without ship dates will be notified and the orders held until ship dates are received.

International Customers

The importation of plants, seeds, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

USDA Permit

Hawaii Restriction Notice

import permits and other pertinent information.

Restricted animals and plants may be obtained by completing a USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds. This form is available from Customer Service (800.334.5551) or from our website at Carolina.com/usda. The permit-approval process may take up to 30 days. International customers: other permits may be required for restricted shipments; please contact us for more information.

Shipment of living materials (viruses, algae, bacteria, plants,

protozoa, insects, and other animals) into HI is restricted. Please

contact the Hawaii Department of Agriculture (808.832.0566)

before ordering this material, and if necessary, provide us with

To obtain a copy of a permit for a specific living organism required by your state, visit Carolina.com/help/permits.

Living Organisms When You Need Them

Carolina typically ships live materials on Mondays-Wednesdays and uses the most economical shipping methods to ensure proper delivery. However, to meet your needs we can ship on any weekday and, when requested, use a premium shipping method (some of which are not available to all locations).

Carolina Pledge: **Excellent Customer** Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.

Wisconsin Fast Plants

Living OrganismsWisconsin Fast Plants®



Why Use Fast Plants®?

- Super-fast life cycle of 35 to 40 days
- Rapid response to environmental variables
- · Easily observable genetic traits
- · Successfully used at all grade levels for over 25 years



Fast, Fun, and Easy!

Wisconsin Fast Plants® have only 5 requirements for optimum growth:

1 Wat

Automatic watering system supplies continuous water.

Light:
Provide 24 hours of light v

Provide 24 hours of light with our single classroom Plant Light House® with Light Bulbs (item #159004) or multi-classroom Plant Light Bank (item #158999).

Temperature:
Plants grow best at room temperature (72 to 82° F).

Fertilizer:
Plants need constant mineral nutrients, which our specially formulated, slow-release fertilizer pellets supply.

Potting Mix:
Fast Plants' rapid root growth is supported by a soil-less planting mix included in kits or sold separately.

Science Fair & Independent Study Kits



Wisconsin Fast Plants® Independent Research Kit

This handy materials kit provides seeds and all the materials needed to set up 4 separate deli-container watering stations. You determine the experiment and the parameters you want to test. There are enough materials to conduct 2 complete growth cycles (8 separate trials, 4 at a time). This kit uses seed disks instead of individual seeds, saving time and ensuring that plants are spaced properly for growing requirements. Never worked with Fast Plants®? Don't worry, planting instructions are included to help you be successful. With this kit, you can observe the complete Fast Plants® life cycle in 35 to 40 days. **Note:** The minimum light requirement for each watering station is 24-hr, cool, white fluorescent light placed within several centimeters of the plants' growing tips.

158691 Per kit \$42.75



Wisconsin Fast Plants® Trial-Sized Get Acquainted Kit

Grade K–College. Get acquainted with our unique Wisconsin Fast Plants® teaching system with this economical, trial-sized kit. The kit provides you the opportunity of observing the life cycle yourself, before introducing your students to Fast Plants® materials. Shortly after planting a quad (a 4-cell unit) of seed, you'll see the seedlings emerge and begin to develop. Then, after pollinating the flowers, you'll watch as the seed pods form.

Our Get Acquainted Kit contains everything you need: seed, soil, fertilizer, wicks, miniature watering system, pollination supplies, stakes, labels, plus our complete *Growing Instructions* booklet.

Please keep in mind that proper lighting is *essential* for success with Wisconsin Fast Plants®. We recommend our item #666900 Individual Plant Light or a similar light source.

158690 Per kit \$15.00

Wisconsin Fast Plants

Plant Growth & Development



158696 Wisconsin Fast Plants Reading Green: Investigating the Life Cycle and Growth of Flowering Plants Kit

Wisconsin Fast Plants® Reading Green™: Investigating the Life Cycle and Growth of Flowering Plants Kit

Reading Green™ is fun and effective for teaching life cycles and reading skills—simultaneously. Students grow Fast Plants® to learn their growth requirements and life cycle. Concurrently, they read 5 different stories about a brother and sister's worldwide adventures with plants. **Kit** provides enough materials for 10 students working in pairs, Reading Green™ booklets, and digital resources; visit Carolina.com for a complete list of kit materials.

158696 Kit Each **\$94.00 158698** *Reading Green* Booklet Pack of 5 **\$64.25**

Living Organisms



Wisconsin Fast Plants® Elementary Exploration of Plant Life Cycles Kit

Grades K–5. Students can nurture Wisconsin Fast Plants® through an entire life cycle in only 40 days. Previously titled The Seed Challenge, this kit provides everything your students need to grow and tend their plants from seed to seed. It accommodates a class of up to 32 students and meets National Science Education Standards. Just add water and a light source (we recommend item #158999 Plant Light Bank or item #159004 Plant Light House® with Light Bulbs).

158973 Per kit \$96.50

Secondary Science



158702 Wisconsin Fast Plants Growth, Development, and Reproduction Advanced Classroom Kit

Ö

Wisconsin Fast Plants® Growth, Development, and Reproduction Advanced Kit

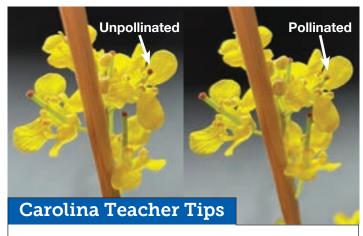
- Super-fast generation cycle of 35 to 40 days
- Virtually maintenance-free
- Cross-discipline applications

Grades 6–12. Make growth, development, and reproduction real for students with this Fast Plants® kit. Studies include measuring and quantifying germination, pollination, and seed development. Experiment times vary (3 to 40 days). Classroom Kit contains enough materials for 32 students. Student Kit (for 1 student or 1 group of students) contains all items in Classroom Kit except the watering system, which in the Student Kit is a deli cup system (includes deli cup, wicks, and Kim-Kap® vials). Both kits include free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. Classroom Kit Refill replenishes Classroom Kit consumable items.

 158700
 Student Kit
 Each
 \$32.85

 158702
 Classroom Kit
 Each
 \$92.25

 158703
 Classroom Kit Refill
 Each
 \$65.00



Purple Improves Pollination

Wisconsin Fast Plants® Standard seed now include a new feature: a purple stigma! This trait, in which the stigma of the plant produces purple pigment, anthocyanin, has been introduced into the Standard seed by careful breeding. The purple stigma allows students to easily distinguish between the pistil and the stamens, which are still yellow. The plant's bright yellow pollen also shows up beautifully against the darker stigma, making it far easier to determine which flowers have been pollinated and resulting in higher seed yields.



Living Organisms

Plants & the Environment



158723 Wisconsin Fast Plants Introduction to Producers in Food Chains Kit

Wisconsin Fast Plants[®] Introduction to Producers in Food Chains Kit

Grades 2–5. For a class of 32 students. Introduce the concept that light is a basic need for plants, as well as the concept of a food chain. In this inquiry activity, students conduct a simple experiment, growing Fast Plants® with and without light. They make observations, collect data, and form conclusions based on their interpretations of their results.

	includes:		
Kit	inc	lud	es:

All Planting Materials 12 Rulers 8 Hand Lenses Instructions

Needed but not included:

Water

Light Source (we recommend item #158999 Plant Light Bank or item #159004 Plant Light House® with Light Bulbs)

158723 Classroom Kit Each **\$52.50 158724** Classroom Kit Refill Each **\$35.75**

Teacher Testimonial

"The Wisconsin Fast Plants® system from Carolina is great. The seeds . . . go from seed to seed in less than a month and kids love to work with them. I actually use them for my introductory class, as an introduction to the scientific method. I explain their life cycle and how a control would be set up and then allow the students to come up with a variable. They set up their experiment and we keep them going for a month, recording data every day we have school. At the end of week 4, the students write up a lab report and graph their data. I would highly recommend the system for all levels of biology."

Daryle LaFleur

Biology/AP® Biology Teacher and Science Curriculum Chair Elkhorn Public Schools Elkhorn, NE

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158725 Wisconsin Fast Plants Plant Nutrition Kit

Wisconsin Fast Plants® Plant Nutrition Kit

Grades 4–8. For a class of 32 students. Introduce the concept that plants need the proper amount of nutrition to be healthy. In this inquiry activity, students grow Fast Plants® with different numbers of fertilizer pellets, discovering that too few or too many pellets produces unhealthy plants. They make observations, collect data, and form conclusions based on their interpretations of their results.

Kit includes: All Planting Materials

8 Rulers 8 Hand Lenses Instructions

Needed but not included:

Water

Light Source (we recommend item #159004 Plant Light House® with Light Bulbs)

 158725
 Classroom Kit
 Each
 \$53.90

 158726
 Classroom Kit Refill
 Each
 \$36.90



Wisconsin Fast Plants[®] Tropism: Plant Growth in Response to a Stimulus Kit

Grades 9–12. Students investigate phototropism and gravitropism (geotropism) in Wisconsin Fast Plants[®]. They determine whether the roots and stems exhibit phototropism and/or gravitropism, which allow terrestrial plants to shift toward more favorable living conditions. Students also determine whether the roots and stems respond more strongly to light or gravity. Materials are sufficient for 30 students working in groups of 3.

Kit includes:

Petri Dishes, 15 × 100 mm Filter Paper Black Construction Paper Plastic Trays Plastic Bags Masking Tape Wisconsin Fast Plants® Seed Rubber Bands Teacher's Manual and

Needed but not included:

16 Pairs Scissors 16 Permanent Markers (fewer if shared) 16 Rulers 16 Small Cups (for dispensing seeds) Cup or Beaker

ubber Bands Tap Water eacher's Manual and 10 Dropping Pipets Reproducible Student Guide

158705 Per kit **\$105.95**

Wisconsin Fast Plants



Wisconsin Fast Plants[®] Acid Precipitation Kit

Grades 5–12. For a class of 32 students. Measure the effect of acid precipitation on plant growth and productivity. **Experiment time is 45 days.**

Kit includes:

Standard Fast Plants® Seed All Other Planting Materials Instructions

158745 Per kit \$93.20



158750 Wisconsin Fast Plants Irradiated Seed Kit

Wisconsin Fast Plants® Irradiated Seed Kit

Grades 5–12. For a class of 32 students. Study the effects of various dosages of gamma radiation on all stages of plant growth and development. Kit contains nonirradiated standard Fast Plants® (control) seed and seed that has been exposed to different levels of cobalt 60 radiation (50, 150, 500, and 4,000 Krads). Mutagenesis and mutational effects can be studied by planting seed and comparing growth and development rates. Experiment times vary from 40 to 100 days. The Irradiated Seed Set contains only the control and irradiated seed and is ideal for teacher demonstration, science fairs, or student research on the effects of irradiated seed on plant growth and development.

Kit includes:

Pack Nonirradiated Seed (35–50 seed)
4 Packs Irradiated Standard Seed (35–50 seed per pack)
All Other Planting Materials
Instructions

158750 Classroom Kit Each **\$124.70 158900** Irradiated Seed Set Each **\$67.00**

For free lessons and activities that use Wisconsin Fast Plants®, go to Carolina.com/knowledge and type "Fast Plants" in the search field, or visit www.fastplants.org.

Wisconsin Fast Plants Genetics





Wisconsin Fast Plants® 72-Hour Dihybrid Genetics Kit

Bring genetics to life

Grade 8–College. For a class of 30 students. Why just tell students about genetics when they can learn the basic principles of Mendelian genetics and the concepts of inheritance by observing real plants? Using petri dishes and filter papers, students sow seeds for 3-day-old P_1 - and P_1 -generation plants. They make observations and form a hypothesis about the phenotype of the P_2 generation. They then sow the P_2 seeds to test the hypothesis. All kit activities can be completed in just 3 class periods—and everything is included except a light source. (We recommend item #159004 Plant Light House® with Light Bulbs.) Kit also includes free 1-year access to digital resources that support 3-dimensional instruction.

158939 Per kit \$105.00

Living Organisms



Wisconsin Fast Plants® 72-Hour Monohybrid Genetics Kit

Grades 8–12. For a class of up to 32 students. If you need a quick monohybrid genetics lab, this is it. Activities can be completed in as little as 3 days. By germinating Wisconsin Fast Plants® seeds, students working in groups of 4 study the inheritance of purple color through 3 generations of plants. Students also study a monohybrid cross that begins with a homozygous purple stem plant and a homozygous non-purple stem plant. In the 1st activity students prepare seed disks for germination in petri dishes. In the 2nd activity they observe the seedlings and collect and analyze data. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158940 Per kit \$105.00



Wisconsin Fast Plants® Monohybrid Genetics Kit

Hot on the trail of a trait

Grades 6–12. How do we inherit certain traits? Students find out as they explore Mendelian genetics by growing and pollinating F₁ hybrid plants to produce F₂ seed. Analysis of inheritance is based on segregating f₂ gene in the F₂ generation. This fascinating experiment illustrates the principles of inheritance of unit characters, dominance, and segregation. The entire experiment takes only 55 days. Classroom Kit includes enough materials for a class of 30 students. All 3 kits include 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

F Seed (from a cross of the stem; from a parent with the recessive mutation Non-Purple Stem)

F Seed (from a cross of the 'parent strains [anl/ANL])

All Other Planting Materials Instructions

 158768
 Student Kit
 Each
 \$33.40

 158770
 Classroom Kit
 Each
 \$98.80

 158771
 Classroom Kit Refill
 Each
 \$67.90

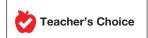
Wisconsin Fast Plants® Dihybrid Genetics Kit

Grades 6–12. Similar to our Monohybrid Genetics Kit, except students study inheritance of 2 genes segregating in the $\rm F_2$ generation. The experiment illustrates independent assortment, in addition to other principles of Mendelian genetics. Experiment time is 55 days. **Classroom Kit** includes enough materials for a class of 30 students. Visit **Carolina.com** for complete lists of kit materials.

 158772
 Student Kit
 Each
 \$33.40

 158774
 Classroom Kit
 Each
 \$98.80

 158775
 Classroom Kit Refill
 Each
 \$66.75



Wisconsin Fast Plants® Who's the Father? Investigating Genetics Kits

Grades 8–12. For a class of 32 students. How are traits passed from one generation to the next? In this 60-day investigation, students observe 3 generations of plants as they attempt to unravel the mystery of paternity. They develop explanations, based on their own observations, for the inheritance of either 1 or 2 Mendelian genes. Use the Monohybrid Kit (1 gene) for beginning genetics; use the Dihybrid Kit (2 genes) for more advanced students. Kits include everything needed except water and a light source (we recommend item #159004 Plant Light House® with Light Bulbs). Kit Refills replenish consumable materials.

158963	Monohybrid Kit	Each	\$98.80
158964	Dihybrid Kit	Each	\$98.80
158756	Monohybrid Kit Refill	Each	\$67.80
158757	Dihybrid Kit Refill	Each	\$67.80

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Wisconsin Fast Plants®: Seed Disks

Accelerate Wisconsin Fast Plants® studies with these handy seed disks, which have seeds "sewn" into dissolvable paper disks. The disks can be placed directly on soil in a watering system or into a petri dish. Uniform rows of plants with equal spacing allow students to easily observe individual plant growth and development. The Standard Seed Disk Set comes in an 8-pack with 16 to 18 seeds per disk. The Mendelian Genetics Monohybrid Seed Disk Set contains 8 disks (Non-Purple × Purple) for each of the following: P, mother disks, P, father disks, F, disks, and F, disks. Each disk is conveniently

158870 Standard Seed Disk Set (8 disks) Each \$25.00 **158871** Mendelian Genetics Monohybrid

Seed Disk Set (32 disks)

Each \$98.00

From 158870 Standard Seed Disk Set labeled and packaged in an envelope to ensure the specified seed stock is planted. Visit Carolina.com for additional specifications.



Seed disks provide easier seed distribution

with equal spacing in petri dishes

or deli watering systems.

Wisconsin Fast Plants

From 158871 Mendelian Genetics Monohybrid Seed Disk Set

Webinars with Wisconsin Fast Plants®



Carolina and FastPlants.org have teamed up to offer an extensive series of prerecorded webinars to help you make the most of your Wisconsin Fast Plants® activities. The webinars include:

- Life Cycle and Growth and Development
- Student-Designed Ecosystem Experiments in Middle Grades
- Building Understanding of Mendelian Genetics
- Making Sense of Inheritance Data
- · Genetic Inheritance and Artificial Selection
- And more!

Find them at Carolina.com/knowledge > Teaching & Learning > Workshops & Webinars

Looking for AP® Biology resources?





Then see our Carolina Investigations® for Use with AP® Biology Kits, as well as our materials kits, starting on page 297.

Wisconsin Fast Plants Evolution & Selection





Wisconsin Fast Plants® Polycot Seeds

Brassica rapa. Wisconsin Fast Plants® polycots sprout more than 2 cotyledon leaves. The trait is easy to identify immediately after germination. The generation resulting from **Generation 1 Seeds** will express approximately 30% polycots. Generation 2 Seeds were produced by selectively breeding the first-generation seeds that demonstrated the polycot trait to one another. The generation resulting from **Generation 2 Seeds** will express approximately 45% polycots. Both seed types are primarily used for selection studies.

158845 158846 158847	Generation 1 Seeds Generation 1 Seeds Generation 2 Seeds	Pack of 100	\$38.50 \$21.50
158848	Generation 2 Seeds	Pack of 200	\$38.50

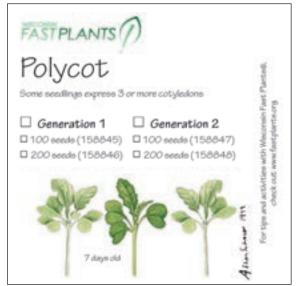
New! Investigating Selection with Wisconsin Fast Plants® Kit

- Connected to Unit 7: Natural Selection, topics 7.2: Natural Selection and 7.3: Artificial Selection
- Addresses content in Enduring Understanding EVO-1

In 2 guided investigations, students explore selection as a mechanism that can drive change in a population. They plant Wisconsin Fast Plants® seeds that vary in the number of cotyledons present on the seedlings, then examine the seedlings to determine their traits and how these traits vary. They then perform a selection experiment, crossing polycot plants to each other to see how cross pollination affects the frequency of polycots in the offspring population. Kit includes enough materials for 8 groups; visit Carolina.com for a complete list of kit materials.

↑ 747540 Kit Each \$98.80 747540EBK Digital Resources Each \$12.95

Living Organisms





747540 Investigating Selection with Wisconsin Fast Plants Kit

Exploring Selection with Wisconsin Fast Plants® and Cotyledons Kit

Grades 9–12. For a class of 30 students. Students grow Wisconsin Fast Plants® seedlings that can be dicots (having 2 cotyledons) or polycots (having more than 2 cotyledons). They are asked to develop an experiment to help determine why the seedlings vary in cotyledon number. Is the trait genetically or environmentally determined? In the second investigation, students germinate second generation seeds that were produced by a cross of 2 parents that both exhibited the polycot trait. Students then observe whether the percentage of polycots in the 2 generations differs and determine the statistical significance of any observed difference. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158778 Per kit \$95.00



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Our Most Popular Wisconsin Fast Plants® Seed Stocks

Standard Wisconsin Fast Plants® Seed

• Purple stigma trait makes pollination easy • Perfect for science fair projects • Super-fast generation time

Wisconsin Fast Plants® Standard seed (items #158804 and #158805) is the standard for both form and performance but its newest feature—a purple stigma trait—makes pollination easier and improves pollination rates. It still flowers in 13–17 days and is variable for expression of purple pigment in stems. Just provide appropriate care conditions, and you can expect your plants to complete a full life cycle (what we call "seed to seed") in about 35–40 days. Our wide range of mutant seed stocks offers you the best available model for genetics, physiology, botany, environmental science, and more.



Wisconsin Fast Plants® Seed Stocks

Seed Stock Name**	Description	Main Uses	Genetic Designation	Item No.	Qty	Price
Standard	Standard for form and performance; flowers in 13 to 17 days; variable for expression of purple pigment in stems.	Life cycles, environmental science, botany, comparative morphology, physiology	Rbr	158804 158805	Pack of 50 Pack of 200	\$15.50 \$38.50
Purple Stem, Hairy (High Anthocyanin Expression, Hairy)	Dominant expression of purple pigment in stems (also in petioles and bud tips); also selected for higher than usual number of leaf hairs; a quantitative trait.	Genetic studies of purple pigment (anthocyanin) production and expres- sion in crosses with Non-Purple Stem mutant <i>(anl)</i> ; study inheritance of leaf hairs	<i>ANL</i> , Hir (5–8)	158810 158811	Pack of 50 Pack of 200	\$15.50 \$38.50
Non-Purple Stem, Hairless (Anthocyaninless, Hairless)	Recessive gene blocks the expression of purple pigment; also selected for few or no leaf hairs, thought to be recessive.	Genetics, see above	<i>anl</i> , Hir (0–1)	158812 158813	Pack of 50 Pack of 200	\$15.50 \$38.50
Yellow-Green Leaf (Yellow-Green)	Recessive; leaves yellow-green; purple pigment in stems.	Genetics, photosynthesis	ygr	158818 158819	Pack of 50 Pack of 200	\$15.50 \$38.50
Non-Purple Stem, Yellow-Green Leaf (Anthocyaninless, Yellow-Green)	Double recessive mutant, with yellow-green leaves; no purple pigment expressed in plant.	Genetics, photosynthesis	anl, ygr	158843	Pack of 200	\$38.5
Rosette-Dwarf (Rosette)	Recessive gene; gibberellin-deficient mutant; compact due to shortened internodes; attains normal height after application of 100-ppm gibberellic acid; flowers in 18 days; harvested seed must have dormancy broken with a 3-min soak in 200-ppm gibberellic acid.		ros	158815 158816	Pack of 50 Pack of 200	\$15.5 \$38.5
Tall Plant (Elongated Internodes)	Recessive; abnormally tall due to elongated internodes; gibberellin over-producer; may require staking.	Genetics, physiology	ein	158824 158825	Pack of 50 Pack of 200	\$15.5 \$38.5
Petite (Petite)	Recessive; plants of reduced height (5 to 15 cm); not a gibberellicdeficient mutant.	Genetics, physiology	dwf1	158833	Pack of 200	\$38.5
AstroPlants (AstroPlants)	Recessive; variant of Petite stock, shorter and more uniform (10 cm) in height; selected for research in space.	Genetics	dwf1	158836	Pack of 200	\$38.5
Variegated (Somatic Variegation)	Maternal inheritance (chloroplast); irregular patches of white on green leaves.	Maternal (cytoplasmic) inheritance, photosynthesis	Var	158820 158821	Pack of 50 Pack of 200	\$15.5 \$38.5
Polycot, Generation 1	About 30% of plants sprout more than 2 cotyledon leaves.	Selection studies		158845 158846	Pack of 100 Pack of 200	\$21.5 \$38.5
Polycot, Generation 2	Seed from cross of generation 1 polycot seeds with one another; about 45% of resulting plants sprout more than 2 cotyledon leaves.	Selection studies		158847 158848	Pack of 100 Pack of 200	\$21.5 \$38.5

^{**}Note: Some seed stock names have been changed to more clearly reflect the phenotype (appearance). Catalog numbers have not been changed. Previously used names are in parentheses.

Wisconsin Fast Plants Wisconsin Fast Plants F, & F, Stocks

Genetic time-saver

- Representatives available for monohybrid and dihybrid genetics
- · Variety of mutant selections for a broader understanding of inheritance
- Saves time!

Don't have time to carry a cross from the parental generation? We've got you covered with both F_1 and F_2 generations of Wisconsin Fast Plants® seed. F_1 generation seed will express dominant traits (purple stems, dark green leaves, standard height) and can be used to produce F_2 seed that will show the typical monohybrid (3:1) or dihybrid (9:3:3:1) phenotypic ratios. F_2 seed will express the appropriate phenotypic ratios. The result: more genetic concepts learned in less time.

- Read the description column below to learn the genotype and phenotype of each parent stock.
- F₁ seed are produced by crossing 1 of the mutant stocks (recessive) with Purple Stem, Hairy.
- F₂ seed are produced by intermating F₁ plants.
- F₁ and F₂ seed stocks are named for the mutant (recessive) parent seed stock. Thus, F₁ Yellow-Green Leaf is produced by crossing Purple Stem, Hairy with Yellow-Green Leaf.

Living Organisms

Wisconsin Fast Plants® Genetic Seed Sampler

Grades 8–12. Eight of our most popular genetic stocks together in one set. You'll receive 8 packets of 20 to 30 seed each, enough to plant 2 quads (8 plants) of each stock using our item #158993 Wisconsin Fast Plants® Growing System (not included, see page 88), for a total of 64 plants. Our Growing Instructions booklet is included.

Standard (Rbr)
Rosette-Dwarf (ros)
Tall Plant (ein)
Non-Purple Stem, Hairless (anl, Hir [0–1])
Non-Purple Stem, Yellow-Green Leaf (anl, ygr)
Yellow-Green Leaf (ygr)
Variegated (Var)
Petite (dwf1)

158800 Per set \$72.20

Wisconsin Fast Plants® Genetics F₁ & F₂ Stocks

	Seed Stock Name**	Description	Main Uses	Genetic Designation	Item No.	Qty	Price
afre	F ₁ Non-Purple Stem, Hairless (F ₁ Anthocyaninless, Hairless)	F, seed from cross of Non-Purple Stem, Hairless [anl, Hir (0–1)] × Purple Stem, Hairy [ANL, Hir (5–8)]; F, has dark leaves and purple in stems; leaf hairs intermediate.	Monohybrid genetics; quantitative genetics	<i>anl/ANL</i> Hir (0–1), Hir (5–8)	158880 158881	Pack of 50 Pack of 200	\$15.50 \$38.50
-	F₂ Non-Purple Stem, Hairless (F ₂ Anthocyaninless, Hairless)	F ₂ plants show 3:1 segregation of Purple Stem:Non-Purple Stem and polygenic inheritance for leaf hairs; score phenotypes at 3 to 5 days; for best expression of pigment, requires high light intensity (24 hr, 5 to 10 cm from light source).	Monohybrid genetics; quantitative genetics		158886	Pack of 250	\$43.50
ofe	F, Non-Purple Stem, Yellow-Green Leaf (F, Anthocyaninless, Yellow-Green)	F, seed from cross of Non-Purple Stem × Yellow-Green Leaf; F, (anl/ANL, ygr/YGR) has dark green leaves and purple pigment.	Dihybrid genetics, AP® Biology	anl/ANL, ygr/YGR	158890 158891	Pack of 50 Pack of 200	\$15.50 \$38.50
To Me	F ₂ Non-Purple Stem, Yellow-Green Leaf (F ₂ Anthocyaninless, Yellow-Green)	F ₂ plants show dihybrid segregation of Purple Stem:Non-Purple Stem and Dark Green Leaf:Yellow-Green Leaf; score phenotypes at 3 to 5 days; for best expression, requires high light intensity (24 hr, 5 to 10 cm from light source).	Dihybrid genetics		158888	Pack of 250	\$43.50
2/3	F, Rosette-Dwarf, Non-Purple Stem (F ₁ Rosette, Anthocyaninless)	F_1 seed from cross of Rosette-Dwarf (ros) × Non-Purple Stem (anl); F_1 has normal height and purple pigment.	Dihybrid genetics, physiology	ros/ROS anl/ANL	158884 158885	Pack of 50 Pack of 200	\$15.50 \$38.50
300	F ₂ Rosette-Dwarf, Non-Purple Stem (F ₂ Rosette, Anthocyaninless)	F ₂ plants show dihybrid segregation of normal height:dwarf plants and Purple Stem: Non-Purple Stem; score phenotypes at 3 to 5 days; for best expression, requires high light intensity (24 hr, 5 to 10 cm from light source).	Dihybrid genetics, physiology		158895	Pack of 250	\$43.50

**Note: Some seed stock names have been changed to more clearly reflect the phenotype (appearance). Item numbers have not been changed. Previously used names are in parentheses.

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Living Organisms Growing Supplies



New! Self-Watering Plant Growing System Class Set

Take some of the worry out of growing plants in your classroom with this self-watering growing system. It includes everything a class needs for growing healthy plants, except seeds and a light source; visit **Carolina.com** for a complete list of set materials. The system is designed for use with Wisconsin Fast Plants® Seed Disks (items #158870 and #158871, not included), but works great with loose Wisconsin Fast Plants® seeds, too. Instructions for use with Seed Disks are included. If using loose seeds, order about 200 of them.

158937 Per set \$17.50



Wisconsin Fast Plants® Growing System

Create your own kit! System includes planting units, soil, fertilizer, watering system, watering pipets, plant labels, plant support stakes, pollinating materials, and *Growing Instructions* booklet. You order the seed stock(s) you want. For this classroom-sized system, order about 200 seed (a packet of 200 or 4 assorted packets of 50).

158993 Each \$59.10

Carolina Teacher Tips



requires continuous, bright, cool white light. Place the plants 5 to 10 cm away from one of the lighting systems we recommend, such as the Plant Light House® with Light Bulbs (item #159004) or the Plant Light Bank (item #158999). Providing adequate and adjustableheight light helps to ensure that *B. rapa* grows successfully.





Wisconsin Fast Plants® Watering System

Offered as a complete system and as individual components. This unique, automatic watering system was developed in the classroom for growing *Brassica*. Sturdy "blue diamond" wicks are very effective for drawing moisture from the water mat into the quad. The **Watering System** consists of 1 watering tray with platform lid for holding 8 quads (item #158960, not included), 2 water mats, 70 quad wicks, and 2 antialgal squares (item #158979).

158974	Watering		
	System	Each	\$15.75
	-	10+ Each	\$14.20
158975	Watering Tray	Each	\$10.10
		10+ Each	\$9.10
158977	Water Mats	Pack of 2	\$6.00
		10+ Packs Each	\$5.40
158978	Quad Wick	Pack of 70	\$8.15
		10+ Packs Each	\$7.35



Wisconsin Fast Plants® Planting Mat

Use this sturdy vinyl mat to protect your work surface during planting. Detailed print and illustrated directions guide your students through the planting process. One side presents the deli-dish planting system, and the other side shows planting in the foam quad system. Both sides feature detailed images. The large, double-sided mat easily wipes clean and stores flat until the next use. Can be used year after year. Size, 12×18 ".

158961 Each \$9.00

Growing Supplies

Living Organisms



Quad Reusable planter

- Can be adapted to individual or group work
- Can be reused, saving resources
- · Easy to store

Use this 4-cell, foam planter for growing *Brassica* to maturity, then stack and store in a minimum amount of space. Unit of 16.

158960 Each **\$12.50** 10+ Each **\$11.25**



Quad Wick Essential for effective watering

- · High water absorbency
- · Easy to use
- · Excellent quality at a low cost

These durable, easy-to-use, "blue diamond" wicks are very effective at drawing moisture from your growing system water mat to each quad foam planter.

158978 Pack of 70 **\$8.15** 10+ Packs Each **\$7.35**



Bulk Water Mat Material

Use this water mat material when designing your own growing systems. Measure and cut water mat to the size you want. Provides flexibility and economy for growing Fast Plants®. Reusable, absorbent polyester felt material measures approximately 45×36 ". Makes around 18 mats sized 15×6 ".

158969 Each \$19.50



Pollination Wand

For use in controlled genetic crosses. Use of pollination wands results in seed production comparable to that obtained with bee sticks. These durable wands are ready to use and can be sterilized by dipping in 70 to 95% alcohol to kill adhering pollen; let dry completely before reusing. Pollen is highly visible against the ¹/₄" black pollen collection surface. Total length, 3". (This item is not included in our Fast Plants® kits.)

158988 Pack of 12 **\$9.35** 3+ Packs Each **\$8.40**

Plant Label

support rings.

158984 Pack of 16

Plastic, 8-cm labels, easily written on with permanentink, felt-tip markers.

Stakes (25 cm) used to support mature Brassica. With

\$4.95

\$4.45

158982 Pack of 16 **\$5.00** 10+ Packs Each **\$4.50**

10+ Packs Each

Plant Support Stake



158970 Fertilizer, 1-oz Package

Fertilizer

Specially sized, slow-release fertilizer (14-14-14). The **1-oz Package** is enough for 48 quads.

158970 1-oz Package Each **\$5.90 158971** 1-lb Package Each **\$19.30**

Potting Soil

Specially formulated for growing *Brassica*. The **1-L Bag**, shipped with the classroom kits, is sufficient for 48 quads. The **2-cu-ft Bag** will fill more than 1,000 quads.

 158965
 1-L Bag
 Each 10+ Bags Each 10+ Bags Each 2-cu-ft Bag
 \$7.10

 158966
 2-cu-ft Bag Each 2-cu-ft Bag

Dried Bee

For making the unique bee sticks used to pollinate *Brassica*. Unit of 3 g (about 70 bees).

158985 Per unit **\$9.75** 10+ Units Each **\$8.80**





Anti-Algal Square

Absorbent felt squares saturated with copper sulfate and dried. Adding one square to the water in the watering tray will prevent algal growth.

158979 Pack of 2 **\$3.75** 10+ Packs Each **\$3.40**



Pollination Bag

Prevent pollen contamination of controlled genetic crosses by neighboring plants. Pollinate the flowers, then simply drop the pollination bag over the entire plant or pot. The $4\times6"$ bags of clear, nonwoven, polypropylene fabric combine outstanding breathability with excellent visibility. Durable and resistant to moisture, pollination bags can be reused many times. (This item is not included in our Wisconsin Fast Plants® kits.)

158949 Pack of 10 \$13.15



For more indoor and outdoor growing supplies, go to page 109.

Living Organisms Plants

Plant Assortments

Teach taxonomy and diversity in the plant kingdom with our high-quality plant sets. These sets have been chosen specifically to display a range of characteristics within each plant type.



Lichen Set

Portions of crustose, foliose, fruticose pendant, and fruticose lichens. Lichen Types Bioreview® Sheet is included. Note: Cannot be shipped into CA.

156400 Per set \$24.25



Liverwort Set

Four different liverworts. Genera may vary seasonally. Marchantia Life Cycle Bioreview® Sheet included. Note: Cannot be shipped into CA.

156500 Per set \$38.60



Moss Set

Vegetative portions of 3 mosses and 1 portion of sporulating moss. Genera may vary seasonally. Polytrichum Life Cycle Bioreview® Sheet included. Note: Cannot be shipped into CA.

156650 Per set \$38.60



Tropical Fern Set

A set of 5 different tropical ferns, our choice. We try to include interesting forms such as Boston fern, staghorn fern, Korean rock fern, button fern, lemon button fern, silver lace fern, bird's nest fern, etc.

156842 Per set \$60.60



Fern Allies Set

Selaginella, Lycopodium, and Equisetum. Note: Cannot be shipped into CA. 156950 Per set \$48.15



Fern Set

Small, bare-root specimens of Asplenium, Polypodium, Polystichum, and Botrychium. Genera may vary seasonally. Note: Cannot be shipped into CA.

156840 Per set \$41.70

Plants

Basic Plant Kingdom Survey Set

An excellent introduction to plant taxonomy. Includes 10 plants, each representative of one of the major plant kingdom groups: algae, liverwort, moss, fern, *Selaginella*, gymnosperm, 2 dicots, and 2 monocots. With study guide. **Note:** *Cannot be shipped into CA*.

151102 Per set **\$87.35**

Desktop Biomes

Choose any of our 4 distinct plant communities, or select the Ecology Set and receive a bonus aquatic habitat setup.



Carnivorous Plant Terrarium

Includes pitcher plant, Venus flytrap, Cape sundew, live *Sphagnum* moss, 4-L vessel, soil, and instructions. **Note:** *Not for export. Cannot be shipped into CA or HI.*

163691 Per set \$57.20



Woodland Terrarium

Includes moss, fern, seed plant, soil, 4-L vessel, and instructions. **Note:** Cannot be shipped into CA or HI.

163790 Per set \$35.70



Sandhill Terrarium

Includes lichen, cactus, additional plant, soil, 4-L vessel, and instructions. **Note:** *Not for export. Cannot be shipped into CA or HI.*

163890 Per set \$35.70



Bog Terrarium

Includes liverwort, clubmoss, seed plant, soil, 4-L vessel, and instructions. **Note:** Cannot be shipped into CA or HI.

163590 Per set **\$35.70**

Living Organisms



Plant Collection

This collection of 15 potted plants demonstrates the great diversity of forms found in the plant kingdom. Includes one or more representatives from among the ferns, gymnosperms, tropical foliage plants, and other flowering plants such as begonia, geranium, palms, cacti, and succulents. The collection can be used for a number of interesting classroom demonstrations: plant morphology, ecological adaptation, plant taxonomy, and many others. It can also be used to teach students the basics of plant cultivation; soil, water, and light requirements; plant propagation; and other horticultural practices.

151120 Per collection \$149.55



Ecology Set

Create 5 ecosystems to observe diversity. This set includes everything needed to establish one 4-L aquarium and 4 terraria: bog, carnivorous, woodland, and sandhill. With instructions. **Note:** *Not for export. Set ships with a voucher to request perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishables. Cannot be shipped into CA. Elodea cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, and WI. Restricted states will be shipped a compatible plant, depending on availability. Residents of AK must apply for a permit from your state game and fish department to receive pond snails. Canadian orders require a permit from the Canadian government.*

Five 4-L Vessels Terrarium Soil White Quartz Sand

Aguarium: Bog: Carnivorous: Woodland: Sandhill: 3 Snails Liverwort Sphagnum Moss Lichen Duckweed Clubmoss Pitcher Plant Fern Cactus Succulent Plant Pine Seedling Venus Flytrap Seed Plant Elodea

163981 Per set **\$157.70**

Plant Specimens

Liverworts

Marchantia Antheridia and Archegonia

 $\label{eq:marchantia} \textit{Marchantia} \ is \ the genus of liverworts most often described in textbooks. These nonvascular plants have both male structures that produce antheridia (item #156544) and female structures that produce archegonia (item #156546). Specimens with visible antheridia and archegonia are available April—June. Plants without sex organs (item #156540) are available year-round. Each portion measures <math>4^1/2 \times 4^1/2^n$. **Note:** Cannot be shipped into CA.

156540 *Marchantia* Portion Each **\$16.95**

156544 *Marchantia* Antheridia Portion

Each **\$19.10**

156546 *Marchantia* Archegonia Portion

Each **\$19.10**





Conocephalum

Also known as snakeskin liverworts, the species in this genus have distinctive patterns on their relatively large upper thallus. They typically grow in moist, shaded habitats. Each portion measures $4^{1}/_{2} \times 4^{1}/_{2}$ ". **Note:** Cannot be shipped into CA.

156530 Per portion **\$18.10**



Porella

One of the larger leafy liverworts. Semi-aquatic. The portion is shipped in a 2-oz jar of well water. **Note:** Cannot be shipped into CA.

156570 Per portion **\$18.10**



Riccia

Riccia is a genus of small liverworts. This specimen is aquatic, with a forked thallus 1 mm W. Each portion is shipped in a 2-oz jar of well water.

156580 Per portion **\$15.80**



See more aquatic liverworts in the Aquatic Plants section on page 100.

Plants Mosses

Living Organisms



Polytrichum

Hair-cap moss. Large, common moss of worldwide distribution. Each portion contains at least 12 plants. **Note:** *Cannot be shipped into CA.*

156730 Per portion \$14.10



Sphagnum

Bog moss. Often occurs in extensive beds covering many acres. Because of its enormous water-holding capacity, it is used by florists and nurserymen to pack plants. Each portion equals 4×6 ". **Note:** *Cannot be shipped into CA*.

156740 Per portion \$14.10



Mnium

Broad-leaf moss. Each portion equals 3×3 ". Note: Cannot be shipped into CA. 156720 Per portion \$14.10



Dicranum

Pillow moss. One of the most common mosses. Grows in dense clumps. Each portion equals $4^{1}/_{2} \times 4^{1}/_{2}$ ". **Note:** *Cannot be shipped into CA*.

156698 Per portion \$14.10

Life Cycle of Mosses

During the life cycle of a moss, the moss capsule (item #156666) produces haploid spores that grow into protonemata (singular: protonema; item #156681). The protonema will grow and differentiate into nonvascular stems and leaves. A clump of vegetative moss (item #156690) is a collection of gametophore shoots that grow from a single protonema. From the tips of these shoots, archegonia and antheridia grow, which produce female and male gametes. The egg cells stay enclosed within the haploid parent. Once fertilized, they grow a diploid sporophyte stalk (item #156695) that produces capsules.



Moss Capsule

Polytrichum. Capsules unopened with opercula in position and with attached setae. Each capsule contains thousands of spores. **Note:** *Cannot be shipped into CA.*

156666 Pack of 12 \$20.00



Vegetative Moss

Genus shipped may vary seasonally. Each portion equals $4^1/2 \times 4^1/2^n$. **Note:** Cannot be shipped into CA.

156690 Per portion **\$11.45**



Sporulating Moss

Gametophyte with sporophyte. Genus shipped may vary seasonally. Each portion contains at least 12 sporophytes. **Note:** Cannot be shipped into CA.

156695 Per portion \$16.20



Moss Protonema

Luxurious culture free from dirt and debris. Excellent for class study or for preparing stained slides.

156681 Per culture \$15.30

Ferns & Fern Allies



A popular houseplant, the sword fern or Boston fern grows in tropical and subtropical humid forests and swamps. This specimen, a compact form of the plant, is fully mature and selected for easy culturing.

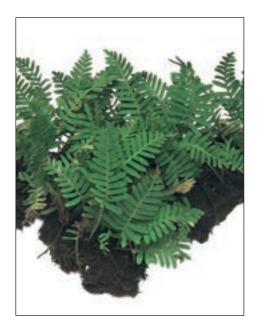
156903 Each \$11.45



Korean Rock Fern

Polystichum tsussimense. A beautiful fern, small and well suited for fern baskets or dish gardens. Produces abundant sori and spores; however, sori production is seasonal and may not always be present. In 4" pot.

156938 Each \$11.45



Polypodium

Resurrection fern. Epiphytic. Portion includes several fronds on substrate. **Note:** *Cannot be shipped into CA.* **156936** Per portion \$15.25



Botrychium

Botrychium, sometimes known as moonwort, is a eusporangiate fern with spores arising from a grouping of epidermal cells rather than from a single cell. This is a bare-root sample. Collected. **Note:** *Cannot be shipped into CA*.

156915 Each \$14.90



Fern Minimarsh

Hydrate fern spores and pour them over a hydrated peat pellet. Cover with growth cone and set minimarsh under a light bank or in a window. Germinated fern spores produce prothallia (gametophytes) in 2 to 4 weeks and young sporophytes in 5 to 6 weeks. **Note:** *Minimarsh can be stored in a cool, dark place for up to 2 weeks before initiating growth.*

156820 Each \$9.00



See more aquatic ferns in the Aquatic Plants section on page 100.

Plants

Fern Life Cycle

In the life cycle of the fern, mature fern fronds (item #156902) form sori (singular: sorus) on the underside of their leaves. Each sorus is a clump of sporangia that release spores following meiosis (item #156860). The spores divide and develop filamentous protrusions (item #156873) that eventually develop into rhizoids and chlorophyllous cells (item #156875). As the prothallus (gametophyte) matures, it develops a characteristic apical notch (item #156877), and eventually male (antheridia) and female (archegonia) sex organs develop (item #156879). After the eggs have been fertilized, a young sporophyte plant begins to grow out of the gametophyte (item #156881). This is the dominant generation, which grows into a mature fronded plant that develops spores.

Item No.	Name	Description	Pkg	Each
156902	Fern with Sori	Mature plant with 1 or more fertile fronds. If fertile fronds are not developed (depending on season), we include pressed and dried fertile fronds with each living specimen shipped. Note: Cannot be shipped into CA.	Plant	\$19.00
156860	Fern Spores	Generous unit suitable for growing fern prothallia. Prothallia initially show 1-dimensional growth. With cotton-tipped swab for dusting spores over surface of medium.	Vial	\$15.45
156873	Fern Prothallia— Filamentous Stage	Filamentous stage.	Jar	\$14.75
156875	Fern Prothallia— Young	Shows well-developed rhizoids and plate of chlorophyllous cells.	Jar	\$14.85
156877	Fern Prothallia— Well Developed	Shows rhizoids and apical notch; without antheridia and archegonia.	Jar	\$14.85
156879	Fern Prothallia— Mature	With antheridia and archegonia.	Jar	\$24.45
156881	Fern Prothallia— Young Sporophyte	Sporophytic stage.	Jar	\$24.45

Living Organisms



156902 Fern with Sori



156860 Fern Spores



Fern Prothallia Set

For a class of 30 students. Our choice of 3 stages (filamentous, young prothallia, well-developed prothallia, mature prothallia, or young sporophyte). Each stage is in a separate container.

156830 Per set \$60.60



156881 Fern Prothallia—Young Sporophyte



156879 Fern Prothallia-Mature



156873 Fern Prothallia-Filamentous Stage



156877 Fern Prothallia-Well Developed

Grade 7-College.

- · Easy, rapid setup by teacher or students
- Easy to grow
- Rapid gametophyte development from spores over a 14-day period
- Spore-to-spore life cycle in as little as 90 days
- Simple genetics with striking mutant phenotypes (e.g., polka dot)

C-FERN® is easy to grow and its fast development and simple genetics make it a great teaching tool. First of all, C-FERN® requires little space—an area 22 × 10¹/₂" is all you need for a class.



156702 Sex in a Dish: C-FERN Life Cycle Kit

156708 Genetics in Action: Mendelian Genetics Kit

Sex in a Dish: C-FERN® Life Cycle Kit

A dynamic introduction to the life cycle of this unique plant. The exercise provides a clear illustration of organ and tissue differentiation in the developmentally simple gametophytes. Unlike many higher plants, gametophyte sexual development, swimming sperm, fertilization, and embryo development are directly visible using a stereomicroscope and simple culture equipment. Includes materials for 30 students. Experiment time is 21 days with optional extended observations over 3 months. With instructions. Reusable with Replacement Set.

156702 Each \$106.70 156703 Replacement Set Each \$72.30

Genetics in Action: Mendelian Genetics Kit

Students visualize basic principles of Mendelian inheritance in C-FERN® by following the segregation of a visible marker, polka dot, in both the F₁ gametophyte and F₂ sporophyte generations. Students sow spores of an F, hybrid (wild type × polka dot) to produce F, gametophytes. By adding water to mature F, gametophytes, students visualize random fertilization events that produce the F_o sporophyte generation. The large sample numbers provided from class and individual data sets allow meaningful use of the chi-square test. Includes materials for 30 students. Experiment time is 14 to 28 days. With instructions. Reusable with Replacement Set.

156708 Kit Each \$147.00 **156709** Replacement Set Each \$103.00

Plants



A polka dot gametophyte with a young green (wild type) sporophyte embryo



Meet the C-FERN® Kit

Discover the ease of using C-FERN® for hands-on student investigations of plant growth and development, genetics, population studies, and alternation of generations. All growing takes place in a petri dish and all stages are easily observed with a stereomicroscope. With instructions.

Kit includes:

Presterilized F. Ceratopteris C-FERN® Spores (wild type × polka dot) C-FERN® Media Plate Deep-Well Slide

Alcohol Prep Sperm Release Buffer Media Rehydration Water C-FERN® Culture Tray Sterile Pipet

156700 Per kit \$48.65

C-FERN® Spores

Available premeasured and presterilized in a kit-sized vial or unsterilized in a bulk-sized vial. The Presterilized (Kit-Sized) Vial inoculates 35 petri dishes with 300+ spores per dish. The Unsterilized (Bulk-Sized) Vial inoculates 140 petri dishes with 300+ spores per dish; it comes with directions for spore-surface sterilization. **Note:** Store spores in the dark at room temperature; do not refrigerate.

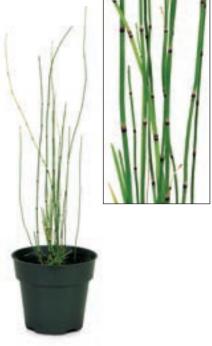
Stock	Symbol	Description	Presterilized (Kit-Sized) Vial Item No.	i Each	Unsterilized (Bulk-Sized Vial Item No.	
Wild Type						
wild type	RNWT1	Basic C-FERN® genotype.	156728	\$17.10	156729	\$33.75
Single-Gene N	Single-Gene Nuclear Mutant					
maleless	her1	Does not form male gametophytes; insensitive to the male-inducing pheromone.	156744	\$17.10	156745	\$33.75

For C-FERN® media and growing supplies, visit Carolina.com.



Plants Fern Allies

Living Organisms



Equisetum

This "living fossil" is the only genus of a subclass that dominated forest floors in the late Paleozoic. Also known as horsetail, it reproduces by spores rather than seeds.

156951 Each \$19.25



Lycopodium

Lycopodium tristachyum (ground pine or running cedar) is collected and seldom survives cultivation. Best used as a lab specimen, it grows in very poor, acidic soil, often under pine trees. For a potted plant, we suggest item #156990 Lycpodium lucidulum. Note: Cannot be shipped into CA.

156980 Per portion \$14.90



Lycopodium lucidulum

Lycopodium lucidulum is synonymous with Huperzia lucidula (shining clubmoss). Native to eastern North America, it is an excellent terrarium plant or useful as an example of a clubmoss. Clubmosses are considered fern "allies" because, like ferns, they produce spores. This species produces megaspores in springtime in the leaf axils.

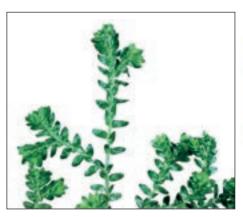
156990 Each \$14.90



Selaginella Collection

S. apoda, S. uncinata, S. kraussiana. All can be cultivated in a greenhouse or in a small terrarium.

157006 Per collection \$40.00



Selaginella

Known commonly as spikemoss, this vascular plant has lacy, scaled leaves. It displays heterospory, in which megaspores produce female gametophytes and microspores produce male gametophytes. Megaspores are born in leaf axils of short spikes. Our choice of species.

157016 Each \$14.90



Selaginella lepidophylla. From southwestern US. Rounds into a ball when dry; unfurls into a fernlike plant when exposed to moisture, demonstrating a xerophytic plant common response to water. **Note:** Cannot be shipped into CA.

157010 Each \$9.90

Gymnosperm



Pine Seedling

Excellent for terrarium use. **Note:** Cannot be shipped into CA.

157064 Pack of 7 \$13.40



Geranium

Pelargonium × hortorum. Because of its easy availability and vigorous growth, it is frequently used in plant physiology experiments. Grown from certified disease-free stock. **Note:** Cannot be shipped into CA.

157380 Each \$11.65



Find what you need to grow plants successfully in the Plant Care section starting on page 107.

Angiosperms



African Violet

Saintpaulia ionantha. Attractive blooming-size plants; plant bloom colors vary. Recommended for tissue culture experiments. **Note:** Cannot be shipped into CA.

157343 Each \$11.65



Begonia

Fibrous-rooted, mature plant ready to bloom. The male and female flowers are easy to interpret.

157260 Each \$11.65



Zebrina

Useful in growth studies. The plant roots easily and grows rapidly.

157590 Each \$12.40



Geranium Pod-Pak

Twenty-six mature, rooted cuttings in a foam pod-pak. Ready to be transplanted into 4" pots. **Note:** *Available September to April. Cannot be shipped into CA.*

157381 Each \$80.80



Coleus

A white variegated, vigorous clone. Especially good for starch-iodine reaction to show absence of photosynthesis in non-green areas. Easy to propagate from stem cuttings.

157310 Each \$11.65



Fancy Coleus

Coleus blumei. Multicolored, variegated clones. Easy to propagate from stem cuttings.

157312 Each \$11.65

Plants Succulents

Cactus

Cactus is a family of plants, most of which are succulents that have lost true leaves and retained only spines. Many are adapted to arid environments, where their thick fleshy stems allow them to store water. Photosynthesis occurs in the stems. This item is a single cactus. Species will vary depending on availability. An order for more than one will be filled with as much variety as possible. Note: Not for export.

157290 Each \$11.30

Succulent Plant

Succulents are a group of plants with thickened fleshy parts that excel at retaining water. Species for this item will vary depending on availability but will be drawn from specimens displaying succulence in the leaves. This item is a single plant. An order for more than one will be filled with as much variety as possible.

157540 Each \$11.30



Living Organisms

Living Stone

Sundew

Lithops. Stemless desert plant native to southwest Africa. Strongly resembles pebbles.

157545 Each \$11.30

Carnivorous Plants



Butterwort

Pinguicula. Small rosettes of yellow-green, buttercolored leaves with microscopic, mucilage-producing glands. Gnats and other small insects are trapped on the leaf surface. Does well in bog terraria, but needs good drainage. Note: Not for export.

157210 Each \$20.30



Red Trumpet Plant

Sarracenia rubra. This passive pitfall plant does not move to capture prey. Insects are lured into the plant's trumpet-shaped leaves with nectar; once inside, they find it almost impossible to escape. A mature plant can reach 3 ft H. Usually found in damp, swampy locations. Note: Not for export.

157237 Each \$28.55

Dionaea muscipula. The most spectacular of the carnivorous plants. Prey is captured in a 2-sided, clamshellshaped trap. Insects are attracted to the trap by nectar



Purple Pitcher Plant

Drosera. Small rosettes of reddish leaves, each bear-

ing numerous glands topped with tiny droplets of sticky

fluid resembling dew drops. Gnats and tiny flies stick

to this "dew" and are digested by the plant. Good for

acid-bog terraria. Note: Not for export.

157230 Each \$15.45

Sarracenia purpurea. The leaves are hollow, pitcher-shaped, and often dark red blotched with green; they are intricate trapping mechanisms capable of luring, trapping, and digesting many insects. Suitable for large acid-bog terraria. Note: Not for export.

157220 Each \$21.85

secreted from numerous glands around its edges, and possibly by its bright coloring. The trap closes rapidly when the prey stimulates small trigger hairs on each half. Glands lining the resulting pouch then secrete digestive juices which consume the insect; the trap reopens within 3 to 5 days. Flytraps are best grown in Sphagnum moss in acid-bog terraria. Note: Not for export. 157240 Each \$20.50

Venus Flytrap

Carnivorous Plant Food

Fruit Flies

For life cycle studies or for feeding small animals. Flies are specially selected for wing variations which restrict their flying, and are not selected for genetic studies. 172910 Per culture \$9.95



99



Aquatic Plants



Ceratophyllum

Called the hornwort because of its rough texture; also called coontail because of the appearance of the stem tips with crowded whorls of leaves. Pack of 12.

162041 Per pack **\$11.80**



Sagittaria

Grassleaf. Pack of 12. **162201** Per pack **\$18.35**



Duckweed

Lemna minor. Monocot. Small plants, often covering the water like a green carpet. Unit contains 100 to 150 plants.

161820 Per unit \$11.30



Marsilea

Clover-leaf fern. Aquatic. Will grow in moist soil or shallow aquarium (about 6" deep). In 4" pot.

156931 Each \$11.30



Azolla

Floating fern. A small, crinkly green plant that changes to deep red in strong sunlight. Unit contains 50 to 100 plants. **Note:** *May not be available during winter months.*

161800 Per unit **\$14.10**



Salvinia

Floating fern. Leaves are green and have the appearance of plush velvet. Unit contains 50 to 100 plants. **Note:** Cannot be shipped into LA, MA, TX, or VT. Restricted states will be shipped compatible plants.

161860 Per unit \$11.30



Care Guides Online

We offer free online care guides to help you care for your organism properly. Find them at Carolina.com/careguides.

Lab Sheets Online

To access FREE lab activities for some of our popular organisms, visit Carolina.com/labsheets.

Plants



Cabomba

Fanwort. Cabomba has beautiful lacy leaves that fan out in the aquarium. It tolerates higher temperatures better than many other aquarium plants. Plant in small pots or directly in the gravel. Propagation can be done via cuttings. Moderate light recommended. Note: Cannot be shipped into CA, ID, MA, ME, MT, NH, NY, VT, WA, or WI. Restricted states will be shipped comparable plants.

162022 Pack of 25 \$25.90



Elodea canadensis

Similar to elodea (*Egeria densa*, item #162101, #162102, or #162103) but much smaller. **Note:** Cannot be shipped into AK and LA. If unavailable during winter months, we will substitute a compatible plant.

162111 Pack of 12 **\$16.85 162112** Pack of 25 **\$32.95**

Living Organisms



162101 Elodea



Egeria densa. Your fish can breathe easier with Egeria densa, the best of the oxygenating plants. Our vigorous, healthy plants need good light and should be anchored in soil or sand. Cultivated form. Note: Cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped Elodea canadensis, Elodea najas, or Chara depending on availability. Canadian orders require a permit from the Canadian government.

162101 Pack of 12 **\$12.25 162102** Pack of 25 **\$19.40 162103** Pack of 50 **\$33.60**



Chara

Stonewort. Chara grows in slow-moving streams, ponds, and backwaters. It has a central stem and whorls of branchlets spaced at fairly regular intervals. Although it does not have leaves, the branchlets serve the same purpose. Small organisms often live on or among the whorls of branchlets. Simply drop Chara into water. It is a completely submerged plant that floats freely, although with time it may attach to the bottom of a habitat. Chara is very hardy, and even a small piece can grow into a new plant. It can reach a length of more than 3 ft, sometimes has a coarse texture due to calcium deposits in its cells, and has a distinctive musty odor. You may notice small bubbles forming on stems and branchlets of Chara, especially when its habitat is in sunlight; these are bubbles of oxygen produced by the plant.

162120Pack of 12\$11.65162121Pack of 25\$17.45162122Pack of 50\$28.58



Ludwigia

False loosestrife. A very attractive aquarium and bog terrarium plant. Leaves vary in color from green to red and they will float on the surface, providing shade to the aquarium and reducing algae growth. Needs medium to high light and grows quickly.

162141 Pack of 12 **\$11.80**





Elodea Tips

Tips for improving cell study

- Excellent choice for studying plant cells, osmosis, and plasmolysis
- Great source for photosynthetic parenchyma cells
- Can be used to teach plant leaf morphology

Not for aquarium use. Includes 6–8 tips; enough tissue for a class of 15. Use these young growing tips to demonstrate streaming protoplasm as well as osmosis, plasmolysis, and other cell studies. For aquarium use, order our Elodea (item #162101, #162102, or #162103). Note: Cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped Elodea canadensis, Elodea najas, or Chara, depending on availability. Canadian orders require a permit from the Canadian government.

157340 Per unit \$14.50

Living Organisms

Seeds & Bulbs



Seed Dispersal Set

Includes 6 types of seed (12 or more of each) and instructions for demonstrating dispersal by mammals, by mechanical propulsion, by water, and by wind (glider, plumed, winged).

157970 Per set **\$26.42**



General Seed Set

One packet each of bean, rye grass, alfalfa, clover, corn, cucumber, lettuce, oats, barley, pea, pine, radish, soybean, squash, sunflower, mung bean, tomato, and wheat. Contains enough seeds for a class of 30.

158021 Per set \$59.33



Monocots			
159223	Barley (1 lb)	Packet	\$13.95
159243	Corn, Field (1 lb)	Packet	\$18.95
159283	Corn, Sweet (1 lb)	Packet	\$22.40
159313	Grass, Rye (1 lb)	Packet	\$13.95
159395	Wheat (1 lb)	Packet	\$13.95



Touch these plants and their leaves close immediately!



Basic Seed Set

For germination study and for demonstrating basic cotyledon differences. Includes a monocot (corn), 4 dicots (pea, bean, squash, and radish), and a gymnosperm (pine). Contains enough seeds for a class of 30. With instructions.

157950 Per set **\$19.15**

TickleMe Plant® Seed Packet

Mimosa pudica. Grows indoors any time of the year. Leaves and branches move in response to various forms of stimuli. Its seed can sprout in a matter of days and within a month seedlings move when "tickled." Ten to 20 seed per packet.

158150 Per packet \$9.05

Amaryllis

Large-flowering, hybrid strain; usually blooms in 6 to 8 weeks. For pot culture; simple directions included. **Note:** Available late October to March. Cannot be shipped into CA.

157721 Each \$26.45

Plants Classroom Seed Kits

Living Organisms



Carolina STEM Challenge®: How to Train a Plant Kit

Mesh plant development and STEM to allow your students to predict and manipulate plant growth. Students examine seed germination and observe patterns of growth in response to various stimuli. Then they explore the plant tropism of pea seeds to design a system that demonstrates the effects of touch, light, or gravity on plant growth. This hands-on design challenge reinforces concepts such as basic plant anatomy, cell communication, and basic experimental design. Materials are sufficient for 32 students working in groups of 4 and include 1-year access to digital resources that support 3-dimensional instruction.

157896 Per kit \$85.00



GRO BRICK



Seed Starter Kit

Self-contained growing system helps you start plants from seed and grow to maturity. Contains self-watering growing unit with 36 growing cavities and clear acrylic dome, 8-L bag growing medium, twelve 4" pot labels, 1-oz soluble fertilizer, and instructions.

158050 Per kit \$29.25

Carolina® Seed Assortment Set

A great way to introduce seed germination using some of our favorite seed. A Gro-Brick expands to fill the thirty 3" pots, and students plant corn, sunflower, pea, bean, and radish seed. Contains enough seeds for a class of 30.

157890 Per set \$32.65

Sprout & Grow™ Window See plants grow from bottom to top!

Grade K and up. This transparent window planter allows students to view what happens beneath the soil as plants sprout and develop roots, and it provides a firm foundation as plants grow tall. The self-supporting design lets planter stand freely on a windowsill or tabletop. Kit comes with bean and pea seed, as well as enriched soil for optimum plant growth. Step-by-step instructions and suggested activities are included. The planter's grow chamber is $9 \times 10 \times 1^{\circ}$ with a 5"-W base. /1\text{WARNING: CHOKING HAZARD—Small parts.} Not for children under 3 yrs.

952418 Per kit \$34.35

Living Organisms

Plant Growing Systems



Carolina® Plant Environmental Chamber

The Carolina® Plant Environmental Chamber provides endless possibilities for studying plant growth and development by allowing experimenters to vary environmental factors. The durable chamber is constructed of rigid galvanized, powder-coated steel. The chamber door features a double-paned acrylic window. Four compact fluorescent lamps (CFLs) provide over 4,600 lumens of light. An adjustable stainless-steel shelf bracket allows easy shelf repositioning. Heating is controlled by a floor heat system with variable power settings. A roller shade blocks ambient light during experiments. The forced-air ventilation system has variable fan speed to drive humidity levels. An integrated simplex power outlet is provided for instrumentation or other device. Shipped assembled. Dimensions: 26" L × 26" W × 37" H. Wt, 110 lb.

666806 Each \$2,700.00



666810 Frame It All Composite Raised Garden Bed 4×4 -ft Kit (in use; soil and plants not included)

Frame It All Composite Raised Garden Bed Kits The gardens that grow with you

You'll find many uses for these versatile kits. They can function as a stand-alone raised garden bed or as a module to extend any Frame It All Raised Garden Bed System. If your love of gardening runs deep, you'll appreciate the extra soil depth (11") both kits provide. Almost any type of crop will do well, even root vegetables. Patented anchor joints allow installation on hard surfaces (such as rooftops, patios, or decks) and traditional soft surface landscapes. Bold 2"-profile timbers are low maintenance and eco-friendly, made from recycled plastic and natural fibers with no toxic chemicals. Five-year manufacturer warranty. Soil and plants are needed but not supplied.

666810 4×4 -ft Kit (16 sq ft) Each **\$216.30 666812** 4×8 -ft Kit (32 sq ft) Each **\$350.20**



EarthBox® Ready-to-Grow Kit

Say goodbye to traditional gardening. The patented EarthBox® was developed by commercial farmers to eliminate long hours of digging and weeding. Maintenance-free and high-tech, the EarthBox® provides nutritional stability for a perfect growing environment. Plants consume only what they need to stay healthy. The compact design of the EarthBox® lets you set up a garden virtually anywhere, indoors or out. Kit is complete with all the materials needed to grow healthy fruits and vegetables: EarthBox®, aeration screen, water fill tube, 2 fitted covers, 2 cu ft of planting medium, 10-oz bag of fertilizer, 16-oz bag of dolomite, casters, and easy-to-follow instructions.

664004 Per kit \$97.85



EarthBox® Garden Stand

Use as a work station for planting a new EarthBox® or as a growing stand for smaller plants. It's the perfect height for sitting and working—no more bending!

664007 Each \$95.00



View more EarthBox® kits and accessories at Carolina.com.



664011 EarthBox Junior Garden Kit



664005 EarthBox Replant Kit

104 CAROLINA

Plants

Hydroponics

Living Organisms

Explore plant growth and development by experiencing the excitement of hydroponics. Hydroponic systems are versatile, clean, and efficient. Not only can your students track plant growth, they will also be able to easily view the development of plant root systems. Hydroponic studies can help students fully understand what plants require in order to survive and thrive. Some additional benefits to introducing hydroponics to your classroom labs are:

- · Efficient use of space
- Urban accessibility
- Pest avoidance

- Water conservation
- Disease control
- Pollution control





666795 Hydroponics Center (in use)

Hydroponics Center A complete hydroponics setup at your fingertips!

This easily accessible, self-contained ebb and flow hydroponics growing center is a great addition to any plant studies program and a perfect way to teach how plants can grow without soil. Also helps teach the basic concepts for plant needs, nutrition, food production, recycling, and agricultural technology. Includes 150-W grow light and submersible water pump with adjustable timers for the perfect amount of water and light. Constructed of solid maple and maple veneers. Features a containment plant tray (8" H \times 27½" D \times 42" W), a 25-gal nutrient reservoir with lid, and a locked cabinet for timers and air pump. Also includes an air pump, an air stone, 2 timers, hoses, and 8" net pots. The setup moves easily on 4" locking, leveling casters. Overall dimensions, 52" W \times 28" D \times 78" H.

666795 Each \$2,055.00



LaMotte® Hydroponics 4-Way Kit

Allow your students to explore hydroponics, maintain the proper nutrient balances, and achieve optimum growing conditions in a soilless plant culture. They can monitor and test pH and 3 key nutrient factors: nitrogen, phosphorus, and potassium. Reagents are sufficient for 50 tests per factor. The necessary labware is supplied in a sturdy carrying case. Complete instructions and a *Plant Nutrition Studies* handbook are included.

653204 Kit Each \$439.40 653205 Refill Each \$164.65

653204 LaMotte Hydroponics 4-Way Kit

See more hydroponic kits and sets on the next page.





159610 Visual Desktop Hydroponics Kit (in use)

Visual Desktop Hydroponics Kit

An engaging hydroponics setup is sure to interest and excite your students as they grow herb plants from seed to observe plant development without the use of soil. **Kit** can be used as a classroom demonstration or for students working in small groups. Students get hands-on experience in plant science by journaling, measuring and graphing plant growth, exploring the senses, observing root structures, cloning plants, and learning about water transpiration. Includes free 1-year access to digital resources that support 3-dimensional instruction. Hydroponics reservoir (with lid) dimensions, 17" L \times 11" W \times 6½" H. **Kit Refill** replenishes kit consumables. Visit **Carolina.com** for complete lists of kit materials.

159610 Kit Each \$121.50 159612 Kit Refill Each \$67.75



Carolina STEM Challenge®: Hydroponics Kit 11

Tackle the properties of hydroponic gardens, substrates, and return on investment with this easy-to-use Carolina STEM Challenge® activity. Students explore hydroponic substrates, learn the factors needed to grow plants hydroponically, and develop and build their own hydroponic substrate model. They are then challenged by celebrity chef Chuck Thacker to develop the most cost-effective way to grow greens for his restaurant. Materials are sufficient for 32 students working in groups of 4 and include 1-year access to digital resources that support 3-dimensional instruction.

158300 Per kit \$128.00



Student Hydroponics Kit A3

What does it take to grow a plant? Students discover that when provided with a support system, such as rock wool, a plant can grow by taking in nutrients from a nutrient-rich water supply. This simple, effective hydroponics kit provides an exciting demonstration of plant growth without soil. It is also an engaging introduction to discussions on the advantages and disadvantages of growing plants in a soilless environment and different hydroponic growing systems. Kit is designed for a single student or demonstration and comes with free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

159614 Per kit \$52.75



157806 Hydro-Tube Gardening Kit (in use)

Hydro-Tube™ Gardening Kit

Grade 3 and up. For a class of 30. Introduces students to the fascinating world of hydroponics. Each student assembles his own aggregate culture hydroponic unit, germinates seed, and incorporates a nutrient solution to the growing plant—all without the use of soil. Kit includes test tubes, test tube rack, gravel aggregate, propagation material, marigold seed, step-by-step instructions, data charts, and powdered nutrients. Kit Refill includes marigold seed, nutrients, gravel, pipets, and propagation material.

157806 Kit Each **\$116.30 157806A** Kit Refill Each **\$28.85**



Crystal Clay® Seedling Set

Observe the hidden miracle of seed birth and root growth revealed with the super-expanding, crystal clear, soil-like substance, Crystal Clay®. This transparent, easy-to-use substance allows students to see the root structure of the plant being grown and enhances growth. Crystal Clay® is a simple, economical, and quick way to study plant growth and development. Just add water and watch! Along with Heavenly Blue morning glory, mammoth sunflower, and Jack Be Little (miniature) pumpkin seeds, this set includes Crystal Clay® seed-growing medium, growing tube with stand, sparkles, complete instructions, and science facts. Set includes 10 tubes with tube holders.

159609 Per set **\$51.30**

Looking for Aquaponics?

Swim on over to page 186 to check out our aquaponics system.

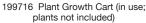


Plants

Plant Care

Plant Lighting Solutions







199718 Humidity Tent (in use; cart, light, and plants not included)

Living Organisms

Plant Growth Cart Big growth; small space

- · Adjustable lighting accommodates the different growing needs of plants
- · Easy to move when changing locations or when storing
- · Separate shelves offer ample space to organize classes or experiments

Grow more plants in your classroom with this compact, movable cart. Easy to assemble, it has 4 fixed shelves; each holds 2 plant trays (included). The 4 light fixtures slide to adjust and include 2 (20-W) fluorescent lamps. The reusable **Humidity Tent**, made of clear durable plastic with a zippered opening, encloses moisture. Visit **Carolina.com** for more details on the cart, tent, **Replacement Light Fixture**, **Replacement Bulb**, and nesting **Replacement Plant Trays**. Cart is FOB Dexter, MI. Allow 3 weeks for delivery of the cart only. **Note:** *Plants, plant cultures, etc., shown on cart are not included.*

199716	Plant Growth Cart	Each	\$999.95
199718	Humidity Tent	Each	\$49.40
199712	Replacement Light Fixture	Each	\$150.35
199717	Replacement Bulb	Each	\$28.85
199719	Replacement Plant Tray	Each	\$12.30



159660 Sunlighter Light Fixtures with 159658 Sunlighter 4-Tray Plant Stand (in use)

Sunlighter Light Fixture

Fluorescent light fixture with white enameled reflector and two 18", 15-W Gro-Lux Tubes. Lights adjust up or down for optimum distance from plant foliage. Use with Sunlighter Plant Stands (items #159658 and #159659), or use independently to suit your lighting needs. FOB Ann Arbor, MI.

 159660
 Light Fixture
 Each
 \$131.80

 159660A
 Replacement Tubes
 Set of 2
 \$45.40

Sunlighter Plant Stands

These attractive, space-saving stands (70" tall) are ideal classroom plant growing centers. Each shelf can be equipped with a fluorescent light fixture (not included; order item #159660). Trays are durable, high-impact plastic. FOB Ann Arbor, MI.

159658 4-Tray Stand (70" H × 25" W × 12" D) Each **\$228.45 159659** 8-Tray Stand (70" H × 25" W × 24" D) Each **\$289.35**

See more plant lighting solutions on the next page.



Plant Light Bank

A complete redesign of our Plant Light Bank System for greater utility and convenience

Lighter weight than the original, this redesigned light bank comes mostly preassembled—you assemble only the stand. No tools required! Uses twelve 15-W LED bulbs (included). Accommodates up to 3 Wisconsin Fast Plants® classroom kits. Assembled dimensions: $53^1/2^{\circ}$ L \times $24^1/2^{\circ}$ W \times 28" H.

 158999
 Plant Light Bank
 Each
 \$370.00

 159005
 Replacement LED Bulb
 Each
 \$10.00

666900 Individual Plant Light with 158690 Wisconsin Fast Plants Trial-Sized Get Acquainted Kit (sold separately)

Individual Plant Light

No space for a large light bank? This compact, economical light is ideal for use with the Wisconsin Fast Plants® Trial-Sized Get Acquainted Kit (item #158690). Light measures $12\frac{1}{2}$ " H and includes an LED bulb. **Replacement LED Bulb** sold separately.

666900 Individual Plant Light Each **\$33.68 666901** Replacement LED Bulb Each **\$15.30**

Plants



159004 Plant Light House with Light Bulbs (in use)

Plant Light House® with Light Bulbs

- Internal frame—sets up and breaks down in seconds
- · Light height adjusts for all stages of the life cycle
- · Built-in pocket for storing power cord and light
- · Built-in butterfly screen

Our popular Plant Light House® is designed for convenient use in your classroom or lab. Snap-together internal frame makes setup and take-down simple and fast. No tools needed. Durable nylon fabric cover is lined with reflective material, providing more uniform growth for your Wisconsin Fast Plants®. Built-in butterfly screen allows insects to share the house with plants. Light fixture includes reflector, dual porcelain bulb sockets, and 2 high-intensity 15-W LED bulbs with a color temperature of 5,000 K. The house can grow 64 Fast Plants® to maturity, enough for a class of 32 students. Assembled dimensions: 24" H × 19" W × 18" D.

159004 Plant Light House Each **\$169.75 159005** Replacement LED Bulb Each **\$10.00**



666516 Small Fluorescent Stand (in use)

Fluorescent Stands

Provides artificial light to keep plants green and blooming. Can be placed over a terrarium. Light height is adjustable from 12 to 24". **Small Stand** is 24" H \times 20" W \times 11½" D and comes with two 15-W tubes; **Large Stand** is 24" H \times 28½" W \times 12" D and comes with two 20-W tubes.

666516 Small Stand Each \$169.95 666517 Large Stand Each \$175.00

Plants Planting Media



Vermiculite

Horticultural grade. A sterile, inert, and water-absorbing mineral material. Excellent germinating or propagating medium. In 8-L bag.

159721 Per bag \$12.90



Seed Starter Mix

This 16-L bag of potting mix is an ideal seed-starting soil. Use the handy blend to start all your seedlings and provide a perfect soil medium. **Note:** *This soil contains NO peanut byproducts.*

159702 Per bag \$16.70

Living Organisms



Carolina® Professional Potting Soil

Professional potting soil that works well for most houseplants. A nutrient-rich, peat-perlite mix with excellent water-holding capacity. 16-L bag.

159705 Per bag \$14.60



Schultz® Fertilizer

14-14-14. Controlled release fertilizer for flowering shrubs, potted plants, vegetables, and bedding plants. One application feeds continuously for up to 6 months. 2-lb bottle.

159765 Each \$26.52



Jiffy-7 Pellet

Compressed discs of high-grade potting medium enclosed in plastic mesh. Pellets expand in minutes to about $4^{1}/_{2} \times 5$ cm when water is added. Ideal for germinating seed. 100-pellet bag.

159730 Per bag **\$33.30**



Gro Brick™

A convenient way to keep potting medium on hand without taking up space. Made of ultra-compressed natural coconut fibers, Gro Brick can be used alone or as an alternative for peat moss. One 20-oz brick measures $4\times 8\times 2^{\shortparallel}$ and when placed in water immediately expands to 9 quarts of medium, which will fill five 6^{\shortparallel} pots. Has a neutral pH.

159697 Each \$8.40

Soil Testing



Rapitest® Digital 3-Way Soil Analyzer

Take the guesswork out of gardening. Quickly and easily test soil pH, temperature, and fertility with this 3-way analyzer. Convenient and hassle-free, the bi-metallic soil probe determines the temperature and reads the soil acidity/alkalinity to determine soil pH. It also reads the combined levels of nitrogen, phosphorus, and potash to determine the nutrient health of the soil. The digital readout, easy test-selection buttons, flexible coil cord, and sure-grip probe handle make this analyzer a must for gardeners!

665412 Each \$47.00



Rapitest® Digital Soil Test Kit

If you love Rapitest® soil test kits, this digital soil test kit will impress you! Each soil test kit includes a digital soil tester, 25 test capsules (10 pH, 5 N, 5 P, and 5 K), 4 color-coded test tubes with storage dock, fertilization guidelines, and complete instructions. Mix the soil samples and quickly determine your results with the LED test-result indicator. Easily evaluate soil health throughout the growing season with periodic soil tests. Soil with proper nutrition yields healthy plants.

665413 Per kit \$46.80



Rapitest® Digital Soil Thermometer

Improve your seeding and transplanting results by planting at the safe, proper soil temperature. This easy-to-read digital soil thermometer is scaled specifically for soil temperature readings in °F. Simply insert the thermometer 2 to 3" into the soil and wait 60 sec to record the temperature. This durable thermometer features a stainless-steel probe and an automatic shutoff (after 3 min) that preserves battery life. Batteries included.

665410 Each \$21.50



Rapitest[®] Light and Moisture Meter

With a flip of a switch, this meter checks the 2 most important conditions for healthy plant growth: light and water. No need to guess when your plants need watering or how much light to give them; the meter comes with a handy guide with a special needs table for over 150 plants. No batteries required.

665494 Each \$47.40



Soil pH and Moisture Tester

The Kelway® HB-2 tester lets you make instant on-thespot tests for soil pH and soil moisture content. Easy to use. Simply insert base of instrument into the soil, hold button down, and read moisture content on lower scale; release button and read pH on upper scale. The Kelway® tester is easily carried on your belt, and does not require a power source. A rugged, reliable instrument. Instructions and carrying case included.

665490 Each \$294.40



653203 LaMotte Garden Kit



LaMotte® Garden Kit

Use this simple test kit to learn the specifics about your soil before starting your gardening project. Used for soil science education or garden analysis, the kit includes rapid test procedures, diagrammed instructions, and laminated color charts used to measure concentrations of nitrogen, phosphorus, potassium (15 tests each), and soil pH (30 tests). The Garden Guide Manual and LaMotte® Soil Handbook are included to interpret test results and offer lime and fertilizer recommendations. Refill includes consumable components. Visit Carolina.com for complete lists of kit materials.

653203 Kit Each \$87.95 New! 653206 Refill Each \$55.85

LaMotte® Plant Macronutrient Kit A3

An excellent tool to illustrate the relationship between soil nutrients and plant health. Students perform colorimetric tests for nitrogen, phosphorus, and potassium (N-P-K) by preparing liquid extracts from plant tissue. Kit provides enough reagents and labware for 50 tests per test factor. Includes the *LaMotte® Soil Handbook* and complete instructions.

653201 Per kit \$164.00

LaMotte® Plant Nutrition Kit

LaMotte[®]. Contains 10 nutrient solutions used to make up the complete plant nutrient mixture, plus nutrient mixtures that are minus calcium, minus magnesium, minus potassium, minus nitrogen, minus phosphorus, minus sulfur, minus iron, and minus trace elements. Each solution is sufficient to make at least 5 liters of each mixture. With manual.

666075 Per kit \$154.90



665404 Rapitest Soil Test Kit

Rapitest® Soil Test Kit

Soil testing in 3 easy steps. Just mix soil with water, pour liquid into comparator, and add contents of capsule to instantly compare color for test reading. **Test Kit** contains materials for 40 tests: 10 tests each for pH, nitrogen, phosphorus, and potash. Instructions included. **Replacement Set** contains 40 capsules to complete 10 tests each for pH, nitrogen, phosphorus, and potash.

665404 Test Kit Each **\$30.50 665404A** Replacement Set Each **\$21.50**





Schoolyard Gourmet Composter

Made from 100% recycled plastic, this heavyduty 11-cu-ft composter allows students to learn about recycling yard and kitchen waste into rich humus for gardening. Assembles in 5 minutes with no tools required. All panels are vented for good air flow, and 3-way lid opens with 1 hand. Reinforced walls sustain heavy loads. Small enough to be transported in a car, the entire unit weighs just 27 lb.

157820 Each \$244.80



141564 Can-O-Worms Two-Tier Composter

Can-O-Worms® Two-Tier Composter

Make composting easy and visible! The Two-Tier **Composter** is designed to encourage worms to move from the collector tray to the working tray as they complete their work. Easily remove the bottom tray and add its contents to your garden. Composter's flow-through ventilation maximizes oxygen availability and minimizes odors. Sturdy drip-free spigot allows drainage, without the mess; the resulting "worm tea" makes an excellent fertilizer for garden beds and potted plants. Show students how redworms facilitate the breakdown of food waste into nutrient-rich fertilizer. Composter can process 5 to 6 lb of food scraps each week. Made from durable 100% recycled plastic and comes with everything you need to get started except Redworms (Eisenia fetida), sold separately. Composter assembled size, approximately 29" H × 20" W.

141564 Two-Tier Composter

Each **\$197.00**

141652 Redworms

Unit of 750 to 1,000 \$63.85

Plants



Plastic Pots



665670 Poly-Flat (36-Cell Tray)



Plastic Pots

Strong medium-weight pots. Shape and color may vary. Three sizes.

665774	31/2"	Pack of 100	\$34.65
665775	4"	Pack of 100	\$63.80
665777	5"	Pack of 100	\$90.90

Poly-Flats

Molded plastic trays, $54\times27\times6$ cm, hold inserts with 6-cm-deep cells that can be easily separated into individual pots. Ideal for seedlings or small plants.

665669	24-Cell Tray	Each	\$5.45
665670	36-Cell Tray	Each	\$6.15

Plant Trays

Made of high-impact polystyrene. Lightweight but strong. Trays nest for storage.

665914	$8 \times 12 \times 2^{3}/4$ "	Each	\$6.95
665916	$22 \times 11 \times 2^{3}/4$ "	Each	\$13.25
665918	$13 \times 15 \times 3^{1/2}$ "	Fach	\$14.20



665753 and 665755 Peat Pots



665666 Standard Poly-Tray



Standard Poly-Tray

This $54 \times 27 \times 6$ -cm Tray has ribbed, reinforced bottom. Ideal tray for growing seedlings or rooting cuttings. Add the 24-Cell Tray or 36-Cell Tray molded plastic inserts with 6-cm-deep cells that can be easily separated into individual pots.

<u>^1</u>	665666	Poly-Tray

	without Holes	Each	\$4.45
665669	24-Cell Tray	Each	\$5.45
665670	36-Cell Tray	Each	\$6.15

Humidity Dome

A clear plastic dome that fits both Poly-Flats (items #665669 and #665670). Retains humidity to create a greenhouse atmosphere for your seedlings and cuttings.

665674 Each \$7.55

Peat Pots

High-quality peat is blended with other ingredients to form a pot that provides added strength at the vulnerable top area. Pots are nutrient-saturated to feed the plant not only at the start but also as the pot disintegrates after transplanting. For use with annuals, bedding plants, and vegetable plants. Available in 2 sizes.

665753 21/4" Pack of 100 \$15.00 665755 3" Pack of 100 \$21.20



Automatic Timer A

Turns on and off daily without resetting. 125-V AC, 60 Hz: AC only.

666510 Each \$30.40



Hand Tool Set

Finest quality hand tool set, made of chrome-plated steel with welded shanks and hardwood handles. Includes trowel, transplanting trowel, 3-pronged cultivator, and dandelion digger.

159645 Per set **\$57.60**



Gardening Tool Set

Professional-quality yard and garden tools feature durable hot-forged heads with reinforced sockets and northern ash hardwood handles. Set includes bowhead rake, garden hoe, cultivator, digging fork, and shovel.

665160 Per set \$218.55

Plants

Plant Tissue Culture



Specimen Cup and Cap

Non-sterile, 4.5-oz polypropylene cup and polyethylene cap. Shatterproof, leakproof, and odor resistant. Graduations molded on exterior.

199248 Pack of 25 \$9.55



Deep and Wide Petri Dish A

Sterile. Extra wide and deep. Size, 150 \times 25 mm. Pack of 12 dishes.

199279 Per pack **\$70.00** 6+ Packs Each **\$63.00**



Living Organisms

Deep Petri Dish

Sterile polystyrene. Size, 100×25 mm. More room for growth. Pack of 17 dishes.

199278 Per pack **\$31.55**



Magenta GA-7 Vessel

Polycarbonate body, polypropylene closure. Autoclavable, nonbreakable, prolonged reuse. Unique closure and drip ring make this ideal for plant tissue culture.

199280 Each \$8.60



Petri-Seal[™]

Ideal for petri dishes, tubes, and well plates. Five-mil-thick seal stretches, conforms, and stays in place. Waterproof, chemical resistant, and leaves no adhesive residue. Seal withstands temperatures 30 to 77° C and intermittent to 100° C. Blue. Size, $^{1}\!/_{2}$ " \times 108 ft.

199278D Each \$76.15



Filter Tape

Nonwoven pressure-sensitive tape. When stretched around container closures it provides a protective barrier while allowing for gas exchange. Size, 1" × 36 yd.

199708 Per roll \$37.55





Sterile Paper Towel
Provides an easy, quick sterile work surface!
Inexpensive sterile work surface. Size, 10¹/₄ × 9¹/₄".
199710 Pack of 250 \$17.95



Foam Swab
Lint free, autoclavable, 6" wooden wand.
199804 Pack of 50 \$32.00



199467 Dual-Inlet Bottle Top Dispenser, 0.5 to 5 mL (in use)



Sterile Filtration System

Corning®. Polystyrene top filter funnel and base storage receptacle. The 0.22-µm cellulose acetate filter maximizes flow, reduces foaming, and guarantees sterility. Base of the 250-mL unit unscrews to allow placement of sterile cap. Sterile, individually wrapped cap and tubing adapter are included. Connect to vacuum pump or water-operated pump. Membrane diam is 50 mm. **Note:** *This is a sterile, disposable filtration system. It is to be used once and discarded; replacement filter is not available.*

199595 Each **\$15.45**

Dual-Inlet Bottle Top Dispensers

These convenient dispensers accurately deliver precise volumes of liquids into bottles, flasks, tubes, and petri dishes. Their dual-inlet technology enables users to rinse the instrument or refill the bottle without removing the dispenser from the bottle. Parts made of PTFE and borosilicate glass make these dispensers suitable for a wide range of chemical applications. Each dispenser includes 6 adapters (28, 30, 32, 36, 40, and 45 mm) and 5 reservoir covers (28, 32, 36, 40, and 45 mm) to fit most laboratory bottles, plus a calibration tool. For maximum efficiency, these dispensers offer 4 operation modes: standard dispensing, purging, bottle refilling, and dilution/rinsing/second liquid dispensing.

 199467
 0.5 to 5 mL
 Each
 \$675.40

 199468
 1 to 10 mL
 Each
 \$760.40

 199469
 2.5 to 30 mL
 Each
 \$1,014.90



199465 Bottle Top Dispenser, 1 to 10 mL (in use)

Bottle Top Dispensers

Quickly and accurately dispense liquids into bottles, flasks, tubes, or petri dishes with these easy-to-use dispensers. Each features a 30-mm thread and includes 5 free adapters (28 mm, 32 mm, 36 mm, 40 mm, and 45 mm) to fit a variety of different-size bottles. Dispensers are fully autoclavable at 121° C, 15 psi for 10 to 15 min. All wetted parts are made from PTFE and borosilicate glass for maximum chemical resistance. Dispensers are easy to disassemble and can be recalibrated in the lab.

199464 0.5 to 5 mL Each **\$392.40 199465** 1 to 10 mL Each **\$392.40 199466** 2.5 to 30 mL Each **\$473.20**

Animals

Animals

- Top-quality organisms
- · Experienced, highly trained staff
- · Diverse pack sizes
- Extensive literature selection

Alive. On Time. Guaranteed.

Organisms Bring Science to Life

Carolina has everything you need from a living materials partner. We offer a large variety of specimens appropriate for every level of science instruction. Many live animals are cultured inhouse, making them available all year. Our assortment makes it easy to order the right number for your students—whether for a single class or an entire district. No other competitor has the number of trained staff members and experience available to support you every step of the way. Plus, we constantly improve and update our extensive library of supplemental literature to keep you informed. You won't find our product diversity, level of expertise, and service from any other company.

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Care Guides Online

We offer free online care guides to help you care for your organism properly. Find them at Carolina.com/careguides.

Lab Sheets Online

To access FREE lab activities for some of our popular organisms, visit Carolina.com/labsheets.

Information Center

Living Organisms

When ordering living organisms, please:

- Include the name of the instructor using the material.
- Specify a ship date. Customers requesting orders without ship dates will be notified and the orders held until ship dates are received.

International Customers

The importation of plants, seeds, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

Hawaii Restriction Notice

Shipment of living materials (viruses, algae, bacteria, plants, protozoa, insects, and other animals) into HI is restricted. Please contact the Hawaii Department of Agriculture (808.832.0566) before ordering this material, and if necessary, provide us with import permits and other pertinent information

USDA Permit

Restricted animals and plants may be obtained by completing a USDA PPQ Form 526, Application and Permit to Move Live Plant Pests or Noxious Weeds. This form is available from Customer Service (800.334.5551) or from our website at Carolina.com/usda. The permit-approval process may take up to 30 days. International customers: other permits may be required for restricted shipments; please contact us for more information.

To obtain a copy of a permit for a specific living organism required by your state, visit Carolina.com/help/permits.

Releasing Organisms

Carolina provides living organisms for educational purposes only. As a general policy, we do not advocate the release of organisms into the environment. In some states, it is illegal to release organisms, even indigenous species, without a permit. The intention of these laws is to protect native wildlife and the environment.

After completing classroom activities, we suggest that organisms be:

- Maintained in the classroom
- Donated to another classroom or science department
- \bullet With parental permission, adopted or taken home by students
- Donated to a nature center or zoo
- . Disposed of humanely, as a last resort

Living Organisms When You Need Them

Carolina typically ships live materials on Mondays–Wednesdays and uses the most economical shipping methods to ensure proper delivery. However, to meet your needs we can ship on any weekday and, when requested, use a premium shipping method (some of which are not available to all locations).

Carolina Pledge: Excellent Customer Support

We stand behind our products. Subject to the conditions and exclusions below, items may be returned for a replacement, refund, or credit up to 180 days from date of purchase.

xclusions

- Items not in resalable condition, i.e., partially used, opened, altered, or discontinued, cannot be returned for refund or credit unless due to manufacturer's defect.
- Digital products and Carolina Distance Learning® science kits are not refundable.
- Prepaid coupons such as vouchers and living material cards are non-refundable and are not redeemable for cash or credit. They are redeemable only for the specific merchandise identified on the prepaid coupon or voucher.
- 4. If you are not satisfied with your living organisms or prepared media, you must notify Customer Service within 30 days from date of receipt for a replacement, refund, or credit. Please see the website product listing page returns section for your item if you have any questions.

Invertebrates

Sets

132590 Hydra, Planaria, and Daphnia Review Set

Hydra, Planaria, and Daphnia Review Set

A separate culture of hydra, planaria, and *Daphnia* and a pad of 30 Bioreview[®] Sheets for each. With instructions for culturing each form.

132590 Per set **\$53.10**



Brown Planaria

General Invertebrate Set

Tiny aquatic wonders

- Recommended for comparative studies
- Includes representatives from a variety of invertebrate phyla
- Perfect for dichotomous key exercises

These 8 individually labeled cultures represent invertebrates commonly used in high school and college biology courses.

Rotifers

Vinegar Eel

Aeolosoma Brown Hydra Daphnia
Amoeba Brown Planaria Paramecium

132575 Per set \$74.90

Freshwater Sponges



132735 Spongilla with Gemmules

Spongilla

For a class of 15 students. Freshwater sponge. Can be bright green when exposed to light but usually appears gray or brown after shipping. Demonstrates siliceous spiculation and internal budding (specimens with gemmules are supplied when possible).

132735 Per culture **\$25.05**



Living marine sponges and coelenterates are listed on pages 154–157.

Freshwater Coelenterates





Hydra Underwater wonder

Generally, the brown hydra species shipped is *Hydra littoralis*. Specimens are *freshly collected* to ensure maximum natural size and optimum physiological condition. We try to include several animals with 1 or more buds. Use item #142314 *Daphnia* as food and to demonstrate the feeding action of hydra. One **Culture** is sufficient for a class of 30 students. Order the **Culture 8-Pack** to cover multiple sections or labs (up to 240 students).

132800 Culture Each \$11.95 4+ Cultures Each \$10.75 132801 Culture 8-Pack Each \$70.97

Hydra Review Set

Culture of hydra and a pad of 30 Hydrozoan Anatomy Bioreview® Sheets. With instructions.

132790 Per set \$20.45

Mixed Hydra

For a class of 30 students. Equal numbers of green and brown species in a single culture. Students can study and compare both forms during the same exercise.

132814 Per culture **\$15.15** 4+ Cultures Each **\$13.65**

Green Hydra

Chlorohydra viridissima. For a class of 30 students. Smaller than brown hydra, but demonstrate a symbiotic relationship with the green algae Zoochlorellae.

132810 Per culture Each **\$17.25** 4+ Cultures Each **\$15.55**

Availability of some living organisms may change in accordance with USDA regulations. We will substitute with another organism of equal quality and value.



132804 Hydra littoralis with Bud

Budding Hydra

For a class of 30 students. *Hydra littoralis* with 1 or more buds in various stages of development.

132804 Per culture **\$14.05 4+** Cultures Each **\$12.65**



Animals Platyhelminthes





Brown Planaria Regenerating wonders

- · Great for regeneration and memory studies
- · Easy to culture
- Affordable

The size of this planarian varies with the season. Smaller forms are more prevalent in early spring; larger or mature forms are evident throughout the remainder of the year. One **Culture** is sufficient for a class of 30 students. Order the **Culture 8-Pack** to cover multiple sections or labs (up to 240 students). With instructions.

 132954
 Culture
 Each
 \$13.50

 4+ Cultures
 Each
 \$12.15

 132955
 Culture 8-Pack
 Each
 \$89.90

Customer Review

"Each year my biology students enjoy the planaria regeneration lab. Students are given worms and 'surgical assignments' for various types of cuts (easily done with a razor blade and dissecting probe on a glass slide) . . . We have had great success with regeneration including the development of 2-headed worms!"

High School Biology Teacher

Planaslo® Quieting Solution

A solution for slowing planarian worms and small annelids. In 15-mL dropping bottle.

882001 Per bottle \$9.95





Planaria

Remarkable regeneration

- · Great for regeneration and memory studies
- Affordable
- Easy to culture

For a class of 30. Witness how planaria can grow new heads and tails. We select a single species or color based on availability. Includes instructions.

132950 Per culture \$13.50 4+ Cultures Each \$12.15



132900 Planaria Regeneration Kit (with perishable)

Planaria Regeneration Kit

Regeneration—right in your lab! Allow your students to explore planarian regeneration over the course of a 2- to 6-week period. Students learn invertebrate laboratory techniques and concepts of polarity and microscopy, along with anatomical terms. Kit includes culture of planaria, enough lab materials for a class of 30 students working in groups of 3, detailed teacher and student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

 132900
 Kit (with perishable)
 Each
 \$88.00

 132902
 Kit (with voucher)
 Each
 \$88.00



Living Organisms

Dugesia dorotocephala Produce classroom drama

- Demonstrate predator/prey interactions
- · Watch and study regeneration
- Save money

For a class of 30. Watch predator/prey activity and study regeneration with 1 affordable package. Large specimens clearly demonstrate capture and feeding.

132970 Per culture \$15.50



Black Planaria

For a class of 30 students. Distinctly black in color. As an interesting contrast in color and size for student study, we suggest some of these be ordered along with our item #132954 Brown Planaria. With instructions. **Note:** Because black planaria are scarce in the spring, other species may be substituted.

132956 Per culture **\$15.96** 4+ Cultures Each **\$14.35**

Mixed Planaria

For a class of 30 students. Equal numbers of brown and black planaria in each 30 unit. If it is desired that every student study both types of planaria, then a 30 unit of items #132954 and #132956 each should be ordered. With instructions.

132958 Per culture **\$18.70**







132700 Carolina Observation Gel (in use; microscope slides not included)

Carolina® Observation Gel

Now students can prepare customized mini-aquaria observation chambers on microscope slides for studying organisms such as hydra, planaria, and *Daphnia*. This exciting, reusable product permits gas exchange, allowing specimens to live in the wells for days. Complete with instructions and recommendations for use. In 1-oz container; enough for preparing about 30 observation chambers. **Note:** *Sold only to schools and businesses*.

132700 Each \$23.25

Nematodes



133260 Microworm Culture

Microworm

Panagrellus redivivus. For a class of 30 students. Free-living nematode known to many aquarium enthusiasts and fish keepers as the microworm. The microworm is about 50 μ m in diameter and just over 1 mm in length, barely visible to the naked eye. General life span is 20–25 days and starts reproducing at 3 days of age; live-bearing 10 to 40 young every 1 to $1^{1/2}$ days. Culture on sterilized potato medium.

133260 Microworm Culture

Each **\$17.45**

133265 Microworm Instant Medium, 2 L

Each **\$8.15**

Vinegar Eel

Turbatrix aceti (Anguillula). For a class of 30 students. Lives in vinegar on the fungus forming the "mother." Turbatrix can be observed under the microscope at 20×. Shipped in a 1-oz liquid culture.



133266 Vinegar Eel Culture Each **\$11.65 133270** Vinegar Eel Medium, 1 qt Each **\$13.15**

Worms in a Changing Environment Kit

Investigate the exciting world of nematodes! This unique kit, created by Genome Sciences Education Outreach at the University of Washington, contains a complete curriculum in which students compare 2 different nematode (Caenorhabditis elegans) strains and track their response, growth, and development to environments with 2 different salt concentrations. Give your students an opportunity to conduct an investigation in which they observe feedback mechanisms to help maintain homeostasis in a model organism. The curriculum module, developed for high school biology classes, consists of 5 lessons, a final assessment, teacher instructions, student handouts, and support materials. The lessons employ the 5E learning cycle model and involve students in the 3 dimensions of the Next Generation Sci-



From 173527 Worms in a Changing Environment Kit (with voucher)

ence Standards*. Additional supplies such as **Nematode Agar, Low Salt; Nematode Agar, High Salt;** *C. elegans* cultures; and *C. elegans* feeder host (*E. coli*) can be ordered separately. Kit includes enough materials for a class of 32 students working in groups of 4. Visit **Carolina.com** for a complete list of materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

173527	Worms in a Changing Environment Kit (with voucher)	Each	\$213.00
173527P	Worms in a Changing Environment Kit (with perishables)	Each	\$213.00
173500	Caenorhabditis elegans N2, Plate Culture	Each	\$17.10
173501	Caenorhabditis elegans OSM Mutant, Plate Culture	Each	\$17.10
155073	Escherichia coli OP50, Plate Culture	Each	\$17.25
173521	Nematode Agar, Low Salt (125-mL bottle)	Each	\$9.70
173522	Nematode Agar, High Salt (125-mL bottle)	Each	\$9.70

Cephalobus

For a class of 30 students. Found in decaying vegetable matter. The internal organs are visible with remarkable clarity. Cultured on potato plug medium.

133250 Per culture \$14.95

Rhabditis

For a class of 30 students. Cultured on potato plug medium.

133258 Per culture \$14.95

Rotifers

Philodina

For a class of 30 students. One of the first animals observed by Leeuwenhöek in 1703. Called wheel animals because of their conspicuous "corona," a region of dense cilia at the anterior end that creates a vortex, pulling food particles into the mouth. Also known for their leech-like manner of locomotion. Reproduction is exclusively by parthenogenesis; males are unknown in most species. Very hardy; will survive up to 2 weeks in shipping container.

133172 Per culture \$9.95

133172 Philodina sp.



162860 Marine Rotifer

Monostyla Mar

For a class of 30 students. Both Monostyla

For a class of 30 students. A small, littoral species that has a rigid, chitin-like covering called a lorica.

Mixed Rotifers

and Philodina in equal numbers.

133174 Per culture \$12.50

133170 Per culture \$9.80

Marine Rotifer

Brachionus. For a class of 30 students. Excellent for population, predation, and general studies.

162860 Per culture \$17.30

Monostyla from 133174 Mixed Rotifers

Want to use *C. elegans* as a model organism?



See our Caenorhabditis elegans Culture Kit (item #173525) on page 256.

Gastrotrichs

Lepidodermella

For a class of 30 students. Resembles rotifers in size and shape, but with no crown of cilia.

133100 Per culture **\$11.65**

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

133960 Water Bear; photographed with Rheinberg/oblique illumination

Tardigrades

Water Bear

Hypsibius exemplaris, strain Z151. Sometimes known as water bears, these tardigrades are supplied in an active form. Living culture for a class of 30.

133960 Per culture \$16.15

Annelids



141748 Aeolosoma

Aeolosoma

For a class of 30 students. Freshwater annelid. Cultures contain active, reproductive specimens.

141748 Per culture **\$11.75**

Mixed Annelids

For a class of 30 students. Three genera in approximately equal numbers.

141740 Per culture \$16.15

Dero

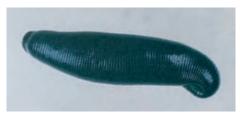
For a class of 30 students. Freshwater annelid. An oligochaete with the posterior end developed into a respiratory organ with ciliated gills. Size, about 1 cm.

141750 Per culture \$11.65

Pristina (Stylaria)

For a class of 30 students. The prostomium in this oligochaete is elongated to form a proboscis.

141810 Per culture \$11.65



Leech

Leech

Species varies. Medium size, 1 to 2" long. May be scarce during winter months. With instructions. **Note:** *These are not medicinal leeches. Not for use with or application to humans or pets.*

141762 Pack of 3 **\$17.30 141764** Pack of 12 **\$55.55**

The Freshwater Blackworm



141720 Lumbriculus variegatus

Carolina Teacher Tips

Lumbriculus variegatus

For a class of 30 students. A freshwater annelid that is excellent for studying regeneration, locomotion, circulation, and behavior. These 1 to 2" worms are more "user friendly" than either planaria or *Daphnia* and are easy to handle, manipulate, and culture in the lab. Includes complete instructions.

141720 Per culture \$12.85



141700 Lumbriculus Culture Kit

Lumbriculus—Perfect for the Classroom

This fascinating, "user-friendly" creature is the perfect animal for the classroom. Besides being exceptionally hardy and easy to raise, *Lumbriculus* is ideal for studying a variety of features and functions, such as regeneration:

"Remarkably, the entire process of head and tail regeneration by a small body fragment can be played out within a small, tightly sealed container with as little as 1–2 mL of water and no food. I have continually kept isolated worm fragments alive under these conditions for more than 6 months. Such fragments gradually diminish in size; new segments readily regenerate. Because of their small size and pale color, the new segments can be easily distinguished from the older ones." (Charles D. Drewes, PhD, "Those Wonderful Worms," *Carolina Tips*® 59 [August 1996]: 18.)

Lumbriculus Culture Kit

For establishing and maintaining a culture of L. variegatus. Includes living culture (for class of 30), $1^1/2$ -gal plastic aquarium, food, transfer pipet, and detailed background information and instructions. To optimize culture conditions and productivity, an air pump (not included) can be used to circulate and aerate the water.

141700 Per kit **\$32.35**

Earthworms & Redworms

Earthworm

Lumbricus terrestris.
Large, mature specimens are suitable for laboratory study and dissection. Mediumsized specimens are not suitable for dissection, but are good for making slides



for making slides and for use as food for snakes and large salamanders. With instructions. **Note:** From June to September, should not be shipped over a weekend. During these

From June to September, should not be shipped over a weekend. During these months, Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Medium	Pack of 12	\$13.7
Medium	Pack of 25	\$23.1
Medium	Pack of 100	\$64.2
Large	Pack of 12	\$13.7
Large	Pack of 25	\$24.2
Large	Pack of 100	\$66.3
	Medium Medium Large Large	Medium Pack of 25 Medium Pack of 100 Large Pack of 12 Large Pack of 25



Worm Farm

A complete unit for raising and keeping earthworms and redworms. The farm includes an $8^5/8 \times 12 \times 8^3/4$ " insulated container with cover and carrying handle, 4-oz bag of worm food, $1^1/2$ -lb bag of worm bedding, and instructions. **Note:** The insulated container is for holding and maintaining worms, not for culturing.

141570	Farm Only	Each	\$27.05
141572	Farm with 50 Redworms	Each	\$35.05
141574	Farm with 50 Earthworms	Each	\$60.70

Magic Worm Food

Contains everything necessary to produce fast-growing, healthy worms. A worm eats its own weight in food each day. Magic Worm Food can also be scattered on lawns, flower beds, and gardens to increase the worm population. 24-oz canister.

141672 Each \$10.90

Magic Worm Bedding

Keeps worms cool, fresh, healthy, and easy to select. Magic Worm Bedding is clean, odorless, and will not powder or deteriorate.

141680	1 ¹ / ₂ -lb bag	Each	\$6.59
141682	41/2-lb Bag	Each	\$12.45
141684	25-lb Bag	Each	\$49.81



141672 Magic Worm Food



141650 Redworms

Redworms

Redworms are ideal for composting and culturing

Eisenia fetida. Small specimens for feeding to animals such as fish, amphibians, and reptiles.

141650 Unit of 75 to 100 **\$18.85 141652** Unit of 750 to 1,000 **\$63.85**



141560 Classroom Worm Composter Kit

Classroom Worm Composter Kit

Grade K and up. Introduce students to the importance of decomposers in the food web as well as the concept of recycling through composting. As students add kitchen waste to this 14-gal "vermi-composter," they observe the quick and efficient conversion of organic matter into enriched soil components by redworms. The composting container is constructed of recycled plastic and has 3 vents for proper airflow; the dimensions are 22" W \times 17" D \times 12" H. Kit includes composter, worm bedding, and the classroom activity book *Worms Eat Our Garbage.* **Note:** Kit contains voucher for prepaid delivery of live materials; live materials can be delivered with kit on request.

141560 Per kit \$149.35

See our earthworms and redworms care sheets at Carolina.com/caresheets.

Animals Mollusks

Carolina Teacher Tips

Caring for Your Aquarium Snails

Follow the same acclimation procedures with your aquarium snails as you would with fish. Springwater or conditioned tap water needs to be prepared prior to the snails' arrival if they are going to be introduced into a new tank. Some general guidelines for aquarium snail care include the following:

- Try to keep the aquarium temperature fairly constant. Snails can become stressed with fluctuating temperatures.
- An acceptable temperature range is between 18–25° C. The pH range should be between 6.5–7.8.
- Avoid overcrowding the snails. Don't hold more than 15–20 small snails per 1–2 gallons of water.
- If a snail is floating, it is not necessarily dead. It may have a gas bubble trapped under its shell; it should eventually sink again.
- Snails are very sensitive to metal ions, particularly copper, in water. If your school is less than 3 years old, or if there have been recent, major plumbing repairs at your school, we suggest you use bottled springwater in your aquarium.
- Snails are scavengers. If the snails are kept in an aquarium with fish and plants, they should not need extra food. If there is not enough food for them, they may eat aquarium plants.
- Newly arrived snails often do not move for 2–3 days following arrival. Do not assume that your snails are dead if they are not moving; simply give them time to emerge. A dead snail will hang limply out of its shell and exudes a foul odor.

Living Organisms

Large Aquarium Snails



141190 Mystery Snail

Mystery Snail

Large. Good scavengers. They do not eat plants. With instructions. **Note:** Cannot be shipped into VA. Residents of AK must apply for a permit from your state game and fish department to receive this material.

141190 Pack of 3 \$12.20

Mystery Snail Set

Includes 3 each of 2 varieties. With instructions. **Note:** Cannot be shipped into VA. Residents of AK must apply for a permit from your state game and fish department to receive this material.

141186 Per set \$27.80

Aquatic Snails

Pond Snail

Popular snail for aquariums and hands-on activities. *Physa* or *Lymnea* available upon request. With instructions. Size, medium. **Note:** *Residents of AK must apply for a permit from your state game and fish department to receive this material.*

141212 Pack of 12 **\$17.60 141214** Pack of 25 **\$29.95**

Pond Snail Set

Includes 6 each of 2 different varieties of pond snails (our choice). With instructions. **Note:** Cannot be shipped into VA. Residents of AK must apply for a permit from your state game and fish department to receive this material.

141210 Per set \$19.30



141212 Pond Snails

Customer Review

"I bought these for my biology class. Each student made a self-enclosed ecosystem in a canning jar, which included various aquatic plants, shrimp, and these snails. All of the shrimp are long dead, but many snails are going on 4 months."

High School General Science Teacher



141230 Ramhorn Snail

Ramhorn Snail

The most popular aquarium snail, available yearround. With instructions. **Note:** Cannot be shipped into VA. Residents of AK must apply for a permit from your state game and fish department to receive this material.

141230 Pack of 12 **\$17.60 141232** Pack of 25 **\$29.50**

Mussels



Freshwater Mussel

Freshwater Mussel, 1 to 2"

With instructions. Note: Cannot be shipped into AK.

141280 Pack of 12 **\$37.85 141281** Pack of 24 **\$71.95**

Freshwater Mussel, Medium to Large

Can be used for demonstrating filter feeding. Species as available. With instructions. **Note:** Cannot be shipped into AK.

141276 Pack of 12 **\$40.55 141277** Pack of 24 **\$78.85**

Arthropods

Crustaceans

Living Fossil Life Cycle Kit (Triops)

Students can hatch and observe their own 1 to 2" "living fossils" with this easy-to-use kit. Study the life cycle of the tadpole shrimp, Triops longicaudatus, an animal resembling the extinct trilobite. Kit includes a vial containing Triops eggs. The eggs hatch within

24 to 36 hr after water is added, and adults will be present in 2 to 3 weeks. Kit also includes plastic container, food, and instructions.





Triops longicaudatus from 142180 Living Fossil Life Cycle Kit (Triops)

142182 Triassic Triops Deluxe Kit

Triassic Triops Deluxe Kit

Triops, the prehistoric tadpole shrimp, are easy to grow and fascinating to observe. Eggs miraculously come to life 24 to 36 hr after water is added, rapidly developing into 1 to 2" adults within 2 to 3 weeks. The award-winning Triassic Triops Deluxe Kit comes complete with everything you need to grow this fascinating living fossil. It is ideal for science projects and is fun, simple to use, affordable, and educational. Triops eggs in this kit are produced in the laboratory, not removed from their natural habitat. Refill includes a pack of eggs.

142182 Kit Each \$31.95 142184 Refill Each \$11.30

Brine Shrimp



Ideal food for all fish, aquatic insects, and amphibians, without the trouble of hatching. 2 oz. With instructions.

142230 Per bag **\$22.65**



Carolina Teacher Tips

Need a Great Idea for a Science Fair or Class Research Project?

Consider Brine Shrimp!

- · What salt concentration is best for brine shrimp?
- · Do brine shrimp prefer light or dark?
- · How does temperature affect brine shrimp development?
- · What are the effects of ethanol on brine shrimp development?



Brine Shrimp Combo

A premeasured amount of brine shrimp eggs and salt combined in an individual bag. To hatch, add the contents of each bag to a quart of water. For best results. use an air bubbler. Three bags per set.

142226 Per set \$11.20



142214 Brine Shrimp Hatchery Kit

Brine Shrimp Hatchery

Great for hatching brine shrimp eggs. Includes hatching container, air pump, air line tubing, air stone, salt, unit of brine shrimp eggs, fine-mesh net, and instructions. Refill includes eggs, air stone, and salt.

Kit Λ^3

142214 Kit Fach \$50.50 **142216** Refill Each \$21.63



Animals

142244 Brine Shrimp Eggs

Brine Shrimp Eggs

Brine shrimp eggs hatch in about 2 days when put in a weak salt solution. Excellent food for hydra and small aquarium fish. With instructions.

142240 1-oz Bottle \$12.60 Each

142242 2-oz Bottle

Each \$22.65 142244 16-oz Can Each \$126.35

Customer Review

"Very good for basics of microscope work . . . Demonstrates physiological response . . . Feeds hydra and small fish . . . Teaches the proper methods for maintaining living cultures."

University Biology Professor

Animals

Isopods

Roll Up, Play Dead, & More

- · Great for teaching evolution, adaptation, and behavior
- · Easy to care for in a moist environment

Pill Bugs & Sow Bugs

Pill bugs and sow bugs are fantastic examples of environmental adaptation. They're crustaceans that live on land—yet they breathe through gills! *Porcellio* (sow bugs) will play dead or run away when disturbed. *Armadillidium* (pill bugs) roll into a protective ball when nudged. Use these easy-care animals to teach topics such as evolution, adaptation, behavior, and much more.



143050 Pill Bug Culture Kit

Pill Bug Culture Kit

Kit allows you to establish and maintain pill or sow bugs in your classroom. Includes culture container, bedding, food, 50 isopods, and instructions.

143050 Per kit **\$54.38**



145000 How to Train Your Isopod Kit (with voucher)

Carolina STEM Challenge®: How to Train Your Isopod Kit

In this Carolina STEM Challenge®, students become animal trainers to learn about isopod behavior. Lab groups study animal preferences and behavior and then develop and design experiments to encourage isopods to move towards a specific target. This kit provides enough material for 32 students working in groups of 4 and includes 1-year access to digital resources that support 3-dimensional instruction. **Note:** Order the kit with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For immediate use, order the kit with the perishable materials included.

145000 Kit (with voucher) Each **\$133.70 145000P** Kit (with perishables) Each **\$133.70**

Living Organisms

Customer Review

"My 15-year-old son did a science fair project on pill bugs and humidity, but had trouble harvesting useable specimens during the winter. We ordered this mixed 25-count pill/sow bug set [item #143062]. Came when desired—bugs were living. Very easy to use and convenient. The experiment was successful—great product!"

Parent

Isopods

Terrestrial Isopods

Wood lice. Field-collected pill bugs and sow bugs. With instructions.

143060	Pill/Sow Bugs (species vary, may be mixed)	Pack of 12	\$14.30
143062	Pill/Sow Bugs (species vary, may be mixed)	Pack of 25	\$22.40
143070	Sow Bugs (Porcellio)	Pack of 12	\$14.30
143072	Sow Bugs (Porcellio)	Pack of 50	\$46.75
143080	Pill Bugs (Armadillidium)	Pack of 12	\$14.30
143082	Pill Bugs (Armadillidium)	Pack of 50	\$45.40



143058 Roly-Poly Pill Bugs Kit

Roly-Poly Pill Bugs Kit

Grade K and up. Pill bugs (which roll up into a ball) and sow bugs (which don't) are small, harmless creatures that are easy to care for and fun to observe. With our complete kit, students explore and compare the behavior and biology of these odd animals, learning about adaptation and ecology. Hands-on activities stimulate students' curiosity, while at the same time helping them develop skills of observation, experimentation, and description. Minimal equipment and prep time are required. Kit includes fully equipped 1½-gal terrarium, pill bugs and sow bugs (15 to 20 of each type), plus a complete set of materials for up to 30 students working in pairs. Instructions, activities, and extensions are also included.

143058 Per kit \$72.70

Carolina Teacher Tips

Pill bugs and sow bugs breathe through gills, so they need a moist environment. Keep them in a humid terrarium (be sure to use springwater, not tap water) and these isopods will survive—and even thrive—in the classroom.



Daphnia

Look into Physiology

Add a variable and see what happens

- · Great for physiology and toxicity studies
- Heart and behavioral changes easy to see using a microscope
- Excellent food source for hydra and small fish

Also known as the water flea because of its jerky hopping motions, this crustacean's transparent body and large ellipsoid heart make it ideal for physiological studies. Add light, change the temperature, expose it to nicotine or alcohol—and watch the effects on heart rate. Daphnia is also a good food source for young fish.

Daphnia magna

A large species of Daphnia commonly used in aquatic effluent toxicity testing and physiology studies. A common obligate algal feeder, D. magna can be successfully cultured using Daphnia Food (item #142316) or Algae Food Source (item #142337). Cultures of D. magna contain adults, juveniles, and neonates. One Culture is sufficient for a class of 30 students. Order the Culture 8-Pack to cover multiple sections or labs (up to 240 students). Note: Culture contains

approximately 30-40 organisms per culture container.

Each \$13.00 4+ Cultures Each \$11.70

142331 Culture 8-Pack Each \$90.00

Customer Review

"They [the Daphnia] were all alive and healthy. Used them for a science project to monitor heart rate. I bought two containers just in case some were dead but they were all alive, so I did not need the 2nd container. Only suggestion is to have a good microscope if you are using one. We used a cheap student one which did not have much magnification or lighting."

Carolina Teacher Tips

After you receive your Daphnia culture, immediately remove the lid but do NOT aerate with a pipet. Use within 3 to 5 days.



142314 Daphnia pulex

Daphnia pulex

- · Recommended for environmental studies
- · Prolific-grow to feed your fish

For a class of 30 students. The most common species of water flea, Daphnia pulex is an easyto-grow food source for hydra and small fish. Carolina's living culture usually contains several instars, including large forms with eggs. Includes instructions.

142314 Per culture \$13.00 4+ Cultures Each \$11.70

Animals



187212P Carolina EcoKits: LC₅₀ Aquatic Toxicity (with perishable)

Carolina EcoKits®: LC₅₀ Aquatic Toxicity

- · Learn about some environmental impacts of population growth
- · Perform static aquatic toxicity testing
- Determine and graph the results of an LC50 test

Grades 9-12. Students are introduced to static toxicity tests used by the EPA and other health and environmental organizations to set water quality standards. During the lab, students prepare various concentrations of ammonium sulfate, a fertilizer component, and introduce Daphnia magna into their solutions. After 24 hours, students observe the mortality percentage of Daphnia in each concentration and determine the LC₅₀ of ammonium sulfate. Kit accommodates a class of 30 students working in groups of 6. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

Kit includes: Needed but not included: 4 Daphnia Cultures Springwater, 1 gal Ammonium Sulfate, 5 g 5 Plastic Containers (for solutions) 35 Plastic Cups 6 Permanent Markers 40 Pipets 5 Graduated Cylinders, 100 mL

Teacher's Manual and Balance Weigh Boats or Paper Reproducible Student Guide

Each \$88.00 187212 Kit (with voucher) 187212P Kit (with perishable) \$88.00 Each

Homeostasis in Animals Kit

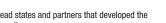
For a class of 32 working in groups. Maintaining homeostasis is one of the most important functions that animals perform for their own survival. While animals maintain some processes through behavioral changes, many are handled through physiological changes such as changing heart rate, sweating, or muscle contractions. In this 4-part lesson students first examine their own heart rate, then design their own experiment to test external stimuli on Daphnia's cardiovascular system. The activities address the following



From 206210P Homeostasis in Animals Kit (with perishable)

Next Generation Science Standards*: HS-LS1-3, Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. Includes digital resources: visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

206210 Kit (with voucher) Each **\$56.75** 206210P Each \$56.75 Kit (with perishable)





Animals



Daphnia Culture Kits

Establish and maintain a culture of *Daphnia magna* or *Daphnia pulex* with your choice of *Daphnia* culture kit. The *Daphnia magna* Culture Kit is a good choice for use in toxicology and physiology laboratory activities due to *D. magna's* easily viewed heart and overall large size. The *Daphnia pulex* Culture Kit is ideal for culturing *D. pulex* as a source of food for small fish. Each kit contains a 1½-gal plastic aquarium with lid, food source, living starter culture of *Daphnia*, and instructions.

142304 Daphnia pulex Culture Kit Each **\$48.10 142326** Daphnia magna Culture Kit Each **\$55.90**



187010P Carolina EcoKits: Predator-Prey Relationships (with perishables)

Carolina EcoKits[®]: Predator-Prey Relationships

Grades 9–12. In this kit, students use direct observation and modeling to examine the relationship between predator and prey in 2 sets of organisms. First, students examine the relationship between *Daphnia* and *Hydra* and between *Stentor* and *Chilomonas*. Students then collect data while modeling a predator-prey relationship with beads. Students graph and analyze the collected data before drawing conclusions about the relationship between predator and prey. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For best results, use perishable materials within 2–3 days of receipt.*

187010 Kit (with voucher) Each **\$101.80 187010P** Kit (with perishables) Each **\$101.80**

Living Organisms

Living Wonders® View Chamber

Enjoy an up-close encounter with your live organisms using our 5×-magnifying view chamber. This durable clear acrylic chamber, with removable watertight end caps, permits both aquatic and terrestrial viewing. Remove the magnifier and use the chamber under a stereomicroscope for even closer observation. The compact size allows carrying your viewer wherever you go—in the field, in the lab, or at home. Chamber is 1/4 × 21/2". Magnifying piece is 1" in diameter and 2" tall.







Want to build an ecosystem with Daphnia?

See our Microcosm EcoKit on page 161.

Daphnia Food

For culturing *D. pulex* and *D. magna* in large and small quantities.

142316 Solid Food (4 oz)

Each **\$10.40 142337** Algae Food Source (1 qt)

Each **\$31.95**



142316 Daphnia Solid Food



New! Hikari® Tropical Micro Wafers®

Hikari® Tropical Micro Wafers® contain high-grade marine and vegetable proteins. They are efficiently digested and promote vivid coloration in addition to unequalled growth rates. The tiny wafer slowly sinks in the aquarium, providing food for many varieties of small- and medium-sized tropical fish, such as guppies and zebra fish. It also works well for feeding *Daphnia magna*. An excellent alternative to flake food, the small wafers do not foul the water as quickly, improving the water clarity and health of your tank. In 1.58-oz/45-g pack.

674751 Per pack \$6.29



Moina

Grade 9-College. In the Daphnid family but much smaller than *Daphnia pulex* (approximately half the maximum length). Because of its small size, it makes an excellent live food for freshwater larval-stage fish. Cultured on freshwater algae. For a class of 30 students.

 142336
 Moina Culture
 Each
 \$12.50

 142337
 Algae Food Source (1 qt)
 Each
 \$31.95

Animals

Other Crustaceans



142350 Mixed Crustaceans

Mixed Crustaceans

Any 4 of the following genera—Daphnia, Alonella, copepods, ostracods, aquatic isopods, amphipods—will be mixed, depending on availability. For a class of 30 students. **Note:** Cannot be shipped into CA.

142350 Per culture **\$17.85** 4+ Cultures Each **\$16.05**



142360 Aquatic Isopod

Aquatic Isopod

These arthropods feed on dead and decaying vegetable and animal matter. Culture contains *Asellus* or similar genera. For a class of 30 students. **Note:** *Cannot be shipped into CA*.

142360 Per culture \$13.20 4+ Cultures Each \$11.90



142366 Marine Copepod

Marine Copepod

Tigriopus californicus. This copepod is an excellent addition to any marine (saltwater) tank. It can be used as a food source for marine fish and is great at cleaning up detritus.

142366 Per culture \$17.95



Amphipod

Gammarus or similar genera. For a class of 30 students. **Note:** *Cannot be shipped into CA*.

142355 Per culture **\$13.20** 4+ Cultures Each **\$11.90**

Copepod

Cyclops. May include females with egg sacs and several in the nauplius stage. For a class of 30 students. **Note:** *Cannot be shipped into CA.*

142365 Per culture **\$13.20** 4+ Cultures Each **\$11.90**



142365 Copepod

142355 Amphipod

142500 Large Crayfish

Feeder Crayfish

Various species. May be used for growth and behavior studies. Effective scavengers for the aquarium (but not compatible with all fish). May also be used as food for some large amphibians and reptiles. Size ranges from ¼ to 2". **Note:** Cannot be shipped into AK, CA, VA, or WA. Residents of NV, OR, and UT need a permit to obtain this material. Canadian customers must apply for a Canada Dept. of Agriculture permit.

142532 Pack of 12 **\$28.25 142534** Pack of 24 **\$52.43**

Carolina Teacher Tips

Note: Red crayfish (*Procambarus clarkii*) experience semiannual molting cycles, which reduce their hardiness and survivability. These periods generally occur during early fall (September and October) and early spring (February and March). We may make substitutions during this time to ensure you receive the highest quality specimens. Crayfish are also susceptible to mortality due to heat extremes experienced during warmer months. **These organisms should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Crayfish

Not sexed. Large (31/2" or larger) and medium (about 3") sizes are good for laboratory study and dissection; small size (less than 3") is ideal for the aquarium. Please order 10 days in advance. **Note:** Cannot be shipped into AK or VA. Residents of MN, OR, UT, and WA need a permit to obtain this material. Additional restrictions may apply to residents in CA, MI, MN, NV, and WI, which could delay shipment. Residents of MI, MN, and WI will receive gray crayfish instead of red crayfish. Canadian customers must apply for a Canada Dept. of Agriculture permit.

F			
142500	Large	Pack of 3	\$16.20
142502	Large	Pack of 12	\$53.90
142504	Large	Pack of 50	\$202.75
142510	Medium	Pack of 3	\$16.30
142512	Medium	Pack of 12	\$52.65
142514	Medium	Pack of 50	\$158.65
142520	Small	Pack of 3	\$11.55
142522	Small	Pack of 12	\$35.70
142524	Small	Pack of 50	\$104.45



142540 Crayfish and Lobster Food

Crayfish and Lobster Food

Nutritionally balanced sinking pellets. 250-g bag.

126

Animals Crabs

Living Organisms



142450 Fiddler Crab

142415 Fancy Land Hermit Crab



142410 Land Hermit Crab

Fiddler Crab

A small, hardy crustacean that spends most of its life along brackish water shores. This crab is easily maintained in the classroom. With instructions. **Note:** *Cannot be shipped into WA*.

142450 Pack of 3 **\$22.90 142452** Pack of 12 **\$88.58**

Fancy Land Hermit Crab

Similar to item #142410 Land Hermit Crab, but with an exotic and beautiful shell. With instructions.

142415 Pack of 3 **\$27.50**

Land Hermit Crab

A hardy crustacean that spends most of its life on land. This crab is easily maintained in a sand-based terrarium. With instructions.

142410 Pack of 3 **\$22.30 142412** Pack of 12 **\$72.70**



142435 Hermit Crab Food

142413 Blown-Glass Hermit Crab Shell (crab not included)

Hermit Crab Food

A dry food that provides an easy method for feeding hermit crabs. 250-g bag.

142435 Per bag \$11.35

Fiddler Crab Food

A dry food that provides an easy method for feeding fiddler crabs. 250-g bag.

142454 Per bag \$11.35

Blown-Glass Hermit Crab Shell

Own an original piece of hand-blown glass art! These clear-glass hermit crab shells are designed to pose no harm to the crabs. The shape of the shell mimics the natural spiral formations that accommodate the contours of a crab's body. The crab will inhabit its glass home only until it outgrows it and is ready to find its next one. Until then you will be able to visually inspect the unique body and anatomy of the crab. The approximate opening size of the shell is from 1 to 1½". A perfect gift for a teacher, student, or hermit crab enthusiast! Hand-blown glass hermit crab shells are crafted by Robert DuGrenier in his Vermont glass studio. **Note:** *Hermit crab not included.*

142413 Each \$39.81





See our fiddler crab and land hermit crab care guides at Carolina.com/careguides.



142437 Hikari Crab Cuisine

New! Hikari® Crab Cuisine®

Hikari® Crab Cuisine® is enriched in calcium to promote shell development and support immune system health. The hard stick quickly sinks to the aquarium bottom. It will not dissolve or cloud the water, allowing your crustaceans to consume it at their leisure. This food is perfect for lobsters, shrimp, crayfish, and all kinds of crabs. In 1.76-oz/50-g pack.

142437 Per pack \$3.99



Myriapods

Millipede

A large, docile terrestrial animal, also known as the thousand-legger. Long-lived; easy to care for. Has many segments, each bearing 2 pairs of appendages. Approximately 3 to 4" long. With care instructions. **Note:** *Not for export.*

143124 Pack of 3 **\$29.85 143126** Pack of 12 **\$55.20**

Millipede Habitat

In nature millipedes, or thousand-leggers, are secretive and live beneath leaves, bark, stones, and logs. Our habitat gives students the opportunity to study these interesting and unique arthropods up close. The kit provides everything you need to maintain millipedes everything you need to maintain millipedes habitat with lid, 3 large millipedes, pine bark mulch, spray bottle, tree branch, and instructions. **Note:** *Not for export.*

143118 Per kit \$69.35



143118 Millipede Habitat



See our millipedes care sheet at Carolina.com/caresheets.



Carolina® Large Choice Chamber Kit

Developed from teacher requests! The large, sturdy, reusable, clear plastic Carolina® Large Choice Chamber has been developed so you can observe and monitor animal behavior. Construct a hypothesis about habitat preference and test your idea. Not only is this new chamber large enough (6" in diameter and 1" deep) to use for isopods, it's great for bessbugs, millipedes, and hissing roaches. **Kit** comes with 2 chambers, 2 chamber lids, a tunnel system with lid, and 4 "gates" to allow you to control access to your chambers. The exclusive design also allows you to add up to 2 Additional Large Choice Chambers and Lids in order to test multiple parameters simultaneously. No need to worry if a part gets misplaced; simply order the Replacement Choice Chamber Tunnel, Lid, and 4 Gates to complete your set. You can also order the Black Large Choice Chamber and Lid for more habitat preference options.

143051 Each **\$19.20** 5+ Kits Each **\$17.30** 143052 2 Additional Large Choice Chambers and Lids \$13.20 Each 143053 Replacement Choice Chamber Tunnel, Lid, and \$7.60 4 Gates Each 143055 Black Large Choice Chamber and Lid Each \$9.00



143100 Centipede

Centipede

This elongated, many-segmented, swift-moving arthropod belongs to the class Chilopoda. Handle with care. Includes instructions. **Note:** Cannot be shipped into CA.

143100 Pack of 3 **\$31.35 143102** Pack of 12 **\$68.50**



Life in a Rotting Log Kit

Grade K and up. Experience the diversity of life found on the forest floor. Life in a Rotting Log Kit provides the ideal habitat for creatures such as crickets, redworms, millipedes, beetles, and more. Kit includes a generously sized piece of decaying wood, moss, soil, and an assortment of at least 5 different kinds of harmless creatures that can be found in or under a rotting log. Comes with a 1½-gal clear, plastic terrarium perfect for holding and observing this fascinating ecosystem. Keep your rotting log moist and watch it change over time. Instructions and activities included. **Note:** *Not for export.*

141030 Per kit **\$52.50**

Customer Review

"This is the second time purchased—I love this kit. Great classroom tool, particularly for my kids who are soil deprived and insect shy!"

PreK/Kindergarten Teacher

Animals Arachnids

Living Organisms



143298 Deluxe Tarantula Habitat

Deluxe Tarantula Habitat A

Considered one of the most docile tarantulas, the curly hair tarantula of Central America is a good spider to introduce to students. This habitat, designed to maintain a tarantula in the classroom, includes curly hair tarantula, aquarium with hood, and other supplies. Note: Order the kit with the perishable material (\$\daggerightarrow\$ item) included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Keep tarantula at room temperature; do not refrigerate.

Curly Hair Tarantula◊ All-Glass Aquarium, 10-gal Full LED Aquarium Hood, 10-gal Tank Cover, Screen, 10-gal

143298 Kit (with voucher) 143298P Kit (with perishable) Each \$208.33

Under-Tank Heaters Eco Earth® Substrate (3 bricks) Water Bowl

Instructions Each \$208.33



Curly Hair Tarantula

A large Central American spider with various shades of gold and tan hairs. It is considered one of the most docile tarantulas and a good spider to introduce to students. Maximum size is roughly 5 to $5^{1}/2^{11}$ from toe to toe. Instructions included.

143357 Each \$46.45



143350 Tarantula

Tarantula

Usually a brown tarantula from the southwestern United States is shipped. Not sexed. Includes instructions.

143350 Each \$32.55



143255 Cellar Spider

Cellar Spider

Family Pholcidae. Species and size as available. Not sexed. Includes instructions.

143255 Pack of 12 \$45.85



143210 Scorpion

Scorpion

Not sexed. Handle with care. Includes instructions. Note: Sold only to schools and businesses.

143210 Each \$38.10



Wolf Spider

Family Lycosidae. Species and size as available. Not sexed. Includes instructions.

143260 Pack of 6 \$47.50

Customer Review

"I ordered the 6-pack of wolf spiders and they all arrived healthy and alive; I even got an extra one (for a total of 7), so that was neat! . . . The shipment was packed very well . . . '

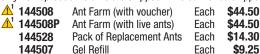
Insects

Ants



Gel Ant Farm with LED Light Base

Watch in wonder as the ants inside this lighted gel ant farm tunnel in 3 dimensions. The gel provides the ants with tunneling substrate, food, and water. No additional materials are required! A wide top opening makes transferring ants into the farm easy. Cool LED lights illuminate the farm from below, allowing you to observe these fascinating insects during the day and at night. With the **Pack of Replacement Ants** and **Gel Refill**, you can reuse this ant farm again and again. **Note:** Order the item with live ants included or with a voucher to request the live ants later at your convenience. Contact us or return the voucher to request delivery of live ants. We do not ship queen ants; only nonreproductive ants are shipped. Ants cannot be shipped into OR or Canada.









144343 Ants Amazing Bugs Kit (with live ants)

Ants Amazing Bugs® Kit

Watch these super-strong, super-organized critters build extraordinary colonies inside their space-age habitat. Student activities include observing, counting, and drawing their ants. Mounds of fun! **Note:** We do not ship queen ants; only nonreproductive ants are shipped. Ants cannot be shipped into OR or Canada.

144343 Kit (with live ants) Each **\$40.80 144341** Kit (with voucher) Each **\$40.80**



144500 Giant Ant Farm

Giant Ant Farm

Grades 2–6. Everything needed to set up your own complete giant ant farm. Includes sand, food, instructions, and a special certificate to order a generous supply of harvester ants online. Habitat size, approximately $10 \times 14 \times 1$ ". **Refill** includes sand and food. **Note:** We do not ship queen ants; only nonreproductive ants are shipped. Ants cannot be shipped into OR or Canada. Weather permitting (32 to 85° F), the delivery of ants may take 2 to 5 weeks once online order is received by the vendor. A shipping charge of \$6.00 is due upon redeeming voucher for live ants. /!\ WARN-ING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

 144500
 Kit
 Each
 \$46.00

 144502
 Refill (sand and food)
 Each
 \$12.15

 144530
 Pack of Replacement Ants
 Each
 \$21.63

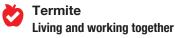
Customer Review

"This is a great buy! It is the best for your money. You will never find a better one!"

Student

Animals Termites





- Low maintenance
- · Great for behavioral studies
- Excellent for modeling symbiosis

Experience the highly social and organized interaction of your own termite colony. Includes instructions. **Note:** Due to termites' natural life cycle, they are often fragile in early fall and may not ship well. Cannot be shipped into AZ or OR. Canadian customers must apply for a Canada Dept. of Agriculture permit.

143730	Soldiers	Pack of 12	\$23.05
143732	Soldiers	Pack of 25	\$46.60
143734	Workers	Pack of 25	\$22.65
143736	Workers	Pack of 100	\$50.50



Termites carrying digestive symbionts

Termite Digestive Symbionts

Trichonympha and Pyrsonympha, as well as other protozoa, live as symbionts in the termite's gut. Shipped in live termites. With instructions. **Note:** Due to termite's natural life cycle, they are often fragile in early fall and may not ship well. Cannot be shipped into AZ or OR. Canadian customers must apply for a Canada Dept. of Agriculture permit.

143738 Pack of 25 **\$19.85 143740** Pack of 100 **\$46.65**



143725P Group Behavior and Social Insects Kit (with perishables) (above); in use (upper right)

Group Behavior and Social Insects Kit

It might take a village to raise a child, but in the case of social insects, it takes a colony to find food, raise young, and defend against threats. While humans can write down directions and instructions, bees and termites must use other means to communicate their needs and where best to find food. In this activity, students first examine cooperative foraging behavior in bees and model bee communication. Next, they identify how termites communicate with members of their colony and explore how cooperative behavior enhances individual survival. Students then assess their hypotheses and share results between groups. Kit supports a class of 30 students working in groups of 3 and includes free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Due to termites' natural life cycle, they are often fragile in early fall and may not ship well. Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Cannot be shipped into AZ or OR. Canadian customers must apply for a Canada Dept. of Agriculture permit.

 143725
 Kit (with voucher)
 Each
 \$63.55

 143725P
 Kit (with perishables)
 Each
 \$63.55

Living Organisms



143722 Termite Behavioral Investigation: Follow That Trail! Classroom Kit

Termite Behavioral Investigation: Follow

Grade 3 and up. This is a fun introduction to the world of insect pheromones. Termites use chemicals to mark their trails, but can they be fooled? Using worker termites and various ink pens, students test the reaction of termites to chemicals that mimic those of their natural pheromones. By placing the termites near the prepared trail lines, students observe scent preferences, the insects' agility in maneuvering sharp angles, and their ability to pick up the scent of a lost trail. Includes termites, sample pens, teacher's manual with reproducible student guide, and free 1-year access to digital resources. Classroom Kit contains enough materials for 30 students working in pairs; Demonstration Kit supplies an individual student. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Due to termites' natural life cycle, they are often fragile in early fall and may not ship well. Cannot be shipped into AZ or OR. Canadian customers must apply for a Canada Dept. of Agriculture permit.

 143722
 Classroom Kit
 Each
 \$55.80

 143724
 Demonstration Kit
 Each
 \$31.35

Customer Review

"I used this with a group of teachers to explore literacy in science, using double entry science notebooks. It was engaging, thought provoking, and made for a great way to model inquiry with students."

High School Biology Teacher

Aquatic Insects



143520 Damselfly Nymphs

Damselfly Nymph

Aquatic predator. With instructions. Note: Cannot be shipped into AZ, CA, or FL. Not for export.

143520 Pack of 12 \$33.65

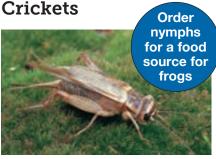


143526 Dragonfly Nymphs

Dragonfly Nymph

Aquatic predator. With instructions. Note: Cannot be shipped into AZ, CA, or FL. Not for export.

143526 Pack of 12 \$34.90



143550 House Cricket, Adult

143565 House Cricket Food

674004 Kricket Keeper

House Cricket

Gryllodes sigillatus. With instructions.

143550	Adults	Pack of 12	\$10.75
143552	Adults	Pack of 100	\$40.35
143556	Nymphs	Pack of 50	\$26.05
143558	Nymphs	Pack of 100	\$37.08

House Cricket Food

Nutritional, high-protein diet for common house crickets. 250-g bag.

143565 Per bag \$10.80

Kricket Keeper™

This sturdy plastic habitat provides the ideal environment for keeping crickets. The lid features a viewing/feeding window on top, 2 dark cylinders with clear caps inserted in the sides, and flap covers to prevent escapes when cylinders are removed. The cylinders provide the dark hiding places to which crickets are naturally drawn. When crickets are needed, simply remove a cylinder from the habitat and drop the flap. Houses up to 36 adult crickets or 50 nymphs. Crickets not included.

674004 Each \$17.47

Milkweed Bugs

Milkweed Bug Life Cycle

Oncopeltus fasciatus. Unsexed. Ratio of male and female insects will vary. Note: Eggs should not be shipped over a weekend. Carolina recommends that you request eggs to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

143810 Assortment

(15 eggs, 15 nymphs, 15 adults)

Unit \$37.30 143812 Adults Pack of 12 \$21.30 143814 Adults Pack of 50 \$73.15

143816 Eggs

(about 30; enough to start colony)

Unit \$19.60

143820 Nymphs \$45.40 Pack of 50

Milkweed Bug Culture Kit

Oncopeltus fasciatus. This attractively colored bug has been extensively used in research ranging from biochemistry to behavior. In addition to studying its life cycle and behavior, O. fasciatus can be used to demonstrate incomplete metamorphosis and hemipteran morphology. With instructions and background information. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Kit includes:

Milkweed Bug Eggs (enough to start a colony) **Culture Container** Milkweed Bug Food (250 g) Egg-Laying Substrate Watering Vial and Wicks Climbing Mat

143800 Per kit \$48.67

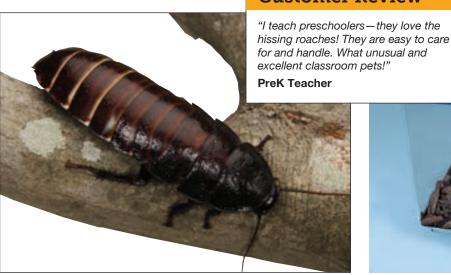


Bug Culture Kit

Animals Roaches

Living Organisms

Madagascar Hissing Roach



143666 Madagascar Hissing Roach



143660 Madagascar Hissing Roach Habitat

Madagascar Hissing Roach

Your class might have trouble believing it, but these ferocious-looking creatures are actually quite shy—they can even be handled. These insects are originally from the island of Madagascar. When disturbed, they hiss loudly by forcefully expelling air through their spiracles. Their large carapaces have false eyespot protrusions that give the roaches their fierce appearance. Once they become accustomed to being handled, they no longer hiss. But if you leave them alone for a few weeks, they begin to hiss again. Adult. Note: Cannot be shipped into AZ and TN. In FL, this item can be sold and shipped to educational institutions only; it cannot be shipped to any FL residential address. Canadian customers must apply for a Canada Department of Agriculture permit.

143666 Each \$12.55 143668 Pack of 3 \$30.80

German Cockroach

Blattella. Adult size, 1 to 2 cm. With instructions. Note: Canadian customers must apply for a Canadian Dept. of Agriculture permit.

143626 Pack of 12 **\$25.85** 143628 Pack of 50 \$88.70



Customer Review

German Roaches for Research Study

"We needed a starter culture of German roaches for a research study. The culture was priced fairly, arrived promptly and in good condition. This was our first purchase from Carolina Biological; we will look to them to supply our future needs."

Madagascar Hissing Roach Habitat

Grade K and up. The hissing roach is easy to care for and handle. It teaches children about the importance of "unhuggable" animals. Habitat includes cage with lid, 2 Madagascar roaches, wood chips, food, water dish, tree branch, and instructions. Note: Cannot be shipped to AZ and TN. In FL, this item can be sold and shipped to educational institutions only: it cannot be shipped to any FL residential address. Canadian customers must apply for a Canada Dept. of Agriculture permit.

143660 Per kit \$57.55



Cockroach

Study the ultimate survivalist

- · Quickly produces large populations
- · Low maintenance
- · Constant activity rhythm

Periplaneta. Adult size, 3 to 4 cm. There's never a dull moment as students watch how cockroaches live, work, and thrive even in basic conditions. Note: Canadian customers must apply for a Canadian Dept. of Agriculture permit.

143642 Adults Pack of 12 \$40.80 143644 Adults Pack of 50 \$131.30 **143650** Nymphs Pack of 12 \$29.80

Customer Review

"Ordered several batches at different times and all were healthy and worked well for our physiology experiments."

College/University Biology Lab Manager

Flies

House Fly

Larvae mature and pupate 3 to 5 days after arrival. Pupae mature at room temperature and eclosion takes place 3 or 4 days after arrival. A 1-L bag of Carolina® Instant House Fly Medium supports 2,000 to 3,000 larvae. With instructions. Note: Pupae should not be shipped over a weekend. Carolina recommends that you request pupae to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

144410	Larvae	Pack of 100	\$23.25
144412	Pupae	Pack of 150	\$22.30
144424	Carolina Instant		

House Fly Medium 1-L Bag \$19.25



144410 House Fly Larvae



173480 Sarcophaga emerging from pupal case

Young Sarcophaga Pupae

White-eyed young pupae of *S. bullata* mature at room temperature and eclose in 1 to 2 weeks. **Note:** *Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.*

173480	Unit of 100 to 150	\$22.35
173482	Unit of 200 to 250	\$42.55
173484	Unit of 575 to 625	\$104.25
173486	Unit of 1,200 to 1,250	\$196.85

The WOWBugs Educational Series

Because of its simple culturing requirements, ease of handling, and fascinating biology, the WOWBug (*Melittobia digitata*) is ideal for teaching a wide variety of fundamental biological concepts and life science skills.



WOWBug male (top) and female (bottom).

They differ in wing size, color, form of the antennae, and presence or absence of compound eyes.



Melittobia digitata

This bizarre classroom creature is a harmless, stingless wasp found worldwide. For capturing student interest, it's hard to top an insect that has wings but hops and plays possum; takes only 3 weeks to complete its life cycle; produces up to 700 offspring (95% of them female); and includes blind males who kill their brothers and mate with their sisters! Each culture includes 50 to 100 wasps shipped in the early parasitic stage inside *Sarcophaga* (flesh fly) puparia. Order our Young *Sarcophaga* Pupae (item #173480) if you are going to maintain the culture.

144570 Per culture \$23.10



Sarcophaga Larvae

As carrion feeders, *Sarcophaga bullata* (flesh fly) larvae (maggots) are among the first fly larvae to develop on an exposed corpse. These are mature labgrown larvae that will pupate after a few days. Flies emerge from pupae in 1 to 2 weeks. Use the larvae for forensics activities or as live food for reptiles and amphibians; use the pupae as hosts for WOWBugs. Larvae also demonstrate the life cycle of an insect with complete metamorphosis. About 100 larvae per unit. With care instructions.

144440 Per unit \$24.95

Customer Review

"I used this product to do my science fair project for life science. I used them to test what maggots prefer to eat. Quality of live product was excellent. Website was very easy to use and purchase from."

Student

For *Drosophila* products see pages 205–213 in the Genetics section.



187002 Carolina EcoKits: Species Interactions (with voucher)

Explore species interactions, including the parasite-host relationship between WOWBugs and Sarcophaga larvae, with Carolina EcoKits®: Species Interactions (item #187002 or #187002P) on page 604.

Animals Praying Mantis

Mantis Egg Case

Egg clusters of the Chinese praying mantis. Approximately 25 to 50 or more young mantises will emerge. May be stored in refrigerator for up to 6 months during spring season until ready for use. With instructions. Young mantises need live food. We recommend our item #172910 Fruit Fly Culture or our item #172900 Fruit Fly Culture Kit. Note: Available January to June only and cannot be released in CT.



143700 Pack of 3 \$22.90

Customer Review

"Raising mantids turned out to be a great project for kids in my neighborhood last year. Not only were they delighted when the egg cases hatched, but were unafraid (and respectful) of the adult mantids later in the summer. I've had the neighborhood children ringing my doorbell since February, wondering when we were going to do this again. A great way to educate kids outside of the classroom!"

College Professor

Living Organisms



The Praying Mantis Nursery Kit

Now students can raise their own baby praying mantis. Everything needed for a class of 30 students, including Chinese praying mantis egg case; fruit fly culture kit with wingless fruit flies (for feeding baby mantises); 30 clear plastic mantis nursery vials with foam plugs; and 30 cotton swabs (to provide water). When the tiny mantids hatch, each should be placed in its own vial (or they will eat one another). The mantids can be kept in the vials until they reach $1^{1}/_{2}$ to 2". Directions for building a terrarium for larger mantids are included. Complete instructions and hands-on science activities are also included. **Note:** *Available January to June only and cannot be released in CT.*

143698 Per kit **\$79.96**

Fruit Fly Culture Kit

For life cycle studies or for feeding small animals. Includes 1 item #172910 Fruit Flies culture, 6 culture vials with plugs and netting, instant *Drosophila* medium for about 72 cultures, and instructions.

172900 Per kit \$35.95

Fruit Flies

For life cycle studies or for feeding small animals. Flies are specially selected for wing variations which restrict their flying, and are not selected for genetic studies.

172910 Per culture **\$9.95**

Beetles



Dermestid, Pupa



Dermestid, Larva

Dermestid, Adult

Dermestid Assortment

Contains approximately 8 to 10 adult beetles, 10 to 12 larvae, and 2 pupae mixed together. Suitable for starting new stock cultures. Ideal for skeletal preparation. With instructions. **Note:** *Cannot be shipped into CA*.

144168 Per set \$30.15

Customer Review

Great starter culture

"Put in 10-gal aquarium with wood chips, cotton batting, and dead mouse. Reproducing quickly and very engaging for students! Great for biology and forensic science."

High School Biology Teacher



Insects Can Offer Lots of Clues

For more insect-related forensic science resources, see Sarcophaga bullata on page 134 and the Forensic Insects Biorama™ preparation on page 436.

The Bean Beetle

(Callosobruchus maculatus)

Keeping a live insect culture has never been easier! Our bean beetle arrives on its host bean and requires no additional food or water. Easy to handle, the beetle allows teachers in grade 6 and up to bring inquiry-based study to the classroom. Adult bean beetles live 1 to 2 weeks, so order them when ready to use.

Bean Beetle

This easy-to-maintain beetle culture is ideal for use in a variety of reproductive behavior studies. All you need to keep it going generation after generation are beans such as black-eyed peas, mung beans, or adzuki. Females lay a single egg on each bean. The emerging larva then burrows into the bean where it will feed, pupate, then emerge as an adult beetle. Adults do not require any food or water—they spend their short life span of 1 to 2 weeks mating and laying eggs. Culture contains 30 to 40 mixed adults set up on host beans. **Note:** *Cannot be shipped into OR.*

144180 Per culture \$19.47



144180 Bean Beetle

Customer Review

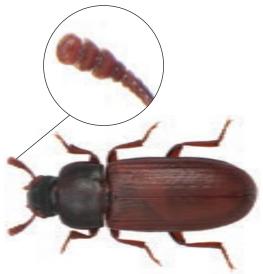
Fantastic Little Beetle

"This little beetle is one of the easiest research specimens to keep. They're highly sexually dimorphic, allowing even young children to be able to tell male from female, they don't eat as adults, and they only seem to prep their wings but never actually fly. I've had students use them to answer their own research questions about behavior."

High School Biology Teacher

Flour Beetles

Confused about how to distinguish the Red Flour Beetle from the Confused Flour Beetle? Look closely at their antennae. The Red Flour Beetle's antenna has a club-like end with 3 segments, while the Confused Flour Beetle's antenna tapers more gradually over 4 segments.



144356 Red Flour Beetle

Red Flour Beetle

Tribolium castaneum. Similar to *T. confusum*, but reddish in color and with different antenna structure. Unit contains enough beetles to start a large culture. With instructions.

144356 Per unit \$17.00



144346 Confused Flour Beetle

Confused Flour Beetle

Tribolium confusum. Small brown beetle about 3 mm L. Each female lays 100 to 200 eggs in a period that may last 1 year. Unit contains enough adults to start a large culture. With instructions.

144346 Per unit \$17.00

Animals Mealworms

Living Organisms





144268 Mealworm, Adult

144250 Mealworm Culture Kit

Mealworm

Tenebrio. The adult lays hundreds of eggs and is the best stage to start a balanced culture. Larvae are ideal food for lizards, salamanders, turtles, and frogs. Pupae metamorphose into adults in about 2 to 4 weeks. With instructions.

144264 Assortment (about 15 adults, 15 larvae, 2–5 pupae, if available)

		Unit	\$18.10
144268	Adults	Pack of 12	\$14.25
144270	Adults	Pack of 50	\$30.55
144272	Larvae	Pack of 50	\$11.80
144274	Larvae	Pack of 100	\$14.25
144276	Larvae	Pack of 500	\$36.65

Mealworm Culture Kit

Tenebrio. Enough adults to start a large culture, plus culturing pan and medium for rearing larvae. With instructions.

144250 Per kit \$35.84

Bran Meal

For culturing mealworms.

144320 2.5-kg Bag Each **\$13.15 144322** 5-kg Bag Each **\$21.00**

Mealworms are easy to culture, are good composters, and make an excellent protein source for reptiles and birds.

Superworms will not pupate if other superworms are nearby. They are also a great food treat for larger reptiles and birds.





Superworm

Zophobas morio. A nutritionally superior live food source for large reptiles and amphibians. They are 2 to 4" L and do not readily change into beetles, as do mealworms. If maintained properly (not too much moisture), their shelf life may be 6 months or more! They are easy to maintain at room temperature (no refrigeration) and can be raised in peat or sawdust in a low, flat container.

144302 Pack of 50 **\$23.15 144303** Pack of 100 **\$43.47**



144308 Darkling Beetle

Darkling Beetle

The adult stage of the Superworm, this harmless beetle is docile and makes an excellent model for insect anatomy with its 3 distinct body regions. Larva is 2 to 4" long and does not readily pupate. The pupa can take 3 to 4 weeks to develop into an adult. Beetles and larvae are easy to care for—simply provide bran meal. **Assortment** includes about 12 adults, 12 larvae, and 2 to 5 pupae (if available).

144307	Assortment	Each	\$47.90
144308	Beetles	Pack of 24	\$88.63
144322	Bran Meal	5-ka Baa	\$21.00

Beetle Mania



"The bessbugs arrived for a class I taught at minicamp on entomology for 4th–7th graders. In addition to reviewing insect characteristics, the children observed beetle characteristics. They particularly enjoyed the 2 activities we did with them: bessbug beetle race and bessbug beetle haul. Some of the beetles dragged more than 16 times their own mass. All were happy."

High School Biology Teacher

Life in a Rotting Log Kit

Grade K and up. Experience the diversity of life found on the forest floor. Life in a Rotting Log Kit provides the ideal habitat for creatures such as crickets, redworms, millipedes, beetles, and more. Kit includes a generously sized piece of decaying wood, moss, soil, and an assortment of at least 5 different kinds of harmless creatures that can be found in or under a rotting log. Comes with a 1½-gal clear, plastic terrarium perfect for holding and observing this fascinating ecosystem. Keep

your rotting log moist and watch it change over time. Instructions and activities included. **Note:** *Not for export.*

141030 Per kit \$52.50

Customer Review

"This is the second time purchased—I love this kit. Great classroom tool, particularly for my kids who are soil deprived and insect shy!"

PreK/Kindergarten Teacher



144153 Rotting Wood

Bessbugs

- Large, slow moving, easy to study
- Minimal care
- Ideal organisms for learning

This large, intimidating beetle is sure to get your students' attention. The bessbug is safe and easy for students to handle. The perfect example of a typical insect, the bessbug has 6 legs and 3 main body segments: head, thorax, and abdomen. Because it's so large, students can study the bessbug without magnifiers. It's easy to care for, too—all you need is some rotting wood.

Ö

Bessbug

Also known as Betsy bugs or patent leather beetles, these harmless insects live in and under moist, rotting wood. They're large, docile, slow moving, and ideal for study.

144150 Pack of 12 \$64.50



Our Carolina® Large Choice Chamber on page 128 is perfect for observing bessbugs.



144155 Bessbug Habitat

Bessbug Habitat

Bessbugs are large, docile beetles that live in small groups. They feed on microorganisms found in rotting hardwoods such as oak and elm. This habitat allows students to observe these interesting insects on a daily basis. **Note:** Bess beetles may be scarce during summer months.

Kit includes:

144155 Per kit \$66.60

Rotting Wood

Suitable food source for bessbugs and for use in woodland terrariums. Enough rotting wood supplied to refill the Bessbug Habitat (item #144155).

144153 Per bag **\$11.45**

Animals Ladybugs

Carolina Teacher Tips

Ladybug Care and Feeding

QUESTION: What stage will the lady beetles be in when they arrive?

ANSWER: Carolina sells adults (items #144220 and #144222) and larvae (item #144218). Order the stage you prefer.

QUESTION: Are the lady beetle adult and larvae the same species?

ANSWER: No. The larvae are Coleomegilla maculata, often called the 12spotted or pink-spotted ladybug. The adults are Hippodamia convergens.

QUESTION: What do I feed the adult lady beetles?

ANSWER: Provide 2 stations inside the habitat, 1 for plain springwater and the other for a sugar water solution. For the sugar water solution, mix 2 teaspoons of table sugar with 1/2 cup springwater. Place the liquids in shallow dishes with cotton balls to prevent the lady beetles from drowning. Alternatively, you can slice a red grape in half and offer it as a sugary food source. We do not sell aphids.

QUESTION: What do I feed lady beetle larvae?

ANSWER: Larvae need a high protein diet. The Lady Beetle Diet (item #144320) is not sufficient for growth and development. We provide enough brine shrimp eggs with each order of larvae to complete metamorphosis.

QUESTION: How do I make the Lady Beetle Diet (item #144320)?

ANSWER: Mix the Lady Beetle Diet with 1 gal warm springwater. Place mixture in a new, clean spray bottle and mist on the surface of plants. The lady beetles will consume it as it dries.

QUESTION: Can I refrigerate my lady beetles?

ANSWER: Adults can be refrigerated, but keep them in their shipping container. Refrigerate them for no more than 7 days. As soon as you remove them from refrigeration, provide fresh sugar water and springwater feeding stations. Do not refrigerate larvae. This will stunt their development, and they may not complete metamorphosis.

QUESTION: What is the lady beetle's life cycle?

ANSWER: Lady beetles spend around 4 days as eggs, 12 to 14 days as larvae, and 4 days as pupae before emerging as adults.

Living Organisms







Lady Beetle

Hippodamia convergens. Well-known predator of aphids. Often used for biological pest control. Diet is for use with non-breeding adults and is packaged in a 1-L bag with mixing instructions.

\$11.35 144220 Beetles Pack of 25 144222 **Beetles** Pack of 100 \$31.30 **144230** Diet (1 L) Per bag \$29.40

Customer Review

"I have ordered ladybugs from Carolina before and they arrived promptly and all alive. My students were just entranced—we not only examined them in magnification cubes and followed the scientific method, but we also made a celebration around Earth Day by releasing them in the park across the street from the school (and some took several home to add to their gardens)."

Elementary School Teacher



144082 Ladybug Amazing Bugs Kit (with voucher)

Ladybug Amazing Bugs[®] Kit

Grades K-5. These colorful, polka-dot beetles provide students with abundant opportunities to learn and observe. Discuss these beneficial insects before students release them outdoors. Each kit provides about 100 adult ladybugs, so everyone in the class can "adopt" more than 1.

144081 Kit (with live ladybugs) Each **\$35.70**

144082 Kit (with voucher)

Each **\$35.70**



144235 Ladybug Life Cycle Stages

Ladybug Life Cycle Stages

Grade K and up. Use these soft plastic figures to teach how ladybugs grow and develop. Accurately sculpted and colorfully painted, the figures show the 4 stages in the life cycle of the ladybug: egg, larva, pupa, and adult. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

144235 Per set \$12.75



Need a Change in Teaching Metamorphosis?

Ladybugs in the Classroom Kits

Give your students a new experience when teaching metamorphosis. These kits make working with and handling ladybugs easy for you and your students. Each kit comes complete with instructions and all the food needed for larvae to become adults. Kits include instructions for 4 learning units and dozens of activities.

- No experience required
- Aligned with NGSS
- Everything needed for larvae health

Ladybugs in the Classroom Kits Introducing the new standard in ladybug activities

Let your students observe the growth, development, and metamorphosis of the twelvespotted ladybug (Coleomegilla maculata). These kits, which are designed for upper elementary and middle students, include a ladybug journal activity plus 4 different learning units-from development and life cycle to defensive strategies of ladybugs-that offer dozens of different activities. The activities build toward the following Next Generation Science Standards*: 4-LS1-1. Structure and Function; MS-LS1-4. Growth and Development of Organisms. The kit materials provide everything needed to ensure healthy growth and care of your ladybugs. The Demo Kit includes 1 ladybug culture so students can observe complete metamorphosis. The Classroom Kit includes 3 ladybug cultures and allows more hands-on activities for 30 students. Classroom Kit Refill replenishes organisms and materials in the Classroom Kit. All kits also include FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials and digital resources. Note: Order the kit with the perishable materials included or with a voucher to request perishable materials later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

144242	Demo Kit (with voucher)	Each	\$52.20
144242P	Demo Kit (with live ladybug larvae)	Each	\$52.20
144240	Classroom Kit (with voucher)	Each	\$82.70
144240P	Classroom Kit (with live ladybug larvae)	Each	\$82.70
144241P	Classroom Kit Refill	Each	\$50.65



144240P Ladybugs in the Classroom Kit (with live ladybug larvae)

Lady Beetle Larvae

Coleomegilla maculata. Want to teach metamorphosis but your students are already familiar with butterflies? Lady beetles are a great way to show students of all ages the 4 stages of complete metamorphosis. Considered beneficial insects, lady beetle adults have been used in greenhouses and gardens to provide biological pest control. Compare the growth of this carnivorous insect to herbivorous butterflies, or just explore the unique body shape of lady beetle larvae. Over 10 to 14 days, watch the alligator-like larvae grow, pupate, and metamorphose into familiar adult lady beetles. Unit of 10 to 15 larvae; we guarantee at least 5 adult lady beetles. Includes food and instructions.

144218 Per unit \$21.58

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.



Butterflies



Address Multiple Life Science Topics

Painted lady butterflies are appropriate for all grade levels but especially effective for grades K–8. They enable students to observe complete metamorphosis, from caterpillar to chrysalis to adult butterfly. Students can then compare the butterfly life cycle to that of other animals or investigate how temperature affects insect development time. General life science topics can be addressed as well, including how form fits function and what organisms need to survive.

Committed to Quality

We are committed to producing quality, exclusive painted lady butterfly kits and cultures for educators. The hallmark of our commitment to quality is our highly trained scientific staff. They continually monitor butterfly production and work to improve our kits and cultures. And if you ever need assistance, their expertise is at your disposal. Our exclusive painted lady butterflies are cultured in the laboratory so they do not deplete natural populations, and they are backed by the Carolina Pledge: Excellent Customer Support.

Living Organisms When You Need Them

Carolina typically ships live materials on Mondays–Wednesdays and uses the most economical shipping methods to ensure proper delivery. However, to meet your needs we can ship on any weekday and, when requested, use a premium shipping method (some of which are not available to all locations).

Download our Painted Lady Butterflies App for iPhone®, iPad®, and iPod touch® Care instructions for all phases of the painted lady life cycle Information and a video on the painted lady life cycle stages Answers to frequently asked questions about butterfly care Available from the App StoreSM — search for "Carolina Biological Supply" CAROLINA® WWW.carolina.com

Living Organisms Watch Imaginations Take Flight

Butterflies in the Classroom Kits

- Easy to use-Little or no experience required
- · Complete—Each kit contains everything you need
- Flexible—Kits come in 2 sizes

Even if you have little or no experience teaching with live animals, you will find these kits easy to use and rewarding for students of all ages. Each kit comes complete with everything you need to raise your painted lady butterflies from caterpillars to adults, including our improved Carolina® Butterfly Sanctuary. Classroom Kits include 33 larvae and culture vessels. Demo Kits include 10 larvae in 2 culture chambers. Our Painted Lady Butterfly Culture Components enable you to refill your Classroom Kits for less than the cost of buying new ones.



144014 Butterflies in the Classroom Kit (with live caterpillars)

Butterflies in the Classroom Kits Painted lady—butterflies made fun and easy

These kits make maintaining live butterflies simple, fun, and affordable. Each kit comes with everything you need to raise painted lady butterflies from larvae to adults—including our improved freestanding mesh **Carolina® Butterfly Sanctuary**. It's simple to set up, easy to clean, great for viewing, and collapses for no-hassle storage.

Demo Kit (with 2 viewing chambers) contains 10 larvae and enough food to last through metamorphosis to the chrysalis stage. **Classroom Kit** allows students to work hands-on with living butterflies. From a culture cup that contains 33 larvae and food, each student (or pair of students) transfers a

larva and food to its own culture vessel, creating an individual chamber for study and observation. Classroom Kit Refill includes 33 to 35 larvae, culture medium, 33 culture vessels with lids, filter paper, and 2 spatulas. Kits and refill include FREE 1-year access to digital resources that support 3-dimensional instruction, such as butterfly videos and images that can be used with interactive whiteboards and teacher presentation stations. Note: Order your kit with the caterpillars and food, or order the kit with a voucher so you can request the caterpillars to be delivered at your convenience. Kits and refill cannot be shipped into Puerto Rico. Painted lady butterflies cannot be released in CT, ND, and WA.

144012Demo Kit (with live caterpillars)144013Demo Kit (with voucher)144014Classroom Kit (with live caterpillars)144015Classroom Kit (with voucher)144071Classroom Kit Refill674291Carolina Butterfly Sanctuary Only	Each Each Each Each Each Each	\$51.70 \$51.70 \$81.90 \$81.90 \$60.10 \$28.60
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Customer Review

"This product was great! It was used for my high school science project. Except for the thermometers, all the materials that I needed to complete my project were included. I was surprised that the net was so big—I loved it. It gave the butterflies plenty of room to fly around in. Everything was packaged neatly and it arrived on time as promised. Thank vou."

High School Student



Love Butterflies in the Classroom Kits?

See our Ladybugs in the Classroom Kits on page 140.

Painted Lady Butterfly Culture Components

Buy only what you need

- Cost-effective
- Convenient refill option
- · High-quality materials

Need a refill for our butterfly kits? Order these individual painted lady culture components.

- Culture Cup Set includes enough cups, lids, and culture tissue to accommodate one 33-Larvae/Food Set.
- 33-Larvae/Food Set
- 60- to 75-Larvae/Food Set—additional larvae are supplied with each Larvae/Food Set to ensure the specified number of larvae emerge as healthy adults, but the quantity of food is only sufficient for the number of larvae specified in each set. Additional food must be purchased if you wish to maintain the additional larvae.
- 33-Larvae/Food Set Voucher—redeem the voucher when you're ready; the larvae and food will be shipped prepaid to arrive on the date you specify.

Note: Larvae/Food Sets and Set Voucher do not include the Culture Cup Set. Purchase the Culture Cup Set separately. Also, Larvae/Food Sets and Set Voucher cannot be shipped into Puerto Rico. Painted lady butterflies cannot be released in CT, ND, and WA.

144068	Culture Cup Set	Each	\$12.55
144070	33-Larvae/Food Set	Each	\$56.80
144072	33-Larvae/Food Set Voucher	Each	\$70.75
144076	60- to 75-Larvae/Food Set	Each	\$90.85



144070 33-Larvae/Food Set

Don't forget the culture cup set when you purchase a larvae/food set!

Painted Lady Cultures

Living Organisms

Introduce your students to the world of painted lady butterflies

Carolina makes raising and studying painted lady butterflies easy with our 5-Larvae Culture (item #144005) and Painted Lady Butterfly Larvae Mini Cup Set (items #144024 and #144026). We ship larvae in a clear, self-contained culture vessel so students can easily observe and measure caterpillar development.

There is no food to mix and nothing to set up. Caterpillars simply eat the medium supplied in the culture vessel until they form chrysalises. Students then hang up the chrysalises in a Carolina® Butterfly Sanctuary (item #674291) and watch—in suspense—for the butterflies to emerge.

After the adults emerge, let your students try breeding them. All you need is the proper host (Mallow Plant, item #144042) for the adults to lay eggs on. When your new generation of caterpillars hatches, we guarantee they will be hungry.

Our Painted Lady Culture Medium (item #144040) is a unique innovation. It provides all the ready-to-use nutrition your caterpillars need to grow to chrysalises. Two 8-oz cups feed up to 80 larvae.

Painted Lady Butterfly 5-Larvae Culture

Vanessa cardui. We ship 5 larvae in a clear, 8-oz rearing chamber with food. Larvae pupate and emerge as adults in as little as 3 weeks. We guarantee that at least 3 out of 5 larvae will emerge as healthy adult butterflies. Includes instructions. When you order the Live Culture Voucher, you can request the culture to be delivered any time you're ready. Note: Painted lady butterflies cannot be released in CT, ND, and WA. Cannot be shipped into Puerto Rico.

 144005
 5-Larvae Culture
 Each
 \$18.75

 144007
 Live Culture Voucher
 Each
 \$29.95



Customer Review

Loving our Painted Ladies

"Our larvae arrived as promised, grew huge right before our eyes, and formed their chrysalises within the stated time. We actually received six! Today we have six beautiful Painted Lady butterflies. We will be releasing them this week before our school year ends. This is always a spring highlight in kindergarten. I'm a very satisfied customer of Carolina Biological!"

Kindergarten Teacher



144005 Painted Lady Butterfly 5-Larvae Culture (8-oz rearing chamber)



144024 Painted Lady Butterfly Larvae Mini Cup Set (1-oz rearing chambers)

Painted Lady Butterfly Larvae Mini Cup Set

Vanessa cardui. Ideal for individual student use. Two larvae shipped in 1-oz rearing chamber with food. Larvae pupate and emerge as adults in about 30 days. With instructions. **Note:** Painted lady butterflies cannot be released in CT, ND, and WA. Cannot be shipped into Puerto Rico.

144024 Set of 3 **\$19.60 144026** Set of 12 **\$69.60**



A size comparison of 144005 Painted Lady Butterfly 5-Larvae Culture 8-oz rearing chamber (left) and 144024 Painted Lady Butterfly Larvae Mini Cup Set 1-oz rearing chamber.



Customer Review

Helpful

"Very helpful phone support! We had a lot of questions and called multiple times. Every time the person we spoke to was very nice and helpful."

Parent

Protect your local ecosystem.

Carolina does not recommend releasing any organism into the wild. See our care guides at Carolina.com/careguides for disposal instructions.

Painted Lady Butterfly Life Cycle

Includes life cycle stages of the painted lady: 5 larvae (in container with food), 2 chrysalises (you supply hatching container), and instructions. Eggs not included. **Note: Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Painted lady butterflies cannot be released in CT, ND, and WA. Cannot be shipped into Puerto Rico.

144020 Per set \$38.50



144020 Painted Lady Butterfly Life Cycle

Painted Lady Butterfly Life Stages

Along with butterfly larvae, other stages of the life cycle of the painted lady are also available. Butterfly eggs are packaged in units of 30 to 35. Chrysalises and adults are sold individually. For large quantities of chrysalises or adults, 3 weeks' advance notice is required. **Note:** When you purchase eggs, we recommend you also purchase Painted Lady Culture Medium (item #144040) to raise the larvae. **Eggs, chrysalis, and adult should not be shipped over a weekend.** Carolina recommends that you request these to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Painted lady butterflies cannot be released in CT, ND, and WA. Cannot be shipped into Puerto Rico.

144078	Eggs	Per unit	\$18.95
144030	Chrysalis	Each	\$10.75
144079	Adult	Each	\$9.05
144005	5-Larvae Culture	Each	\$18.75

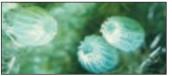


674289P Deluxe Butterfly Habitat Kit (with perishables)

Deluxe Butterfly Habitat Kit

Create an attractive habitat with enough space for your butterflies to flutter around, allowing you and your students to observe their behavior. Each kit provides 18 to 30 butterfly larvae and food, live plants, nectar feeder, light dome, and habitat. Made of washable mesh, the habitat is easy to assemble and, with its zipper opening, easy to clean and maintain. Size, $16^1/_2 \times 16^1/_2 \times 30^{"}$. **Deluxe Habitat Only** comes with setup instructions. **Note:** Order the Complete Kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Items #674289 and #674289P cannot be shipped into Puerto Rico. Butterflies cannot be released in CT, ND, and WA.

↑ 674289 Complete Kit (with voucher) Each \$189.88 ↑ 674289 Complete Kit (with perishables) Each \$189.88 ↑ 674288 Deluxe Habitat Only Each \$137.56





144078 Painted Lady Butterfly Eggs

144030 Painted Lady Butterfly Chrysalis



144079 Painted Lady Butterfly Adult



Mallow Plant

A natural host for the painted lady butterfly, this plant provides an excellent opportunity for scientific inquiry. **Note:** A single mallow plant is not sufficient to feed larvae to adulthood. For raising larvae use our item #144043 Painted Lady Culture Medium.

144042 Each \$14.90

Painted Lady Culture Medium

A unique innovation, this culture medium provides all the ready-to-use nutrition your caterpillars require to grow. There is no food to mix. Simply divide the medium into smaller containers such as the item #144068 Culture Cup Set. Caterpillars will eat the culture medium supplied in each culture vessel. One cup of medium feeds 33 larvae; 2 cups feed up to 75 larvae. Each cup contains 8 oz of medium. With instructions. **Note:** Culture cups not included; refrigerate medium for up to 2 weeks. Painted lady butterflies cannot be released in CT, ND, and WA.

144040 2 Cups (16 oz) Each **\$39.75 144043** 1 Cup (8 oz) Each **\$27.85**

Animals Butterfly Resources



144060 Butterfly Life Cycle Model Set

Butterfly Life Cycle Model Set

These artfully designed, economical butterfly life cycle figures are an ideal educational accessory to any of our live butterfly materials. The accurately detailed egg, larva, chrysalis, and adult butterfly are larger-than-life size. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

144060 Per set \$10.55



144041 Butterfly Feeding Station Set

Butterfly Feeding Station Set

An inexpensive way to feed newly emerged butterflies. Set includes storage container, wicks, artificial flowers, cups, lids, and instructions. Set contains enough materials to make 3 feeding stations. Assembly required. **Note:** Springwater, table sugar, and a measuring spoon are needed but not included. Refrigeration is required.

144041 Per set \$8.85

Living Organisms



674291 Carolina Butterfly Sanctuary

Carolina® Butterfly Sanctuary

Great for viewing and giving your butterflies room to stretch their wings, this spacious and attractive habitat is simple to set up, easy to clean, and collapsible for convenient storage. Access the inside of the habitat through the zipper openings on the top or side. Can be set on a table or hung up by the Velcro® handle. Dimensions, 15" diam $\times\,24$ " H.

674291 Each \$28.60



View more butterfly habitat options on pages 187–188.

Teacher Resources



POM3432 Carolina Butterfly Life Cycle Set

Carolina® Butterfly Life Cycle Set

Four beautifully embedded specimens showing the metamorphosis of the butterfly: eggs, larva, pupa, and adult. Includes an information card with full-color images and comprehensive details on each developmental stage. FREE 1-year access to digital resources included.

POM3432 Per set \$91.00



574587 Painted Lady Butterfly Life Cycle Poster

Painted Lady Butterfly Life Cycle Poster

 $23\times36^3/4^{\shortparallel}.$ This full-color, laminated poster provides beautiful photomicrographs of all stages of the butterfly life cycle. The back of the poster offers fun butterfly facts and describes the stages of metamorphosis.

574587 Each \$21.95

Animals

Moths

Hornworms





Eggs



Larvae



Pupae



Adults

Hornworm

Eggs are viable. For hatching tobacco hornworm larvae only. If rearing larvae from eggs, order Ready-To-Use Hornworm Diet (item #143908). Larvae are shipped with culture vials prepacked with enough medium to grow larvae to maturity. With instructions. **Note:** Eggs should not be shipped over a weekend. Carolina recommends that you request eggs to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Cannot be shipped into AL and NV.

143880	Eggs (30 to 50)	Unit	\$22.35
143882	Larvae	Pack of 12	\$57.80
143884	Larvae	Pack of 25	\$115.65
143886	Larvae	Pack of 50	\$211.60



144061 Hornworm Amazing Bugs Kit (with live hornworm larvae)

Hornworm Amazing Bugs® Kit

Grades K–5. Hornworms increase their body weight by over 10,000 times in just 2 weeks. Students watch the amazingly rapid growth of these excellent feeders and learn about their anatomy and life cycle. **Note:** Cannot be shipped into AL and NV.

 144061
 Kit (with live hornworm larvae)
 Each
 \$35.70

 144062
 Kit (with voucher)
 Each
 \$35.70



143908 Ready-To-Use Hornworm Diet

Ready-To-Use Hornworm

Enough for 30 larvae. With instructions. 1-L container.

143908 Each \$54.90



143905 Dry Hornworm Medium

Dry Hornworm Medium

Enough to feed 30 larvae. Mix with water and a small quantity of formaldehyde (not included). Includes instructions.

143905 Per bag \$40.00

Luna Moth Cocoon

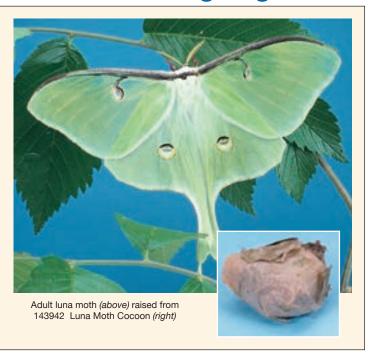
Students will be in awe of the beauty, elegance, and size of one of our most popular and unique saturniid moths, the luna moth. Easy to care for, the moth is light green with a long tail and has an average wingspan of 4 to 51/2". No feeding is necessary. With no mouthparts, the adults devote their short lives to reproduction. Care instructions included. **Note:** Available October through May. Cannot be shipped into CA and OR. Restricted in some states. Substitutions will be made if possible.

143942 Pack of 3 \$28.94

Customer Review

"This is definitely the coolest moth I have ever seen. The size of it is amazing along with its unique appearance. All 3 cocoons hatched within a month. I even ended up with eggs . . . A great purchase I would recommend to anyone who does not freak out at the sight of a bug."

Biology Student





143928 Greater Wax Moth Larvae

Greater Wax Moth Larvae

Galleria mellonella. This moth is easily reared, hardy, odorless, and can be handled safely. Unit of 50 to 75 larvae shipped in container with food. With instructions.

143928 Per unit \$32.25

Moth Cocoon

From one of the large saturniid moths. With instructions. **Note:** Available October through May. Cannot be shipped into OR. Restricted in some states. Substitutions will be made if possible.

143944 Pack of 3 **\$30.55 143948** Pack of 12 **\$100.95**

Saturniid Moth Cocoon Set

Six identified cocoons (3 each of 2 species) of large saturniids. With instructions. **Note:** Available October through May. Cannot be shipped into OR. Restricted in some states. Substitutions will be made if possible.

143940 Per set **\$50.15**

Silkworms



143695 Silkworm Farm Kit

Silkworm Farm Kit

Grade K and up. Lead your students through the life cycle of a silkworm and even create your own silk thread with this interactive kit. Do the activity as a class project or let your students raise their own silkworms. Includes silkworm eggs, instructions, background information, and science standards objectives. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

143695 Per kit \$72.40



Silkworm moth

Silkworm Egg

Bombyx mori. For hatching silkworms. Life cycle takes about 6 to 8 weeks after eggs hatch. Silkworms require fresh mulberry leaves or Silkworm Artificial Dry Diet (item #143966, not included). With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

143962 Pack of 25 **\$20.20 143964** Pack of 100 **\$62.05**

Silkworm Artificial Dry Diet

One pound of dry diet makes about 4 lb of food, enough for 80 to 100 larvae. 1 lb.

143966 Each \$48.30

Carolina Teacher Tips

Silkworms

- Silkworms have been raised by humans for thousands of years and can no longer fly.
- The silk thread harvested from a single silkworm cocoon can be a mile long.
- The caterpillar increases in size 10,000 times before it is big enough to spin a cocoon.
- It takes 40,000 silkworm cocoons to make 18 lb of silk.
- Silkworm eggs may be kept in the refrigerator for up to 5 years and still hatch.
- Adult moths do not eat or drink they mate and die.

Amazing Bugs® Kits

Easy instructions
 Fun activities

Close Encounters of the Best Kind

- · You receive complete, easy-to-use kits
- Students learn hands-on care and observation
- You get flexible delivery of living organisms
- Your class meets national standards







144343 Ants Amazing Bugs Kit (with live ants)



144084 Painted Lady Butterfly Amazing Bugs Kit (with live caterpillars)



144081 Ladybug Amazing Bugs Kit (with live ladybugs)

Ants Amazing Bugs® Kit

Grades K-5. Watch these super-strong, super-organized critters build extraordinary colonies inside their space-age habitat. Student activities include observing, counting, and drawing their ants. Mounds of fun!

Note: We do not ship queen ants; only nonreproductive ants are shipped. Ants cannot be shipped into OR or Canada.

144343 Kit (with live ants) Each **\$40.80 144341** Kit (with voucher) Each **\$40.80**

Painted Lady Butterfly Amazing Bugs® Kit

Grades K–5. Give your students the opportunity to witness an amazing transformation as caterpillars turn into beautiful painted lady butterflies in as little as 3 weeks. This kit includes everything needed to raise and care for caterpillars and adult butterflies—plus interactive, hands-on activities to help students learn about the butterfly's life cycle, behavior, and biology. **Note:** Painted lady butterflies cannot be released in CT, ND, and WA. Cannot be shipped into Puerto Rico.

 144084
 Kit (with live caterpillars)
 Each
 \$35.70

 144085
 Kit (with voucher)
 Each
 \$35.70

Ladybug Amazing Bugs® Kit

Grades K–5. These colorful, polka-dot beetles provide students with abundant opportunities to learn and observe. Discuss these beneficial insects before students release them outdoors. Each kit provides about 100 adult ladybugs, so everyone in the class can "adopt" more than 1.

144081 Kit (with live ladybugs) Each **\$35.70 144082** Kit (with voucher) Each **\$35.70**



Customer Review

"What a treat and great educational experience the butterfly garden has been for my 6-year old grandson and his kindergarten class! We got more than the required number of caterpillars and each did exactly as the directions specified from beginning to end. We have spent many quality hours together watching the process!"

University Administrator



Living Organisms









144088 Praying Mantis Amazing Bugs Kit (with egg case and fruit flies)

Hornwon

144061 Hornworm Amazing Bugs Kit (with live hornworm larvae)

Praying Mantis Amazing Bugs® Kit

Grades K-5. Students learn about mantis behavior and life cycle as they observe the mantises hatch, hunt, molt, and grow. Egg cases contain 50–150 baby mantises. Hatching usually takes 2 to 8 weeks, so please be patient! Includes a small starter fruit fly culture to feed babies. Note: Available January to June only. Mantises cannot be released in CT.

144088 Kit (with egg case and fruit flies)

Each **\$35.70**

144089 Kit (with voucher) Each **\$35.70**

Hornworm Amazing Bugs® Kit

Grades K–5. Hornworms increase their body weight by over 10,000 times in just 2 weeks. Students watch the amazingly rapid growth of these excellent feeders and learn about their anatomy and life cycle. **Note:** Cannot be shipped into AL and NV.

144061 Kit (with live hornworm larvae)

Each **\$35.70**

144062 Kit (with voucher)

Each **\$35.70**



Amazing Bugs® Habitat

Handy pop-up habitat can be hung up or set on a table or shelf. It packs flat for storage and features a clear plastic zippered top, clear-view mesh sides, and a sturdy nylon floor. Ideal for butterflies and other insects. Size, 11" diam \times 12" H.

144092 Each **\$16.95**

144092 Amazing Bugs Habitat (butterflies not included)



Amazing Bugs® Variety Set

Grades K-5. Your classroom will creep, crawl, and fly away with 4 Amazing Bugs® kits! Each kit includes easy instructions, a full-color insect anatomy poster, and fun hands-on activities. All kits come with a voucher for requesting shipment of live materials. Note: Mantises are available January to June only and cannot be released in CT. We ship only nonreproductive ants, not queen ants. Ants cannot be shipped into OR or Canada. Butterflies cannot be shipped into Puerto Rico and cannot be released in CT, ND, and WA.

Set includes:

Ants Kit (item #144341) Ladybug Kit (item #144082) Painted Lady Butterfly Kit (item #144085) Praying Mantis Kit (item #144089)

144001 Per set \$137.70

Freshwater Fish

We ship only first-quality material. Because some of the plants and animals are seasonal and do not appear at their best throughout the year, we reserve the right to make substitutions when it seems advisable. Any substitutions will be equal in value and appearance to those listed.

Goldfish

Goldfish do best at water temperatures between 65 and 75° F.



145292 Fantail Goldfish



145282 Comet Goldfish

Fantail Goldfish

A double-tailed fish that is orange or orange and white. Size, up to 3". With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NY and WI must not release this organism into the environment.

145292 Pack of 12 \$48.10

Live Food for Freshwater Fish

Item No.	Organism	Per Culture
142314	Daphnia pulex (small crustacean for larval-stage fish)	\$13.00
172910	Drosophila (fruit fly, flightless)	\$9.95
172895	Drosophila hydei (slightly larger fruit fly, flightless)	\$13.00
133260	Microworm (nematode, 1 mm long)	\$17.45
142336	Moina (small crustacean for salamanders)	\$12.50
131540	Paramecium (for newly hatched fish)	\$9.95
133172	Philodina (rotifer for newly hatched fish)	\$9.95

Comet Goldfish

Carassius auratus. Usually deep orange in color but occasionally mottled black or white in various combinations. With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NY and WI must not release this organism into the environment.

145282 Pack of 12 \$25.80

Goldfish Assortment

Our choice of 6 goldfish. At least 2 varieties are represented. With instructions: **Note:** Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NY and WI must not release this organism into the environment.

145254 Per set **\$26.15**

Game Fish & Associated Species

These fish are very hardy in aquaria maintained at controlled room temperatures. Please keep in mind that these fish do not ship well during hot weather. The indicated length of a fish includes the tail fin.

Gambusia (Mosquito Fish)

Live-bearer. A very hardy fish that can withstand a wide range of temperatures. Usually pale gray with a bluish cast. Not recommended for a community tank. With instructions. **Note:** Should not be



shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of VA must apply for a state permit to receive this material. Cannot be shipped into AK, NY, OR, WA, or WI.

145440 Pack of 12 **\$19.83 145442** Pack of 50 **\$66.85**

Blue Channel Catfish

Ictalurus punctatus. A slender bluish-gray fish that is a good bottom scavenger. Popular aquaculture species. They are around 3 to 6" long (including the tail fin) when shipped. When young, these fish



are very hardy in aquaria maintained at controlled room temperatures. As they mature, they should be moved to a pond or aquaculture setup that is at least 200 gal. They do not ship well during hot weather. **Note:** *Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NV and VA must apply for a state permit to receive this material. Cannot be shipped into AK, CA, or OR.*

145420 Pack of 3 **\$25.80**

Largemouth Bass

Can be used in aquaria and outdoor pools and for toxicity studies. Length, 1 to 3" (includes the tail fin). With instructions. These fish are very hardy in aquaria maintained at controlled room tempera-



tures but do not ship well during hot weather. **Note:** May be scarce during winter months. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NV and VA must apply for a state permit to receive this material. Cannot be shipped into AK or OR.

145400 Pack of 3 \$35.70

Bluegill

A small game fish used for aquaria and in toxicity studies. Length, 1 to 2". The indicated length of a fish includes the tail fin. With instructions. These fish are very hardy in aquaria maintained at controlled room temperatures but do not ship



well during hot weather. **Note:** Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NV and VA must apply for a state permit to receive this material. Cannot be shipped into AK or OR.

145410 Pack of 3 **\$21.80**

Animals Tropical Fish

Living Organisms



145288 Cherry Shrimp

145285 Algae-Eating Shrimp



142476 Ghost Shrimp

Cherry Shrimp

Add a splash of color to freshwater aquaria with this beautiful, easy-to-care-for shrimp. It does best in a heavily planted aquarium with lots of shelter where it will help keep your tank clear of algae. It is hardy and peaceful and can be kept in smaller tanks. Densities of 2-3 shrimp per gallon work best. Cherry shrimp are small (1 to 1¹/₂"), so they should not be housed with large, aggressive fish. They are scavengers and will feed off of excess algae and fish food. If they are being housed alone, small quantities of a high-quality sinking food pellet is recommended. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145288 Each \$9.10

Algae-Eating Shrimp

These shrimp have an appetite for all kinds of freshwater algae but will not harm plants. Very hardy and easy to keep, they are compatible with small community fish. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145285 Pack of 5 \$58.35

Ghost Shrimp

A peaceful and hardy scavenger for the community tank. This transparent freshwater shrimp is excellent for studies of behavior and crustacean anatomy. Pack of 12 adults up to 11/2" in length. Note: Cannot be shipped into CA.

142476 Pack of 12 \$22.05



145550 Plecostomus Sucker

An excellent bottom scavenger. With instructions.

Note: Should not be shipped over a weekend. Caro-

lina recommends that you request your order to arrive

on a Wednesday, Thursday, or Friday (or even a Satur-

145510 Chinese Algae Eater

Chinese Algae Eater

Excellent for eliminating algae in your aquarium. With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145510 Pack of 3 \$22.95



Betta splendens

Known as the Siamese fighting fish, the male betta has been used extensively in behavioral studies. Males are brightly colored with long, flowing fins. Male bettas will fight other male bettas and therefore must be kept separate. Care instructions included. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shippina.

145502 Each \$15.50

Live-Bearers

Plecostomus Sucker

day) to avoid weekend shipping.

145550 Pack of 3 \$40.55

Guppy

A popular live-bearing fish suitable for most aguaria. With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145532 Pack of 12 \$16.95 **145534** Pack of 24 **\$32.75**



145538 Fancy Guppy

Fancy Guppy

A guppy bred for more color and finnage. With instructions. Note: Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145538 Pack of 3 \$17.10

Zebra Fish



From 145558 Carolina Zebra Fish Breeding Kit

Carolina® Zebra Fish Breeding Kit A3

Zebra fish are easy to breed in the classroom. This hardy fish is widely used in the study of embryology, environmental science, biotechnology, and genetics, providing countless opportunities for hands-on science explorations. Use this simple kit to continuously produce fertile zebra fish eggs in your classroom. Because the eggs are transparent, embryological development can be observed in the 3 to 4 days before hatching under low-power magnification in a petri dish. Fertile eggs can also be used as biological assays of local water quality. Visit Carolina.com for a complete list of kit materials. **Note:** *Kit includes a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material.*

145558 Per kit \$316.36



Assorted GloFish Fluorescent Zebra Fish

GloFish® Fluorescent Zebra Fish

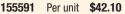
Bring a living example of genetic engineering into your classroom

With their illuminating appearance (from a borrowed sea coral gene), fluorescent zebra fish bring wonder and excitement to your classroom, office, or home freshwater aquarium. Originally bred for detecting environmental pollutants in waterways, GloFish® fluorescent fish are completely safe. The fun, attractive, brightly colored fish are also excellent classroom organisms for introducing topics such as genetic modification, fitness effects, ethics, environmental science, and many others. GloFish® Assortments come in sets of 4 or 6. Colors as available. Note: GloFish® fluorescent fish are licensed under 1 or more United States patents. Reproduction (breeding) of GloFish® is permitted only for educational use by teachers and students in bona fide educational institutions; however, any sale, barter, or trade of the offspring from such reproduction is strictly prohibited. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145253	Sunburst Orange®	Pack of 4	\$36.00
145255	Electric Green®	Pack of 4	\$36.00
145264	Cosmic Blue®	Pack of 4	\$36.00
145265	Galactic Purple®	Pack of 4	\$36.00
145266	GloFish® Assortment	Set of 4	\$36.00
145257	GloFish® Assortment	Set of 6	\$50.62

Zebra Fish Eggs

Eggs are collected from females breeding in a controlled environment. Excellent for studying embryological development, vertebrate organogenesis, and experimental physiology. Easily observe rapid development with a stereomicroscope over the course of just a few days. Hatched larvae can be reared to adults in small aquaria (not included). Eggs are shipped as units of 35 to 40 in a special rearing solution. Complete with instructions. Note: Eggs are shipped on Tuesdays only and require overnight delivery due to rapid development.











145562 Zebra Fish

Zebra Fish

Danio. A small, very active, egg-laying fish with horizontal stripes. Nonaggressive. The zebra fish is widely used in molecular and developmental genetic engineering studies. With instructions. **Note:** Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

145562	Unsexed	Pack of 12	\$46.25
145567	Unsexed	Pack of 24	\$79.46
145563	Adults for Breeding (males)	Pack of 3	\$15.60
145564	Adults for Breeding (males)	Pack of 12	\$53.25
145565	Adults for Breeding (females)	Pack of 3	\$15.60
145566	Adults for Breeding (females)	Pack of 12	\$53.25



Zebra Fish Breeding Tank A

This innovative 4-piece breeding tank is used around the world by genetic researchers who are interested in obtaining eggs from zebra fish. Now, these tanks are available to anyone wishing to collect nonsticky eggs less than $^1/_{16}{}^{\shortparallel}$ in diameter from any tropical fish. Zebra fish make a perfect candidate for embryology demonstrations or labs in the classroom setting. Central divider allows for separation of sexes until breeding is desired. The exterior tank is injection-molded polycarbonate and is autoclavable. Remove the interior partition before autoclaving. Size, about 8 \times 3 $^1/_2$ \times 3 $^1/_4$ $^{\shortparallel}$.

161937 Each \$58.20

Embryo Rearing Solution

For freshwater teleosts; ready-to-use solution (500 mL).

859450 500 mL \$19.00



Animals Casper Fish™

Meet the Casper Fish[™], a transparent zebra fish *(Danio)* developed at the Children's Hospital Boston Research Center for use in cancer research and available exclusively from Carolina. The zebra fish is one of the top model organisms used in medical research because its physiology is similar to that of humans.

Casper Fish[™] are a cross between 2 mutant zebra fish, *nacre* and *roy*, that produce offspring with translucent skin. This means you can easily see their internal organs—heart, gallbladder, circulatory system, brain, spine, and the eggs in females.

Seeing the value of Casper $Fish^{TM}$ to the science classroom isn't difficult either. Students can observe internal fish anatomy and compare it with their own. They can use a stereomicroscope to view the organs in more detail, observing heart rate, respiration, and blood flow. They can be introduced to the concept of phenotypes in genetics by observing 2 different strains of zebra fish.

As easy to maintain as standard zebra fish, Casper Fish™ will amaze and engage students, giving you an innovative new tool in the study of anatomy, physiology, and genetics.

the piec 145

Living Wonders

Living Wonders® View Chamber

Enjoy an up-close encounter with your live organisms using our 5×-magnifying view chamber. This durable clear acrylic chamber, with removable watertight end caps, permits both aquatic and terrestrial viewing. Remove the magnifier and use the chamber under a stereomicroscope for even closer observation. The compact size allows carrying your viewer wherever you go—in

the field, in the lab, or at home. Chamber is $^{1}/_{4}\times 2^{1}/_{2}$ ". Magnifying piece is 1" in diameter and 2" tall.

145590 Each \$13.65

Living Organisms

Transparent fish. Clear benefits.



The clear benefits of a see-through fish

What if your students could . . .

- Observe a live organism's internal anatomy and functioning organs in real time?
- View changes in organ activity caused by environmental conditions?
- · Do all this without dissection?

Casper Fish™

Note: Fish are unsexed. Specific gender determination is an additional fee. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

155590 Pack of 4 \$41.92



155586 Carolina Genetics of the Casper Fish Deluxe Kit

Carolina® Genetics of the Casper Fish™ Kit 43

- Study the patterns of inheritance and genetics in zebra fish and Casper Fish™
- Learn about fertilization and embryological development in zebra fish and Casper Fish™

Grades 9–12. In this kit, students explore the genetics of the zebra fish and Casper Fish[™]. The parental generation includes 8 male zebra fish and 4 female Casper Fish[™]. Students cross these 2 phenotypes, producing the eggs of the F_1 generation. Then they collect fertilized eggs and observe the embryological development of the eggs along with the phenotypes of the embryos.

Deluxe Kit includes all items listed below. **Basic Kit** requires the use of an already-established aquarium and includes everything but the aquarium, hood, gravel, timer, heater, thermometer, and filter. Detailed fish care instructions, breeding instructions, and background information about zebra fish and Casper Fish™, such as genetics and phases of embryological development, are provided. **Note:** *Deluxe Kit is only available with a voucher to request delivery of perishable materials later at your convenience. Order the Basic Kit with the perishable materials (all ⟨⟨⟩ items⟩) included or with a voucher to request perishable materials later. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material. Basic Kit with the perishable material included should not be shipped over a weekend. Carolina recommends that you request the kit to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.*

Restriction Notice

The Casper Fish™ provided are intended for non-commercial, internal research and educational purposes only. The sale, lease, license, or other transfer of the Casper Fish™ to a for-profit organization, uses of the Casper Fish™ by any organization, including Recipient, to perform contract research, to screen compound libraries, to produce or manufacture products for general sale, or to conduct research activities that result in any sale, lease, license, or transfer of the Casper Fish™ to a for-profit organization are strictly prohibited. However, industrially sponsored academic research shall not be considered a use of the Casper Fish™ for commercial purposes per se, unless any of the above conditions are met. Customers seeking to use the Casper Fish™ for commercial purposes should contact the Technology and Innovation Development Office of Children's Hospital Boston.

Deluxe Kit includes:

8 Adult Male Zebra Fish

4 Adult Female Casper Fish

8 Clothespins

Mesh

Plastic Breeding Tank with Lid Brine Shrimp Flakes

Net

Needed but not included:

Dissecting Microscopes Dark Cloth or Box Lamp with Fluorescent Bulb Absorbent Material or Towel 10 Pipets 20 Petri Dishes Water Conditioner 32-oz Plastic Container Methylene Blue 10-Gal Glass Aquarium and Hood with LED Lights

Thermometer Automatic Timer Power Filter 50-W Heater Gravel Substrate Teacher's Manual and Reproducible Student Guide

1- to 2-Gal Container and Fry Food (also needed if rearing the fry: paramecium, brine shrimp, and/or powdered fry food)

155584 Basic Kit (without aquarium and accessories; with voucher)
155584P Basic Kit (without aquarium and accessories; with perishables)
155586 Deluxe Kit (with aquarium, accessories, and voucher)

\$122.66

\$122.66

\$332.92

Each

Fach

Each

Marine Organisms & Sets

• Easy care • High educational potential • Live delivery guaranteed in the continental US

With Carolina's marine organisms you have come to expect good quality and a great selection for classroom use, and that's what these organisms deliver. Each classroom set has been specially designed to create a well-balanced community marine tank; every organism has been hand-picked for its ease of care and educational potential in the classroom.

Please order at least 2 to 3 weeks in advance of the desired delivery date. Give us an alternate shipping date, as our shipper is dependent on existing weather conditions to comply with your requested shipping date. Marine organisms are shipped only on Mondays and Tuesdays.

Organisms may be substituted depending on availability. We ship all marine sets in special packaging to ensure the healthiest animals possible arrive at your door. Whenever possible, extra specimens are included in each shipment to allow for possible in-transit losses. Animals dead upon arrival are replaced or credit given at our option. Live delivery is not guaranteed for marine specimens shipped out of the continental United States.



Marine Organism Sets

Carolina's marine sets contain the best marine specimens available—attractive, hardy, and easy to maintain. The vibrant colors and extraordinary characteristics of our sets are sure to get your students interested in marine life!

If you are starting a new marine tank, we suggest purchasing a Living Rock Community Set (item #162908) to help establish your new marine community. The organisms that inhabit the live rock help cycle your tank (establish a biological filter in the tank) much more quickly than adding animals or plants alone. The Living Rock Community Set is also a great addition to existing tanks.

Note: These sets cannot be shipped into AK. The marine animals we supply are tropical specimens. Hold them at 20 to 25° C (68 to 77° F); do not refrigerate.

For tanks, filters, and other supplies, see the Aquaria & Habitats section starting on page 169.

ical to a marine reef community, plus selected for a classroom community shrates (our choice) from at least 8 genera cle a new marine tank; the live rock containsms that help to rapidly establish a biolog		162646 162600	\$169.25 \$173.55 \$140.25
ebrates (our choice) from at least 8 genera cle a new marine tank; the live rock contai	damsels	162600	
cle a new marine tank; the live rock contai			\$140.25
the state of the s	ins Anemones, starfish, crabs, 5 lb of live roc		
iisiiis tiiat ileip to rapidiy estabiisii a biolog		k 162908	\$161.60
		162620	\$154.55
esh with these all-star cleanup teams	Small set: 2 emerald crabs, 5 turbo snails 5 small hermit crabs	162660	\$55.62
	Large set: 4 emerald crabs, 10 turbo snail 10 small hermit crabs	ls, 162662	\$80.86
	5 marine snails	162955	\$33.60
)	choice) representing a cross section of the rmata resh with these all-star cleanup teams of marine aquarium snails that will help lean	resh with these all-star cleanup teams Small set: 2 emerald crabs, 5 turbo snails 5 small hermit crabs Large set: 4 emerald crabs, 10 turbo snail 10 small hermit crabs of marine aquarium snails that will help 5 marine snails	resh with these all-star cleanup teams Small set: 2 emerald crabs, 5 turbo snails, 5 small hermit crabs Large set: 4 emerald crabs, 10 turbo snails, 162662 10 small hermit crabs of marine aquarium snails that will help 5 marine snails 162955

154 CAROLINA®

Synthetic Marine Salt

Instant Ocean® Synthetic Sea Salt

Dissolves and mixes quickly and easily. High quality and dependable. Makes 50 gal.

671440 Each \$37.60



671440 Instant Ocean Synthetic Sea Salt

Instant Ocean® Sea Salt

Carefully formulated, this universally preferred sea salt is the number one choice of hobbyists, public aquariums, and scientific research facilities. The 5-gal pail makes 160 gal of salt water.

671442 Each \$109.37



Live Food for Marine Organisms

Item No.	Organism	Unit	Each
162860	Marine Rotifer	Culture	\$17.30
142366	Marine Copepod	Culture	\$17.95
142240	Brine Shrimp Eggs	1-oz Bottle	\$12.60
142230	Brine Shrimp, Live Adult	Bag	\$22.65

162860 Marine Rotifer

Living Organisms

671442 Instant Ocean Sea Salt

Aquarium Substrates

Crushed Coral

Ideal for use in marine aguaria; helps balance the pH and buffer the water. 15-lb bag.

163246 Each \$15.15



163246 Crushed Coral

Need help caring for your marine tank?

Visit Carolina.com for our complete selection of aquarium accessories and additional resources.

Proper Care for Your Marine Organisms

Organism	Nutrition	Tank Conditions
Poriferans (sponges)	Require supplemental feeding with liquid plankton and other dissolved organic foods.	Water temperature, 72 to 78° F; specific gravity, 1.023 to 1.025; pH, 8.1 to 8.4. Note: <i>Never expose to air.</i>
Coelenterates (mangrove jellyfish)	Require daily supplemental feeding with zooplankton substitutes.	Prefer wide, sandy bottoms in the aquarium. Require high-intensity light for photosynthesis to occur.
Anemones	Feed small amounts of flake food, a food tablet, brine shrimp, minnows, chopped fish, or earthworms.	Water temperature, 75 to 82° F; salinity level, 1.020 to 1.026. Require full-spectrum light and strong filtration.
Echinoderms (brittle star and sea urchins)	Brittle star—Feed with bits of very lean meat, chopped shrimp or fish, minnows, earthworms, or white worms. Sea urchins—Feed with chopped fish or shrimp, lettuce leaves, (sinking) fish/crab pellets, or seaweed placed directly under the animal.	Water temperature, 72 to 80° F; pH, 8.0 to 8.4.
Mollusks (assorted aquarium snails)	Eat leftover food from fish and plants in the aquarium.	Water temperature, 64 to 77° F. Require diffused light. Do not hold more than 15 to 20 snails per 1 to 2 gal of water.
Arthropods (barnacle cluster, crabs, and shrimp)	Feed mixtures of <i>Daphnia</i> , brine shrimp, algae, protozoa, and dried fish food.	Water temperature, 72 to 80° F; pH, 8.0 to 8.4.

Marine Organisms

We ship all organisms in our proven living materials packaging. This guarantees the healthiest, most vibrant marine specimens possible. Because our marine organisms are tropical, they should be held at 25° C (77° F). If you are just starting a marine tank, be sure not to fully stock the tank until it has been properly cycled. Do this with a choice of hardy animals such as hermit crabs, sea urchins, brittle stars, and aguarium snails.

Note: Cannot be shipped into AK. Please order at least 2 to 3 weeks in advance of the desired delivery date. Orders are shipped overnight on Mondays and Tuesdays only. Also indicate an alternate shipping date. We cannot guarantee exact delivery times and delivery dates may be delayed due to inclement weather. Orders are shipped directly from our vendor located on the Florida coast. Live delivery is not guaranteed for marine specimens shipped out of the continental United States.



162865 Sea Anemone

Sea Anemone

Aiptasia. Small, 2 to 4 cm. Excellent for demonstrating feeding and tactile response, asexual reproduction, and regeneration. Very hardy. Feed brine shrimp or marine rotifers. Culture contains 20 to 25 anemones. With instructions. Note: Cannot be shipped into AK. 162865 Per culture \$42.15



162936 Mangrove Jellyfish

Mangrove Jellyfish

The mangrove jellyfish, also called the upside-down jellyfish, often swims upside-down in order to expose symbiotic algae that live within it to the sun, enabling photosynthesis to take place. **Note:** *Cannot be shipped into AK.*

162936 Pack of 5 \$45.90



162867 Ultra Rock Flower Anemone

Ultra Rock Flower Anemone

Similar to the rock flower sea anemone, these variants display a variety of bright colors. They prefer attaching to shady rock walls or burying into sandy substrate and are a great addition to reef tanks. They are carnivorous and should be fed chopped seafood or krill. **Note:** Cannot be shipped into AK.

162867 Each \$35.00



162515 Black Spine Urchin

Black Spine Urchin

Black urchins prefer rocky substrates with hiding places but can be destructive to coral. Urchins graze on algae and may need supplements of dried algae if algae is scarce in the aquarium. **Note:** Cannot be shipped into AK.

162515 Pack of 5 \$40.17



162946 Brittle Star

Brittle Star

Brittle star is an attractive tank scavenger, and an example of an echinoderm. Good for newly established marine tanks. **Note:** Cannot be shipped into AK.

162946 Pack of 5 \$58.60



163351 Green Ribbon Nudibranch

Green Ribbon Nudibranch

Commonly referred to as the lettuce sea slug, the green ribbon nudibranch makes an attractive addition to any reef or fish tank. This bottom-dwelling algae eater cleans the walls and rock surfaces in your tank. **Note:** Cannot be shipped into AK.

163351 Each \$17.25



162949 Sea Urchin

Sea Urchin

Collector's choice of 5 nonfertile urchins. Sea urchins are good for newly established marine tanks. **Note:** *Cannot be shipped into AK.*

162949 Pack of 5 \$49.50



Bring Sea Urchin Development into Sharper Focus

See the Sea Urchin Embryology Kit (item #162505) on page 158.

141198 Turbo Snails

Turbo Snails

These peaceful and fun-to-watch marine snails make an excellent addition to your aquarium's cleanup crew. Turbo snails quickly eliminate large amounts of algae from glass, rocks, and additional decor. **Note:** Cannot be shipped into AK.

141198 Pack of 5 \$24.15

-

162976 Marine Hermit Crab

Marine Hermit Crab

Living Organisms

Marine hermit crabs are hardy scavengers, but they can be aggressive if not adequately fed. Keep a variety of shell sizes available for your crabs as they grow. **Note:** Cannot be shipped into AK.

162976 Pack of 5 **\$45.90**



162923 Chicken Liver Sponge

Chicken Liver Sponge

The chicken liver sponge encrusts rocks in shallow water. During acclimation, do not allow air to enter the sponge. **Note:** Cannot be shipped into AK

162923 Pack of 5 \$45.80



162977 Arrow Crab

Arrow Crab

Arrow crabs, sometimes called spider crabs, with their long legs and arrow-shaped bodies, are a great addition to larger, salt-water reef tanks. They are predators, but if properly fed they can co-exist with quick-moving fish and provide control for feather worm and bristle worm populations. They prefer a rocky substrate with hiding places and should not be kept with other crustaceans, as they may prove aggressive. **Note:** Cannot be shipped into AK.

162977 Each \$24.93



162925 Red Ball Sponge

Red Ball Sponge

The red ball sponge is a filter feeder, feeding on bacteria and microscopic plankton. It survives best in an established aquarium with strong currents. Low lighting is recommended. **Note:** Cannot be shipped into AK.

162925 Pack of 5 \$55.55



162984 Banded Coral Shrimp

Banded Coral Shrimp

This beautiful crustacean adds a splash of color to a marine tank. It works well in community tanks, although it is territorial, so only very large tanks—55 gal and larger—should house more than 1 coral shrimp. It will also attack other crustaceans. The coral shrimp is nocturnal; provide a rocky shelter for it to hide in during the day. **Note:** *Cannot be shipped into AK. Not for export.*

162984 Each \$32.95



162927 Yellow Ball Sponge

Yellow Ball Sponge

These bright yellow sponges add a splash of color to your tank. They feed on microorganisms via filtration. Low lighting is recommended. **Note:** Cannot be shipped into AK.

162927 Pack of 5 \$62.00



162987 Mantis Shrimp

Mantis Shrimp

Mantis shrimp are colorful crustaceans that have developed a specialized claw to strike prey with great force. They are aggressive, solitary creatures and should be kept in their own tank with plenty of hiding places. Feed live fish, crabs, and snails. **Note:** Cannot be shipped into AK. Not for export.

162987 Each \$26.80

Teaching Marine Science?

Find an ocean of resources and lesson ideas in the Carolina Knowledge Center.

Carolina.com/knowledge

(type "marine science" in the search field)





Sea Urchin Embryology Kit Early development in sharp focus

- · Comprehensive kit available all year
- · Recommended for early development studies
- · Large number of gametes easily seen with the naked eye

Everything your class needs to witness sea urchins develop is available in this 1 convenient kit. You'll get *Eucidaris tribuloides* or *Lytechinus variegatus* (our choice). Plus you receive all the materials and instructions necessary for achieving viable gametes—and for following development from early cleavage through pluteus. Urchins are ripe at the time of arrival; we recommend that they be used the day of arrival or immediately the next day to avoid reabsorption of the gametes. Not sexed but male-to-female ratio is usually about 1:1. **Note:** *Cannot be shipped into AK. Kit includes a voucher to request live materials* (\$\int item) later at your convenience. Contact us or return the voucher at least 2 weeks in advance of requested delivery date of live materials. Orders are shipped directly from our vendor located on the Florida coast. Orders are shipped on Mondays and Tuesdays only for overnight delivery. Live delivery is not guaranteed for marine specimens shipped out of the continental United States.

Kit includes:

14 Fertile Sea Urchins()

30 mL Potassium Chloride Solution (0.5 M)

20 Gamete Shedding Cups

20 Plastic Petri Dishes

20 Dropping Pipets

5 Hypodermic Syringes with Needles

Gallon Seawater

Teacher's Manual with Reproducible Student Guide

162505 Per kit \$186.85

Order 2 weeks in advance to ensure on-time delivery

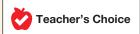




Customer Review

"We've had various [species] of urchins over the years, all with varying degrees of success. Our developmental biology labs run spring quarter, and the last couple of years we've placed at least one order with Carolina after the urchins from another vendor provided dismal results. The species we received at this time of year from Carolina have been L. variegatus and they have ended up being almost 1:1 ratio, and 100% fertilization rate in the students labs. Unless we experience otherwise, we'll continue to use Carolina as the source of choice. The boxes were double bagged and boxed this year, so the shipment carrier didn't fret about leaking containers which was a problem last year. Caveat: species will vary from any vendor depending on time of year and weather/seasonal conditions. So far though every time we've had L. variegatus we've had consistently good results, which has not been true of other species."

Lab Manager



Sea Urchin Embryology Set Watch your urchins grow before your eyes

- · Available all year
- At least 50% ripe at time of arrival
- · Great value for studying invertebrate life cycle or development

Students can watch the fascinating life cycle of sea urchins right in your classroom with these 14 fertile urchins (our choice of *Eucidaris tribuloides* or *Lytechinus variegatus*). We guarantee at least 50% of the urchins to be ripe on arrival and recommend that they be used the day of arrival or immediately the next day to avoid reabsorption of gametes. Early cleavage through pluteus larvae. Urchins are not sexed, but the male-to-female ratio is typically about 1:1. **Note:** *Cannot be shipped into AK. Order at least 2 weeks in advance of requested delivery date. Orders are shipped directly from our vendor located on the Florida coast. Orders are shipped on Mondays and Tuesdays only for overnight delivery. Live delivery is not guaranteed for marine specimens shipped out of the continental United States.*

162500 Per set \$177.65

Order
2 weeks in
advance to
ensure
on-time
delivery



Sea urchin embryo from 162500 Sea Urchin Embryology Set

Amphibians

Bullfrogs



146532 Bullfrog

•

146470 Bullfrog Tadpole, Hind Limb Bud Stage

Bullfrog Tadpole, Hind Limb Bud Stage

Larvae for demonstrating early metamorphosis can be used with thyroid or iodine treatment. With instructions. **Note:** From June to September, should not be shipped over a weekend. During these months, Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NV and VA must obtain a permit to receive this material. Cannot be shipped into AK, ID, or WA.

146470 Pack of 12 \$33.05

Bullfrog

Our captivity-bred, living bullfrogs are a sustainable alternative to grass frogs. Consistent availability takes the stress out of lesson planning, and the slightly larger size makes it easier for students to find key features. **Note:** Residents of NV and VA must apply for a state permit to receive this material. Cannot be shipped into AK, ID, UT, or WA. Not for export.

Living Organisms

146530	2 to 3"	Each	\$27.19
New! 146536	Approx. 2 to 3"	Pack of 6	\$40.25
New! 146537	Approx. 2 to 3"	Pack of 12	\$59.70
146532	4"+	Each	\$33.45
New!146538	Approx. 4"+	Pack of 6	\$45.95
New! 146539	Approx. 4"+	Pack of 12	\$70.80



146550 Bullfrog Tadpole

Bullfrog Tadpole

Field-collected. With instructions. **Note:** From June to September, should not be shipped over a weekend. During these months, Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of NV and VA must obtain a permit to receive this material. Cannot be shipped into AK, ID, UT, or WA.

146550	Medium (up to 11/2")	Pack of 6	\$14.55
146552	Medium (up to 11/2")	Pack of 12	\$24.05
146554	Medium (up to 11/2")	Pack of 50	\$82.20
146560	Large (11/2 to 31/2")	Pack of 6	\$27.15
146562	Large (11/2 to 31/2")	Pack of 12	\$47.45

Specialty Frogs



146720 Tree Frog

Tree Frog

Hyla. Excellent for the terrarium. Scarce in winter months. Species not guaranteed. With instructions. **Note:** Residents of VA must apply for a state permit to receive this material. Cannot be shipped into AK.

146720 Pack of 3 **\$25.15 146722** Pack of 6 **\$45.05**



Dwarf Aquarium Frog

Small aquatic frog ideal for use in tropical aquaria. Will eat brine shrimp flakes. With instructions. About 1" in size. **Note:** *Cannot be shipped into AK or VA.*

146700 Pack of 3 \$21.40

Frogs

Carolina makes every possible effort to supply our customers with the frogs of their choice. Northern and southern grass frogs will be shipped as available. Due to the seasonal availability of these grass frogs, sometimes it may be necessary to substitute bullfrogs for grass frogs. The vast majority of activities in anatomy and physiology can be conducted successfully, with no differences, with either of these frogs.

General-use frogs are not suitable for induced breeding exercises. Contact us for availability of breeding frogs.

Although every effort is made to ship as requested, exact delivery dates cannot be guaranteed because of difficulties involving field collection and weather. Note: Cannot be shipped into AK or UT.

Large Frog

Unsexed; body length about 2 to 4". **Note:** Cannot be shipped into AK or UT. Not for export.

146390 Pack of 6 **\$46.85 146392** Pack of 12 **\$71.50**

Northern and southern grass frogs are shipped as available. If necessary, grass frogs may be substituted with healthy bullfrogs.



Tadpoles



146460 Early Tadpole

Frog Eggs



146435 Frog Eggs

Early Tadpole

Young tadpoles. Excellent for embryology, experimental work, and microscope slides. With instructions. Note: From June to September, should not be shipped over a weekend. During these months, Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Cannot be shipped into AK or UT. Residents of VA must obtain a permit to receive this material.

146460 Pack of 12 **\$20.15 146462** Pack of 50 **\$59.70**

See our frog eggs and tadpoles care guides at Carolina.com/careguides.

Do Your Classroom Critters Need a Home?

See our selection in the Aquaria & Habitats section beginning on page 169.

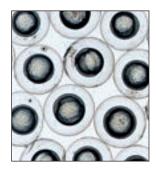
Frog Egg, Field Collected

Peeper, toad, grass-frog, or bullfrog eggs. Excellent for demonstrating the frog life cycle. Not recommended for egg development studies. Shipped in units of 50 to 100 eggs. With instructions. **Note:** Breeding and collection are influenced by season and weather. Available January through June. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Residents of VA must apply for a state permit to receive this material. Cannot be shipped into AK. Not for export.

146435 Per unit **\$34.65**

Looking for an egg that develops rapidly with year-round availability?

See page 152 for our Zebra Fish Eggs to support your developmental studies.



Animals Kits & Sets

Living Organisms



146305 Frog Life Cycle Stages

Frog Life Cycle Stages

Grade K and up. Unbelievably realistic in appearance, these figures demonstrate how bullfrogs grow and change. The 4 stages depicted include egg, tadpole, frog with tail, and adult bullfrog. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

146305 Per set \$12.98

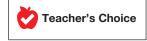


146705 Aquatic Buddies Kit

Aquatic Buddies Kit A

Grade K and up. Experience the excitement of seeing tropical dwarf frogs swimming around in a natural environment. Adorable and fun to watch, these frogs make excellent pets. They are hardy and easy to care for. Kit includes a plastic aquarium, gravel, aquatic tropical plants, and 2 aquatic dwarf frogs. Feed the frogs brine shrimp flakes (included). Complete with setup and care instructions. **Note:** *Cannot be shipped into AK or VA*.

146705 Per kit \$33.80





🦒 Raise-A-Frog Kit 🕰

Students can raise a small frog from a tadpole. Includes 2 tadpoles, small aquarium, food, gravel, aquatic plant, water conditioner, activities, background information, and frog facts. Students learn about morphology, behavior, metamorphosis, and characteristics of living things. Activities include art observations and life cycle studies. Note: From June to September, should not be shipped over a weekend. During these months, Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Cannot be shipped into AK or UT. Residents of VA must obtain a permit to receive this material.

146450 Per kit \$36.20

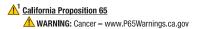


187012 Carolina EcoKits: Build Your Own Microcosm

Carolina EcoKits®: Build Your Own Microcosm

Grades 9–12. Using this inquiry-based kit, students create an enclosed aquatic ecosystem that allows them to observe biogeochemical and life cycles. Students observe this ecosystem, known as a microcosm, and identify ecological relationships. They are then challenged to find the answer to a fundamental question: "What factors can determine whether an ecosystem will succeed or fail?" The activity requires approximately 4 weeks to complete. Kit accommodates a class of up to 32 students working in groups of 4. Note: Kit includes vouchers for 2 sets of living organisms shipped separately. Set 1 includes Daphnia pulex, Lumbriculus, and algae for a food source. Set 2 includes pond snails, Chara, and dwarf aquarium frogs. Allow approximately 12 days between requested arrival dates for these 2 sets. Cannot be shipped into AK or VA.

187012 Per kit \$198.80



Xenopus (South African Clawed Frog)

Xenopus laevis, the South African clawed frog, is a stout-bodied aquatic frog measuring up to 5" in length at maturity. Excellent for studies in embryology, genetics, physiology, anatomy, morphology, and the amphibian life cycle. The female can be induced to release eggs every 2 to 3 months throughout the year, and the male can be bred every 7 days. The frogs will engage in amplexus in the laboratory.

Xenopus develops from an egg to a small frog in less than 21/2 months and may live up to 10 years in captivity.

Note: Residents of AZ, CA, KY, MT, NC, NJ, NV, OR, UT, and WA must obtain a permit to receive this material. Cannot be shipped into AK, NY, or VA. Sold only to schools and businesses.





Xenopus: 146614 Adult Female (left) and 146616 Adult Male (right)



146630 Xenopus Eggs



146602 Xenopus Breeding Kit

Adult Xenopus

Laboratory-reared for breeding. With instructions. **Note:** Residents of AZ, CA, KY, MT, NC, NJ, NV, OR, UT, and WA must obtain a permit to receive this material. Cannot be shipped into AK, NY, or VA. Sold only to schools and businesses.

 146614
 Female (3 to 5")
 Each
 \$47.95

 146616
 Male (3 to 4")
 Each
 \$47.95

 146618
 Pair
 Each
 \$93.55

Xenopus Egg

Because of rapid development, shipments will arrive in late stages of development. Approximately 50 to 100 eggs. With instructions. **Note:** Shipped overnight on Mondays and Wednesdays only. Please order at least 1 week in advance of desired ship date. Residents of AZ, CA, KY, MT, NC, NJ, NV, OR, UT, and WA must obtain a permit to receive this material. Cannot be shipped into AK, NY, or VA. Sold only to schools and businesses.

146630 Per unit \$52.50

Xenopus Breeding Kit

Materials for breeding *Xenopus laevis*. Includes instructions for breeding and for care and handling of adults and tadpoles. **Note**: *Residents of AZ, CA, KY, MT, NC, NJ, NV, OR, UT, and WA must obtain a permit to receive this material. Cannot be shipped into AK, NY, or VA. Sold only to schools and businesses.*

Kit includes:

Adult *Xenopus* Pair
Aquarium with False Bottom
Aquarium Cover
2,500 IU Gonadotrophin
2 Disposable Syringes with Needles
Adult Food
Tadpole Food

146602 Per kit \$276.66

Chorionic Gonadotrophin

Chorionic gonadotropin is for inducing amplexus in *Xenopus* frogs. Comes in a 2,500-IU vial. **Note:** *Not for use in humans. Intended for educational use and only with* **Xenopus** *frogs.* **146610** Per vial **\$174.67**



Toads



146750 Giant Toad

146760 Small Toad

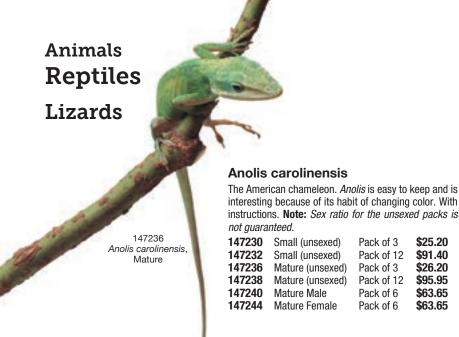
Giant Toad

Bufo marinus. Easy to maintain in an inclined tank with water at one end. Requires little care beyond occasional feeding with live insects. Besides demonstrating ecological responses and defense behavior, this animal serves in studies of frog physiology. Size and sex will vary. With instructions. Note: Usually available September through April; availability is weather influenced. Residents of AZ and CA must apply for a state permit to receive this material. Cannot be shipped into AK, UT, or VA.

146750 Pack of 3 \$63.65

Small Toad

Bufo. With instructions. **Note:** Available March through September. Residents of AZ must apply for a permit to receive this material. Cannot be shipped into AK, UT, or VA. **146760** Pack of 3 **\$27.55**





147625 Leopard Gecko

Leopard Gecko

\$25.20

\$91.40

\$26.20

\$95.95

\$63.65

\$63.65

Pack of 3

Pack of 3

Pack of 6

Pack of 6

Pack of 12

Pack of 12

Great for the classroom, this yellow and dark brown, spotted gecko is among the easiest lizards to maintain. You will receive a juvenile, average length of 2 to 3", that will reach an adult size of 8 to 10". The gecko will be too young for its sex to be determined with certainty.

147625 Each \$48.77

Turtle

Turtle

Chrysemys sp. or Trachemys sp. Large (8 to 10"). FOB Waubun Laboratories, Schriever, LA. Note: Sold only to schools and businesses. Availability may be limited during winter months. Shipped on Tuesdays only via FedEx®. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Cannot be shipped into AK, ID, NY, or VA. Can only be exported to Canada. Residents of Canada must apply for a Canada Dept. of Agriculture permit.

147050 Each \$26.95

147050 Turtle

Animal Food Reptile Food

Tetra® ReptoMin®

Especially prepared diet for water reptiles such as turtles and newts and even African frogs. This special food strand slowly softens in the water and is easily digested by the animal. 10.58-oz can.

674935 Each \$26.15



674935 Tetra ReptoMin

Live Food for Amphibians and Reptiles

Item No.	Organism	Unit	Each
143556	Cricket Nymph	Pack of 50	\$26.05
172910	Drosophila (fruit fly, flightless)	Culture	\$9.95
172895	Drosophila hydei (slightly larger fruit fly, flightless)	Culture	\$13.00
143928	Greater Wax Moth Larva	Pack of 50-75	\$32.25
144272	Mealworm Larva	Pack of 50	\$11.80
142336	Moina (small crustacean for salamanders)	Culture	\$12.50
131540	Paramecium (for salamander larvae)	Culture	\$9.95
133172	Philodina (rotifer for salamander larvae)	Culture	\$9.95
143882	Hornworm Larvae (for large lizards)	Pack of 12	\$57.80

Fish Food



674755 Tetra BloodWorms Freeze-Dried Food

New! Tetra® BloodWorms Freeze-Dried Food

Bloodworms are a high-protein addition to carnivorous fish diets and make an excellent primary food for aquatic frogs. This food has been designed for small to medium tropical and marine fish, and specifically processed and treated to minimize the presence of undesirable organisms found in live bloodworms. 0.92 oz (26 g).

674755 Each \$9.50

See more fish food on the next page.

New! Hikari® Tropical Micro Wafers®

Hikari® Tropical Micro Wafers® contain high-grade marine and vegetable proteins. They are efficiently digested and promote vivid coloration in addition to unequalled growth rates. The tiny wafer slowly sinks in



the aquarium, providing food for many varieties of smalland medium-sized tropical fish, such as guppies and zebra fish. It also works well for feeding Daphnia magna. An excellent alternative to flake food, the small wafers do not foul the water as quickly, improving the water clarity and health of your tank. In 1.58-oz/45-g pack.

> 674751 Per pack \$6.29



674878 Spirulina Flakes

Spirulina Flakes

These flakes provide a nutritious diet for marine or freshwater fish and naturally enhance color. They also promote healthy tanks by stimulating your fish's immune system to attack Gram-negative bacteria, which cause a number of fish diseases. 1.84-oz container. Note: Not suitable for Daphnia.

TetraWeekend

674878 Each \$14.10



Animals

674776A Freshwater Aguarium Fish Food Flakes, 2.2 lb (1 kg)

Freshwater Aquarium Fish Food **Flakes**

A wide variety of fish species often live together in freshwater tanks. This flake food contains a precise blend of immunostimulants, vitamins, biotin, and omega-3 fatty acids custom-designed to strengthen a fish's resistance to disease and stress.

674767A 7.06 oz (200 g) Each \$35.23 **674776A** 2.2 lb (1 kg) Each \$90.85



674913 7-Day Feeding Block

For freshwater and marine fish that eat constantly. Ideal for feeding over weekends and vacations.

674913 Each \$8.19

7-Day Feeding Block

New! Hikari® Tropical Micro Pellets®

Hikari® Tropical Micro Pellets® contain high-grade marine and vegetable proteins. The addition of krill makes this a good option for community tanks. The pellets are efficiently digested and promote vivid coloration in addition to unequalled growth rates. The



tiny pellets slowly sink in the aquarium, and the soft texture makes them perfect for small-mouthed fish. An excellent alternative to flake food, the small pellets do not foul the water as quickly, improving the water clarity and health of your tank. In 1.58-oz/45-q pack.

> 674754 Per pack \$8.29

674914 Tetra Vacation 5-Day Feeding Block Tetra® Vacation Feeding Blocks

Don't wreck your water quality while you are away on vacation! Innovative gel feeder block contains no plaster and feeds for either 5 or 14 days.

674914 5-Day Block Each \$5.40 674915 14-Day Block Each \$7.10

Frog Food



146500 Tadpole Food

Tadpole Food

A complete diet in pellet form. Will not decay and foul water as quickly as leafy foods. 250-g bag.

146500 Per bag \$10.20



146501 Xenopus Tadpole Food

Xenopus Tadpole Food

A complete diet with fine granular texture specifically formulated for Xenopus laevis (South African clawed frog) tadpoles. 250-g bag.

146501 Per bag \$10.20



146503 Frog and Tadpole Bites

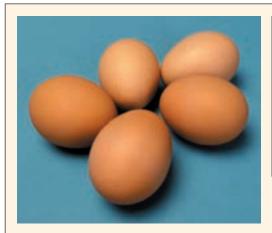
Frog and Tadpole Bites®

This highly appetizing, soft, and moist pellet was specifically developed for aquatic frogs and developing tadpoles. Designed to be gentle on a frog's delicate digestive system, this food also provides the essential nutrients for health and growth. 1.2-oz bottle.

146503 Per bottle \$4.90

Chick Embryology

Living Organisms



Customer Review

"We used these eggs in our kindergarten classroom. We had a great time setting up the incubator and learning about the process of hatching eggs. We are looking forward to having our very own chicks!"

Kindergarten Teacher

🤭 Fertile Chicken Egg

These eggs are suitable for incubation and will hatch in about 21 days. Fertility varies with the season (highest fertility, February to June). Unit of 12 eggs. **Note:** We must receive your order 2 weeks before desired use date to ensure delivery date. Chicken breeds will vary; there is no guarantee of a specific breed and some eggs may not hatch. **Eggs are shipped on Wednesdays only. Please have your incubator regulated 24 hours in advance of receiving the eggs.**

139290 Per unit \$37.80

Carolina Teacher Tips

Want Your Eggs Quickly?

Delivery of fertile chicken and duck eggs may be requested when you place your order for any kit or set. If you specify the shipment date, you will not be sent a voucher for prepaid delivery of the perishable eggs. We must receive your order 2 weeks before the use date to guarantee delivery date.

Care Guides Online

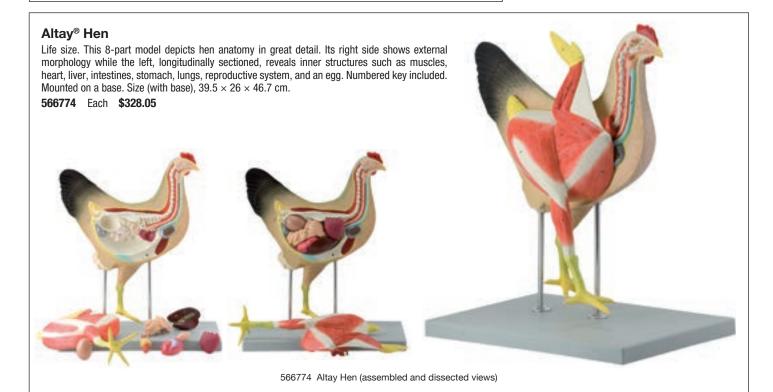
We offer free online care guides to help you care for your organism properly.

Find them at

Carolina.com/careguides.









The incubator has an automatic egg turner that holds 42 chicken eggs. A turbofan in the incubator circulates the air, keeping the temperature uniform. Set up the incubator several days before you expect the eggs to arrive, and set up the brooder several days before chicks hatch. Add food and water and you're all set. The poster shows chick development inside the shell. **Note:** *Includes voucher with reference number for prepaid delivery of live materials. Chicken breeds will vary; there is no guarantee of a specific breed and some eggs may not hatch. Eggs are shipped on Mondays only.*

12 Fertile Chicken Eggs Chick Feeder
Incubator Set Baby Chick Starter (5 lb)
Chicken Brooder A Guide to Better Hatching Book
Chick Fountain Chick Development Poster (item #575109)

139320 Each **\$865.75**



Digital Still-Air Incubator with Automatic Turner

Engage your students in a science activity they will remember their entire lives—hatching chickens! This still-air incubator holds 8–12 eggs in an easy-to-clean chamber. The digital thermometer (Celsius) allows you to monitor conditions, while the water reservoir maintains humidity. An automatic turner keeps the eggs moving, even over the weekend when you can't be there. Its small, compact size is ideal for classroom settings. Dimensions, $13^{98}/_{100} \times 7^{48}/_{100} \times 6^{89}/_{100}$ ".

701226 Each \$132.55

166

Animals



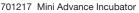
701219 Sportsman Incubator (eggs and egg trays not included)

Sportsman Incubator

This complete incubator and hatcher now offers an accurate digital thermostat with LCD display of temperature and humidity, as well as electronic egg turning, audio/ visual alarms, and a standard easy-view door. Breeders can set eggs each week or so, then hatch the oldest-setting eggs at the same time. Settings are rotated among 3 turning trays so the hatching tray at the bottom can accept the eggs from one of the setting trays each cycle. Capacity, 1,200 quail eggs or about 400 chicken eggs. Each shelf holds 400 quail, 125 chicken, or 45 goose eggs (eggs not over 3³/4" H). Size, 51½" W × 29" D × 31" H; wt, 85 lb. 110-V AC. 225-W heating element. Includes a 1-year manufacturer's warranty. Note: Egg trays are not included and must be purchased separately (contact us to special order). Incubator may look different from picture. Allow 3 weeks for delivery.

701219 Each \$1,630.75







701217B Quail Egg Insert

Mini Advance Incubator

Get an excellent view of eggs during incubation and hatching with this incubator's clear plastic dome. The control panel shows incubation temperature (in Celsius or Fahrenheit), countdown to hatch, and egg-turning status. Digital controls allow you to adjust incubation temperature, egg-turning interval, turning angle, and high- and low-temperature alarm parameters. Incubator automatically stops turning eggs 2 days prior to hatch. Unit also features fan-assisted airflow, refillable water reservoirs in center of egg tray, and easy-to-clean surfaces. Included turning tray accommodates 7 hen or duck eggs. Optional $\bf Quail\ Egg\ Insert\ accommodates\ 12\ quail\ or\ pheasant\ eggs. With instructions. Size, <math display="inline">6^1/_2$ " H \times 8" diam; wt, $2^1/_{10}$ lb. 110-V AC. Two-year manufacturer's warranty.

701217 Mini Advance Incubator Each \$307.45 701217B Quail Egg Insert Each \$35.90

Still-Air Picture Window Incubator Set

Ideal for viewing the incubation and hatching process in classrooms or for science projects. Set includes **Still-Air Picture Window Incubator**, **Turbofan**, and **Automatic Egg Turner** (each component available for separate purchase as well). Incubator has a 14×14 " double-plated clear plastic window with air space insulation to help eliminate moisture buildup that could obstruct viewing. The easily installed Turbofan converts the incubator into a circulated air incubator, reducing the influence of outside temperature and eliminating temperature gradients inside the incubator. One temperature (99.5° F) for all eggs and climates. The egg turner has a simple design that allows for reliable use. It eliminates worry about weekend turning and heat loss while opening incubator to hand turn eggs. Egg turner holds 42 chicken eggs; 6 extra racks are included to hold 120 quail eggs. Incubator size, $18 \times 18 \times 9^{1}/2^{\circ}$. Some assembly required; instructions included. Wt, 10 lb. 110-V AC. Egg turner size, $15 \times 3^{\circ}$. Wt, 5 lb. 110-V AC (220-V available for export). **Note:** *Unit can be used with all Hova-Bator incubators.*

 701194C
 Still-Air Picture Window Incubator Set
 Each
 \$271.50

 701194
 Still-Air Picture Window Incubator
 Each
 \$189.00

 701191B
 Turbofan
 Each
 \$67.25

 701191A
 Automatic Egg Turner
 Each
 \$97.80

Visit Carolina.com for incubator replacement parts.

701194C Still-Air Picture Window Incubator Set





701240 Incubator Thermometer

Incubator Thermometer

For egg incubators. Range 90° to 110° F in 1° divisions. Size, $4^{1}/_{4}^{"}$ W \times 3" H.

701240 Each \$12.30

Chicken and Quail Brooder

Has 200-W heater, curtained back section, feed troughs, and water trough. Made of galvanized metal. Inside dimensions, $28\times36\times9$ " H; wt, 40 lb.

701230 Each \$675.00



701230 Chicken and Quail Brooder

Brooder Lamp

Provide warmth to newly hatched chickens, ducks, or quail with a basic **Brooder Lamp**. The thick porcelain socket and heavy-gauge aluminum reflector resist overheating. Accepts bulbs up to 250 W. Reflector has a 10" diam. Includes a spring clamp for mounting, electric cord with on/off switch, and 250-W infrared heat bulb. Assembly required. Lamp only has a 1-yr warranty. **Replacement Infrared Bulb** sold separately. Both items are UL® listed. **Note:** Enclosure and feeding or watering supplies are not included.

701202 Brooder Lamp701203 Replacement Infrared Bulb



701202 Brooder Lamp

Each **\$71.55**Each **\$25.55**



674615 Chick Fountain (left) and 674655 Chick Feeder (right)

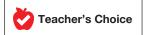
Chick Fountain

Jar and base included. Also good for adult birds.

674615 Each **\$12.35**

Chick Feeder

Popular feeder for brooding chicks. **674655** Each **\$10.30**



Living Organisms

Teacher Resources



701180 Chick Life Cycle Exploration Set

Chick Life Cycle Exploration Set

Great alternative to hatching fertile chicken eggs—model can be reused year after year.

Grade K and up. This hands-on model allows students to view each of the 21 days of chick development. Realistic illustrations are inside of durable white plastic eggs for days 1 to 20. Final egg opens to reveal a plastic 3-D chick. This set is perfect for teaching the chick life cycle and related vocabulary in life science lessons. A multilingual activity guide includes definitions, chicken facts, and a blackline master for labeling the parts of an egg. Eggs and plastic storage tray are labeled for self-checking and easy organization. Each durable plastic egg is $2^3/4^{\circ}$ L, the plastic tray is 15 \times $8^{\circ}/2^{\circ}$, and the storage box is $16 \times 9 \times 3^{\circ}$. **Note:** *Set does not include a live chick.*

701180 Per set \$59.65





Beginner's Chick Whole Mount Slide Set

Various stages of chick development are represented in this set of 5 slides.

309336 Per set \$77.00

Chick 60- to 70-Hour, w.m. from 309336 Beginner's Chick Whole Mount Slide Set



575116 Avian Embryology Poster

Avian Embryology Poster

 $24\times36^{\circ}$. Superb color photographs chart the progression of a developing chick embryo from day 1 to day 21. Informative text accompanies each photograph explaining the changes taking place each day.

575116 Each **\$20.30**



309348 Chick Embryology Set

Chick Embryology Set

A set of 12 slides demonstrating chick development. Includes whole mounts, serial sections, and representative sections of varying ages.

309348 Per set \$440.00



Aquaria & Habitats

Aquarium Care Tips

Carolina wants to help you keep your aquarium healthy and happy. Follow these helpful teacher tips to provide the best aquarium for your students and your aquatic organisms.

Tips for Healthy Fish

Acclimation Is the Key to Survival

• Properly acclimate animals. This is key to their survival.

Do not take more than 60 minutes to complete this procedure:

- 1. Turn aquarium lights off.
- 2. Float unopened bags in aquarium for 10 to 15 minutes to equalize temperatures—
 if you are afraid bag will tip, after temperatures are equalized, place bag in a
 plastic bowl or bucket and proceed through the steps below.
- Open bag by cutting below metal clip or rubber band (do not do this earlier, or dissolved oxygen will be depleted, suffocating your animals).
- 4. Add about 1/4 cup of aquarium water to the bag.
- 5. Repeat the previous step every 5 to 10 minutes until the bag is nearly full.
- **6.** Empty half the water from the bag (do not empty in your tank).
- 7. Add 1/2 cup of aquarium water to the bag every 5 minutes until the bag is full.
- 8. Gently net the specimen and release it into the aquarium.
- 9. Discard the remaining water in the bag.
- Set up your aquarium 2 weeks before receiving your fish to allow time for the tank to stabilize. For most tropical fish, select an area where the temperature is fairly constant between 74 to 78° F. Do not place your aquarium in direct sunlight.
- Feed your fish no more than once a day and not less than 3 times a week. Overfeeding
 is much worse than underfeeding, so remove any food that is left after 15 minutes.
 Uneaten food can cause the growth of harmful bacteria or algae in the aquarium,
 which can remove oxygen from the water and stress the fish.
- Never empty water from the bag the animals came in into your own tank.

Contents

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General Aquaria Care Tips

- Never add copper-containing fish medications to an aquarium containing invertebrates as they are lethal to invertebrates, even at very low concentrations.
- Use timers on the lighting system for your tank.
 This will provide your fish and corals with a day and night cycle. It also helps prevent the excessive growth of algae.
- Light intensity may be important. Many animals can live in the full-spectrum fluorescent light provided with many aquariums, but a very bright light is required for corals and some fish.
- Water changes are essential. A monthly change of approximately 20% of the water is recommended.
 Tanks with a large number of animals may require more frequent changes.
- Before you place your hands in the aquarium tank, rinse them well with water. Make sure that all hand creams, lotions, medications, soaps, and detergents have been washed off.



Marine-Specific Care Tips

- When mixing salt water, a specific gravity (correlating to salinity) of 1.022 to 1.026 is ideal. Fish do best in the lower part of the range, invertebrates at the higher part. Replace evaporated water with high-quality spring water. Be sure water is dechlorinated before adding salt.
- For most marine animals, the best temperature range for your tank is 75 to 85° F.
- Circulate salt water overnight with a pump or air stone. "Raw" or newly mixed salt water can be caustic and damage the gills of fish and other animals.
- Be aware that many marine animals are territorial or predatory. Research compatibility before selecting your animals.
- Never bring metal in contact with salt water.
 Marine invertebrates are very susceptible to the toxic ions of metals, and even minute quantities of heavy metal ions can cause the death of the animals
- For healthier tanks, provide your fish with foods other than flake foods. Supplement with frozen or fresh marine foods.

Aquaria & Habitats Aquarium Kits



162692 BIO-Wheel Aquarium 10-gal Kit (in use; fish and decorations not included)

BIO-Wheel® Aquarium Kits A3

These easy-to-assemble glass aquarium kits use the superior BIO-Wheel® 3-stage filtration system to remove ammonia and nitrites. The **10-gal Kit** features mini power filter, two 25-W incandescent bulbs, and tilt-up safety hood. The **20-gal Kit** features power filter, natural daylight fluorescent lamp and hood, and dual-temp 100-W precision heater. The **29-gal Deluxe Kit** features power filter, natural daylight fluorescent lamp and hood, and 200-W precision heater. Both the 20- and 29-gal kits also include digital aquarium thermometer and aquarium net. All kits include water conditioner, tropical flake food, and aquarium care instructions; visit **Carolina.com** for additional details.

 162692
 10-gal Kit
 Each
 \$129.79

 162694
 20-gal Kit
 Each
 \$214.15

 162696
 29-gal Deluxe Kit
 Each
 \$283.57



Basic Marine Aquarium Kit A3

20 gallon. Materials for a 20-gal marine aquarium, including the *Carolina*® *Marine Aquaria* booklet. Animals are not included and must be purchased separately.

Kit includes:

All-Glass 20-gal Tank Cover with LED Lights Air Pump Marine Gravel Undergravel Filter 100-W Heater Power Filter Thermometer/Hydrometer Marine Salt Mix Air Line Tubing

162690 Per kit \$357.80



Basic 10-Gal Aquarium Tank Kit A3

10-gallon. Provides materials for a 10-gal freshwater aquarium: all-glass 10-gal tank, aquarium cover, LED light strip, air pump, tubing, undergravel filter, and instruction booklet. **Note:** *Animals are not included; they must be purchased separately.*

670146 Per kit \$182.03

Not Sure Which Plants and Critters to Use in Your New Freshwater Aquarium?

We've done the selecting for you! See our Basic Aquarium Animal and Plant Set (item #161400) at Carolina.com.



Setting Up a New Marine Tank?

We suggest purchasing a Living Rock Community Set (item #162908) to help establish your new marine community. The organisms that inhabit the live rock help cycle your tank (establish a biological filter in the tank) much more quickly than adding animals or plants alone.

Learn more on page 154.

Aquarium Kits Natural Waters

Aquaria & Habitats



163380 Pond Water, 1 gal

Pond Water

Ideal for maintaining tadpoles, salamander larvae, and aquatic insects. Collected from our spring-fed ponds.

163380 1-gal Bottle Each **\$10.70 163382** 5-gal Carboy Each **\$27.50**

Carolina® Springwater

The time-tested springwater we use to maintain aquaria. Does not contain the harmful metal ions often present in tap water. 1-gal bottle.

132450 Per bottle \$9.95



Instant Ocean® Synthetic Sea Salt

Dissolves and mixes quickly and easily. High quality and dependable. Makes 50 gal. **671440** Each **\$37.60**



Seawater

A 5-gal bucket of seawater collected from the Atlantic Ocean.

163390 Per bucket \$35.15



Instant Ocean® Sea Salt

Carefully formulated, this universally preferred sea salt is the number one choice of hobbyists, public aquariums, and scientific research facilities. The 5-gal pail makes 160 gal of salt water.

671442 Each \$109.37

Carolina Teacher Tips

Pick the Hardiest Animals

If you are just starting out with a marine aquarium, your chances of success will improve if your first animals are hardier species. Try a few of these first: hermit crab, sea urchin, starfish, brittle star, banded coral shrimp, and damselfish (some sold individually,

others as part of a set). See our marine organisms and sets on pages 154–158.

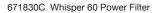
Remember not to overstock your tank or overfeed its inhabitants. Also, keep the water clean. Plan to change at least 20% of the water every 2 to 3 weeks.

Aquarium Filters & Pumps

Aquaria & Habitats Aquarium Filters & Pumps

Filters







671868 Penguin Power Filter



671821 and 671824 Multi-Pore Undergravel Filters

Whisper® Power Filter

Outside filter for freshwater and marine aquaria designed for easy maintenance and efficiency. Patented Wonder Tube® intake slides out for easy cleaning-no disassembly of filter involved. Flow control knob allows slow flow at feeding time. A maximum flow rate of 250 gal/hr circulates water in tanks holding up to 60 gal. The high-impact filter tank resists breakage. Removable energizer power unit is encased and safely air-spaced to eliminate shock hazard and avoids melt-down if filter runs dry. The Whisper® Bio-Bag Disposable Filter Cartridge increases filtration surface area by 200%. One set of filter cartridges is included with each unit.

△¹ 671830C 671832

Whisper Filter Fach Filter Cartridge, Large

Pack of 3 \$25.40

\$90.85

Penguin® Power Filters

Get 10 times more filtration than with other power filters. Penguin® Power Filters provide total water circulation and filtration, and they work with freshwater or marine aquariums. New features allow them to trap more debris, remove more impurities, and eliminate more odors. The clear 2-piece design also lets you quickly and easily replace the long-lasting Rite-Size filter cartridge.

1 671868

671869

Power Filter, 100 gal/hr Each **\$45.40**

Replacement Cartridge for item #671868 Fach \$5.77

1 671872 Power Filter,

200 gal/hr Each \$83.05

671873 Replacement Cartridge for item

Each \$7.10 #671872

Multi-Pore Undergravel Filters

These filters have thousands of tiny holes for maximum filtering efficiency, allowing uniform flow across the entire tank. They are constructed of heavy-duty plastic to hold up under rocks and tank decor. Ideal for freshwater and marine aquaria.

671821 20 × 10" \$18.85 **671822** 24 × 12" Each \$24.66 Each **671824** 48 × 12" \$40.50

Carolina Teacher Tips

Choosing the Right Filtration System

Selecting the right filtration system is key to providing a healthy habitat and saving yourself a lot of time and energy. A filtration system cleans the aguatic environment by separating chemical toxins and particles from the water. An effective system increases the number of organisms you can keep in the aquarium. There are several types of filtration systems to choose from:

· Power Filters—Hang on the back of the aquarium and provide filtration and aeration in a single unit. Activated carbon filters provide mechanical and chemical filtration.

Pros: Compact and complete.

Cons: May increase evaporation; less effective in deeper

· Internal Filters—Sit inside the tank and provide mechanical and chemical filtration.

Pros: Quiet and affordable.

Cons: Take up aquarium space; not great for larger aquariums.

 Canister Filters — External filters that can house a variety of filtration materials for mechanical, chemical, and biological filtration.

Pros: Don't take up space in the aquarium; excellent filtration especially for large tanks.

Cons: Larger upfront cost.

· Under-Gravel Filters - Sit under the substrate and use air pumps to draw water through the gravel and filter.

Pros: Inexpensive and take up no space in the aquarium.

Cons: Harder to clean; noisy.





Aquarium Filters & Pumps

Aquaria & Habitats

Carolina Teacher Tips

Protein Skimming

Protein skimming, also known as foam fractionation, was originally developed as a wastewater treatment technology. It is most effective (some would say essential) in reef tanks and other marine aquariums. Foam fractionation is a simple, effective, and low-cost technique for removing protein, suspended solids, dissolved organic compounds, and other contaminants. A fine stream of small air bubbles, generated by a limewood air stone or venturi, floats up a column of circulating water. As the water comes into contact with the bubbles, contaminants adhere to their surface. The bubbles carrying contaminants rise through the column, forming foam, which is collected in a holding chamber or expelled through a discharge tube.

Protein Skimmer



Skilter 250 Power Filter/Protein Skimmer

Functions as a power filter and venturi protein skimmer. Provides aerobic biological filtration plus mechanical and chemical filtration for all aquariums up to 55 gal. Excellent filter system for marine reef aquaria when used in conjunction with a canister-type power filter.

671875 Each \$122.23

External Canister Filter



Cascade™ 1500 Canister Filter

This heavy-duty, multi-stage external filter, which works for both fresh and saltwater aquariums, can handle tanks up to 200 gal, providing a maximum flow of 350 gph. The powerful mechanical, chemical, and biological filtration results in crystal clear water. The filter is easy to install, with a quick push-button primer and 2 independent directional 360° rotating valve taps. Comes with large filter trays, start-up filter media, and input/output tubing. The large filter trays mean you can use more media and have longer periods between replacement. An airtight seal ensures proper flow rate while maintaining ultra-quiet operation.

671892 Each \$306.99

Mechanical Filter Refill



Polyester Filter Floss

Nonreactive with either freshwater or salt water. Nonirritating. 5-lb unit.

671865 Per unit **\$65.02**

Chemical Filter Refill



Pro-Carb Z™

A unique mixture of highly activated carbon (black chips) and zeolite ammonia remover (white chips) that forms a double filtration system in the aquarium. Removes dissolved organic material that colors the water, causes foul odors, and pollutes the aquarium. Also rids the aquarium of ammonia. 34 oz.

671857 Each \$16.77

Aquaria & Habitats

Aquarium Filters & Pumps



New! Cascade™ Power Head Driven Nano Sponge Filter with Pump

The ideal filtration solution for aquariums up to 20 gal. The nano sponge filter offers both mechanical and biological filtration, capturing debris and impurities while providing ample surface area for beneficial bacteria to thrive. Perfect for breeding tanks and shrimp aquaria, where small organisms can be sucked up and injured by other types of filters. Easy to install and maintain. Includes 2 sponges and power head.

671804 Each \$35.00



MicroPump 104

Designed for fresh or saltwater applications, this multifunction submersible unit can power an internal filter, terrarium waterfall, small pond, or desktop fountain. Pump has an adjustable flow rate (30 to 60 gph) and can run dry for 30+ days without damaging the impeller.

146009 Each \$30.71



671898 Whisper In-Tank Filter 20i

Whisper® In-Tank Filters

Space-saving design provides the same quality and performance as external filters—without the noise

Get 3-stage filtration performance plus quiet operation. The Whisper® In-Tank Filter mounts discreetly inside your aquarium for clean, clear water and the added convenience of placing your aquarium flush against a wall. Adjusts easily to high or low water levels with mounting suction cups and/or bracket. The **20i Filter** has a flow rate of 125 gal/hr and is suitable for 10- to 20-gal aquariums; the **40i Filter** has a flow rate of 170 gal/hr and is suitable for 20- to 40-gal aquariums. Each comes with 1 large Whisper® Bio-Bag® Disposable Filter Cartridge (also sold separately in packs of 3).

 ▲¹
 671898
 20i Filter
 Each
 \$34.15

 ▲¹
 671899
 40i Filter
 Each
 \$52.26

 671832
 Filter Cartridge, Large
 Pack of 3
 \$25.40



146010 ReptoFilter In-Tank Filter

ReptoFilter® In-Tank Filter

Using Whisper® filtration technology, the ReptoFilter® provides quality 3-stage filtration, removing debris, discoloration, odors, and ammonia from terrariums holding up to 20 gallons of water. Its design allows for operation in shallow-water environments, making it ideal for creating waterfalls. A top lid keeps reptiles out of the filter chamber and provides easy access for filter cartridge replacement.

 146010
 In-Tank Filter
 Each
 \$47.76

 146012
 Filter Cartridge, Medium
 Pack of 3
 \$16.00

Aquarium Filters & Pumps

Aquaria & Habitats

Whisper® Air Pumps 11

These classroom-safe, UL®-listed pumps have unsurpassed quality and reliability. They are specifically designed to produce smooth, quiet streams of air with sound-dampening chambers, rubber feet, a suspended pump motor, and thick exterior walls. Because of new, more powerful diaphragms, the Whisper® Air Pumps are ideal for deeper water applications. The Whisper® 100 UL® has 2 outlets; all others have 1.

671700	Whisper 10 UL (for tanks up to 10 gal)	Each	\$26.08
671701	Whisper 20 UL (for tanks from 10 to 20 gal)	Each	\$34.25
671702	Whisper 40 UL (for tanks from 20 to 40 gal)	Each	\$39.15
671703	Whisper 100 UL (for tanks from 55 to 135 gal)	Each	\$66.85





Air Line Tubing & Air Stones

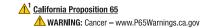
Air Line Tubing

Soft, flexible, and transparent. Blends into any decor. Tubing is free of contaminant particles and unsightly extrusion lines. 25-ft pack.

671784 Each \$10.51









Aquaria & Habitats Aquarium Accessories

Heaters



671912 Aquarium Heater, 50 W

Aquarium Heaters

These aguarium heaters are set with a convenient dial and maintain the desired tank temperature within ±1° C or F. Heaters are fully submersible; feature an on/off light; and are made of heavy-duty, shock-resistant glass. Good for fresh- and saltwater tanks. Available in 25-, 50-, or 100-W output. 8" L.

671910 25 W Each \$24.17 671912 50 W Each \$26.71 **671916** 100 W Each \$28.55

Power Heads



671827 Maxi-Jet 600 Pump and Power Head

Maxi-Jet Aquarium Pumps and Power Heads

Sealed pumps that can be used externally or fully submerged. For freshwater or marine systems. These submersible pumps develop exceptionally high head pressure, making them ideal for a variety of uses, including pumps for trickle filter systems. The Maxi-Jet 600 pumps 160 gal/hr to a height of 4 ft, and the Maxi-Jet 1200 pumps 295 gal/hr to a height of 6 ft.

671827 Maxi-Jet 600 Each \$53.55 671828 Maxi-Jet 1200 Each \$68.55

Aquarium LED Lights & Hoods



671521 Medium LED Aquarium Light Strip

LED Aquarium Light Strips 🗥

Provide long-lasting, energy-efficient, brilliant illumination of freshwater and saltwater aquaria and terraria in a stylish low-profile design with these light strips. LED lights emit a broader spectrum than most fluorescent lights and last longer. Each has a daytime and nighttime setting (the nighttime setting will make GloFish® glow). **Medium** is rated 234 lumens and fits tanks 18×24 ". **Large** is rated 351 lumens and fits tanks 24×36 ". **Extra Large** is rated 468 lumens and fits tanks 36×48 ".

671521 Medium Each \$132.06 Each \$163.20 **671523** Large 671524 Extra Large Each \$235.55



671518 Full Aquarium Hood, LED, for 20- or 55-gal Tank

Full Aquarium Hoods, LED A

Complete aquarium hood illuminates aquariums for less. This LED aquarium hood boasts a sleek, low-profile design that houses an energy-efficient LED light using less than 5 watts of power! Stylish modern hood is easy to set up, easy to operate, and easy to maintain. Hinged aquarium-frame clips allow simple hood attachment to the aquarium frame PLUS easy access for feeding or maintenance. The LED aquarium hood provides ample space toward the back of the hood for accessories such as heaters and air line tubing. To accommodate larger filters, simply cut out marked filter panel on the back of the hood. An LED system works best in freshwater aquariums.

671518 For 20- or 55-gal Tank (use 1 for 20-gal tank

MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

item #671234 and 2 for 55-gal tank item #671246) \$87.55 Each For 29-gal Tank (fits item #671236) \$102.95

Aquarium Accessories

Aquaria & Habitats

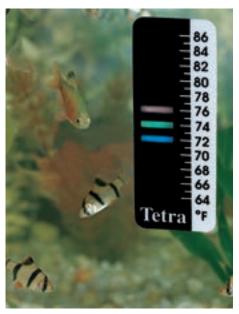
Thermometers/Hydrometers



Floating Thermometer

Glass tube weighted with stainless-steel balls; floats upright.

671930 Each \$4.89



LCD Thermometer

A stick-on thermometer that mounts on outside of tank. **671932** Each **\$7.55**



Instant Ocean® Hydrometer

Easy to read and simple to operate, this hydrometer delivers precise full-range salinity and specific gravity readings—accurate to 0.0001. Made of durable plastic, it has a 2-color scale with safe zone and extra-wide stabilizer base.

671948 Each \$22.94

Aquarium Monitoring Meters

OHAUS Conductivity Pen Meter A

Here is your solution for convenient, economical conductivity testing. This simple-to-use meter offers fast, accurate results. Designed for one-handed operation, it features a durable IP67 waterproof housing, a protective cap to safeguard the sensor, and automatically shuts off to preserve battery life. Includes storage case and wrist strap.

186037 Each \$97.00

More Ways to Monitor

Easily measure your aquarium's water quality using a meter. See our assortment starting on page 617.





Digital Terrarium/Aquarium Thermometer

Monitor the temperature of your habitat, aquarium, or terrarium with this easy-to-use digital thermometer. It accurately reads temperatures in Fahrenheit (–10 to 140° F) or Celsius (–23 to 60° C). Also features a remote sensor probe that can be placed in habitat substrate, wrapped around terrarium decorations or branches, or taped to the side of the tank. The probe is also submersible in water. Includes battery. **Note:** *LCD must remain dry*.

674433 Each \$12.80

Aquaria & Habitats Aquarium Maintenance

Aguarium Testing



Freshwater Master Test Kit

Protect your aquatic organisms from dangerous chemicals. This complete kit allows you to test tap water and aquarium water for 5 different conditions including freshwater pH (6.0 to 7.6), high-range pH (7.4 to 8.8), ammonia, nitrite, and general hardness. It provides information on how to perform each test, how often to perform each test, how to interpret the results, and how to correct any unsafe water conditions that may be detected.

Kit includes:

Test Solution Bottles (for 5 freshwater tests) Water-Resistant, Computer-Calibrated Color Charts 4 Glass Test Tubes with Snap-Tight Caps Instruction Booklet

672278 Per kit \$61.82



5-in-1 Aquarium Test Strips

Reliable and easy to use! With a single strip you can measure the pH, hardness, carbonate, nitrite, and nitrate of freshwater and marine aquaria. Box of 25 nonreusable strips.

672282 Each \$31.51

Saltwater Master Test Kit

A complete, fast, and easy kit to help you accurately test marine aquarium water. The Saltwater Master Test Kit measures high pH range (7.4 to 8.8), ammonia, nitrite, and nitrate. Instructions along with water-resistant color charts explain how to run each test, what the results mean, and how to maintain safe water conditions for your marine fish and invertebrates.

Kit includes:

Test Solution Bottles (for 4 saltwater tests) Water-Resistant, Computer-Calibrated Color Charts 4 Glass Test Tubes with Snap-Tight Caps Instruction Booklet

672280 Per kit \$61.90

Aquarium Maintenance

Carolina® Shirt Pocket Water Test

Grade 4 and up. Using safe, reliable, 1-step dip strips sealed in foil packets, this kit fits easily in a shirt pocket, yet contains enough material to test 10 water samples for free and total chlorine, pH, total alkalinity, total hardness, nitrate and nitrite, nitrogen, total copper, and total iron. Results are presented quantitatively as parts per million (ppm). Testing is simple: just dip the end of the test strip in the water sample, swirl for the specified amount of time, and compare the resultant color with the color chart on each foil packet. Plastic water sample vial is included.

652748 Per kit \$50.80

Quick Dip® Ammonia Test Strips

These ammonia test strips are not only accurate, they are safe, nontoxic, and simple to use. Just dip the strip directly into aquarium water and read the results in seconds. For freshwater and marine use. Pack of 25 test strips.

672275 Per pack \$23.28

Cleaning & Maintenance



Safe & Easy™ Aquarium Cleaner

This aquarium cleaner comes in an easy-to use spray bottle that is perfect to use on hoods, filters, acrylic aquariums, and many different stands and frames. Its unique formula easily breaks the white, crusty solid mineral deposits that are found in your freshwater aquarium. The cleaner can be used on glass and acrylic aquariums. Perfectly safe for your fish and plants! 8-oz bottle.

672284 Each \$12.39



Aquarium Sealer

A silicone rubber for stopping leaks. In 3-oz tube.

671972 Each \$15.60

Carolina Teacher Tips

Water Quality Testing

Many aquarists overlook the importance of monitoring and maintaining the quality of their water. Whether you have a marine or freshwater aquarium, testing water quality is an easy way to protect your investment and head off potential problems. At a minimum you should monitor pH, water hardness, and levels of ammonia, nitrite, and nitrate.

Water testing is especially important when setting up a new aquarium. Once the bacteria in your aquarium have had a chance to develop, the nitrogen cycle will begin to provide a biological filter for your organisms.

Aquarium Maintenance

Medications & Water Conditioners

Aquaria & Habitats



Aquarium Start-Up Pack

This handy start-up pack is great for beginners with new aquariums. It contains a 1-oz bottle each of Quick Start™ and Stress Coat®. Stress Coat® removes chlorine and chloramines from tap water and reduces fish stress by 40%. Quick Start™ immediately starts the nitrogen cycle, allowing for instant addition of fish. It can be used to set up a new tank or while doing water changes. Start a successful tank with this bundle.

672296 Per pack \$9.54

AquaSafe®

Neutralizes chlorine, chloramines, and heavy metals in tap water, providing a healthy environment for fish while enhancing their protective slime coating. Should be used when setting up a new aquarium and with every water change. 16.9-oz bottle; treats 1,000 gal.

671944 Each \$13.35

AMMO-LOCK®

This water conditioner protects your fish from toxic ammonia produced by decomposing plants, algae, fish waste, dead fish, and uneaten food. Converts toxic ammonia to a nontoxic form while the biological filter becomes established. AMMO-LOCK® works instantly to block the stressful affects of ammonia, resulting in healthy gill function. Effectively removes chlorine and chloramines from freshwater and salt water. 4-oz bottle; 1 oz treats 60 gal.

672292 Each \$10.10

Stress Zyme®

A biological filter additive with 300 million live bacteria per teaspoon. Contains 5 beneficial strains of bacteria, each specifically selected for its unique role in improving the development of the biological filter. Stress Zyme® helps maintain a naturally balanced aquarium by breaking down organic compounds that promote ammonia and nitrite poisoning and low oxygen levels. For use in freshwater and salt water. 4-oz bottle; 1 oz treats up to 60 gal.

672290 Each \$12.21

CO₂ Booster®

Aquatic plants require carbon to fuel the photosynthetic process and turn light energy and nutrients into new plant growth. Carbon deficiency is one of the leading causes of poor plant growth in aquariums. ${\rm CO_2\,Booster^{\circledast}}$, in a liquid form, is the easy way to add carbon to create a vibrant, healthy planted aquarium. 8-oz bottle.

672289 Each \$15.30

Quick Start™

This 8-oz bottle provides nitrifying bacteria that quickly consume ammonia and nitrate. Use it while setting up a new tank, adding new fish, or providing water changes. By immediately establishing the biological filter, Quick Start™ helps prevent new tank syndrome. Simply add 10 mL per 10 gal of water for freshwater aquariums or double for saltwater aquariums.

672295 Each \$20.94

Stress Coat®

This top-selling water conditioner contains aloe vera, nature's liquid bandage, to protect and heal fish. Stress Coat® replaces the natural slime coating that fish need in times of stress, thereby preventing the loss of essential electrolytes. Improves water quality by instantly removing chlorine and neutralizing heavy metals. Use Stress Coat® when setting up an aquarium, changing water, or adding fish. 4-oz bottle; 1 oz treats up to 60 gal.

672291 Each \$9.15

AlgaeFix®

AlgaeFix® is specially designed to control many types of algae in freshwater aquariums that contain live fish and plants. This colorless liquid conditioner effectively controls green water algae blooms and keeps freshwater aquariums clean and clear. Weekly doses of AlgaeFix® control algal growth and reduce aquarium maintenance. 16-oz bottle.

672286 Each \$23.25



Carolina Teacher Tips

Chlorine and Chloramines in Tap Water

For many decades, water from surface reservoirs has been chlorinated as part of the process of disinfecting our drinking water and preventing outbreaks of diseases such as typhoid. Most of us have conditioned our tap water for aquarium use by allowing the water to sit in an open container for 48 hours, giving time for the chlorine gas to come out of solution. In recent years water treatment plants have begun incorporating chloramines, chiefly monochloramine (NH₂Cl), into their disinfectant process. The advantage of using monochloramine is that it is stable in water. While chlorine may come out of solution in water that's flowing in pipes, especially if the pipes leak, monochloramine remains in solution and continues

to protect water from bacterial contamination all the way from the water treatment plant to us.

For aquarists, however, the use of monochloramine poses a potential problem: Since monochloramine does not come out of solution, it is not removed by traditional aging of tap water. Monochloramine can easily pass through the gills of aquatic organisms and into their blood, where it is toxic. Therefore, water disinfected with chloramines must be treated with a chemical dechlorinator (such as our item #672291 Stress Coat®) before it is suitable for use in an aquarium. Always read the label to see if your dechlorinator removes chloramines.

Aquaria & HabitatsTanks



670391 Plastic Aquarium/Terrarium, 1-gal Tank (in use; plants and animals not included)

Plastic Aquaria/Terraria

Made of a flexible plastic that is break- and crack-resistant. Tank can be used as an aquarium or a terrarium and comes with a ventilated top.

670390 ¹/₂-gal Tank Each \$11.74 670391 ¹-gal Tank Each \$11.64



670388 Plastic 11/2-Gal Aquarium/Terrarium with 670389 Cover (in use; plants and animals not included)

Plastic 1¹/₂-Gal Aquarium/Terrarium

Made of flexible material that is break- and crack-resistant. Conveniently stacks for storage. Size, $5^1\!/_4$ " W \times 7" H \times $11^1\!/_4$ " L. Flexible, snug-fitting plastic Cover prevents escape of specimens and easily converts the aquarium to a terrarium. Dial ventilator helps control air flow.

670388 Aquarium/Terrarium (without cover) Each **\$8.15 670389** Cover Each **\$8.27**



Plastic 1-Gal Culture-Jar Aquarium

Clear plastic container with lid. Ideal for battery-jar type cultures and for use as an aquarium or terrarium.

670380 Each \$10.30



674337 Mini Plastic Aqua-Terrarium

Plastic Aqua-Terraria

Classroom habitats in a variety of sizes and assorted colors. The vented lids allow for maximum ventilation. **Medium** and larger habitats have a hinged feeder hatch, and the **Medium** and smaller habitats have a carrying handle for easy transport.

674337	Mini $(4 \times 7 \times 5^{1}/_{2}")$	Each	\$8.29
674337A	Small $(6 \times 7^{1}/8 \times 6^{5}/8")$	Each	\$11.04
674337B	Medium $(7^3/4 \times 11^3/4 \times 8")$	Each	\$18.58
674337C	Large $(8^{3}/_{4} \times 14^{1}/_{2} \times 9^{3}/_{4}")$	Each	\$34.60
674337D	Extra-Large $(15^{3}/_{4} \times 9^{3}/_{8} \times 12^{1}/_{2}")$	Each	\$39.95

Aquaria & Habitats



Glass Tanks **A**³

Our all-glass aquaria have sides and bottoms of triple-strength, clear glass welded together with silicone rubber. Strong, leakproof, and nonreactive with seawater, they will last for years. Top frame is designed for a recessed cover. **Note:** *Items #671236* and #671246 must be shipped motor freight.

671226	$2^{1/2}$ gal (12 × 6 × 8" H)	Each	\$28.38
671228	$5^{1/2}$ gal (16 × 8 × 10" H)	Each	\$32.00
671230	10-gal (20 \times 10 \times 12" H)	Each	\$50.21
671234	20 gal (24 × 12 × 16" H)	Each	\$88.45
671236	29 gal (30 \times 12 \times 18" H)	Each	\$136.74
671246	55 gal $(48 \times 13 \times 20'' \text{ H})$	Each	\$309.95



074310 Amphibian of Reptile Tank, 10

Amphibian or Reptile Tanks A

All-glass tank with lid. Ideal for amphibians, reptiles, and other small animals. The **10-Gallon Tank** measures 20 \times 10 \times 12" H; the **20-Gallon Tank** measures 24 \times 12 \times 16" H.

674310	10-Gallon Tank	Each	\$63.16
674311	20-Gallon Tank	Each	\$107.05



671231 Cover for 671230 10-gal Glass Tank

Covers for Glass Tanks A

These covers are hinged glass and plastic.

671229	Cover for item #671228 Glass Tank	Each	\$20.30
671231	Cover for item #671230 Glass Tank	Each	\$21.72
671235	Cover for item #671234 Glass Tank	Each	\$31.50
671237	Cover for item #671236 Glass Tank	Each	\$33.30
671247	Cover for item #671246 Glass Tank	Each	\$61.57



Zebra Fish Breeding Tank

This innovative 4-piece breeding tank is used around the world by genetic researchers who are interested in obtaining eggs from zebra fish. Now, these tanks are available to anyone wishing to collect nonsticky eggs less than $^1/_{16}{}^{\shortparallel}$ in diameter from any tropical fish. Zebra fish make a perfect candidate for embryology demonstrations or labs in the classroom setting. Central divider allows for separation of sexes until breeding is desired. The exterior tank is injection-molded polycarbonate and is autoclavable. Remove the interior partition before autoclaving. Size, about 8 \times 3 $^1/_2$ \times 3 $^1/_4$ ".

161937 Each \$58.20

Aquaria & Habitats Aquarium Substrates

Aquarium Substrates



White Sand and Gravel Set A

Contains 10 lb of each of our best quality quartz: fine sand, coarse sand, and gravel. Brilliant white. 30 lb total.

163000 Per set \$25.78



163200 Waterworn Pebbles, 10 lb

Waterworn Pebbles

Use 10 lb of gravel for one 5-gal aquarium.

163200 10-lb Bag Each **\$11.25 163201** 50-lb Bag Each **\$41.10**



Crushed Coral

Ideal for use in marine aquaria; helps balance the pH and buffer the water. 15-lb bag. **163246** Each **\$15.15**



Aquarium Gravel

For small aquaria. Off-white color. Average particle size, 5 mm. 1-lb bag. **163202** Each **\$5.85**



Rainbow Stone Pebbles

For bulb bowls and aquaria. White and other colors mixed; artificially colored. Gravel size. 5-lb bag.

163262 Each **\$9.75**



Ultra Gravel Vacuum

Keeping your aquarium clean has never been easier. This gravel vacuum has an easy-start pump for trouble-free operation, a gravel guard to prevent clogging as you clean, and a 60" (5') hose for your bucket. It works in freshwater and saltwater.

672014 Each \$31.28

Aquaria & Habitats

Ecosystems

Ecosystems

Complete Ecosystems for the Classroom

- Observe and gather data on the role each organism plays
- · Model and analyze a balanced ecosystem
- Create maximum interest with minimal maintenance

Investigate the complexities of an ecosystem without leaving the classroom. When you have an in-class ecosystem, students at any grade level can more easily observe the structures, functions, and interactions of organisms. The result will be an instructional oasis that is also beautiful and peaceful, sure to soothe, delight, and educate.

Design and construct a terrestrial habitat using the Naturalistic Terrarium (items #674301 and #674302). The 18" model (item #674302) gives arboreal animals such as anoles and tree frogs room to climb. Add the Naturalistic Terrarium Waterfall Kit (item #674309) to incorporate aquatic organisms in your ecosystem.

The River Tank Ecosystem (item #161536) gives you and your students an amazing opportunity to study the structure and natural interactions of plants, animals, and a flowing river system—again, in your classroom. The rushing flow of water provides a healthy, oxygen-rich environment. Plants (such as the River Tank Plant Set, item #161541) use the fish waste as nutrients and provide a natural home for animals (like those in the River Tank Animal Set, item #161545). As water seeps through the unique gravel-filled plant cavity, it stabilizes pH and biological balance. Because it is an ecologically balanced system, the River Tank Ecosystem requires very little maintenance.



The AguaSprouts® Garden (items #161850 and #161855) expands your cross-curricular options by adding an element of agriculture to ecosystem studies. Students use the aquaponics system to model nutrient cycling and generate explanations for it while they grow edible foods. As students feed their classroom fish, they can visualize how the fish provide nutrients to the plants (via a submersible pump). The plants in turn detoxify the water by removing nitrogen before the water is returned to the fish tank.





161850 AquaSprouts Aquaponics System



River Tank Ecosystem

The River Tank's continuously flowing water provides an oxygen-rich environment for aquatic organisms. Molded plant pockets hold the plants in place. **Complete Ecosystem** ships with an Ecosystem Mold already mounted inside the 20-gal aquarium and includes submersible pump, adjustable LED hood light, filter cartridge, and instructions. Use the **Ecosystem Mold Only** and **Aquarium Sealer** to convert an existing 20-gal aquarium into a River Tank. Complete Ecosystem measures $24 \times 12 \times 16$ ". **Note:** River Tank Ecosystem does not include plants, animals, or gravel. We recommend that you set up the tank several days before adding live plants or animals.

↑ 161536 Complete Ecosystem Each \$401.40 161538 Ecosystem Mold Only Each \$201.57 671972 Aquarium Sealer Each \$15.60



River Tank Accessory Set

This accessory set has everything you need to establish and maintain a healthy River Tank Ecosystem. It includes gravel, net, screen cover, Stress Coat®, LCD thermometer, battery-powered gravel cleaner and siphon tube, food, aquarium enzyme, and water-worn pebbles.

161549 Per set \$113.76



From 161545 River Tank Animal Set

River Tank Animal Set

A selection of animals suitable for your River Tank Ecosystem. Includes a variety of schooling fish (e.g., zebra fish, tiger barbs), a scavenger fish, snails, and 1 of the following 2 animals: dwarf frog or ghost shrimp. For a 20-gal system. **Note:** Set contains voucher for prepaid delivery of live materials. Residents of AK must apply for a state permit to receive pond snails. Dwarf frogs cannot be shipped into AK and VA; residents of AK and VA will be shipped ghost shrimp. Scavenger fish need to be fed for the first 6 to 8 weeks after purchase.

161545 Per set \$94.35



River Tank Plant Set

An attractive selection of terrestrial and aquatic plants selected specifically for your River Tank Ecosystem. For a 20-gal system. **Note:** Set contains voucher for prepaid delivery of live materials. Some aquatic plants in this set are restricted in AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, and WI. Restricted states will be shipped compatible plants. Canadian orders require a permit from the Canadian government.

161541 Per set \$84.67

Carolina Teacher Tips

Maintaining a River Tank Ecosystem

Daily: Feed the fish by sprinkling small amounts of food evenly across the water surface. Feed reptiles and amphibians every 3 to 5 days. DO NOT OVERFEED. Only feed as much as will be completely eaten within 5 to 10 minutes.

Monthly: Using a gravel siphon, remove approximately 1/3 of the water and replace with springwater. Replace the filter cartridge, trim plants, clear the pump intake screen, and wipe the front and sides of the tank clean with a sponge or paper towel.

Vacation: Healthy fish should be able to go about a week without feeding. Make sure that you have enough water in the tank to account for the water lost through evaporation during your absence.

Troubleshooting: Please feel free to contact us by phone at 800.227.1150 if you need assistance. Your local pet store should be able to help with common aquarium problems.

Ecosystems

Aquaria & Habitats



674301 Naturalistic Terrarium (in use; plants and animals not included)

Naturalistic Terraria

This terrarium's front glass opens and closes with a snap closure, allowing easy cleaning and unobstructed views of the interior. A watertight base lets you have the best of both worlds—terrarium and aquarium! The special built-in screen top keeps feeder insects in while allowing ample UVA and UVB penetration. And the noncorrosive stainless-steel lid accommodates a standard clamp lamp. The terrarium is available in 2 sizes.

674301 Terrarium (12" W × 12" D × 12" H) Each **\$100.49 674302** Terrarium (12" W × 12" D × 18" H) Each **\$124.20**



Naturalistic Terrarium Waterfall Kit

Take your Naturalistic Terrarium to the next level by adding a beautiful waterfall. Kit includes water pump, HydroBalls® clay substrate, substrate mesh, plastic tubing, plastic elbow, and instruction booklet with ideas for setup and using plants and other decorations. Cork background and/or mopani wood are needed but not supplied.

674309 Per kit \$38.75



Naturalistic Terrarium Hood

Size, 12". Hood includes a built-in reflector and socket for a heat or UVB lamp and fits Naturalistic Terraria (items #674301 and #674302). Use with the ReptiSun® 5.0 Compact Fluorescent Bulb for UVA and UVB (item #674413).

674306 Each \$37.10



African Mopani Wood

This stunning 2-toned, highly detailed African hard-wood creates a "naturalistic" home for your pet reptile. When properly presoaked in boiling water, the mopani wood becomes suitable for aquatic environments as well. One of the hardest and densest woods available, mopani sinks immediately in aquariums and will not rot. Size, 10 to 12".

674341 Each \$13.45



Natural Cork Tile Background

Create a naturalistic forest setting in your terrarium with this cork tile background. Highly resistant to mold and mildew, it is perfect for high-humidity environments. The tile is precut to fit the $12\times18"$ Naturalistic Terrarium (item #674302), but the material is soft enough to be cut down to fit smaller spaces.

674323 Each \$23.42





161855 AquaSprouts Garden with light bar (in use; aquarium, fish, and plants not included)

AquaSprouts® Aquaponics System

With the AquaSprouts® system, as students feed their classroom fish, the fish provide nutrients to the plants via a submersible pump. The plants detoxify the water by removing nitrogen before the water is returned to the fish tank. **AquaSprouts® Garden** includes a garden stand that fits any standard 10-gal aquarium (not included), light bar, pump and timer, and clay growing medium. **AquaSprouts® Complete Set** additionally includes a submersible LED aquarium light with remote control, LED grow light, and water conditioner. Just add your own water, fish, and plants. Visit **Carolina.com** for additional details.

161850	AquaSprouts Complete Set	Each	\$277.75
161855	AquaSprouts Garden	Each	\$200.85
671550	LED Grow Light	Each	\$71.50
671552	LED Aquarium Light	Each	\$20.09
⚠ ³ 671230	10-gal Glass Aquarium (20 \times 10 \times 12" H)	Each	\$50.21



652437 LaMotte Aquaponics Test Kit

LaMotte® Aquaponics Test Kit A3

Aquaponics is a rapidly growing industry and hobby that combines traditional aquaculture and modern hydroponic systems. Give students a hands-on opportunity to view and monitor the water quality elements of an aquaponics system with this test kit. The kit allows your students to test for ammonia, nitrite, nitrate, pH, iron (ferrous and ferric), alkalinity, and dissolved oxygen. Uses comparator and direct-reading titration methods. **Kit** contains enough materials to perform 50 tests of each nutrient and includes reagents, labware, accessories, and instructions in a foam-lined carrying case. **Refill** includes consumable components. Tests are compatible with fresh, brackish, and salt water.

652437 Kit Each **\$345.00 652438** Refill Each **\$195.60**

TerrAqua Column Kit

Grades 2-6. Recycle 2-L plastic bottles as a TerrAqua Column and study the connections between aquatic and terrestrial ecosystems. Students construct a control chamber and a treatment chamber to study the effects of nutrients in the soil on terrestrial plants and aquatic systems. Kit includes radish seed, soil, fertilizer mix, aquatic plants, and snails. Bottles are not included. Kit materials are sufficient for a class of 24 students. Note: Kit includes a voucher to request perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped compatible plants. Canadian orders require a permit from the Canadian government. Residents of AK must apply for a permit from your state fish and game department to receive this material.

159132 Per kit \$61.60



From 159132 TerrAqua Column Kit

Looking for Other Ecosystems Without the Critters? View plant terraria on page 91.



Habitats Habitats

Aquaria & Habitats

Plant Light House® with Light **Bulbs**

- Internal frame-sets up and breaks down in seconds
- Light height adjusts for all stages of the life cycle
- Built-in pocket for storing power cord and light
- · Built-in butterfly screen

Our popular Plant Light House® is designed for convenient use in your classroom or lab. Snap-together internal frame makes setup and take-down simple and fast. No tools needed. Durable nylon fabric cover is lined with reflective material, providing more uniform growth for your Wisconsin Fast Plants®. Builtin butterfly screen allows insects to share the house with plants. Light fixture includes reflector, dual porcelain bulb sockets, and 2 high-intensity 15-W LED bulbs with a color temperature of 5,000 K. The house can grow 64 Fast Plants® to maturity, enough for a class of 32 students. Assembled dimensions: 24" H \times 19" W \times 18" D.

159004 Plant Light House Each \$169.75 159005 Replacement LED Bulb Each \$10.00



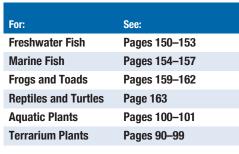




159004 Plant Light House with Light Bulbs (in use)

Don't Forget to Stock Your Tanks!

Carolina has lots of options for classroom displays.





Freshwater Fish Pages 150-153



Marine Fish Pages 154-157



Aquatic Plants Pages 100-101



Frogs and Toads Pages 159-162



Terrarium Plants Pages 90-99

See more habitats on the next page.



Add this to your school entryway!

671493 Butterfly Display Cage (plants, decorations, and butterflies not included)



Butterfly Display Cage

Enjoy displaying your live butterflies in the classroom, or in an entry hallway for the whole school to see, with this easy-to-assemble butterfly display cage. Made of white mesh with a clear vinyl, front-zippered entryway, this dome-topped cage showcases your butterflies, giving them plenty of room to fly. Add a feeder and greenery, or use your imagination to create a natural-looking garden inside. Assembled size, $24 \times 24 \times 78$ ".

671493 Each \$148.37



Carolina® Butterfly Sanctuary

Great for viewing and giving your butterflies room to stretch their wings, this spacious and attractive habitat is simple to set up, easy to clean, and collapsible for convenient storage. Access the inside of the habitat through the zipper openings on the top or side. Can be set on a table or hung up by the Velcro® handle. Dimensions, 15° diam $\times~24^{\circ}$ H.

674291 Each \$28.60



Hanging Butterfly Cage

Save valuable table space and give your butterflies room to fly with this hanging habitat. The fine mesh gives a clear view of the butterflies. A zipper runs the length of the cage, allowing easy access for care and feeding. The clear plastic bottom is easy to clean. Dimensions, 12" diam \times 37" H.

674286 Each \$12.15



Butterfly Feeding Station Set

An inexpensive way to feed newly emerged butterflies. Set includes storage container, wicks, artificial flowers, cups, lids, and instructions. Set contains enough materials to make 3 feeding stations. Assembly required. **Note:** *Springwater, table sugar, and a measuring spoon are needed but not included. Refrigeration is required.*

144041 Per set \$8.85

Terrarium Accessories

Terrarium Accessories

Aquaria & Habitats



ReptiCare® Terrarium Controller Turn your aquarium into a reptile habitat

This combination timer and power strip is convenient and handy for your habitat and terrarium needs. The 24-hr programmable lighting timer provides a natural day/night cycle for your animals. It features 8 grounded outlets (4 timer controlled and 4 continuous power) and includes a grounded 3-prong receptacle for safety. The lighting timer has an easy-to-program analog design—just set it and walk away—to ensure controlled light and heat for your terrarium.

674441 Each \$32.42



Use under a glass tank only. The most economical way to heat your terrarium to safe levels, this heater can be operated for pennies a day. Designed to heat the inside (ambient) air temperature a minimum of 5 to 10° F warmer than room temperature. Developed from aerospace technology with a solid-state nichrome heating element and UL®-approved power cord. Size, $6\times 8"$. For a 10- to 20-gal terrarium. Complete instructions included.

674411 Each \$49.60



Eco Earth® Terrarium Substrate

This compressed coconut fiber is an excellent terrarium substrate for reptiles, amphibians, small animals, insects, and arachnids. Made from an eco-friendly, renewable resource, each Eco Earth® brick expands to create 7 to 8 L of substrate. This substrate naturally absorbs and breaks down odor and waste products and is compostable. It can be used damp or dry and mixes well with soil and other substrates.

674442 1 Brick Each **\$6.70 674443** 3-Brick Pack Each **\$13.10**



Porcelain Clamp Lamp

Turn up the heat for your reptiles! This clamp lamp is our strongest yet. Designed to use a heat or light bulb up to 250 W (not included), the lamp lets you heat even the largest terrarium. The porcelain socket protects the user, while the heavy-gauge painted aluminum dome controls the direction of the light and heat. Dome has 10" diameter. Cord includes an easy-to-use on/off toggle switch. One-yr warranty. UL® listed.

674429 Each \$38.83



Dimmable Clamp Lamp

Dial in the perfect amount of light and heat for your reptile habitat. This professional-series clamp lamp features a dimmer switch to control the output of an incandescent bulb up to 150 W (bulb not included). Designed for durability, it has a heat-resistant porcelain socket, sturdy 8½"-diam aluminum dome, and heavy-duty steel clamp. Designer black exterior with a white interior to reflect light and heat into the habitat.

674407 Each \$37.08



Mini Deep-Dome Light Fixture

Use this mini deep-dome light fixture to enhance any habitat or terrarium. The polished, extra-long aluminum reflector dome extends beyond the face of the lamp, preventing the bulb from extending beyond the dome itself. The dome reflects light and heat, amplifying it for maximum output. The ceramic bulb housing accepts bulbs up to 100 W. Dome width, $5^{1}\!/_{2}^{u}$. Includes 1-year warranty.

674434 Each \$27.40



Lamp Stand

This solid steel stand allows you to securely support a lamp above various types of habitats and plant terrariums, wherever a light is needed. Height adjustable from 201/2 to 36".

674405 Each \$50.88



674435 Deep-Dome Light Fixture and 674405 Lamp Stand (in use)

Deep-Dome Light Fixture

Use this deep-dome light fixture to enhance any habitat or terrarium. The polished, extra-long aluminum reflector dome extends beyond the face of the lamp, preventing the bulb from extending beyond the dome itself. The dome's highly polished aluminum interior increases UVB and UVA output. The ceramic bulb housing accepts bulbs up to 160 W; perfect for use with the ReptiSun® Compact Fluorescent Bulb (item #674413, available at Carolina.com). Dome width, $8^{1}/2^{11}$. Includes 1-year warranty.

674435 Each \$43.78



674424 Incandescent White Daylight Bulb, 50 W

Incandescent White Daylight Bulbs

These bulbs provide purified, full-spectrum daylight to heighten reptile colors and simulate the light of a natural reptilian habitat. Bulbs feature heavy-duty filaments for many hours of service.

674424 50-W Bulb Each **\$13.70 674425** 75-W Bulb Each **\$16.31**



Incandescent Black Light Night Bulb

While casting a lunar glow, this heat-radiating bulb provides reptiles with the warmth they need for a good night's rest. Features a heavy-duty filament for long life. 75 W.

674426 Each \$16.00





674437 Heat & Basking Bulb Combo Set



Heat & Basking Bulb Combo

A perfect day and night 2-bulb combo pack. Set includes a 75-W basking spot bulb, a popular basking light for all types of reptiles. The basking bulb has a double reflector that focuses 35% more light and heat in the beam than other reflector bulbs and lasts up to 2,000 hours. Set also includes a 75-W nocturnal infrared heat bulb, which can be used as a 24-hour heat source and allows excellent nocturnal viewing of your organisms. Nocturnal bulb also can be purchased separately.

674437 Heat & Basking Bulb Combo Set

Each \$25.92

674439 Nocturnal Infrared Heat Bulb

Each **\$16.41**

Terrarium Substrates

Terrarium Substrates

Aquaria & Habitats



Hermit Crab Sand Substrate A

This sand substrate is perfect for your hermit crab habitat. Unlike the calcium carbonate "sand" often sold as hermit crab substrate, this premium blend of natural sand, coconut fiber, calcium carbonate, sea salt mix, and probiotics is the superior choice for healthy land hermit crabs. This mix won't cling to crabs and promotes natural digging and healthy molting. 6-lb bag.

673980 Each \$11.00



ReptiSand® Reptile Substrate

Stimulate natural burrowing behaviors in your desert reptiles with dye-free Repti-Sand®. Available in 2 natural colors to beautifully enhance your habitat. 10-lb bag.

674447 Natural Red Each \$13.65 674449 Desert White Each \$13.65



Lizard Litter A

A highly absorbent, bacteria- and parasite-free terrarium ground cover designed for use in tropical, forest, and desert habitats. Ideal for all types of lizards, snakes, turtles, and arachnids. Bag contains 4 qt.

674432 Per bag \$12.05



Eco Earth® Terrarium Substrate

This compressed coconut fiber is an excellent terrarium substrate for reptiles. amphibians, small animals, insects, and arachnids. Made from an eco-friendly, renewable resource, each Eco Earth® brick expands to create 7 to 8 L of substrate. This substrate naturally absorbs and breaks down odor and waste products and is compostable. It can be used damp or dry and mixes well with soil and other substrates.

674442 1 Brick \$6.70 Each 674443 3-Brick Pack Each \$13.10



Want to Mix in a Variety of Substrates?

See aquarium substrates on page 182.



Genetics

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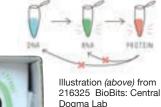
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Molecular Genetics



211181 Modeling DNA to Protein 1-Station Kit





216325 BioBits: Central Dogma Lab (in use) (left)

BioBits®: Central Dogma Lab

Illuminate transcription and translation with the BioBits® cell-free system

Intermediate—Easy to perform; requires some background knowledge.

The BioBits® system uses cell-free reactions, making this cutting-edge technology accessible anywhere to anyone interested in learning molecular biology. It is an excellent teaching tool to enhance biology education both within and beyond the classroom. With this kit, students use the BioBits® system to visualize the flow of genetic information and monitor transcription and translation in real time through fluorescence. Kit contains enough materials for 8 groups; visit Carolina.com for more information and a complete list of kit materials. A P51™ Molecular Fluorescence Viewer (item #216321) or blue light transilluminator is needed but not included. Note: Reagents require refrigerated storage. BioBits® pellets are best used within 3 months of receipt when stored at 4° C.

216325 Per kit \$121.50

View more DNA and genetics labs that use the P51[™] Molecular Fluorescence Viewer (item #216321) on pages 271–272.

Modeling DNA to Protein Kit Students follow a hypothetical scenario of

Students follow a hypothetical scenario of an infant, "Baby Terra," diagnosed with sickle cell disease. As they do, they are introduced to the process of translation by modeling the flow of genetic information on a region of the beta hemoglobin gene. The kit investigations allow students to model transcription and translation using unique magnetic nucleotide bases, develop their own protein translation model, and use clay to demonstrate the physiological effects of the sickle cell mutation. Have your students explore the question "Why did Baby Terra get sick?" through Mendelian and molecular modeling. The 1-Station Kit equips 1 group of 4 students; the 8-Station Kit equips 32 students working in groups of 4. Both kits include digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

211181 1-Station Kit Each **\$47.50 211183** 8-Station Kit Each **\$189.95**



Flow of Genetic Information Kit® A3

3-D Molecular Designs. Interact with and model the central dogma using this powerful simulation. Kit comes with durable color-coded foam nucleotides, tRNAs, placemats, and more, which allow students to model DNA replication, transcription of DNA into RNA, and translation of RNA into proteins. Addresses challenging concepts such as DNA strand directionality, anti-parallel structure, leading/lagging strands, and implications of encoded proteins due to changes in the DNA code. Demonstrates the structural differences between RNA/DNA and models the flow of genetic information from DNA to RNA to proteins. Visit Carolina.com for a complete list of kit materials. PDFs of Teacher Notes (an activity guide) can enhance student understanding of the central dogma, and student handouts supplement or reinforce concepts presented in the classroom; both are available on the 3-D Molecular Designs website.

211130 Per kit \$148.95

Mitosis & Meiosis

Mitosis & Meiosis

Chromosome Simulation Kit

Chromosomes on the move

- . Modeling mitosis and meiosis has never been easier
- · Perfect classroom tool for assessment and reinforcement
- · Hands-on activity students are sure to remember
- · Durable and long-lasting construction

Learning the phases of mitosis and meiosis isn't always easy for students. This chromosome simulation activity removes some of the confusion by taking chromosomes off the page and putting them in students' hands. Students get an opportunity to gain a deep understanding of mitosis and meiosis as they build their own chromosomes using pop beads and magnetic centromere connectors. Not only does the activity allow students to manipulate chromosomes



171100 Chromosome Simulation 10-Station Kit

through various stages of cellular division, it adds a layer of complexity by including events such as crossing over and chromosome aberrations. Both kits include teacher's manual and reproducible student guide. For replacement or bulk beads order Pop-It Beads Set and Magnetic Centromeres. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

171100 10-Station Kit \$240.00 Each 171110 1-Station Kit \$75.25 Each 171112 Pop-It Beads Set \$117.50 Each 171115 Magnetic Centromeres Pack of 10 \$45.75



211181 Modeling DNA to Protein 1-Station Kit

Modeling Mitosis and Meiosis Kit

Grade 6-College. Bring mitosis, chromosome replication, meiosis, and genetic inheritance to life with chromosomal modeling. Available as a 1-Station Kit with 1 set of models and teacher's manual, or as an 8-Station Kit with 8 sets of models and teacher's manual. Each model set contains 2 pairs of model autosomes, a pair of model Y chromosomes, 2 pairs of model X chromosomes, 4 chromosome fragments to model crossing over events, and 3 shapes of varying colors to simulate alleles. Each chromosome can be detached into individual chromatids that have multiple loci for placing alleles. Teacher's manual includes background information, instructions for hands-on activities, extension activities, and reproducible student sheets.

171000 1-Station Kit Each \$29.75 **171010** 8-Station Kit Each \$136.75

Genetics



214810 ChromoSock Meiosis Classroom Kit (in use)



214813 Modeling, Meiosis, and Mendel Classroom Kit

ChromoSock® Kits

Ever wish that learning meiosis was as easy as folding socks?

Understanding the stages of meiosis and articulating Mendel's laws have always been challenging for students. What if those tasks were as easy as doing laundry? Our ChromoSock® activities are built with that concept in mind by having students use custom-sewn socks to mimic chromosomes. These specialty socks, made in the US, are different sizes, lengths, and colors to help demonstrate the differences between chromosomes and the genetic information they carry. With the Chromo-Sock® Meiosis Classroom Kit, students model the behavior of chromosomes during meiosis and touch on concepts such as nondisjunction. The Modeling Mendel's Laws Classroom Kit takes students further in their understanding of meiosis by having them model meiosis with an eye to more advanced topics, such as independent assortment and segregation of alleles. The Modeling, Meiosis, and Mendel Classroom Kit takes meiosis and other advanced topics to the next level as students model meiosis while focusing on Mendel's laws, investigating the formation of gametes, fertilization, and the possible combination of alleles from fertilization. Whether you are looking for an introductory- or advanced-level meiosis activity for your classroom, ChromoSock® specialty socks are sure to engage students and positively impact their understanding of key concepts. All 3 kits are designed for 32 students working in pairs and include free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials.

214810 ChromoSock Meiosis Classroom Kit Each \$237.00 Modeling Mendel's Laws Classroom Kit Each \$225.00 Modeling, Meiosis, and Mendel Classroom Kit Each \$230.00



211118 Mitosis Manipulatives Kit

Mitosis Manipulatives Kit A

Beginning—Easy to perform; requires little or no prior knowledge.

Covers all stages of the cell cycle with easy-to-manipulate parts that represent chromosomes, asters, centrioles, and many other cell parts. Comprehensive, but very easy to use and comprehend. Includes an instructional CD-ROM. For a class of 30 students working in groups of 5.

211118 Per kit \$386.25



Genetics Mitosis & Meiosis



308827 Mitosis and Meiosis Slide Set with CD-ROM

Mitosis and Meiosis Slide Sets

Thirteen microscope slides selected to guide students through the events of cell division. Mitosis is demonstrated in onion root tip and fish blastodisc. Meiosis is demonstrated in lily anther and ovulary. Includes a study guide. Available with or without a CD-ROM with 43 images made from the slides. An excellent resource for instruction at the college level.

308826 Set without CD-ROM Each **\$270.00 308827** Set with CD-ROM Each **\$352.00**

Basic Meiosis Slide Set

Examine meiosis in a lily anther cross section with this 5-slide set. Slides reveal the developmental stages of pollen from sporogenous tissue to pollen tetrads.

308825 Per set \$47.25



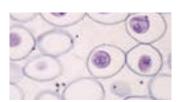
Lily Young Flower Bud, I.s. from 308825 Basic Meiosis Slide Set

Ascaris, Fish, and Onion Mitosis Slide and Study Guide Set

Updated study guide!

Set of 3 slides includes *Ascaris* mitosis, fish mitosis, and onion mitosis and study guide.

308800 Per set \$50.00



Ascaris Mitosis, sec. from 308800 Ascaris, Fish, and Onion Mitosis Slide and Study Guide Set

Fish and Onion Mitosis Slide and Study Guide Set Updated study guide!

Set of 2 slides includes both fish mitosis and onion mitosis. Excellent for comparison of plant and animal mitosis. Includes study guide.

308816 Per set \$29.75

Onion Mitosis Stain Set A3

Includes the solutions necessary for killing, holding, and staining root tips, plus instructions. Visit Carolina.com for a complete list of set materials.

171142 Per set **\$60.00**



171142 Onion Mitosis Stain Set



171170 Mitosis and Meiosis Study Unit

Mitosis and Meiosis Study Unit

Teaching materials for mitosis, meiosis, cellular division, and genetic inheritance—all in 1 convenient unit. These materials complement a variety of teaching styles with the goal of helping all your students achieve mastery of the topics. A recommended learning-station setup for your classroom is also included.

Unit include

Set of 6 Microscope Slides (with examples of mitosis and meiosis in plant and animal cells)

Mitosis Poster (item #571203)

Mitosis and Meiosis Presentation and Image Set CD-ROM (item #308828)
Modeling Mitosis and Meiosis 1-Station Kit Manipulatives (from item #171000)

171170 Per unit \$138.00

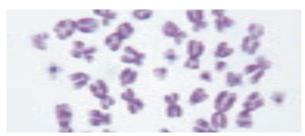
Carolina BioKits®: Onion Mitosis A

Squash Method. Prepare your own slides to observe the different phases of mitosis. This is an updated kit from our popular Carolina BioKits® series, designed for a class of 30. Carolina BioKits®: Onion Mitosis includes everything that you need to prepare onion root tips slides. Students stain the root tips, prepare



squashes, and observe mitotic phases. The entire exercise can be completed in 1 lab period. **Note:** *Perishable material; please give use date.*

171130 Per kit \$96.00



Human female chromosomes from 308821 Human Sex Indicators Set

Human Sex Indicators Set

Consists of 6 slides selected to teach students the difference in male and female genetic makeup. Includes 1 slide each of female chromosomes, male chromosomes, Barr bodies (female), squamous epithelium (male), blood film (male), and blood film (female).

308821 Per set **\$110.00**

Human Genetics

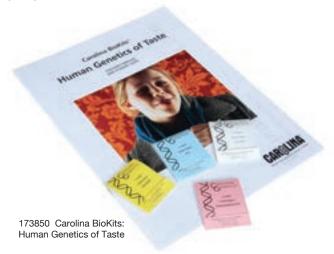
Human Genetics

Taste Papers

Acquiring a Taste for Genetics

- · Teach analysis and testing techniques
- Study dominance/recessiveness
- Learn the relationship between phenotype and genotype
- Use for genetics studies, science fair projects, and food preference studies

This hands-on (or taste buds-on) assignment is a great way to involve your entire class in a classic human genetics experiment. Students simply test whether or not they can taste the chemical in the taste paper. The ability to taste the chemical is an inherited trait that varies throughout the population, giving you good genetic data. Exercises also teach students Punnett square and pedigree analysis, as well as chi-square testing. Matchbook-style taste papers make it easy to use just one piece at a time.



Carolina BioKits®: Human Genetics of Taste A

For a class of 32 students working in pairs. Students investigate the frequency of genetically controlled traits within their classroom population. By exploring taste response traits and recording classroom data, students are able to conduct a Hardy-Weinberg analysis of their classroom. Kit includes multiple types of sample test paper (including paper treated with PTC, sodium benzoate, and thiourea, as well as a control paper to help reinforce experimental design) plus teacher's manual and reproducible student guide.

Kit includes:

Control Taste Paper PTC Taste Paper Sodium Benzoate Taste Paper Thiourea Taste Paper Teacher's Manual and Reproducible Student Guide

173850 Per kit \$53.25

PTC Paper

Phenylthiocarbamide (phenylthiourea). The paper is impregnated with PTC. Seven out of 10 persons detect a definite taste; others do not. Pack of 100 strips.

174010 Per pack **\$5.60** 12+ Packs Each **\$5.10**



Genetics

Customer Review

"This was a great part of lessons . . . It was amazing to see how each [student] reacted to the taste of these papers. Even though we are all alike, there is so much about us that is different."

Home School Educator

174000 Control Paper

Control Paper

Free from PTC, sodium benzoate, and thiourea. Pack of 100 strips.

174000 Per pack \$5.30 12+ Packs Each \$4.80

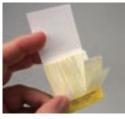


174020 Sodium Benzoate Paper

Sodium Benzoate Paper

Paper impregnated with this chemical elicits taste responses of sweet, salty, bitter, or tasteless. Pack of 100 strips.

174020 Per pack **\$5.60** 12+ Packs Each **\$5.10**

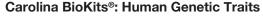


174030 Thiourea Paper

Thiourea Paper 🗥

Paper impregnated with this chemical, like PTC, tastes bitter to most people. Pack of 100 strips.

174030 Per pack **\$5.65** 12+ Packs Each **\$5.15**



For a class of 32 students working in pairs. Give your students the opportunity to grasp the impact of genes on phenotypic traits by investigating their frequency in the classroom. Engage your students with classical human inheritance traits like tongue rolling, widow's peak, PTC taste, and much more. Using information from their own classroom data and provided research, students investigate these traits and attempt to identify whether they follow Mendelian inheritance. Kit includes teacher's manual and reproducible student guide.

173835 Per kit \$62.00

173835 Carolina BioKits: Human Genetic Traits



Genetics Karyotyping

Human Genetics





Disorder Detectives® Classroom Kit

- Understand the anatomy of human chromosomes
- Diagnose patient disorders using karyotype analysis
- Address student misconceptions regarding chromosomes
- · Reuse kit's unique karyotyping boards and stickers

Students jump into the role of cytogeneticists working in a hospital or clinic as they explore the diagnostic power of karyotyping in this one-of-a-kind activity. This kit provides students with a hands-on experience studying human chromosomes and connecting various karyotypes with chromosomal disorders. Students work on 1 of 15 case studies to complete patient karyotypes and help make appropriate disease diagnoses. They gain exposure to a wide range of chromosome anomalies and normal karyotype spreads during the investigation. Students deal with chromosome abnormalities resulting from nondisjunction, deletion, inversion, and translocation. Kit materials are reusable and offer your students an exceptional experience that can change the way you approach karyotyping in your classroom. Classroom Kit is designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials. Decal Set provides additional reusable decals for the kit.

214800 Classroom Kit Fach \$195.00 214801 Decal Set Each \$59.50



173828 Carolina BioKits: Human Chromosome Analysis Basic Kit

Carolina BioKits®: Human Chromosome Analysis

For a class of 30 students. Bring hands-on learning into your classroom and connect it to real-world human disorders to help reinforce genetics to your students. First, introduce students to karyotyping using photomicrograph pictures of human chromosomes for a normal male or female; these help build familiarity with chromosome structure and banding. Then let students explore simulated chromosomes as they attempt to learn more about numerical and structural chromosome abnormalities that exist in the population. Both kits include photomicrograph sheets, simulated chromosome sheets, chromosome sorting mats, and teacher's manual. The Advanced Kit provides background on a wider array of potential disorders and allows students to manipulate chromosomes reflecting those abnormal spreads.

Basic Kit includes these disorders: Trisomy 13 Patau Syndrome Trisomy 18 Edwards Syndrome Trisomy 21 Down Syndrome Klinefelter Syndrome Turner Syndrome

Advanced Kit includes all disorders in Basic Kit plus: 14/21 Translocation Down Syndrome Double Y Syndrome (XYY) Triple X Syndrome (XXX) Fragile X Syndrome 5p Deletion (Cat Cry Syndrome)

173828 Basic Kit Fach \$70.25 173824 Advanced Kit Each \$95.00

Karvotyping with Magnetic Chromosomes Kit Learn about chromosomes and genetic disorders

Intermediate—Easy to perform; requires some background knowledge. Recommended for grade 9 and up.

- Study mitosis and meiosis
- · Learn about chromosomal abnormalities
- . Hands-on activity with reusable materials

How do scientists identify chromosomal alterations that result in genetic disorders? Students find out in this hands-on activity in human cytogenetics. Using illustrations of G-banded, magnetic chromosomes and a printed, magnetic karyotype layout board, students first prepare and analyze normal and abnormal human karyotypes. They identify each chromosome and its homologous pair based upon size, centromere position, and banding pattern. Finally, they arrange the chromosomes in standard karyotype format on the magnetic layout board.

Magnetic chromosome sets can be adjusted to represent a normal male or female, a Down syndrome (trisomy 21) male or female, a Klinefelter syndrome male, or a Turner syndrome female. The 8-Station Kit is for a class of 32 students. The 1-Station Kit can be an additional station in large classes or a teacher demonstration. Use the **Demonstration Kit** in front of the class as a teacher demonstration or group activity. The Replacement Chromosome Set contains the 8 magnetic chromosome sets for the 8-Station Kit and does not include boards or instructions. Kit materials are reusable.

173837 8-Station Kit \$208.00 Fach 173839 1-Station Kit \$40.25 Each 173836 **Demonstration Kit** Each \$73.00 173838 Replacement Chromosome Set Each \$62.50



173837 Karyotyping with Magnetic Chromosomes 8-Station Kit (above)

173836 Karyotyping with Magnetic Chromosomes Demonstration Kit (right)

Human Genetics

Carolina® Synthetic Blood

Blood Typing Without Biohazards

- Safe for classroom use
- . No risk of transmitting blood-borne disease
- Realistic blood-typing results
- · Can be easily and safely discarded

Now your students can get realistic blood-typing results without using lancets and drawing blood. That means no concerns about blood-borne disease transmission.

Our synthetic blood has several advantages over other suppliers' products, which usually depend on chemical reactions producing insoluble salts that precipitate from solution. These products do not give visually realistic results. In actual blood typing, red blood cells form clumps (the agglutination reaction) that separate from the blood plasma. When mixed with the appropriate synthetic antiserum, Carolina's synthetic blood forms clumps in the same way, for a realistic blood-typing result. It's the closest to authentic blood typing that you can get without using real blood.

Our kits include materials for a class of 30 students and teacher's instructions.

Carolina® ABO-Rh Blood Typing with Synthetic **Blood Kit**

The ability to type blood is an invaluable tool in medicine and criminology. Using this kit, students test 4 synthetic blood samples to identify their ABO and Rh blood types. The simulated agglutination reactions are extremely realistic. Kits contain no blood, blood products, or materials of biological origin, so there is no danger of disease transmission. Kit contains enough materials for a class of 30 working in pairs. Value Kit materials are sufficient for 4 classes. Refills contain synthetic blood and antisera replacements. All kits include 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700101 Kit Each \$61.70 700102 Refill Each \$31.55 700160 Value Kit

700161 Value Kit Refill

Each **\$129.50** Each \$69.25



700101 Carolina ABO-Rh Blood Typing with Synthetic Blood Kit



700112 Carolina Synthetic Blood: Paternity Test

Carolina® Synthetic Blood: **Paternity Test**

An alleged father denies responsibility and refuses to pay child support. Is he the biological father or is someone else? Your students can identify him-using simulated anti-A, anti-B, and anti-D (Rh) sera to determine the ABO/Rh blood groups of a mother and her child and 3 possible fathers. Students use their data and knowledge of genetics in the process. Kit contains enough materials for 30 individual students or up to 5 classes of 30 students, working in groups of 5. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700112 Per kit \$129.70



700118 Carolina Synthetic Blood: Whose Baby? Kit

Carolina® Synthetic Blood: Whose Baby? Kit

Students use simulated anti-A and anti-B sera to determine the ABO blood groups of 2 possible mothers and 3 babies. Using their data and knowledge of genetics, they reunite an infant with its mother. Kit equips a class of 30 individual students or up to 5 classes of 30 working in groups of 5 and includes 1-year access to digital resources. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700118 Per kit \$134.65

To see our complete line of synthetic blood products, turn to pages 338-339.

Genetics



Customer Review

"This product is clean, efficient, and illustrates the principles of blood typing perfectly. I actually bought it out of my own pocket, I wanted my students to use it so much. Perfect for a biology, genetics, anatomy & physiology, and forensic science class (the latter being what I used it for)."

Middle School Biology Teacher

Bulk Synthetic Blood

Trying to teach a lot of students hands-on blood typing while on a tight budget? Buy in bulk! The same synthetic blood and synthetic antisera that come in our kits can be ordered in large volumes by the milliliter. Note: 100 mL minimum order per item. Order at least 1 week prior to desired ship date. Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700170 Bulk Synthetic A Antisera

Per mL \$.39

700171 Bulk Synthetic B Antisera Per mL \$.39

700172 Bulk Synthetic D Antisera

Per mL \$.39 700173

Bulk Synthetic Blood Type 0-Per mL \$.37

700176 Bulk Synthetic Blood Type 0+

Per mL \$.37

700177 Bulk Synthetic Blood Type AB-

Per mL \$.37

700178 Bulk Synthetic Blood Type AB+

Per mL \$.37

700179 Bulk Synthetic Blood Type B-

Per mL \$.40

700181 Bulk Synthetic Blood Type B+

Per mL \$.37

700183 Bulk Synthetic Blood Type A-

Per mL \$.37

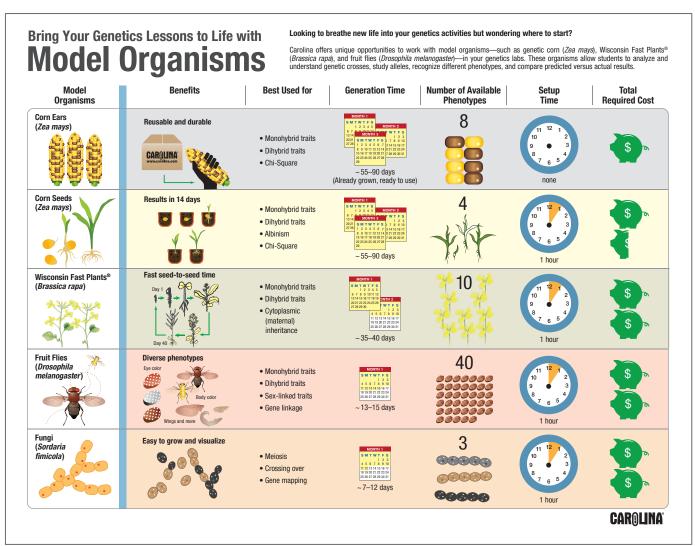
Bulk Synthetic Blood Type A+ 700184

Per mL \$.37

Genetic Organism Guide

Which Genetic Organism Is Best for Your Classroom?

With so many genetic organisms to choose from, finding the organism that is best for the unique instructional and time needs of your class-room can be difficult. To support your genetics instruction, Carolina has created a detailed organism guide with sample lessons, viewable at Carolina.com/geneticorganismguide. You'll also find a care guide for each organism at Carolina.com/careguides so you can use them with confidence.



🎸 Genetic Organism Kits







Flightless Fruit Fly Kit See page 207.

Plant Genetics

Plant Genetics

Genetic Corn

Kits & Sets

Why is corn an excellent choice for introducing students to Mendelian inheritance? To start with, Carolina does the crosses and supplies F_2 ears of corn, so you can literally do an instant genetics lab. There are numerous contrasting phenotypes expressed in corn kernels (corn seed). These phenotypes are easy



to recognize, and even beginners can score them with confidence.

- The large number of kernels on each corn ear from Carolina gives a close approximation of the theoretical ratio.
- Seed are still in their natural unit, for a convincing demonstration of Mendelian genetics.
- The big visual difference in phenotypes makes recognition and seed-counting easy.
- Ears are lacquer-treated to improve appearance and increase durability.



Carolina BioKits®: Corn Dihybrid Genetics Cross over to better understanding

- · Complete kit that introduces dihybrid inheritance
- High-quality corn ears last for years
 Reusable kit elements

With this kit, students learn the basic principles of dihybrid inheritance and independent assortment using corn. Students first observe how traits of kernel color and nutrient composition pass from 1 generation to the next. Then they construct a hypothesis describing the mode of inheritance for each trait. This kit is designed for 30 students working cooperatively in pairs.

Kit includes:

15 Segregating Ears (Purple:Yellow Starchy:Sweet) 15 Corn Cross Cards

15 Transparency Markers

Plastic Storage Container
Teacher's Manual and Reproducible
Student Guide

176380 Per kit \$184.25

Customer Review

"This is a very useful product—the corn provided a basis for a good lab on dihybrid crosses. I used the kit with an advanced biology class, it was easy to use, and the students learned a lot from the hands-on experience."

High School Biology Teacher

Genetics

Ö

Mendelian Genetics of Corn Kit Learning more about genetics

Intermediate—Easy to perform; requires some background knowledge.

For up to 32 students working in groups of 4. Designed for advanced high school classes or introductory college-level classes, this genetics lab covers all the basics of Mendelian genetics in 1 easy-to-use kit. Topics include segregation and the independent assort-

ment of alleles, dominance, genotype and phenotype, expected ratios, monohybrid and dihybrid crosses, and chi-square.

Kit includes:

- 8 Segregating Ears (Purple:Yellow)
- 8 Segregating Ears (Starchy:Sweet)
- 8 Segregating Ears (Purple:Yellow Starchy:Sweet)
- 8 Corn Parental Cross Cards A
- 8 Corn Parental Cross Cards B
- 16 Transparency Markers
- Storage Box
- Teacher's Manual

176360 Per kit \$222.50





Monohybrid Genetics with Corn Kit

Beginning—Easy to perform; requires little or no prior knowledge.

For up to 32 students working in pairs. This is an introductory genetics activity for a beginning high school or middle school biology

course. Students study the inheritance of grain color using ears of corn. Each grain is the F_2 of a cross between a homozygous purple corn and a homozygous yellow corn. Covers the basics of Mendelian genetics including the inheritance of a single pair of alleles, one of which is dominant and the other recessive. Students score phenotypes of the F_2 and compare their data to their predictions.

Kit includes:

16 Segregating Ears (purple:yellow)

2 Teacher Transparencies 32 Transparency Markers Storage Box Teacher's Manual

176362 Per kit \$170.00

Corn Genetics Set

Demonstrates 1- and 2-factor crosses with aleurone color (R) and endosperm character (Su).

Set includes:

- 3 Parent Ears
- 3 R and Su Alleles 1:1:1:1 (item #176602)
- 3 R Color Alleles 3:1 (item #176500)
- 3 R Color Alleles 1:1 (item #176502)
- 3 R and Su Alleles 9:3:3:1 (item #176600)

176321 Per set \$150.50





176321 Corn Genetics Set

Genetics

Parent Corn Ears

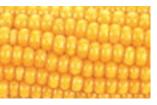
Parent Ears

Ears showing parent phenotypes are available for some of the hybrid ears we list.

176400 Purple Starchy Each \$14.85 Yellow Starchy 176450 \$14.85 Each 176460 Yellow Sweet \$14.85 Each



176400 Purple Starchy



176450 Yellow Starchy



Plant Genetics

176460 Yellow Sweet

Segregating Corn Ears



R Color Alleles 3:1

- · Shows relationship between genotypes and phenotypes
- · Perfect for demonstrations
- May be used as a refill for Mendelian Genetics of Corn Kit (item #176360) and Monohybrid Genetics with Corn Kit (item #176362)

What's the fastest way to explain the relationship between genotypes and phenotypes? Use this 1 ear of corn. Purple: Yellow. An F2 ear resulting from a P₁ generation having the genotypes R/R and r/r.

176500 Per ear \$13.15



R and Su Alleles 9:3:3:1 **Discovering dihybrids**

- · Appropriate for teacher demos
- May be used as a refill for Mendelian Genetics of Corn Kit (item #176360)
- · For studying dihybrid inheritance

With this corn ear, it's easy to show your students inheritance patterns for organisms that differ in 2 traits. Purple Starchy:Purple Sweet:Yellow Starchy: Yellow Sweet. An F2 ear resulting from a P₁ generation having the genotypes R/R Su/Su and r/r su/su.

176600 Per ear \$13.15

R Color Alleles 1:1

Purple: Yellow. The result of testcrossing the F₁ hybrid with the recessive parent $(R/r \times r/r)$.



Wx Endosperm Alleles 3:1

Starchy: Waxy. Demonstrates segregation of the recessive endosperm character, waxy. lodine solution (item #177020) is used to distinguish the phenotypes.

176550 Per ear \$13.15



Su Endosperm Alleles 3:1

Starchy: Sweet. An F2 ear from a cross between a starchy (Su/Su) and a sweet (su/su) parent. The sweet seed are wrinkled and the starchy seed are smooth.

176540 Per ear \$13.15



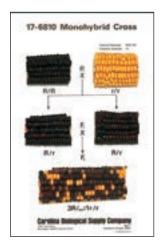
R and Su Alleles 1:1:1:1

Purple Starchy: Purple Sweet: Yellow Starchy: Yellow Sweet. The result of testcrossing the F, hybrid with the recessive parent (R/r $Su/su \times r/r$ su/su).

176602 Per ear \$13.15

Corn Mounts

Corn mounts show diagrammatically the sequence of events that leads to the hybrid ear. Sections showing the phenotypes of each generation are presented and each genotype is printed below the specimen.



176810 Monohybrid Cross

Monohybrid Cross

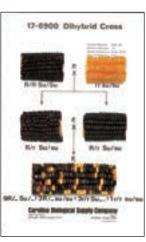
R Alleles. Demonstrates segregation of aleurone color (R/R $\times r/r$).

176810 Each \$35.95

Dihybrid Cross

R and Su Alleles. Demonstrates independent segregation of aleurone color and endosperm texture (R/R $Su/Su \times r/r su/su$).

176900 Each \$35.95



176900 Dihybrid Cross

Plant Genetics Genetic Seeds

Viable Corn Seed



177050 Carolina BioKits: Albino Corn

Carolina BioKits®: Albino Corn

- Perfect tool to teach dominance/recessiveness
- Visible results in just 10 to 14 days
- Emphasis on data collection and analysis, including a chi-square analysis

The perfect budget-friendly tool for teaching Mendelian genetics—your students witness dominance/recessiveness firsthand! They investigate the basic principles of inheritance by growing and observing corn seedlings. The seedlings are generated from albinogreen hybrid self-pollination and reveal that albinism is recessive. The seedlings segregate in a ratio of 3 green:1 albino, and students can infer that the parent plant was heterozygous for albinism.

177050 Per kit \$133.07

Don't Forget Soil and Planting Supplies!

See pages 109 and 112 for everything needed to grow your seeds.



177212 Dihybrid Genetic Corn Seed

Dihybrid Genetic Corn Seed

Tall Green:Tall Albino:Dwarf Green:Dwarf Albino (9:3:3:1). F_2 seed showing the segregation of 2 independent plant characteristics, dwarf (d_5) and albino (lw_3) . About 100 seed.

177212 Per pack \$16.00

Green:Albino Genetic Corn Seed Dominant vs recessive

- · Easy to score
- · Can see results in just 14 days
- For teaching dominance/recessiveness 3:1

In just 2 weeks, students can reap the benefits of growing their own corn that demonstrates dominant and recessive genes. From an albino strain giving a ratio of 3 green:1 albino in the seedlings. About 100 seed.

177130 Per pack \$15.25

Albino Genetic Corn Seed

A very white albino with an endosperm marker has permitted us to select seed that will produce albino plants. Seed will produce about 90% albino plants. About 50 seed.

177100 Per pack \$25.50



177165 Tall:Dwarf Genetic Corn Seed

Tall:Dwarf Genetic Corn Seed

1:1. F_2 seed giving a ratio of 1 tall:1 dwarf in the seedlings. About 100 seed.

177165 Per pack \$13.75

Dwarf Genetic Corn Seed

This seed yields very small plants approximately 12 to 15" tall at maturity. Produced by the homozygote of allele $d_{\rm c}$. About 50 seed.

177110 Per pack \$17.00

Tall:Dwarf Genetic Corn Seed

3:1. F_2 seed giving a ratio of 3 tall:1 dwarf in the seedlings. About 100 seed.

177160 Per pack \$13.75

Corn Pollen





177010 Starchy:Waxy Pollen

177020 Iodine Solution

Starchy: Waxy Pollen

Collected from plants segregating for waxy. When stained with iodine, this pollen will show the 1:1 gametic ratio. Sufficient material for 25 students.

177010 Per vial \$15.80

Iodine Solution

For use in determining the starchy and waxy phenotypes in corn seed and corn pollen. 1 oz.

177020 Each \$8.75

Flat and Soil

For seed. A water-resistant composition tray and package of soil containing nutrient. Large enough to plant about 25 corn or similar seed.



177240 Each \$15.50 10+ Each \$14.00

Soybean Seed



Soybean Seed

Green:Yellow Green:Yellow (1:2:1). F_2 seed give a 1:2:1 seedling ratio, showing incomplete dominance. These seed will produce seedlings in which the heterozygous plants show a clear phenotypic difference from the homozygous green and yellow plants. About 100 seed.

178200 Per pack \$15.00

Genetics Plant Genetics

Irradiated Seed

Irradiated Seed Sets

Seed that have been exposed to a Cobalt-60 source are used to demonstrate the effects of varying degrees of radiation. Squash preparations of root tips show distinct disturbances of the normal mitotic pattern. Somatic changes brought on by irradiation are often clearly visible a short time after germination begins. Each set contains an untreated control packet and packets of seed exposed to various levels of radiation (levels are in thousands of rads). Order set with your choice of seed type. At least 50 seeds per packet.

 179120
 Marigold Set (50; 150; 500; 4,000 Krads)
 Each
 \$42.75

 179146
 Radish Set (50; 150; 500; 4,000 Krads)
 Each
 \$42.75

 179150
 Squash Set (50; 150; 500; 4,000 Krads)
 Each
 \$42.75

179120, 179146, and 179150 Irradiated Seed Sets



Tomato Seed

Green:Yellow Green:Yellow Tomato Seed

 $1:2:1. \ F_2$ seed give a 1:2:1 seedling ratio, showing incomplete dominance. About 100 seed.

178670 Per pack \$19.55



178670 Green:Yellow Green:Yellow Tomato Seed

Tobacco Seed

Green: Albino Tobacco Seed

3:1. Pack of about 1,200 seed. **178400** Per pack **\$13.25**

Green:Yellow Green:Yellow Tobacco Seed

1:2:1. $\rm F_2$ seed give a 1:2:1 seedling ratio, showing incomplete dominance. Pack of about 1,200 seed.

178410 Per pack \$23.30



178400 Green: Albino Tobacco Seed

Sorghum Seed

Green:Albino Sorghum Seed

3:1. These seed produce seedlings that give a 3 green:1 albino ratio. The albino is either yellow or white and gives excellent contrast. About 200 seed.

178060 Per pack **\$18.25** 10+ Packs Each **\$17.25**



178060 Green:Albino Sorghum

Red:Green Sorghum Seed

3:1. Produce seedlings that show segregation for the presence of the red pigment (anthocyanin). This factor shows dominance over green. About 200 seed.

178080 Per pack **\$18.25** 10+ Packs Each **\$17.25**



178080 Red:Green Sorghum Seed





The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.



Plant Genetics

Wisconsin Fast Plants®

Rapid-Growing Wisconsin Fast Plants® Make Classroom Genetics Studies Possible!

Wisconsin Fast Plants® are a wonderful model plant genetics organism for the classroom. The plants have several traits that make them attractive:

- A wide variety of mutant seed is available. (See our Wisconsin Fast Plants[®] mutant seed stocks table, pages 86–87)
- They are closely related to many food crops produced in the United States, making them especially relevant.
- They cannot self-pollinate, so it is easy to carry out controlled crosses in the classroom.
- They have clearly visible mutations: stem color, plant height, and more.
- They have a 35- to 40-day life cycle that lets you start with F₁ seed and carry it to the F₂ generation in a short time span.



158964 Wisconsin Fast Plants Who's the Father? Investigating Genetics Dihybrid Kit

Wisconsin Fast Plants® Who's the Father? Investigating Genetics Kits

Grades 8–12. For a class of 32 students. How are traits passed from one generation to the next? In this 60-day investigation, students observe 3 generations of plants as they attempt to unravel the mystery of paternity. They develop explanations, based on their own observations, for the inheritance of either 1 or 2 Mendelian genes. Use the **Monohybrid Kit** (1 gene) for beginning genetics; use the **Dihybrid Kit** (2 genes) for more advanced students. Kits include everything needed except water and a light source (we recommend item #159004 Plant Light House® with Light Bulbs). **Kit Refills** replenish consumable materials.

 158963
 Monohybrid Kit
 Each
 \$98.80

 158964
 Dihybrid Kit
 Each
 \$98.80

 158756
 Monohybrid Kit Refill
 Each
 \$67.80

 158757
 Dihybrid Kit Refill
 Each
 \$67.80

Genetics



158939 Wisconsin Fast Plants 72-Hour Dihybrid Genetics Kit



Wisconsin Fast Plants® 72-Hour Dihybrid Genetics Kit

Bring genetics to life

Grade 8–College. For a class of 30 students. Why just tell students about genetics when they can learn the basic principles of Mendelian genetics and the concepts of inheritance by observing real plants? Using petri dishes and filter papers, students sow seeds for 3-day-old P_1 - and F_1 -generation plants. They make observations and form a hypothesis about the phenotype of the F_2 generation. They then sow the F_2 seeds to test the hypothesis. All kit activities can be completed in just 3 class periods—and everything is included except a light source. (We recommend item #159004 Plant Light House® with Light Bulbs.) Kit also includes free 1-year access to digital resources that support 3-dimensional instruction.

158939 Per kit \$105.00



Wisconsin Fast Plants® 72-Hour Monohybrid Genetics Kit

Grades 8–12. For a class of up to 32 students. If you need a quick monohybrid genetics lab, this is it. Activities can be completed in as little as 3 days. By germinating Wisconsin Fast Plants® seeds, students working in groups of 4 study the inheritance of purple color through 3 generations of plants. Students also study a monohybrid cross that begins with a homozygous purple stem plant and a homozygous nonpurple stem plant. In the 1st activity students prepare seed disks for germination in petri dishes. In the 2nd activity they observe the seedlings and collect and analyze data. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158940 Per kit \$105.00

Genetics Plant Genetics



158772 Wisconsin Fast Plants Dihybrid Genetics Student Kit

Wisconsin Fast Plants® Dihybrid Genetics Kit

Grades 6–12. Similar to our Monohybrid Genetics Kit, except students study inheritance of 2 genes segregating in the F_2 generation. The experiment illustrates independent assortment, in addition to other principles of Mendelian genetics. Experiment time is 55 days. **Classroom Kit** includes enough materials for a class of 30 students. Visit **Carolina.com** for complete lists of kit materials.

 158772
 Student Kit
 Each
 \$33.40

 158774
 Classroom Kit
 Each
 \$98.80

 158775
 Classroom Kit Refill
 Each
 \$66.75



158770 Wisconsin Fast Plants Monohybrid Genetics Classroom Kit

Wisconsin Fast Plants® Monohybrid Genetics Kit Hot on the trail of a trait

- Observe inheritance of a single trait through multiple generations
- Super-fast generation cycle of 35 to 40 days
- · Quick setup, quick results

Grades 6–12. How do we inherit certain traits? Students find out as they explore Mendelian genetics by growing and pollinating F_1 hybrid plants to produce F_2 seed. Analysis of inheritance is based on segregating 1 gene in the F_2 generation. This fascinating experiment illustrates the principles of inheritance of unit characters, dominance, and segregation. The entire experiment takes only 55 days. **Classroom Kit** includes enough materials for a class of 30 students. All 3 kits include 1-year access to digital resources that support 3-dimensional instruction.

Kit includes

204

Fast Plants® Seed (purple stem; from a parent with the recessive mutation Non-Purple Stem) F_1 Seed (from a cross of the parent strains [anl/ANL]) All Other Planting Materials

Instructions

 158768
 Student Kit
 Each
 \$33.40

 158770
 Classroom Kit
 Each
 \$98.80

 158771
 Classroom Kit Refill
 Each
 \$67.90

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, this product.



158776 Wisconsin Fast Plants Investigating Artificial Selection Using Plant Populations Kit

Wisconsin Fast Plants® Investigating Artificial Selection Using Plant Populations Kit

Grade 6–College. For a class of 32 students. Previously titled Hairy's Inheritance: Competing to Make the Hairiest Fast Plant Kit, this open-ended experiment (perfect for AP® Biology) utilizes inquiry and cooperative learning. The activities can be used to study the process of science, natural selection, plant breeding, genetics, plant growth, and reproduction. Starting with the standard Wisconsin Fast Plants® seed stock, students use a quick, simple method to count leaf hairs and select the hairiest plants to produce seed for the next generation. Comparison of the average number and distribution of leaf hairs in both generations enables students to describe the pattern of inheritance for hairiness and to test a hypothesis. Experiment time varies—typically 55 days to grow and evaluate 2 generations. Go to Carolina.com for a refill seed set (item #158785B).

Kit includes:

Standard Fast Plants® Seed Supplies for Planting a Second Generation

All Other Planting Materials Instructions

158776 Per kit **\$114.70**



Exploring Selection with Wisconsin Fast Plants[®] and Cotyledons Kit

Grades 9–12. For a class of 30 students. Students grow Wisconsin Fast Plants® seedlings that can be dicots (having 2 cotyledons) or polycots (having more than 2 cotyledons). They are asked to develop an experiment to help determine why the seedlings vary in cotyledon number. Is the trait genetically or environmentally determined? In the second investigation, students germinate second generation seeds that were produced by a cross of 2 parents that both exhibited the polycot trait. Students then observe whether the percentage of polycots in the 2 generations differs and determine the statistical significance of any observed difference. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158778 Per kit \$95.00

Drosophila Genetics

Drosophila Genetics

Fly into Genetics

Versatile Drosophila (fruit flies) make genetics instruction quick and easy

- Short generation times
- Affordable
- · Sequenced genome
- · Minimal storage space
- · Truly a model organism

Teaching options

Drosophila offer a wealth of hands-on options for teaching genetic concepts. One of the most widely used model organisms in the world, these flies express a number of eye, wing, and other mutations that are easy to see, allowing students to study monohybrid, dihybrid, and sex-linked traits.

For new users

New to using *Drosophila*? We recommend starting with one of our kits, which provide needed materials as well as comprehensive instructional support so you can teach with confidence. Questions or concerns? Our *Drosophila* experts are happy to help; simply contact the Drosophila Lab at 800.227.1150.





Genetics

Kits



171984P *Drosophila* Monohybrid Cross Kit (with perishables)

171987 *Drosophila* Sex-Linked Cross Kit (with voucher)

171990 Drosophila Dihybrid Cross Kit (with voucher)

Drosophila Monohybrid Cross Kit

Students study monohybrid inheritance using the *Drosophila* strains apterous (wingless) and wild type (winged). Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Please order at least 2 weeks in advance of desired ship date. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only.*

171984 Kit (with voucher) Each **\$120.50 171984P** Kit (with perishables) Each **\$120.50**

Drosophila Sex-Linked Cross Kit

Demonstrates sex-linked inheritance using whiteeyed and red-eyed (wild-type) *Drosophila*. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. **Please order at least 2 weeks in advance of desired ship date**. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only.

171987 Kit (with voucher) Each \$121.00 171987P Kit (with perishables) Each \$121.00

Drosophila Dihybrid Cross Kit

Students study dihybrid inheritance using the 2 *Drosophila* mutants apterous (wingless) and sepia (sepia-eyed). Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Please order at least 2 weeks in advance of desired ship date. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only.*

171990 Kit (with voucher) Each **\$121.00 171990P** Kit (with perishables) Each **\$121.00**

Drosophila Genetics

Carolina® Easy Fly® Drosophila

Carolina® Easy Fly® Drosophila Cultures

Each vial contains 12 to 20 virgin female flies. **Note:** *Please order at least 2 weeks in advance of desired ship date. Should not be shipped over a weekend.* Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

	Item No.	Description	Per Culture
	172632	wild type (Oregon-R with hsY)	\$27.75
	172633	white	\$27.75
	172634	sepia	\$27.75
	172638	Bar	\$27.80
	172639	ebony	\$27.75
New!	172641	apterous	\$27.30
New!	172642	vestigial	\$27.30

- Virgin females guaranteed
- · Time saver
- Error-free system

Drosophila melanogaster is a popular organism for laboratory exercises in genetics. However, a significant barrier to using *Drosophila* in teaching or research

is the collection of virgins for controlled crosses. Procuring adequate numbers of virgins takes a great deal of time, even for skilled collectors. Carolina's Easy Fly® system makes this task EASY for both beginners and those who have used *Drosophila* for years.

Wild Type

The Easy Fly® system works by selectively killing male larvae with a 2-hour heat shock treatment, leaving only virgin females alive. Easy Fly® males contain a modified Y* chromosome with a gene that activates programmed cell death when the larvae are exposed to high temperature. Since only males have a Y* chromosome with this gene, female larvae are unaffected. Carolina performs the heat shock treatment in our laboratories, so all shipped cultures contain adult virgin females only.



172630P Carolina Easy Fly Monohybrid Cross Kit (with perishables)

dor Physiological Control of the Con

172626P Carolina Easy Fly Dihybrid Cross Kit (with perishables)

Eng PJ* San canade Corn 49

172631P Carolina Easy Fly Sex-Linked Inheritance Kit (with perishables)

Carolina® Easy Fly® Monohybrid Cross Kit

Intermediate—Easy to perform; requires some background knowledge.

In this kit, students study a monohybrid cross of wildtype males and Easy Fly® sepia females. Kit equips 32 students working in groups of 4. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. **Please order at least 2 weeks in** advance of desired ship date.

172630 Kit (with voucher) Each **\$149.00 172630P** Kit (with perishables) Each **\$149.00**



Carolina® Easy Fly® Dihybrid Cross

Intermediate—Easy to perform; requires some background knowledge.

In this kit, students study dihybrid inheritance by crossing apterous (wingless) males with sepia (brown eye color) Easy Fly® females. Materials are sufficient for a class of 32 students working in groups of 4. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only. Please order at least 2 weeks in advance of desired ship date.

172626 Kit (with voucher) Each **\$149.00 172626P** Kit (with perishables) Each **\$149.00**

Carolina® Easy Fly® Sex-Linked Inheritance Kit

Intermediate—Easy to perform; requires some background knowledge.

In this kit, students study sex-linked inheritance by crossing wild-type male and Easy Fly® white-eyed female *Drosophila*. Kit equips 32 students working in groups of 4. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. **Please order at least 2 weeks in advance of desired ship date.**

172631 Kit (with voucher) Each **\$149.00 172631P** Kit (with perishables) Each **\$149.00**

Genetics

Drosophila Genetics

Flightless Fruit Fly

Losing flies isn't a problem when working with Carolina's flightless fruit flies! They have the miniature mutation, making their wings too short to sustain flight, yet their morphology is otherwise identical to wild-type *Drosophila*.



172158 Flightless Fruit Fly Kit (with voucher)

Flightless Fruit Fly Kit

Intermediate—Easy to perform; requires some background knowledge.

For a class of 32 students working in teams of 4. Students make crosses of sepia with wild-type red eyes (monohybrid cross), white with wild-type red eyes (sexlinked cross), and apterous with sepia (dihybrid cross). Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only.

172158 Kit (with voucher) Each **\$160.50 172158P** Kit (with perishables) Each **\$160.50**



172159P Flightless Fruit Fly Monohybrid Cross Kit (with perishables)

Flightless Fruit Fly Monohybrid Cross

Intermediate—Easy to perform; requires some background knowledge.

Students study monohybrid genetics using flightless fruit flies. They cross miniature apterous (wingless) with miniature (serves as wild type) to investigate the inheritance of wings. The F₁ have wings; the F₂ show a 3:1 ratio of winged to apterous. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. Drosophila Culture Kit is shipped via surface mail only. Please order at least 2 weeks in advance of desired ship date.

 172159
 Kit (with voucher)
 Each
 \$118.00

 172159P
 Kit (with perishables)
 Each
 \$118.00

Flightless Fruit Fly Mutant

Large, vigorous culture of *D. melanogaster* is shipped in shatterproof $4 \times 1^{1}/4^{\circ}$ -diam vial. Fly stock, miniature; wings are narrower than wild type, eliminating sustained flight.

172150 Per culture **\$9.95**

Drosophila Culture Kits



Beginning—Easy to perform; requires little or no prior knowledge.

Using this kit, students can learn the basic principles of inheritance within a population of *Drosophila*. Students observe how mutations are passed from 1 generation to the next, then construct a hypothesis describing the mode of inheritance. The **4-Station Kit** is designed for a class of 16 working in groups



171965 Carolina BioKits: Drosophila 4-Station

of 4, the **8-Station Kit** for a class of 32 in groups of 4. Visit **Carolina.com** for complete lists of kit materials. **Note:** 2 parental Drosophila cultures of your choice are needed but not included.

171965 4-Station Kit Each **\$106.75 171967** 8-Station Kit Each **\$173.00**

Carolina® Drosophila Culture Kits

All the materials needed to get started with *Drosophila* in your classroom. Both kits include FlyNap® Kit, instant *Drosophila* medium, 72 vial labels, 2 sorting brushes, 100 sorting cards, and *Drosophila* manual. **Small Kit** also includes 36 culture vials and vial plugs; **Large Kit** also includes 72 culture vials and vial plugs, plus *Drosophila* record sheets.



173052 Carolina Drosophila Culture Large Kit

Shipped via surface mail only. **Note:** Drosophila *cultures are needed but not included.*

173050 Small Kit Each **\$82.00 173052** Large Kit Each **\$123.50**

Genetics

Drosophila Cultures

Drosophila Genetics

Drosophila offer a remarkable breadth of known mutations, making them perfect for virtually any genetic study. Carolina's 45 unique *Drosophila* cultures (with more on the way!) give you and your students an opportunity to witness inheritance patterns firsthand, such as:

- Monohybrid traits
- · Dihybrid traits
- · Gene linkage
- Gene interaction
- Sex-linked traits



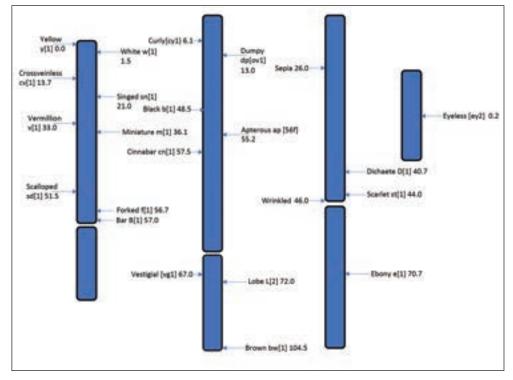
How should you care for *Drosophila* cultures?

Learn how with Carolina's detailed, free *Drosophila* care guide. Scan the QR code for guidance on:

- Housing
- Biosafety
- Feeding
- And more
- Culturing



Digital Drosophila care guide

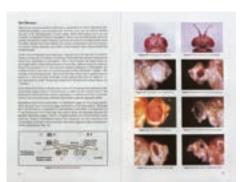


Drosophila mutant gene map

Large, vigorous cultures of D. melanogaster are shipped in shatterproof $4 \times 1^1/4^n$ -diam vials. When your cultures arrive:

- Remove the caps but leave the plugs in place.
- Put cultures in a clean location not exposed to direct sunlight.
- Keep cultures at 20 to 25° C to reduce the risk of bacteria, fungi, and mites.





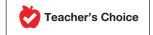
Carolina® Drosophila Manual

36 pages, full color. A complete guide for maintaining and studying *Drosophila*. The manual features detailed explanations and sound suggestions for virtually every aspect of using fruit flies for studying genetics, making it perfect for teachers and students new to *Drosophila*. Soft cover.

452620 Each \$8.75

You'll need this simple equipment for raising fruit flies and making crosses:

- Culture vials
- Plugs
- Medium
- · Marking pencil or labels
- Anesthetic
- White background (card) for examining flies
- Fine brush
- · Bright, cool light
- Magnifying glass, or (preferably) a wide-field stereomicroscope



Drosophila Genetics





With 2 weeks' notice we can supply extralarge cultures for any culture listed on this page.

Contact the Drosophila Lab at 800.227.1150.

Individual Cultures

	Organism (with genetic notation)		itiona racte	al ristics	Item No.	Each		
	Wild Type							
Ö	wild type (red eye)	ES	XL	EF	172100	\$9.95		
	Chromosome 1 Mutants (sex-linked)							
	Bar (B1)	ES		EF	172110	\$9.95		
	miniature (m1)	ES		EF	172150	\$9.95		
	scalloped (sd1)				172180	\$9.95		
	singed (sn3)				172200	\$9.95		
	vermilion (v1)				172210	\$9.95		
Ö	white (w1)	ES	XL	EF	172220	\$9.95		
	white-apricot (wa)				172225	\$9.95		
	white miniature (m1w1)				172153	\$9.95		
	white miniature forked (w1m1f1)				172260	\$9.95		
	yellow (y1)	ES			172270	\$9.95		
	yellow Bar (y1B1)	ES			172280	\$9.95		
	yellow crossveinless vermilion forked (y1cv1v1f1)				172285	\$9.95		
	yellow white (y1w1)	ES			172290	\$9.95		
	yellow white miniature (y1w1m1)				172295	\$9.95		
	Chromosome 2 Mutants	;						
Ö	apterous (ap56f)	ES	XL	EF	172320	\$9.95		
	black (b1)				172330	\$9.95		
	black vestigial (b1vg1)				172340	\$9.95		
	black vestigial brown (b1vg1bw1)				172345	\$9.95		
	brown (bw1)				172360	\$9.95		
	cinnabar (cn1)				172370	\$9.95		
	cinnabar brown (cn1bw1)				172375	\$9.95		
	dumpy (dpov1)	ES			172390	\$9.95		
	Lobe (L2)				172440	\$9.95		
Ö	vestigial (vg1)	ES	XL	EF	172460	\$9.95		
	vestigial brown (vg1bw1)				172465	\$9.95		



Individual Cultures (continued)

	Organism (with genetic notation)	Addition Characte		Item No.	Each
	Chromosome 3 Mutan	ts			
	Antennapedia (Antp73b)			172470	\$9.95
	ebony (e1)	ES	EF	172500	\$9.95
	rosy (ry1)			172560	\$9.95
	rosy lpo/aldox (rsy1Aldox1n1)			172561	\$9.95
	scarlet (st1)			172570	\$9.95
	sepia (se1)	ES		172575	\$9.95
	sepia ebony (se1eb1)	ES	EF	172580	\$9.95
	Wrinkled (W1)			172600	\$9.95
	Chromosome 4 Mutan	ts			
	eyeless (ey2)			172620	\$9.95
v!	sparkle (w118)			172621	\$9.95
	Multichromosomal Mu	ıtants			
	white(1); apterous(2)	ES		172708	\$9.95
	white(1); vestigial(2)	ES		172720	\$9.95
	brown(2); scarlet(3)			172740	\$9.95
	Curly/Plum(2); Dichaete/ Stubble(3)			172750	\$9.95
	miniature(1); apterous(2)			172152	\$9.95
	apterous(2); sepia(3)	ES		172753	\$9.95
	dumpy(2); sepia(3)	ES		172755	\$9.95
	vestigial(2); ebony(3)	ES		172760	\$9.95
	vestigial(2); sepia(3)	ES		172765	\$9.95

Extra-Large Drosophila Cultures

New

Extra-large vial containing 70 to 100 flies. Each culture is shipped in a 120-mL bottle. **Note:** With **2** weeks' notice we can supply an extra-large culture for any culture in our collection (not including F_1 's or F_2 's). Contact the Drosophila Lab at 800.227.1150. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Organism (with genetic notation)	Addition Charact	nal teristics	Item No.	Each
wild type (red eye)	ES	EF	172781	\$28.75
vestigial (vg1)	ES	EF	172841	\$28.75
white (w1)	ES	EF	172851	\$28.75
apterous (ap56f)	ES	EF	172861	\$28.75

Additional Characteristics Key:

- ES: Easy for beginners to score.
- XL: Available in extra-large culture (70 to 100 flies).
- EF: Available in Carolina® Easy Fly® culture.



Genetics

Drosophila F₁ Crosses

Our cultures make it easy to study crosses because we deliver exactly what you need. Each vial contains larvae and pupae of the F₁ generation of a cross between 2 different strains of *Drosophila*. (The parent generation is removed before shipment.) Extra-large vial will produce approximately 50 to 70 adult flies over a span of 10 to 12 days, given proper care and environmental conditions. Note: *Please order at least 2 weeks in advance of desired ship date. Should not be shipped over a weekend.* Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.



172020 F₁ white × wild

Linkage Determination Crosses

Drosophila crosses for linkage study. Note: Please give 2 weeks advance notice for delivery of fruit flies, except where noted. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Two-Point Linkage

A vial of F_1 fruit flies from a cross between females having yellow bodies and white eyes (yw/yw) and wild-type males (++/Y). The 1:1 F_2 ratio is altered by a 1.5% crossover rate.

172050 Per vial \$31.50

Three-Point Linkage

A vial of testcross fruit flies from a cross between females heterozygous for 3 chromosome 2 mutants $(+++/b\ vg\ bw)$ and males homozygous for the mutants $(b\ vg\ bw/b\ vg\ bw)$. The positions of the mutants on chromosome 2 are: black (b), 48.5; vestigial (vg), 67.0; and brown (bw), 104.5.

172051 Per vial \$40.90

Other Drosophila Species

Drosophila Species

For population studies and for preparing giant salivary-gland chromosomes. Life cycles are about 1 month. Large, vigorous cultures are shipped in shatterproof $4 \times 1^{1}/4^{"}$ -diam vials.

172890 *D. virilis* Per culture **\$13.00 172895** *D. hydei sturtevant* (flightless) Per culture **\$13.00**

Fruit Flies/Nongenetic Uses

Fruit Fly Culture Kit

For life cycle studies or for feeding small animals. Includes 1 item #172910 Fruit Flies culture, 6 culture vials with plugs and netting, instant *Drosophila* medium for about 72 cultures, and instructions.

172900 Per kit \$35.95

Fruit Flies

For life cycle studies or for feeding small animals. Flies are specially selected for wing variations which restrict their flying, and are not selected for genetic studies.

172910 Per culture **\$9.95**

Drosophila Genetics

	Cross	Expected F ₂ Phenotype	Item No.	Each
Ö	F ₁ white × wild	1 wild:1 white	172020	\$31.40
	F ₁ sepia × wild	3 wild:1 sepia	172010	\$31.40
	F ₁ vestigial × sepia	9 wild:3 vestigial:3 sepia:1 vestigial sepia	172032	\$31.40
Ö	F_1 apterous \times sepia	9 wild:3 apterous:3 sepia:1 apterous sepia	172030	\$31.40
	F_1 apterous \times wild	3 wild:1 apterous	172000	\$31.40
	F_1 vestigial \times ebony	9 wild:3 vestigial:3 ebony:1 vestigial ebony	172035	\$31.40

F₁ Custom Drosophila Cross

A vial of F₁ fruit flies. Select the parents from our general listing of *Drosophila* strains and **notify us 6 weeks before the desired delivery date. Note: Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

172055 Per vial \$50.75

Popular Sets

Introductory Drosophila Set

These cultures have easily observed characteristics, related to sex, that students can see without a microscope. Males have gray bodies and white eyes; females, yellow bodies and red eyes. Set includes 2 cultures, apterous and winged, with both genotypes being yellow forked attached and white. **Note: Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

171900 Per set \$20.15

Basic Drosophila Set

Each set includes 2 cultures. Ideal for studying an autosomal recessive gene (not sex-linked). Each culture contains approximately 25–30 adult flies.

171904 wild type and apterous Set Each **\$20.15 171905** wild type and vestigial Set Each **\$20.15**

Independent Assortment Set

Set includes 2 cultures: vestigial and ebony.

171915 Per set \$20.96

Gene Interaction Set

Two cultures: brown and scarlet. The expected $\rm F_2$ ratio is 9 wild:3 brown:3 scarlet:1 white (brown: scarlet).

171925 Per set \$20.90

Sex-Linked Set

Two large cultures, wild (red eyes) and white (white eyes), for studying inheritance of a sex-linked recessive gene.

171910 Per set \$20.15

Releasing Organisms

Carolina provides living organisms for educational purposes only. As a general policy, we do not advocate the release of organisms into the environment. In some states, it is illegal to release organisms, even indigenous species, without a permit. The intention of these laws is to protect native wildlife and the environment.

After completing classroom activities, we suggest that organisms be:

- . Maintained in the classroom
- Donated to another classroom or science department
- . Disposed of humanely, as a last resort

Drosophila Genetics

Drosophila Anesthetization



Power nap—safely anesthetize *Drosophila* with our exclusive FlyNap®

- Simplifies the process of sexing *Drosophila*
- Anesthetizes Drosophila for 50 minutes to several hours

FlyNap® streamlines the process of anesthetizing Drosophila with an advanced formula that's safe, easy to use, and cost effective. It's not explosive like ether and can be shipped via USPS. Students can simply anesthetize flies in an empty culture vial with no bulky or expensive extra equipment. There is also less chance for dosage error. FlyNap® wands dispense the appropriate amount of anesthetic, ensuring the flies remain "napping" for 50 minutes to several hours without being killed or sterilized. Customers tell us FlyNap® is the best—and the only— Drosophila anesthetic they'll use in their classroom.



Genetics

173010 FlyNap Kit

FlyNap® Kit

Flies nap peacefully

- · Kit includes everything needed to anesthetize Drosophila
- Convenient and cost-effective
- Eliminates transferring Drosophila to a separate anesthetizing chamber

We've made it easy to anesthetize *Drosophila* in their own culture vessels with this complete kit that includes a 10-mL vial of FlyNap® and 12 anesthetic wands. Flies stay immobilized for at least 50 minutes with no separate anesthetizer needed. FlyNap® is safer than ether and easier to use. Kit contains 100 doses. Shipped via surface mail only.

173010 Per kit \$16.75

FlyNap[®]/Anesthetizer Kit \triangle

Contains 100-mL bottle of FlyNap® (item #173025), 3 Drosophila Anesthetizers (item #173040), and 2 FlyNap® dropping pipets. Enough for 100 charges of the anesthetizer. Complete with instructions. Shipped via surface mail only. **Note:** Sold only to schools and businesses.

173015 Per kit \$111.75

FlyNap® Anesthetic A2

Carolina's safe, easy-to-use anesthetic for Drosophila. Can be used with anesthetic wands or with Drosophila Anesthetizer (item #173040). Enough for 100 charges with the Drosophila Anesthetizer or 1,000 doses with our Anesthetic Wands (item #173027). 100-mL bottle. Shipped via surface mail only. Note: Sold only to schools and businesses.

173025 Per bottle \$84.00

Anesthetic Wands

Like those in our item #173010 FlyNap® Kit. Twelve wands per unit. Instructions included.

173027 Per unit **\$7.80**

Drosophila Stand

This stand makes anesthetizing Drosophila a snap. Simply place the inverted culture vial in the stand and insert a FlyNap® wand or CO2 tube; anesthetized flies drop onto the vial plug. Since FlyNap® cannot drop onto media, the Drosophila Stand lets you anesthetize flies in vials of media. The stand also securely holds vials so they do not roll off the lab bench during anesthetizing.

173030 Pack of 3 \$10.25

173030 Drosophila Stand

(in use; vial not included)

FlyNap® and kits containing FlyNap® are sold only to schools and businesses. FlyNap® is a registered trademark of Carolina Biological Supply Company.

Other Anesthetization

Drosophila Anesthetizer

Funnel-shaped end fits various culture vessels. Flies cannot come in contact with and be killed by liquid anesthetic (FlyNap® or ether). Slow release of anesthetic reduces chances of killing or sterilizing Drosophila. Instructions included. Pack of 3.

173040 Per pack \$15.50



173040 Drosophila Anesthetizers

Carbon Dioxide Anesthetizer

Safely anesthetizes Drosophila without harmful chemicals. Immobilization time can be easily regulated from minutes to hours without risk of sterility or death. Each anesthetization requires 1 tablet. Flies can be anesthetized in their own culture vessels. Includes 12 tablets and instructions. No shipping restrictions apply.

¹ 173034 Anesthetizer Kit 173037

Replacement Tablets



173034 Carbon Dioxide Anesthetizer

\$17.50 Each \$10.85 Pack of 24 3+ Packs Each \$9.85







Genetics

Formula 4-24® Instant Drosophila Medium

Start with the Industry Standard

- · Easy preparation
- · Mold resistant
- · No cooking or sterilizing
- 85 culture vials per liter

Why risk your experiment on anything less than the best for every component? If you're working with Drosophila, you need a guaranteed food source to sustain your culture and help get optimal results. Our exclusive Formula 4-24® Instant *Drosophila* Medium is the industry standard. We developed Formula 4-24® specifically for the classroom and laboratory. with several features that make it ideal for such a purpose. Simplicity is a key factor. All you need to do is add water, wait 1 minute, and the culture is ready to be set up. Cost is another consideration. It takes only 1 liter of Formula 4-24® to make up to 85 vials of *Drosophila* culture. We also provide the formula in plain or blue—the blue coloring helps you see the larvae. The 1-L and 4-L bags (items #173200, #173202, #173204, #173210, #173212, and #173214) come with a packet of yeast and a measuring cup to help jump-start your cultures. All orders include instructions.



173200 Formula 4-24 Instant Drosophila Medium

Formula 4-24® Plain

Our formula is guaranteed to sustain your culture. Note: Item #173218 does not include yeast and measuring cups.

173200	1-L Bag	Each	\$11.35
173202	4-L Bag	Each	\$29.50
173204	Case (four 4-L bags)	Each	\$104.75
		10+ Cases Each	\$94.75
173218	Bulk (50-lb bag)	Each	\$340.00



173210 Formula 4-24 Instant Drosophila Medium, Blue (water added)

Formula 4-24® Blue

A blue coloring agent is added to facilitate observation of the larvae. Note: Item #173216 does not include yeast and measuring cups.

173210	1-L Bag	Each	\$11.35
173212	4-L Bag	Each	\$31.25
173214	Case (four 4-L bags)	Each	\$107.00
		10+ Cases Each	\$97.00
173216	Bulk (50-lb bag)	Each	\$346.95

Drosophila Genetics Drosophila Culture Supplies



Drosophila Culture Vial Set 1 (includes 173120, 173122, and 173125)

Drosophila Culture Vial Sets

- Includes everything needed to safely house Drosophila
- · Available in 3 different quantities
- · High-quality materials

Protect the integrity of your *Drosophila* studies with these convenient-to-order, highquality vial sets. Each includes items #173120 Drosophila Culture Vials, #173122 Drosophila Vial Plugs, and #173125 Drosophila Vial Caps.

173076 Set 1 (36 vials, plugs, caps) Each 173078 Set 2 (72 vials, plugs, caps) Each \$111.50 **173080** Set 3 (144 vials, plugs, caps) Each \$187.75



173120 Drosophila Culture Vials

Drosophila Culture Vials

- Durable
- Reusable/washable
- · Excellent visibility

Made from shatterproof plastic, these culture vials provide a clear view of contents. Size. 11/4" diam × 4" H. Do not autoclave vials. Plugs and caps are not included.

173120 Pack of 12 \$12.00 \$11.50 6+ Packs Each

Drosophila Vial Plugs

- Autoclavable
- · Easy to insert and remove from vials
- · Great value



173122 Drosophila

Make Drosophila study more convenient with these secure, plastic foam plugs that can be autoclaved. Plugs fit diameters from 3/4 to 11/4". For item #173120 Drosophila Culture Vials.

173122 Pack of 12 \$7.00 6+ Packs Each \$6.20

Drosophila Vial Caps

Plastic breathing caps useful for controlling moisture and securing cultures against accidental opening. Made for use with items #173120 Drosophila Culture Vials and #173122 Drosophila Vial Plugs.

173125 Pack of 12 \$7.00 6+ Packs Each \$6.25



Vial Caps

Drosophila Genetics

Genetics



173091 Drosophila Anti-Mite Vial Plugs

Drosophila Anti-Mite Vial Plugs

For use in plastic or glass *Drosophila* culture containers to help prevent mite contamination. Harmless to Drosophila. Etching of plastic is expected and is harmless.

173091 Pack of 12 \$14.50 6+ Packs Each \$13.75



173094 Drosophila Sorting Brushes

Drosophila Sorting Brush

Plastic handle, 61/2". Excellent for handling anesthetized Drosophila.

173094 Pack of 12 \$12.00 3+ Packs Each \$11.50



173110 Drosophila Culture Holder

Drosophila Culture Holder

Foam holder prevents accidental tipping of cultures. which may loosen culture plugs. Holds nine 11/4"-diam culture vials.

173110 Each \$9.10



173090 Drosophila Culture Netting

Drosophila Culture Netting

Plastic netting used in our Drosophila cultures. Package of 100 strips, each 10 cm L.

173090 Pack of 100 \$22.00 10+ Packs Each \$21.00



Vial Labels for Drosophila Crosses

Pressure-sensitive labels for recording parents of Drosophila crosses. Also includes spaces for date and student's name. Roll of 500 $(5 \times 2.5$ -cm) labels.

173190 Per roll \$31.75 \$30.50 5+ Rolls Each



173116 Mite Spray

New! Mite Spray

Safely eliminate mites (Tyrophagus putrescentiae) with this effective spray. Mite Spray includes a heavy-duty foam sprayer that optimizes the exposure of mites to the spray and provides easy spray-onwipe-off use. Active ingredients: isopropanol and ethylene glycol monohexyl ether. Perfect for keeping Drosophila cultures free from contamination. 975-mL bottle.

173116 Mite Spray Each \$25.95 173116R Refill (975 mL) Each \$18.95



173221 Fixed-Volume Dispenser

Fixed-Volume Dispenser One-gal plastic container

pre-set to dispense the correct amount of water for use in our item #173120 Drosophila Culture Vials. Dispenses $^{1}/_{2}$ oz or about 15 mL. Drosophila medium cup and instructions included.

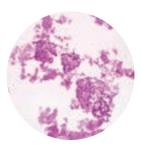


More Ways to Use Drosophila

Expand your use of Drosophila in the classroom with Carolina's Drosophila prepared slides, such as items #308118 and #308124 on page 528 and item #309066 on page 531.



308124 Drosophila Male and Female, w.m.



309066 Drosophila Chromosomes, smear

Genetics Yeast Genetics



173609 DNA Damage: Studying the Impact of UV Light 1-Station Kit (with youcher)



155847P Sordaria Genetics BioKit (with perishables)



173610 Investigating Cell Communication Kit (with voucher)

DNA Damage: Studying the Impact of UV Light Kit A fresh inquiry update to our popular Sunscreen for Yeast—and People Too! kit

Using a UV-sensitive mutant strain of the yeast *Saccharomyces cerevisiae*, students investigate the impact of UV light on living organisms. The *S. cerevisiae* mutant strain is extremely sensitive to UV light because it lacks an effective method for repairing damaged DNA. In the first activity, students determine the impact of UV light on 2 strains of yeast, wild-type and UV-sensitive. After understanding the true impact of UV light, students then have the opportunity to design their own inquiry investigation to determine how to best prevent UV damage to the UV-sensitive yeast strain. In the second activity, these investigations can have students testing various sunscreens, cloth samples, or myriad other options of their own choosing. This entire activity is accomplished in 3 to 4 class periods and will truly give you a great starting point for discussing DNA repair systems and the impact of UV light on the human body. The **8-Station Kit** includes enough materials for 32 students working in groups of 4; the **1-Station Kit** includes materials for 1 group of 4. Both kits include digital resources; visit **Carolina.com** for complete lists of materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**. **Note:** *Order the kit with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*

173608	8-Station Kit (with voucher)	Each	\$136.50
173608P	8-Station Kit (with perishables)	Each	\$136.00
173609	1-Station Kit (with voucher)	Each	\$39.75
173609P	1-Station Kit (with perishables)	Each	\$39.75

Sordaria Genetics BioKit®

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. Students cross the wild-type *Sordaria* strain with the mutant tan strain. Hybrid asci are produced containing 4 dark- and 4 light-colored ascospores. Students then use tetrad analysis to calculate the gene to centromere distance in map units for the mutant tan gene. The exercise requires about 10 to 14 days from setup of cross plates to completion. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep fungi cultures at room temperature; do not incubate or refrigerate.*

155847 Kit (with voucher) Each **\$156.75 155847P** Kit (with perishables) Each **\$156.75**

Investigating Cell Communication Kit

Students perform a foundational experiment to demonstrate cell communication in yeast reproduction. They study the yeast life cycle and observe yeast morphology to determine if and how cells communicate. They design an experiment using different mating types of yeasts, culturing techniques, and microscopy to provide evidence that single-celled organisms communicate. Kit includes enough materials for 1 class of students working cooperatively in 8 groups plus 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

173610 Kit (with voucher) Each **\$123.00 173610P** Kit (with perishables) Each **\$123.00**

Yeast Media

Yeast-Extract Dextrose Medium (YED)

173650 For Preparing 500 mL Each **\$11.75 173651** For Preparing 2 L Each **\$29.00**

Minimal Media with Vitamins (MV)

173659 For Preparing 2 L Each \$35.75

Yeast-Extract Peptone Adenine Dextrose Medium (YEPAD)

173655 For Preparing 2 L Each \$55.00

Saccharomyces cerevisiae Strains (haploid)

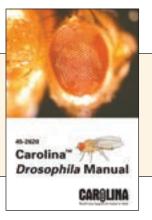
Strain	Genotype	Comment	ltem No.	Each
HA0	a	Wild type; will grow on MV	173620	\$13.50
HB0	α	Wild type; will grow on MV	173621	\$13.47
HA1	a ade1	Red, adenine-requiring; wild type for ADE2	173622	\$13.47
HB1	α ade1	Red, adenine-requiring; wild type for ADE2	173623	\$13.50
HA2	a ade2	Red, adenine-requiring; wild type for ADE1	173624	\$13.50
HB2	α ade2	Red, adenine-requiring; wild type for ADE1	173626	\$13.50
HBT	α <i>trp5</i>	White, tryptophan-requiring	173631	\$13.25
G948-1C/U (UV-Sensitive)	o. rad1 rad18 phr1 ura3	Mutant in excision repair, error prone repair, photoreactivation, uracil-requiring	173634	\$16.25

Genetics

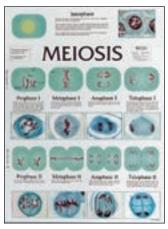
Teacher Resources

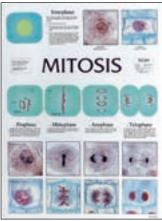
36 pages, full color. A complete guide for maintaining and studying *Drosophila*. The manual features detailed explanations and sound suggestions for virtually every aspect of using fruit flies for studying genetics, making it perfect for teachers and students new to *Drosophila*. Soft cover.

452620 Each \$8.75









571170 Cell Division Chart Set

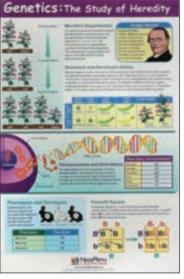
Cell Division Chart Set

Two 18 \times 24" charts detail mitotic and meiotic cell division in both plants and animals. *Mitosis* features color illustrations and photomicrographs (3,100 \times) of whitefish blastodisc and onion root tip. *Meiosis* features color photomicrographs (2,400 \times) of lily pollen and color diagrams of centrioles and asters found only in animal cells. Both charts are laminated.

 571170
 Set
 Each
 \$59.00

 571164
 Mitosis Chart
 Each
 \$32.25

 571165
 Meiosis Chart
 Each
 \$32.25

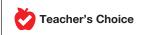


557104 Genetics of Heredity

Genetics of Heredity

 $23\times35".$ Features comprehensive coverage of genetics topics, including Mendel's experiments, dominant and recessive alleles, chromosomes and inheritance, phenotypes and genotypes, and the Punnett square. Laminated.

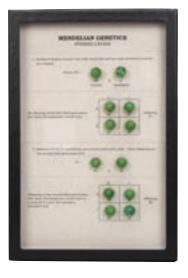
557104 Each \$23.25



Mendelian Genetics Monohybrid Cross

Biorama[™] preparation. Demonstrate Gregor Mendel's classic genetic experiment using this informative display of his pea plant crosses. The display investigates phenotypes of pea shape, crossing 2 homozygous parents and yielding the F₁ and F₂ Students generations. visualize separation of alleles and make the distinction between dominant and recessive traits. Features solid-colored marbles representing the dominant allele and semi-transparent marbles representing the recessive allele. Genetic crossing is labeled and represented in an 8 × 12" glassfronted display.

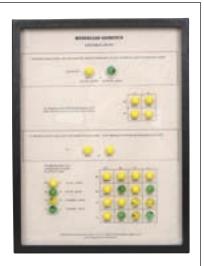
264400 Each \$62.00



Mendelian Genetics Dihybrid Cross

Biorama[™] preparation. This simple, effective display demonstrates Mendel's laws-the law of segregation and the law of independent assortment—using pea shape and color. A homozygous dominant parent is crossed with a homozygous recessive parent, yielding the F, generation. The F₁ generation offspring are crossed, showing the 4 combinations of traits in the classic 9:3:3:1 ratio. Features solid-colored marbles representing dominant alleles and semi-transparent marbles representing recessive alleles. Genetic crossing is labeled and represented in a 12 × 16" glassfronted display.

264402 Each \$82.00



Evolution

The Evidence for Evolution

Carolina offers a number of great kits and resources to help bring evolution to life in your classroom.

Changing and Adapting over Time

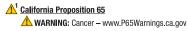
With release of the new Next Generation Science Standards* (NGSS), evolution has become a core idea in both the middle school and high school curriculums (LS4, Biological Evolution). Whether you want kits that help students identify how organisms change as a result of their environment or to help them construct an explanation for the process of natural selection, Carolina has what you need. In addition to kits, our anthropology skull sets can aid discussions of hominid evolution, plus our living materials fit well into classification activities. No matter how you attempt to tackle the topic of evolution in your classroom, Carolina offers a range of support as you begin to meet the new NGSS guidelines.

The Evidence for Evolution

If You Want to Teach:	We Suggest:	ltem No.	Page No.
Origin of Life	Carolina Investigations® for Use with AP® Biology: Origin of Life Kit	747530	303
Natural Selection	Natural Selection with <i>Drosophila</i> Kit	171995	219
	Natural Selection Kit	171200	219
	Carolina Investigations® for Use with AP® Biology: Natural Selection Kit	△ ¹ 747520	302
	Carolina Investigations® for Use with AP® Biology: Population Genetics and Evolution Kit	1 747510	303
	Inquiries in Science®: Simulating the Darwinian Theory Kit	<u>^</u> 251013	219
Artificial Selection	Investigating Artificial Selection Using Plant Populations Kit	158776	217
	Artificial Selection Materials Kit	747900	306
Molecular Evolution	Genetic Kinship: Following the Globin Gene Through Time Kit	211105	217
	Evolution in Real Time: Bacteria and Antibiotic Resistance Kit	171205	218
	Antibiotic Sensitivity Kit	154747	17
	Inquiries in Science®: Changing Over Time Kit	251014	9
	Using DNA Barcodes to Identify and Classify Living Things Kits	<u>^</u> 2 211385	244
	Detecting Epigenetic DNA Methylation in Arabidopsis Kit	1 211403 1 211403	245
	Carolina Investigations® for Use with AP® Biology: Evolving Enzymes Kit	747820	298
	Mitochondrial DNA Polymorphisms in Human Evolution Kit	211236A	246
	Making Lactose-Free Milk Kit	211337	217
	Exploring Enzymes and Evolution Through Lactose Intolerance Kit	202270	319
Evolutionary Anthropology	Bone-Colored Hominid and Great Ape Set	281002	219
	Somso® Early Man 6-Skull Set	281013	441
Classification and Taxonomy	Inquiries in Science®: Classifying Across the Kingdoms Kit	<u>^</u> 251015	9
	Structure and Function Kit: The Evolution of Eukaryotes, Prokaryotes, and Viruses	131210	218
	Cladograms and Evolution Kit	<u>^</u> 1 221042	218

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*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of these products, and do not endorse them.











Genetic Kinship: Following the Globin Gene Through Time Kit

Intermediate—Easy to perform; requires some background knowledge.

This kit introduces genetic similarity and variation by evolutionary processes. Students can examine the evolution of the globin gene family with 3 dynamic activities. In the first activity, students use magnetic nucleotide bases to model DNA and RNA structure. They generate a mutation in the sequence and investigate subsequent changes in the amino acid sequence. In the second activity, students focus on gene duplication by making cladograms. In the final activity, students model biotechnology techniques including restriction enzyme digestion, polymerase chain reaction, and gel electrophoresis to diagnose an individual with sickle-cell anemia. The **1-Station Kit** equips up to 4 students; the **8-Station Kit** equips up to 32 students. Both kits include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Kit includes:

Nucleotide Magnet Set(s)
Magnet-Receptive Whiteboard

Container(s) with Lids

Teacher's Manual and Student Guide

211105 8-Station Kit Each **\$179.00 211108** 1-Station Kit Each **\$31.95**



Making Lactose-Free Milk Kit

Beginning—Easy to perform; requires little or no prior knowledge.

Many students are aware of lactose intolerance, but how many actually understand what it means and how it relates to human evolution? This kit helps your students make that connection. Students review the relationship between genes and proteins, learn about enzyme functionality, and explore the relationship between lactase and human evolution. In the core activity, students create a column with immobilized lactase enzyme beads to create lactose-free milk. Designed for 8 groups of students working in groups of 2 to 4 and can be completed in a 50-minute class period.

211337 Per kit \$85.75

Check out another lactose activity on page 319.



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory.

Wisconsin Fast Plants® Investigating Artificial Selection Using Plant Populations Kit

Grade 6–College. For a class of 32 students. Previously titled Hairy's Inheritance: Competing to Make the Hairiest Fast Plant Kit, this open-ended experiment (perfect for AP® Biology) utilizes inquiry and cooperative learning. The activities can be used to study the process of science, natural selection, plant breeding, genetics, plant growth, and reproduction. Starting with the standard Wisconsin Fast Plants® seed stock, students use a quick, simple method to count leaf hairs and select the hairiest plants to produce seed for the next generation. Comparison of the average number and distribution of leaf hairs in both generations enables students to describe the pattern of inheritance for hairiness and to test a hypothesis. Experiment time varies—typically 55 days to grow and evaluate 2 generations. Go to Carolina.com for a refill seed set (item #158785B).

Kit includes:

Standard Fast Plants® Seed Supplies for Planting a Second Generation All Other Planting Materials

158776 Per kit **\$114.70**

Exploring Selection with Wisconsin Fast Plants® and Cotyledons Kit

Grades 9–12. For a class of 30 students. Students grow Wisconsin Fast Plants® seedlings that can be dicots (having 2 cotyledons) or polycots (having more than 2 cotyledons). They are asked to develop an experiment to help determine why the seedlings vary in cotyledon number. Is the trait genetically or environmentally determined? In the second investigation, students germinate second generation seeds that were produced by a cross of 2 parents that both exhibited the polycot trait. Students then observe whether the percentage of polycots in the 2 generations differs and determine the statistical significance of any observed difference. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158778 Per kit \$95.00

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211108 Genetic Kinship: Following the Globin Gene Through Time 1-Station Kit



211337 Making Lactose-Free Milk Kit



158776 Wisconsin Fast Plants Investigating Artificial Selection Using Plant Populations Kit



158778 Exploring Selection with Wisconsin Fast Plants and Cotyledons Kit

Evolution



Cladograms and Evolution A

In this classroom kit, students use 2 lines of evidence to model evolutionary relationships. First, students examine the external anatomy of 5 preserved specimens, note external morphological similarities between the animals,

then create a cladogram based on anatomical similarities. Next, students compare the amino acid sequence of the cytochrome c protein of each specimen to this amino acid sequence in humans. Students then construct a second cladogram based on these molecular similarities. Using information from both exercises, they then create a revised cladogram that considers both morphological characteristics and genetic information. Kit is designed for a class of 32 students working in groups of 4 and includes 2 of each preserved specimen (grasshopper, crayfish, perch, frog, and rat), comprehensive teacher's manual with reproducible student guide, and FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221042 Per kit \$84.00



Evolution in Real Time: Bacteria and Antibiotic Resistance Kit

Looking for an engaging activity that blends the topic of evolution with the real-world issue of antibiotic resistance? In this experiment, students observe firsthand the evolution of a bacterial population's resistance to antibiotics over generations. It gives students the opportunity to use sterile technique, perform serial dilutions, plate bacteria, and understand the process of natural selection. The **8-Station Kit** is designed for 8 groups of 2 to 4 students each. The **1-Station Kit** is designed for 1 group of 2 to 4 students. All kits include digital resources; visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

171205	1-Station Kit (with voucher)	Each	\$73.00
171205P	1-Station Kit (with perishables)	Each	\$73.00
171206	8-Station Kit (with voucher)	Each	\$149.95
171206P	8-Station Kit (with perishables)	Each	\$149.95

171205 Evolution in Real Time: Bacteria and Antibiotic Resistance 1-Station Kit (with voucher)



171203P Evidence of Evolution: Form Fits Function (with perishable)

Evidence of Evolution: Form Fits Function

Travel through geologic time with this exploration of plant evolution. Students examine green algae, liverwort, *Selaginella*, fern, gymnosperm, and angiosperm living plant tissue. They look closely at slides of mycorrhizae, vascular tissue, stomata, and pollen to determine how plant adaptations contributed to the evolutionary success of terrestrial plants. Then students complete an activity using toluidine blue to observe differences in vascular tissue among living plants. Materials are sufficient for 30 students working in groups of 3 or 4. **Note:** *Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Cannot be shipped to CA.*

171203 Kit (with voucher) Each **\$163.00 171203P** Kit (with perishable) Each **\$163.00**



131210 Structure and Function Kit: The Evolution of Eukaryotes, Prokaryotes, and Viruses (with voucher)

Structure and Function Kit: The Evolution of Eukaryotes, Prokaryotes, and Viruses

For a class of 30 working in groups of 3. This kit contains 3 activities that highlight the structure and function of eukaryotes, prokaryotes, and viruses. In the first activity, students design a cell or virus by selecting traceable structures and organelles, and then name the type of drawn cell or virus and describe its characteristics. Next, students trade drawings and practice classification using a dichotomous key. In the second activity, students practice microscope techniques and hone their observation skills by documenting various morphologies of bacteria and the parasitism of tobacco mosaic virus on a leaf. In the third activity, students observe *Amoeba* feeding on *Chilomonas*, allowing them to visualize functioning organelles and the concept of endocytosis. Provided background information illuminates the leading theories of evolution and the relationship among eukaryotes, prokaryotes, and viruses. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*

131210 Kit (with voucher) Each **\$97.85 131210P** Kit (with perishables) Each **\$97.85**

Evolution



251013 Simulating the Darwinian Theory Kit

Simulating the Darwinian Theory Kit 🗥

- Observe how natural selection affects a population
- Learn that mutations, gene flow, genetic drift, and selective mating affect a population
- Provide cross-curricular integrations such as math and graphing

Grades 9–12. Allow students to explore the theory of evolution and witness the process through simulations. Students use a guided-inquiry technique as they work in groups to simulate natural selection through predation. Experiments address natural selection, variety within species, overpopulation, genetic variability, and gene pools. **Kit** includes lab supplies (enough for at least 30 students working in groups) plus teacher's manual. **Kit Refill** replenishes consumed materials.

251013 Kit Each **\$271.44 251061** Kit Refill Each **\$189.89**



171200 Natural Selection Kit

Natural Selection Kit

Students explore natural selection and the way in which environmental change affects the genetic traits of a population. They also examine the Hardy-Weinberg principle and the concept of genetic equilibrium. Using models of peppered moths, students conduct a series of experiments, changing the environmental variables and recording the results. They calculate the allelic, genotypic, and phenotypic frequencies for several generations of moths. These activities guide students to understand how environmental change can influence the allelic frequencies for a population over time. Kit contains enough materials for 30 students working in groups of 3 and includes a teacher's manual with reproducible student guide; visit Carolina.com for complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

171200 Per kit \$89.75

Natural Selection with Drosophila Kit

Bringing a realistic model of natural selection and evolution into your classroom has never been easier. Using the model organism *Drosophila melanogaster*, students introduce a single advantageous "mutation" (red eyes) into a population of white-eyed "ancestral" strain flies. They then observe and calculate the new trait's spread and the shift in population phenotypes over generations. The fitness advantage offered by the "mutation" classically exhibits evolution by natural selection—and your students can see it happen right in the classroom. This kit is designed for 32 students working cooperatively in 8 groups of 4. Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. Please order at least 2 weeks in advance of desired ship date.*

171995 Kit (with voucher) Each **\$128.00 171995P** Kit (with perishables) Each **\$128.00**



171995P Natural Selection with *Drosophila*Kit (with perishables)

Evolutionary Anthropology



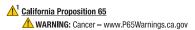
Bone-Colored Hominid and Great Ape Set

Resin. These high-quality skulls show details not usually found in reduced-scale reproductions. The ½-scale replicas are hand cast in durable resin and are available in bonelike color that dramatically increases the amazing detail.

281002 Per set \$798.95

For more quality anthropology skull sets, turn to page 441.

281002 Bone-Colored Hominid and Great Ape Set



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Gel Electrophoresis 253
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MiniPCR®

Carolina's Biotechnology Mission

For over a quarter century we have been committed to making biotechnology a part of your classroom. That mission continues today as we help you shape biotechnology education by focusing on:

- Exclusive kits, some developed in partnerships with the leading names in science
- Comprehensive activities designed for all levels, from introductory to advanced
- Field-tested kits and manuals that minimize lab preparation and guarantee success
- Customizable solutions designed to fit your specific needs, budget, and classroom

At Carolina, we continually strive to improve our biotechnology products, because innovative research does not just belong in our labs—it also belongs in your classroom.

Carolina Partners



Carolina is proud to be a partner of the DNA Learning Center—an operating unit of Cold Spring Harbor Laboratory, an important center for molecular

genetics research. Since 1986, Carolina has worked with the DNALC to bring innovative, high-quality kits and teaching materials to educators. DNALC kits are being updated and improved to include visual procedures, paper model activities, real-world connections, and more. Go to page 227 to learn more.



Carolina is proud to be partnered with the HudsonAlpha Institute for Biotechnology and its educational outreach team. The education

and outreach programs of HudsonAlpha are organized around 2 guiding principles: preparing the future biotechnology workforce and cultivating an awareness of the influence of genetics and biotechnology on the lives of all citizens.





Carolina is proud to partner with BioBuilder®, an awardwinning team at MIT dedicated to creating innovative STEM education focused on synthetic biology. BioBuilder® kits offer

unique labs that connect real-world questions in agriculture, medicine, biofuels, and environmental remediation with classroom content.



Carolina is proud to be partnered with miniPCR®, whose vision is to bring polymerase chain reaction (PCR) technology to everyone, everywhere. Its innovative engineering has made DNA science

interactive and tangible for a new generation of students, educators, and scientists. Never before has biotechnology been such a personal experience.

We Are Here to Help!

If you need suggestions or advice on bringing biotechnology into your classroom, we are here to help. No matter if your task is complex (designing a biotechnology curriculum) or simple (purchasing microcentrifuge tubes), we have solutions to fit your classroom and budget. Use the table below to pick the perfect items for your needs.

You Need:	We Suggest:	Item No.	Page No.
A good DNA model for teaching	DNA Structure and Function Kit	211113	265
	Dynamic DNA Kit®	211143	261
A basic DNA extraction kit	Strawberry DNA Extraction Kit	211338	229
	DNA Necklace Kit	<u>^</u> 2 211138	229
To practice basic pipetting techniques	Practice Pipetting Stations Kit	211145	239
An introduction to electrophoresis	Exploring Electrophoresis and Forensics Kit	211014	236
A DNA fingerprinting lab that fits into a class period	Fast Gels Kit	211036	240
Inquiry-based DNA electrophoresis	Carolina Investigations® for Use with AP® Biology: Electrophoresis and Simulated Genetic Screen Kit	747770	301
A bacterial transformation kit	Green Gene Colony Transformation Kit	211080	231
("genetic engineering" lab)	Glow-in-the-Dark Transformation Kit	211088	231
	pBLU® Colony Transformation Kit	211146	231
A digital simulator for teaching transformation	Carolina® Biotechnology Simulator: Bacterial Transformation	217100	262
To teach about gene expression and regulation	Exploring Gene Expression Through Transformation Kit	211100	230
	Carolina BioKits®: Introduction to Gene Regulation: The <i>lac</i> Operon	171027	255
An ELISA kit	ELISA Simulation Kit	211248	252
A protein electrophoresis kit	Fish Protein Fingerprinting Kit	211255	253
To realistically portray forensic DNA analysis	PCR Forensics Simulation Kit	211213	242
	Forensic PCR Investigation Kit	211400	245
To introduce your students to PCR	Mitochondrial DNA Polymorphisms in Human Evolution Kits	211236A to 211238	BAP 246
	Using an <i>Alu</i> Insertion Polymorphism to Study Human Populations Kits	211230A to 211232	2AP 247
To bring cutting-edge research into your classroom	CRISPR in a Box™ Kit	216900 to 216900F	234
	Using DNA Barcodes to Identify and Classify Living Things Kits	△ ² 211385 to 211387F	244
	Inducing RNAi by Feeding Kits	211391 to 211391F	257
An equipment package for performing electrophoresis	Carolina® Electrophoresis Lab Station Equipment Package	213603	273

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Color Key:

Beginning—Easy to perform; requires little or no prior knowledge.

Intermediate—Easy to perform; requires some background knowledge.

Advanced—For experienced high school and college classes; requires some technical skill.





Experience the Carolina Biotechnology Digital Advantage

Many Carolina biotechnology kits include FREE 1-year access to digital resources on CarolinaScienceOnline.com:

- Teacher's manuals
- Downloadable, printable student materials
- Interactive lessons, videos, simulations, and animations

Biotechnology BioBuilder®

BioBuilder® What a Colorful World Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Introduce bio-engineering concepts
- Teach synthetic biology and microbiology techniques
- · Allow students to experience real-world connections

The molecular biology kit uses 2 bacterial cell types and 2 color-generating plasmids to teach DNA expression, inheritance, and sterile technique. The lab extends beyond classic transformation technique because it is put in context with the engineering concept of "chassis selection" when choosing the best host cell. Results are easy to analyze because the colors are visible to the naked eye, and students can observe how their structural framework alters the colors they see. **Kit** includes enough materials for 24 students working in 6 groups; visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables. Use perishable materials within 1 week of receipt.*

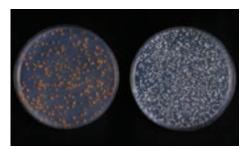
 217004
 Kit (with voucher)
 Each
 \$150.50

 217004P
 Kit (with perishables)
 Each
 \$150.50

 217005
 Kit Refill
 Each
 \$136.50



217004P BioBuilder What a Colorful World Kit (in use)



217006P BioBuilder Golden Bread Transformation Kit (in use)

BioBuilder® Golden Bread Transformation Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Introduce bio-engineering concepts
- Teach synthetic biology and microbiology techniques
- Allow students to experience real-world connections

This biology lab focuses on a strain of baker's yeast, modified to produce β-carotene (VitaYeast), a nutrient we naturally obtain from eating specific vegetables. In the body, β -carotene is converted to vitamin A, which is crucial for vision, the immune system, and other biological functions. Investigate how one can possibly substitute standard baker's yeast, making it possible for users to bake vitamin A-enriched loaves of bread (Golden Bread). Manipulate Saccharomyces cerevisiae and its metabolic pathway, and understand the importance of genetic redundancy when engineering a synthetic system. Kit includes enough materials for 24 students working in 6 groups; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables.

217006 Kit (with voucher) Each **\$299.95 217006P** Kit (with perishables) Each **\$299.95**



217008P BioBuilder Golden Bread PCR Kit (in use)

BioBuilder® Golden Bread PCR Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Introduce bio-engineering concepts
- Teach synthetic biology and microbiology techniques
- Allow students to experience real-world connections

This biology lab explores the engineering of a yeast that's genetically modified to produce β -carotene. In the body, β -carotene is converted to vitamin A, which is crucial for vision, the immune system, and other biological functions. Use PCR to test the metabolic pathway of modified Saccharomyces cerevisiae as part of the engineering design-build-test pathway and investigate how to make it possible for users to bake vitamin A-enriched loaves of bread. Kit includes enough materials for 24 students working in 6 groups; visit Carolina.com for complete lists of kit materials . Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables.

 217008
 Kit (with voucher)
 Each
 \$165.00

 217008P
 Kit (with perishables)
 Each
 \$165.00

 217009
 Electrophoresis Pack
 Each
 \$36.50



BioBuilder® kits feature detailed, fullcolor teacher manuals with diagrammed lab protocols, infographics, and more!

View each complete manual at

Carolina.com/biobuilderkits.

BioBuilder

Biotechnology



217000P BioBuilder Eau That Smell Kit (in use)

BioBuilder® Eau That Smell Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- · Introduce bio-engineering concepts
- · Teach synthetic biology and microbiology techniques
- Allow students to experience real-world connections

Students learn microbiology techniques while modifying stinky bacteria into bacteria that smell like bananas. Use this lab to investigate the design and placement of promoters to determine gene expression. Collect class data to compare quantitative

and qualitative results of microbial population growth dynamics. **Kit** includes enough materials for 24 students working in 6 groups; visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables. Use perishable materials within 1 week of receipt.*

217000	Kit (with voucher)	Each	\$122.50
217000P	Kit (with perishables)	Each	\$122.50
217001	Kit Refill	Each	\$92.50

217002P BioBuilder iTune Device Kit (in use)

BioBuilder® iTune Device Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Introduce bio-engineering concepts
- Teach synthetic biology and microbiology techniques
- Allow students to experience real-world connections

In this lab, students test different combinations of promoters and

ribosome binding sites by looking at the β -galactosidase enzyme output. Students learn about the *lac* operon, transcription, and translation while testing their genetic constructs. The simple lab procedure with spectrophotometry makes it possible for students to understand these challenging topics. **Kit** includes enough materials for 24 students working in 6 groups; visit **Carolina.com** for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables. Use perishable materials within 1 week of receipt.

 217002
 Kit (with voucher)
 Each
 \$216.00

 217002P
 Kit (with perishables)
 Each
 \$216.00

 217003
 Kit Refill
 Each
 \$167.00



BioBuilder® Guiding Light: Measuring and Analyzing Fluorescence Kit

Now includes a simple-to-build fluorescence viewer

Fluorescence has powerful applications in the world of science. In this simple yet impactful activity, students examine the relationship between fluorescence intensity and concentration of fluorescent molecules. They use a typical highlighting marker to create a standard curve, giving them the ability to determine the concentration of fluorescent molecules in other samples. Kit provides enough materials to perform the experiment once; visit Carolina.com for complete list. Use the kit in many different educational settings: laboratory, classroom, at home, and remote learning.

217010 Per kit \$11.00

HudsonAlpha Institute for Biotechnology

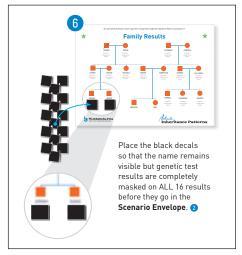


New! Authentic Inheritance Patterns Kit

See what happens when inheritance patterns walk off the pages of a textbook and into a doctor's office

Students take on the roles of geneticist and genetic counselor to determine the genetic disease of a 6-year-old patient named Mason, the disease's inheritance pattern, and the likelihood that other family members have the same disease. To do so, student groups each examine 1 of 5 unique scenarios that include family pedigrees. They also explore how a disease can be caused by genetic changes in many different genes and can be inherited in a dominant, recessive, or X-linked pattern. Featuring reusable case cards and decals, this kit is perfect for teaching pedigrees and inheritance within an authentic, engaging medical context. Kit materials are sufficient for 10 groups of 3 to 4 students and include free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

214827 Per kit \$75.00



From 214827 Authentic Inheritance Patterns Kit





Disorder Detectives® Classroom Kit

Students jump into the role of cytogeneticists working in a hospital or clinic as they explore the diagnostic power of karyotyping in this one-of-a-kind activity. This kit provides students with a hands-on experience studying human chromosomes and connecting various karyotypes with chromosomal disorders. Students work on 1 of 15 case studies to complete patient karyotypes and help make appropriate disease diagnoses. They gain exposure to a wide range of chromosome anomalies and normal karyotype spreads during the investigation. Students deal with chromosome abnormalities resulting from nondisjunction, deletion, inversion, and translocation. Kit materials are reusable and offer your students an exceptional experience that can change the way you approach karyotyping in your classroom. Classroom Kit is designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials. Decal Set provides additional reusable decals for the kit.

214800 Classroom Kit Each **\$195.00 214801** Decal Set Each **\$59.50**

Gaudy Goldfish Kit

Grades 6–8. In this fun and impactful series of activities, students take on the role of goldfish breeders to investigate genetic phenotypes, analyze and interpret offspring data to determine inheritance patterns, and prepare a goldfish breeding plan. Challenge your students to ask their own questions and define problems, while analyzing and interpreting data to design and explain their solutions. Compete to find out which students will develop the most successful goldfish business. Using the included card sets featuring beautiful graphics, they have fun building their stock of fancy goldfish, all while learning the foundations of genetics. These high-quality materials can be used in your classroom or at home for many years to come. This classroom kit is designed for 32 students working in groups of 4. FREE 1-year access to digital resources that support 3-dimensional instruction included. Visit Carolina.com for a complete list of kit materials.

214826 Per kit **\$185.75**

HudsonAlpha kits capture students' interest in biotechnology jobs by using authentic activities with real-world contexts. Learn more about the unique approach of these kits at Carolina.com/HudsonAlphakits.





HudsonAlpha

Room Temp. DNA **Storage**

214820 HNPCC: Detecting Inherited Forms of Cancer CarolinaBLU Kit

HNPCC: Detecting Inherited Forms of Cancer Kit Use heredity and biotechnology to explore colorectal cancer

Cancer diagnostics and treatments are on the front line of the biotechnological revolution. Your students get into the action by taking on the roles of researcher, clinician, and genetic counselor as they attempt to diagnose a family of patients. Using pedigrees and a simulated DNA-based diagnostic, students explore the genes linked to hereditary nonpolyposis colorectal cancer (HNPCC) in a fictitious family. Requires 3 lab periods (45-60 min) and 1 discussion session to complete. Designed for 32 students working in groups of 4 and available with your choice of CarolinaBLU® or GelGreen® DNA stain. Both kits include free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. DNA Pack includes DNA ladders and simulated DNA.

214820 CarolinaBLU Kit Each \$185.00 214821 GelGreen Kit \$208.95 Each 214823 DNA Pack for CarolinaBLU Kit Each \$139.95 214824 DNA Pack for GelGreen Kit Each \$139.95



Making Sense of Uncertainty Kit

Expose your students to the use of human genome sequencing data in medicine by allowing them to take on the role of clinical scientists. Students examine multiple pieces of evidence to determine whether a genetic variant is likely to cause a patient's symptoms. Students must support their claim using evidence and explain their reasoning. Each student group is assigned 1 of 5 case studies that describes the patient's symptoms, family history, past genetic testing, and the genetic variant of interest. Accompanying each case study are 9 evidence cards, each of which contains a different piece of information about the variant. Kit is designed for a class of 30 students working in groups and includes a digital slide presentation, a script for guiding students through the activity, and free 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

214814 Per kit \$78.95

Biotechnology



Genes and ConSEQUENCES Kit

In today's fast-paced world of genetics, a tremendous number of DNA sequences are being generated by scientists around the world. Unlocking the power of these sequences requires a specific skill set and a keen understanding of using databases and conducting sequence comparisons. Accessing the National Center for Biotechnology Information (NCBI) database, students use the Basic Local Alignment Search Tool (BLAST) to compare their sequences to gene segments published in the database. Using a case study approach, students continue to explore their sequences as they work to determine the location and role of their gene in a disease. Kit is designed to continually reinforce the central dogma of biology and give students basic knowledge of these database tools. Designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

214805 Per kit \$61.00



Collecting Cancer-Causing Changes Kit

Let this HudsonAlpha kit guide your students' investigation into mutation accumulation in cells progressing toward cancer. Using digital vignettes from HudsonAlpha's video, Focus on Cancer, beads, and dice, this unique demonstration of chance and randomization lets students simulate the fate of a population of cells across multiple cell divisions. This model illustrates how a population of cells becomes more varied over time, and how those changes may lead a group of cells to become more cancerous. Students will learn:

- . Multiple mutations are necessary for the development of cancer
- The function of tumor suppressors, oncogenes, and DNA repair genes using multiple mutation pathways to cancer
- The misconceptions about mutations and their function in cancer genetics

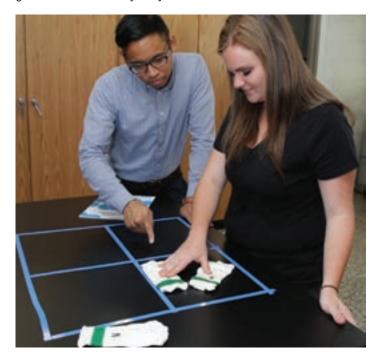
The classroom kit is designed for 32 students working in pairs and includes FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

214825 Per kit \$101.75

ChromoSock® Kits

Ever wish that learning meiosis was as easy as folding socks?

Understanding the stages of meiosis and articulating Mendel's laws have always been challenging for students. What if those tasks were as easy as doing laundry? ChromoSock® activities are built with that concept in mind by having students use custom-sewn socks to mimic chromosomes. These specialty socks, made in the US, are different sizes, lengths, and colors to help demonstrate the differences between chromosomes and the genetic information they carry.



Teacher Testimonial

"FINALLY, a simple activity that allows students to 'see' the process of chromosome replication, tetrad formation, and chromosome separation during meiosis. HURRAY for ChromoSocks!"

Cheryl Magnum
High School Teacher





ChromoSock® Meiosis Kit

Beginning—Easy to perform, requires little or no prior knowledge.

Help students overcome the challenge of visualizing and understanding meiosis. The kit's activities introduce meiosis as students model the behavior of chromosomes during a reduction division and relate it to the maintenance of chromosome number during sexual reproduction. Students model and document each stage of meiosis using the included ChromoSock® specialty socks. Students also recreate a meiotic event with nondisjunction and relate these changes in chromosome number to monosomy and trisomy. Kit is designed for 32 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

214810 Per kit **\$237.00**



ChromoSock® Modeling Mendel's Laws Kit

Beginning—Easy to perform, requires little or no prior knowledge.

This kit makes it easy for students to simulate chromosomes and demonstrate how those structures carry and transfer information. Using ChromoSock® specialty socks, students model the behavior of chromosomes during meiosis, visualize segregation of alleles and independent assortment, and complete Punnett squares. The kit also features a paper review meiosis activity to make sure students are prepared to learn about Mendel's laws in greater depth. Kit is designed for 32 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

214812 Per kit \$225.00



ChromoSock® Modeling, Meiosis, and Mendel Kit

Take your students' understanding of meiosis and other advanced topics to the next level as students model meiosis while focusing on Mendel's laws, investigating the formation of gametes, fertilization, and the possible combination of alleles from fertilization. Kit provides a pre-lesson that aids in assessing student mastery of meiosis content, as well as multiple extension activities to address telomeres, deletions, epigenetic changes, and more. Kit is designed for 32 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

214813 Per kit \$230.00

DNA Learning Center

DNA Learning Center

DNALC Kits

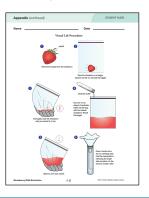


Biotechnology

Announcing new enhancements and updates to your favorite kits

For more than 35 years the DNA Learning Center at Cold Spring Harbor Laboratory and Carolina Biological Supply Company have worked together to provide innovative and high-quality educational materials. Continuing in this tradition, we have updated many of our DNALC kits to better serve the modern classroom. The enhancements include:

Visual Lab Procedures offer step-by-step instructions, with detailed visuals to help students as they work through the labs.



Colorful enhanced lab flows provide time estimates and identify key lab events at a glance, to make planning easy.



DNALC kits provide time-tested, approachable protocols and advanced

Learn more about **DNALC** kits at Carolina.com/DNALCKits.

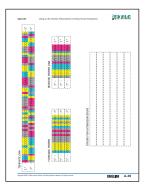
techniques you can trust.

A Real-World Connections resource section links knowledge and skills used in each lab to actual lab techniques, current careers, historical perspectives, and scientist profiles or examples of scientists in practice.



Courtesy of Cold Spring Harbor Laboratory Archives, NY

Paper Model Activities, added to many of the kits, incorporate visualization, interaction, and modeling to help students gain a deeper understanding of a lab's molecular components; the activities may be done before starting a lab or during lab down times.



GelGreen® DNA stain has replaced ethidium bromide stain as a safer alternative; the resulting bright green bands are comparable to SYBR®. Prefer ethidium bromide? Purchase the DNA Gel Electrophoresis Reagent Set with Ethidium Bromide (item #211300).



Biotechnology micro-credentials provided by Bioscience Core Skills Institute (BCSI) align to the knowledge and skills taught in many of the kits. Earning micro-credentials enables students to demonstrate biotechnology skill mastery to prospective employers. For the applicable kits, its teacher manual specifies which BCSI microcredentials the lab supports.











Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has not been updated but will be soon.

Introductory Kits

Designed specifically for middle school and junior high, this series of kits introduces basic concepts of molecular biology and genetics in a way that makes biology fun and interesting.



DNA Learning Center







Strawberry DNA Extraction Kit

Beginning—Easy to perform; requires little or no prior knowledge.

Grade 5 and up. This kit meets many of the National Science Education Standards in life science. Students may never look at strawberries the same again! This exciting activity is ideal for introducing students to the fascinating world of DNA. Using a technique similar to the one used by scientists, students work in pairs to extract DNA from strawberry fruit and examine it. They also review plant cell structure, and learn cell wall and cell membrane composition. Kit includes plastic tubes, plastic bags, funnels, ethanol, detergent, pipets, cheesecloth, sodium chloride, and wooden sticks. Also includes a comprehensive teacher's manual with reproducible student worksheets, background information, lesson instructions, follow-up activities, and a glossary. Strawberries are not included. Designed for 32 students.

211338 Per kit \$78.00





Baggie Cell Model Kit

Grades 5–8. This kit meets many of the National Science Education Standards in life science. Introduce students to the concept of "form fits function" by familiarizing them with different kinds of cells, their organelles, and the specific jobs each organelle performs. Students work in pairs to build a model animal cell using common materials. Each cell component is identified to indicate which organelle it represents. Kit includes plastic bags, measuring cups, hollow plastic balls, yarn, string, kidney beans, peas, pipe cleaners, beads, toothpicks, binder clips, and sodium polyacrylate. Also includes a comprehensive teacher's manual with reproducible student worksheets, background information, lesson instructions, follow-up activities, and a glossary. Designed for 32 students.

211336 Per kit \$80.25



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has not been updated but will be soon.





Making Lactose-Free Milk Kit

Beginning—Easy to perform; requires little or no prior knowledge.

Many students are aware of lactose intolerance, but how many actually understand what it means and how it relates to human evolution? This kit helps your students make that connection. Students review the relationship between genes and proteins, learn about enzyme functionality, and explore the relationship between lactase and human evolution. In the core activity, students create a column with immobilized lactase enzyme beads to create lactose-free milk. Designed for 8 groups of students working in groups of 2 to 4 and can be completed in a 50-minute class period.

211337 Per kit \$85.75





Ötzi the Iceman—Pollen Tells a Story Kit KITS Acting as forensic investigators, students use pollen as a forensic

tool to piece together a timeline showing where Ötzi the Iceman, one of the world's oldest known natural mummies, may have traveled for the last 36 hours of his life. Through microscopy, they observe a variety of pollens from different geographic locations. Students then compare them with pollen samples from Ötzi's directive tract to construct a man of his travels in the Ötzel Mountains, where he

geographic locations. Students then compare them with pollen samples from Ötzi's digestive tract to construct a map of his travels in the Ötzal Mountains, where he died. Kit is designed for 8 groups of 3 to 4 students. Includes teacher's manual with reproducible student guide and FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete list of kit materials.

211880 Per kit \$74.00



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.

DNA Extraction & Quantitation

DNA Extraction & Quantitation

Introduce students to DNA as more than an abstract concept!

• Simple procedure can be completed in 1 class period

- Middle school through college level
- · Engaging and economical

Biotechnology





211762 DNA Keepsake 1-Station Kit



Beginning—Easy to perform; requires little or no prior knowledge.

Using safe, simple materials, students extract their own DNA—and experience the wonder of having it appear right before their eyes! The DNA is then transferred to a glass vial and paired with a beautiful pewter double-helix pendant, becoming a piece of jewelry that acts as an expression of an individual's personal genetic makeup for all to appreciate. The **1-Station Kit** includes enough materials to create 1 DNA Keepsake; the **12-Station Kit**, 12 DNA Keepsakes; and the **24-Station Kit**, 24 DNA Keepsakes. All provide 1-year access to digital resources; visit **Carolina.com** for complete lists of kit materials. **Note:** *Kit requires students to use samples of their own saliva. Check your school's policy regarding the use of bodily fluids in the classroom.*

 211762
 1-Station Kit
 Each
 \$32.50

 211763
 12-Station Kit
 Each
 \$154.70

 211764
 24-Station Kit
 Each
 \$218.40





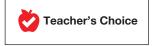
Onion DNA Extraction Kit

Beginning—Easy to perform; requires little or no prior knowledge.

- Makes the abstract concept of DNA concrete
- Simple procedure
- . DVD demonstrating procedure and setup is helpful for the first-time user

A simple procedure for extracting DNA from onions. Kit contains instructions and materials for 15 extractions.

211133 Per kit \$62.00





211138 DNA Necklace Classroom Kit

🍗 DNA Necklace Kit 🕰

Beginning—Easy to perform; requires little or no prior knowledge.

This fun, fascinating lab activity not only shows students how to isolate human genomic DNA, it also lets them create wearable DNA necklaces. Students extract their own DNA by lysing their cheek cell sample, developing wispy white strands of their DNA as a precipitate, then transferring their DNA into plastic microcentrifuge tubes that are made into pendant necklaces using colorful string. **Demonstration Kit** includes enough materials for 1 student. **Classroom Kit** includes enough materials for 32 students. Both include free 1-year access to digital resources that support 3-dimensional instruction; visit **Carolina.com** for complete lists of kit materials. **Note:** *Kit requires students to use samples of their own saliva. Check your school's policy regarding the use of bodily fluids in the classroom.*

211138 Classroom Kit Each **\$72.75 211134** Demonstration Kit Each **\$29.50**





DNALC

Strawberry DNA Extraction Kit

Beginning—Easy to perform; requires little or no prior knowledge.

Grade 5 and up. This kit meets many of the National Science Education Standards in life science. Students may never look at strawberries the same again! This exciting activity is ideal for introducing students to the fascinating world of DNA. Using a technique similar to the one used by scientists, students work in pairs to extract DNA from strawberry fruit and examine it. They also review plant cell structure, and learn cell wall and cell membrane composition. Kit includes plastic tubes, plastic bags, funnels, ethanol, detergent, pipets, cheesecloth, sodium chloride, and wooden sticks. Also includes a comprehensive teacher's manual with reproducible student worksheets, background information, lesson instructions, follow-up activities, and a glossary. Strawberries are not included. Designed for 32 students.

211338 Per kit \$78.00



Biotechnology Transformation

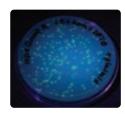
Exploring Gene Expression Through Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

- Explain the importance of promoters and gene regulation
- Perform a successful bacterial transformation
- · Describe the role of transformation in genetic engineering
- Articulate the importance of the controls in an experiment

Using β -thalassemia as a medical example, students explore the phenomenon of gene regulation in this hands-on kit. As students progress through the lab, they answer why changes in the DNA sequence in front of a gene (not in the gene's coding sequence) affect how much functional protein is produced by the gene. They also use a new plasmid in a transformation experiment that includes a gene for kanamycin resistance. They learn to utilize IPTG as a compound to turn on gene expression for certain promoters. Finally, students successfully transform plasmid to produce green fluorescent protein (GFP). Kit includes enough materials for a class of 32 students working in 8 groups of 4, as well as 1-year access to digital resources that support 3-dimensional instruction; visit **Carolina.com** for complete lists of kit materials. **Note:** Order kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211100 Kit (with voucher) Each **\$99.00 211100P** Kit (with perishables) Each **\$99.00**





211100P Exploring Gene Expression Through Transformation Kit (with perishables)

Gene to Protein: Green Fluorescent Protein Necklace Kit

Illuminate the dark corners of your students' curiosity by teaching them about proteins. This simple classroom exercise enables students to isolate the green fluorescent protein (GFP) found in jellyfish, while teaching them about recombinant proteins and genetic engineering. After students isolate the GFP, they expose their samples to ultraviolet (UV) or blue LED light and watch them glow. Students then create necklaces with their glowing GFP and wear them proudly. With this beginner's activity, you can show your students that protein science can be approachable and engaging, but not overwhelming. Kits equip 32 students and include teacher's manual with reproducible student guide and 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

 211555
 Kit (with voucher)
 Each
 \$84.00

 211555P
 Kit (with perishables)
 Each
 \$84.00

 211902
 Carolina UV LED Flashlight
 Each
 \$28.50

211902 Carolina UV LED Flashlight See the cells glow!

211555P Gene to Protein: Green Fluorescent Protein Necklace Kit (with perishables)

GloFish® Fluorescent Zebra Fish

Bring a living example of genetic engineering into your classroom

With their illuminating appearance (from a borrowed sea coral gene), fluorescent zebra fish bring wonder and excitement to your classroom, office, or home freshwater aquarium. Originally bred for detecting environmental pollutants in waterways, GloFish® fluorescent fish are completely safe. The fun, attractive, brightly colored fish are also excellent classroom organisms for introducing topics such as genetic modification, fitness effects, ethics, environmental science, and many others. GloFish® Assortments come in sets of 4 or 6. Colors as available. Note: GloFish® fluorescent fish are licensed under 1 or more United States patents. Reproduction (breeding) of GloFish® is permitted only for educational use by teachers and students in bona fide educational institutions; however, any sale, barter, or trade of the offspring from such reproduction is strictly prohibited. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

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145253	Sunburst Orange®	Pack of 4	\$36.00
145255	Electric Green®	Pack of 4	\$36.00
145264	Cosmic Blue®	Pack of 4	\$36.00
145265	Galactic Purple®	Pack of 4	\$36.00
145266	GloFish® Assortment	Set of 4	\$36.00
145257	GloFish® Assortment	Set of 6	\$50.62



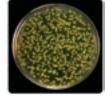
Assorted GloFish Fluorescent Zebra Fish

Transformation

Biotechnology

At Carolina we know that every classroom is unique. That is why we offer a variety of transformation kits to help you meet the needs of your students or to try something new.





211146P pBLU Colony Transformation 8-Station Kit (with perishables)



Green Gene Colony Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

Open your students' eyes to the genetic basis of inheritance with this simple lab. Developed in cooperation with the DNA Learning Center, this kit clearly demonstrates the induced uptake of a jellyfish gene by *E. coli*. Students observe the phenotypic effect of adding the gene for GFP (green fluorescent protein). GFP is expressed on plain LB—no color development substrate or induction reagent is needed. Your students can easily view the "green" effects in normal classroom lighting. Colonies will fluoresce under UV light. The plasmid containing the GFP gene also contains an ampicillin resistance gene, so ampicillin can be used to select for transformants. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211080	Teacher Demonstration Kit (with voucher)	Each	\$61.95
211080P	Teacher Demonstration Kit (with perishables)	Each	\$61.95
211080C	Teacher Demonstration Kit Perishables Refill	Each	\$30.50
211081	4-Station Kit (with voucher)	Each	\$81.50
211081P	4-Station Kit (with perishables)	Each	\$81.50
211082	8-Station Kit (with voucher)	Each	\$129.00
211082P	8-Station Kit (with perishables)	Each	\$129.00
211082C	4- and 8-Station Kit Perishables Refill	Each	\$30.50
211902	Carolina UV LED Flashlight	Each	\$28.50

pBLU® Colony Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

Students use specially developed pBLU® plasmid in a colony transformation procedure to observe the phenotypic effect of inserting new genes into living bacteria. An ampicillin-sensitive strain of *E. coli*, incapable of producing β -galactosidase for lactose breakdown, is induced to take up pBLU® plasmid DNA. This plasmid contains genes for both ampicillin resistance and β -galactosidase production. The transformed cells are plated on (1) medium containing ampicillin, and (2) medium containing ampicillin and X-gal. (X-gal is a histochemical substrate that, when cleaved by β -galactosidase, forms a blue product.) Transformants appear as white colonies on the ampicillin medium and as blue colonies on the ampicillin/X-gal medium. The transformed colonies' phenotype is lac^+ and amp'. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*

211145X	Teacher Demonstration Kit (with voucher)	Each	\$79.95
211145XP	Teacher Demonstration Kit (with perishables)	Each	\$79.95
211145Y	4-Station Kit (with voucher)	Each	\$103.00
211145YP	4-Station Kit (with perishables)	Each	\$103.00
211146	8-Station Kit (with voucher)	Each	\$138.95
211146P	8-Station Kit (with perishables)	Each	\$138.95
211146A	4- and 8-Station Kit Perishables Refill	Each	\$63.00





Glow-in-the-Dark Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

Bacteria that produce light are very common in the ocean. One luminescent bacterium is *Vibrio fischeri*. The group of genes involved in the production of light (also known as the lux genes) has been removed from *V. fischeri* and placed in a plasmid, pVIB. Bacterial transformation is used to transfer the pVIB plasmid into *E. coli*. After *E. coli* takes up the plasmid, it glows in the dark. The transformed colonies are also ampicillin resistant. **Note:** *Bacteria transformed with the pVIB plasmid must be grown at 30°C or less for the glowing to be seen. Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Cannot be shipped via USPS.*

211086 211086P	Teacher Demonstration Kit (with voucher) Teacher Demonstration Kit (with perishables)	Each Each	\$66.50 \$66.50
211086C	Teacher Demonstration Kit Perishables Refill	Each	\$29.25
211087	4-Station Kit (with voucher)	Each	\$85.00
211087P	4-Station Kit (with perishables)	Each	\$85.00
211088	8-Station Kit (with voucher)	Each	\$135.00
211088P	8-Station Kit (with perishables)	Each	\$135.00
211088C	4- and 8-Station Kit Perishables Refill	Each	\$31.75

Developed in collaboration with the DNA Learning Center of Cold Spring Harbor Laboratory.





Colony Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

These kits demonstrate the induced uptake and expression of foreign DNA by a living cell. Students observe the phenotypic effect of adding new DNA sequences to living bacteria. *E. coli* cells that take up an antibiotic-resistance gene gain the ability to grow in the presence of ampicillin. Requires preparation 2 days prior to lab. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211140	Teacher Demonstration Kit (with voucher)	Each	\$74.00
211140P	Teacher Demonstration Kit (with perishables)	Each	\$74.00
211140C	Teacher Demonstration Kit Perishables Refill	Each	\$30.50
211141	4-Station Kit (with voucher)	Each	\$87.50
211141P	4-Station Kit (with perishables)	Each	\$87.50
211142	8-Station Kit (with voucher)	Each	\$129.00
211142P	8-Station Kit (with perishables)	Each	\$129.00
211142B	4- and 8-Station Kit Perishables Refill	Each	\$32.25

Visit Carolina.com for complete lists of kit materials.



Purification of Green Fluorescent Protein

Teach your students how to purify a green fluorescent jellyfish protein produced in *E. coli*!

Intermediate/Advanced—Modules 1 and 2 require some background knowledge. Module 3 is for more experienced classes and requires some technical skill.

These kits are great for teaching:

- . The molecular basis of heredity
- The relationship between genes and proteins
- How E. coli is used to engineer proteins useful in medicine and manufacturing
- Three techniques—transformation, protein purification, and protein gel electrophoresis—commonly used in biological research and its areas of application

The lab is set up in 3 modules that can be purchased separately and used in conjunction with one another.

Module 1, the Green Gene Colony Transformation Kit, is necessary for creating the GFP-expressing bacteria used in the protein purification exercise in Module 2.

Module 2 contains all the reagents and instructions necessary for purifying GFP from E. coli.

Module 3 contains the acrylamide gels and other electrophoresis reagents necessary for electrophoretic analysis of the purified GFP. The 3rd module is optional but greatly enhances the teaching value of the lab.

Visit Carolina.com for complete lists of kit materials. **Note:** Order each module with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return each voucher to request delivery of perishable materials. Refrigerate Module 3's polyacrylamide gels and protein marker until use.

211080	Module 1	(transformation)	Teacher	Demonstration	Kit (with \	oucher)

Each **\$61.95**

211080P Module 1 (transformation) Teacher Demonstration Kit

(with perishables) Each **\$61.95**

211082 Module 1 (transformation) 8-Station Kit (with voucher)

Each \$129.00

211082P Module 1 (transformation) 8-Station Kit (with perishables)

Each **\$129.00**

211072 Module 2 (purification) 8-Station Kit (with voucher)

Each **\$79.95**

211072P Module 2 (purification) 8-Station Kit (with perishables)

Each **\$79.95**

211073 Module 3 (electrophoresis) 8-Station Kit (with voucher)

Each **\$125.00**

211073P Module 3 (electrophoresis) 8-Station Kit (with perishables)

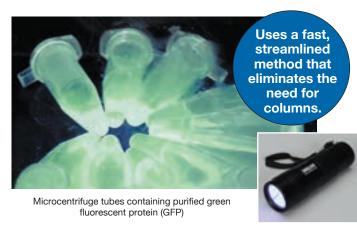
Each **\$125.00**

211902 Carolina UV LED Flashlight

Each **\$28.50**



211082P Purification of Green Fluorescent Protein 8-Station Kit (with perishables)



211902 Carolina UV LED Flashlight

Transformation



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has not been updated but will be soon.



E-Z Gene Splicer DNA Recombination and Transformation Kit

An introduction to cloning

Advanced—For experienced high school and college classes; requires some technical skill.

Developed in cooperation with the DNA Learning Center, this lab features a deceptively simple experiment that shows the key elements of constructing recombinant DNA. Students ligate (join) DNA fragments containing 2 types of antibiotic-resistant genes and insert the recombined DNA into *E. coli* cells using rapid colony transformation. Cells containing recombined DNA molecules are detected by their dual antibiotic resistance. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Perishables are shipped on gel cold packs. Foreign orders require special handling.

 211162
 6-Station Kit (with voucher)
 Each
 \$260.50

 211162P
 6-Station Kit (with perishables)
 Each
 \$260.50

 211162C
 6-Station Kit Perishables Refill
 Each
 \$151.25



211162P E-Z Gene Splicer DNA Recombination and Transformation Kit (with perishables)

Beyond Transformation

Beyond Transformation

Biotechnology



211150P pClone: Exploring Promoters with Synthetic Biology Kit (with perishables)



211170P rClone: Exploring Regulation of Translation with Synthetic Biology Kit (with perishables)

pClone: Exploring Promoters with Synthetic Biology Kit

Advanced—For experienced high school and college classes; requires some technical skill.

Bring the unique area of synthetic biology into your classroom with this one-of-a-kind kit activity. Your students get the opportunity to take on the role of genetic engineers as they clone promoters into 2 different plasmids. This hands-on approach to transcription regulation exposes your class to a wide array of biological disciplines including biotechnology, molecular biology, and evolutionary biology.

Students clone the promoters into the plasmids, pClone Red and pClone Blue, which are then transformed into *E. coli* cells. Based on the orientation of the promoter, students will observe colonies that appear green (produce GFP), red (produce RFP), or blue (produce AmilCP blue) on their culture plates. The lab becomes quantitative as students use freely available software to determine the level of protein expression in their colonies. Requires thermal cycler that can maintain a temperature of 16° C. Kit includes 1-year access to digital resources that support 3-dimensional instruction and enough materials for 8 groups of 2 to 4 students. The activities typically take 3 to 6 class periods for completion. Visit Carolina.com for a complete list of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of the perishable materials.*

211150 Kit (with voucher) Each **\$268.50 211150P** Kit (with perishables) Each **\$268.50**

New! rClone: Exploring Regulation of Translation with Synthetic Biology Kit

Advanced—For experienced high school and college classes; requires some technical skill.

Bring your instruction to the next level with a lab that focuses on the regulation of translation instead of transcription. Students get hands-on experience with cloning ribosomal binding sites onto a plasmid and observe its effects on transformed bacteria by quantifying the expression of GFP in red and/or blue colonies. In the lab students use a thermocycler and the Golden Gate Assembly (GGA) technique to clone 2 different ribosome binding sites (RBS)—a weak ribosome binding site and a strong ribosome binding site—into a plasmid with a reporter gene. They then transform their GGA reactions into E. coli and observe the ability of each cloned RBS to support expression of a reporter gene. Students quantitate reporter gene expression using photographs and easy-to-use ImageJ software. Kit is designed for 8 groups of 2 to 4 students and requires approximately five 50-minute class periods to complete, with an additional 110 minutes at its conclusion to represent and discuss data. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of the perishable materials.

211170 Kit (with voucher) Each **\$235.25 211170P** Kit (with perishables) Each **\$235.25**

Bacterial Strains

Cultures should be used within 1 month, but are best used within 2 weeks of delivery. Store at $+4^{\circ}$ C.

MM294

An *E. coli* strain isolated in the laboratory of Matthew Meselson. MM294 gives superior yields of plasmid DNA in mini-preparations. Wild-type phenotype. Contains no plasmids.

211530 Slant Culture Each **\$16.00 211531** Streaked Plate Each **\$18.25**

MM294/pAMP

Ampicillin-resistant phenotype. Contains plasmid pAMP. Slant culture.

211540 Each \$15.75

β-Galactosidase-Deficient E. coli

For use in pBLU® transformation experiments. This is a mutant *E. coli* strain incapable of producing β-galactosidase, which is necessary for the breakdown of lactose or X-gal, a lactose analog. When these bacteria are transformed with pBLU®, they will breakdown X-gal (and lactose) and this results in blue colonies. Slant culture.

211561 Each \$15.50

Competent E. coli Cells

Invitrogen. Add plasmid using simple heat-shock protocol and plate on Luria broth agar plus appropriate selection antibiotic. Plan to use cells within 2 weeks of their arrival. Order at least 2 weeks before needed. 1 mL. **Note:** Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Competent cells must be stored at -70° C for any prolonged period of time.

211600 Each \$117.25

Biotechnology CRISPR

Carolina has a proud history of bringing breakthrough biotechnology to classrooms, and CRISPR is no exception to this tradition. Engage in contemporary and cutting-edge biotechnology with our kits, models, and more.







CRISPR in a Box™ Kit

An AUTHENTIC gene editing experience available only from Carolina and a Best of STEM 2023 Award finalist

As your students explore Nobel Prize-winning CRISPR technology with this kit, they walk in the footsteps of science pioneers and use the same techniques that scientists across the world have used to solve the global problems of tomorrow. Designed to be safe and approachable, the kit activities break down each portion of the gene editing reaction into fundamental steps, offering teachable moments along the way. Students will:

- . Understand how CRISPR interacts with DNA
- · Carry out gene editing reactions in a cell-free environment
- Visualize all gene editing products from a single reaction
- Develop a fundamental understanding of the degree of mutagenesis and precise or error-prone gene editing outcomes
- Explore the effects of different repair pathways acting simultaneously (HDR, NHEJ, MMEJ, etc.)
- Study gene knockout and knock-in strategies in one reaction

Kit includes background information, experimental overview, timelines, expected results, and more, plus enough materials for 10 reactions; visit Carolina.com for complete lists of kit materials and cold storage requirements. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Perishable items require immediate use upon receipt or storage at -20°C. Plan to be present when kit is delivered to ensure proper handling and storage. Should not be shipped over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday to avoid weekend shipping.

216900 Kit (with voucher) Each **\$599.95 New! 216900P** Kit (with perishables) Each **\$599.95**



Making the Cut with CRISPR-Cas9[®] Set A

3D Molecular Designs. Model how the Cas9 protein is programmed with RNA to search for and identify specific sequences of DNA before making the double-stranded cut. Explore and discuss how Cas9 is being engineered with new features that make it a useful tool for editing the human genome. Students can use the colorful foam pieces and placemat in this set to:

- Build a schematic model of the CRISPR-Cas9 RNA-guided endonuclease, including the viral double-stranded DNA and dual guide RNA
- Understand how the Cas9 protein binds to a specific sequence of viral doublestranded DNA at a PAM site—and cuts it
- Demonstrate how that cut destroys viral genome and prevents the infection of bacteria

Equips 1 group of 4 students; visit **Carolina.com** for a complete list of set materials. Go to the 3D Molecular Designs website for additional resources: PDFs of Teacher Notes (an activity guide) to help you consider different ways to use the materials and additional resources to supplement or reinforce concepts presented in the classroom. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

216330 Per set **\$90.25**

211772P Exploring the CRISPR-Cas Defense System Kit (with perishables)

-Cas bles)

Exploring the CRISPR-Cas Defense System Kit

Intermediate—Easy to perform; requires some basic training in microbiology.

Your students walk in the footsteps of the scientists that first discovered this exciting gene-editing technology. Originally discovered as an integral part of the immune system of bacteria, you and your class explore the CRISPR-Cas system and its role in defending the host bacteria from viral bacteriophages. Bacteriophages outnumber bacteria 10:1 and have evolved an intricate immune system to combat invading phages. One such system, the CRISPR-Cas, uses small pieces of RNA to detect phages with matching DNA sequences, and destroys them. Over the course of this 5-day lab, students conduct experiments and analyze data to understand the relationship between a phage called Andhra and its staphylococcus host and answer the driving question. How can we use evidence to model phage-host interactions and therefore explain the impact of a CRISPR-Cas system on bacterial survival? Kit materials equip 8 student groups and include 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For all kits with perishables included, order 2 weeks prior to the requested delivery date. Perishables are only shipped on Mondays, Tuesdays, and Wednesdays. Plan to use the perishable materials within 1 week of receiving them. S. epidermidis is classified as nonpathogenic and can be shipped to schools in accordance with guidelines of the US Department of Health and Human Services. However, the strains used in this kit are biofilm forming bacteria that have been identified as resistant to several antibiotics. Use of an autoclave to dispose of microbiological waste is recommended. Refer to the kit teacher's manual for safety precautions, handling, and other safety protocols.

211772 Kit (with voucher) Each **\$135.25 211772P** Kit (with perishables) Each **\$135.25**



CRISPR Adaptive Immunity Kit®

3D Molecular Designs. Discover how bacteria remember past viral infections and activate their CRISPR systems to search for and destroy the remembered virus' DNA—preventing infection. This introduction to CRISPR biology will help your students understand how the Cas9 protein works. Students can use this kit's engaging foam pieces to:

- Build the bacteria's CRISPR array, which includes Cas9, tracr, spacer and repeats
- Detect the presence of viral double-stranded DNA
- Integrate a short fragment of this viral genome into the bacteria's CRISPR array
- Express the CRISPR array to create the Cas9 proteins and the guide RNA

Visit Carolina.com for a complete list of kit materials. Go to the 3D Molecular Designs website for additional resources: PDFs of Teacher Notes (an activity guide) to help you consider different ways to use the kit materials and additional resources to supplement or reinforce concepts presented in the classroom. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

216332 Per kit \$74.75

DNA Transfer & Working with E. coli

Biotechnology

DNA Transfer & Working with E. coli



Introduction to Sterile Technique Kit

Allow your students to practice important sterile lab skills for studying microorganisms. Students perform 2 sterile exercises: the transfer of sterile nutrient broth to a culture tube and the transfer of sterile nutrient broth from a culture tube onto a nutrient agar plate. Students must be able to perform both of these exercises without introducing unwanted microorganisms and understand the use of a positive control. Kit includes materials sufficient for 10 groups of 3 students. Visit Carolina.com for a complete list of kit materials.

821042 Per kit \$113.30



211125P Introductory Bacterial Conjugation Kit (with perishables)

Introductory Bacterial Conjugation Kit A2

Intermediate—Easy to perform; requires some background knowledge.

Developed in cooperation with Dr. Robert Thomson, formerly of Marquette University. Useful for teaching bacterial identification and the intercellular transfer of genes for antibiotic resistance between microorganisms. Students identify and confirm the identity of bacteria with different antibiotic resistance by streaking on different antibiotic selective media. Strains are then combined on a "mating" plate to allow conjugation. Results are tested on various media for growth response to demonstrate that DNA can be transferred between 2 genetically different cells. Requires an overnight culture and minimal teacher preparation. Kit is designed for 16 to 32 students working in groups of 2 or 4 (8 stations). Visit Carolina.com for a complete list of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Antibiotic solutions and cultures last 1 month when refrigerated.

211125 Kit (with voucher) \$138.00 Fach 211125P Kit (with perishables) Each \$138.00 Kit Perishables Refill 211125A \$49.00 Each



211128P Transduction of an Antibiotic-Resistance Gene Kit (with perishables)

Transduction of an Antibiotic-Resistance Gene Kit Genetic engineering as it occurs in nature!

Intermediate—Easy to perform; requires some background knowledge.

In this easy exercise, students observe a natural method of gene transfer. The harmless bacterial virus T4 transmits an ampicillin-resistance gene to E. coli. Students also observe the killing of *E. coli* by the bacteriophage. For more advanced students, a discussion of nonsense mutations and nonsense suppressing mutations is included with the teacher background information. Kit is designed for 16 to 32 students working in groups of 2 or 4 (8 stations). Visit Carolina.com for a complete list of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

Kit (with voucher) 211128 \$215.00 Each 211128P Kit (with perishables) \$215.00 Each 211128C Kit Perishables Refill Each \$39.50



211127P Advanced Bacterial Conjugation Kit (with perishables)

Advanced Bacterial Conjugation Kit A2

Intermediate—Easy to perform; requires some background knowledge.

- Designed for 16 to 32 students (8 stations)
- Minimal teacher preparation
- · Requires overnight bacterial culture
- Inquiry-based learning

Teach your students about gene transfer between bacterial strains. In 1 of the included strains of E. coli, the gene for antibiotic resistance for streptomycin is located on the chromosome. In the other, the gene for antibiotic resistance for ampicillin occurs as extrachromosomal plasmid DNA. Through the process of streaking the conjugated bacteria on 4 different types of antibiotic selective media, students determine which bacterial strain is the donor strain. Visit Carolina.com for a complete list of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Antibiotic solutions and cultures last 1 month when refrigerated.

Kit (with voucher) Each \$150.00 211127P Kit (with perishables) Fach \$150 00 Kit Perishables Refill 211127C Each \$49.00

Biotechnology Electrophoresis

Exploring Electrophoresis Series—introduce electrophoresis without the need for advanced biotechnology equipment

Economical

- Durable and reusable
- Simple
- Safe

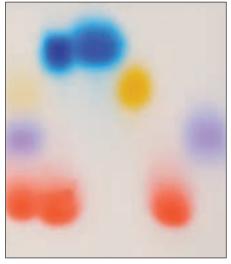
Kits in this series contain everything needed to run a gel electrophoresis lab for an entire class—just add water and batteries. Or avoid the hassle of batteries by adding USB-C Electrical Leads with Insulated Alligator Clips (item #211027) and the USB-C Charger Plug (item #211028) to any kit in this series. The upgrade dependably runs Exploring Electrophoresis Series gel chambers and makes it easier and more economical to reuse a kit.

211012 Exploring Electrophoresis and Forensics Demonstration Kit (in use)





211027 USB-C Electrical Leads with Insulated Alligator Clips



Gel from 211000 Exploring Electrophoresis of Dyes Demonstration Kit

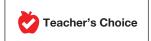


211014 Exploring Electrophoresis and Forensics Classroom Kit

New! USB-C Electrical Leads with Insulated Alligator Clips

Power lab applications with USB-C—and forget the batteries! Delivering 45-V DC when plugged into a USB-C port, these leads replace the battery-to-alligator clip system when used with our Exploring Electrophoresis Series kits (items #211033, #211034, #211012, and #211014) and Petri Dish Electrolysis Kit (item #840830). For best results, we recommend powering these leads with the USB-C Charger Plug (sold separately).

211027 USB-C Leads with Clips Each **\$24.95 211028** USB-C Charger Plug Each **\$9.95**



Exploring Electrophoresis of Dyes Kit 🗥

Beginning—Easy to perform; requires little or no prior knowledge.

Students separate mixtures of colorful dyes and identify the components by comparing them to standards. Effectively demonstrates the principles of electrophoresis. Gels can be run in 35 minutes with five 9-V batteries or in 50 minutes with 3 batteries.

The **Demonstration Kit** contains instructions, 1 set of apparatus (with 6-well comb), and sufficient supplies for 3 demonstrations. The **Classroom Kit** contains instructions, 5 sets of apparatus (with 6-well comb), and sufficient supplies for 15 experiments. The **Replacement Kit** contains enough of the following for 15 experiments:

Agarose Powder and TBE Buffer Carbon-Fiber Electrodes Pipet Tips and Dye Samples

211000	Demonstration Kit	Each	\$71.25
211002	Classroom Kit	Each	\$238.00
211003	Replacement Kit	Each	\$61.00

Exploring Electrophoresis and Forensics Kit

Beginning—Easy to perform; requires little or no prior knowledge.

- Introduces advanced concepts of PCR and DNA fingerprinting
- Gels can be run in 45 minutes with five 9-V batteries or overnight with 1 battery
- · Introduces forensic techniques

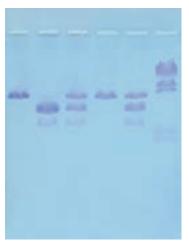
This technically simple experiment simulates the use of DNA in forensic investigations. Students cast agarose gels, load predigested DNA, and perform electrophoresis. They use the banding patterns of the DNA in the gel to compare the DNA fingerprints of 2 suspects with evidence and victim DNA. Visit Carolina.com for complete lists of kit materials. The kit's predigested DNA can also be bought in bulk by the mL; minimum order is 1 mL. Note: Distilled or deionized water is needed but not included. Order bulk DNA 2 weeks prior to desired ship date.

211012	Demonstration Kit	Each	\$105.00
211014	Classroom Kit	Each	\$399.25
211016	Refill Kit	Each	\$219.95
211014V	Victim DNA	Per mL	\$80.25
211014E	Evidence DNA	Per mL	\$80.25
211014S1	Suspect 1 DNA	Per mL	\$80.25
211014S2	Suspect 2 DNA	Per mL	\$92.50

Electrophoresis



Gel from 211004 Exploring Electrophoresis of DNA Demonstration Kit



Gel from 211018 Nature's Dice: A Genetic Screening Simulation Classroom Kit



Gel from 211008 Exploring Restriction Analysis and Electrophoresis of DNA Demonstration Kit

Biotechnology

Exploring Electrophoresis of DNA Kit

Intermediate—Easy to perform; requires some background knowledge.

Students separate mixtures of precut DNA fragments using samples of lambda DNA—uncut, cut with *Eco*RI, and cut with *Hind*III—to effectively demonstrate the action of restriction enzymes and the principles of electrophoresis. Gels can be run in 3½ hours using three 9-V batteries or overnight with 1 battery. **Demonstration Kit** contains instructions, 1 set of apparatus (with 4-well comb), and materials for 2 demonstrations. **Classroom Kit** contains instructions, 5 sets of apparatus (with 4-well comb), and materials for 10 experiments. **Replacement Kit** includes everything in the Classroom Kit except the 5 sets of apparatus. Visit **Carolina.com** for complete lists of kit materials. **Note**: *Distilled or deionized water and batteries are needed but not included.*

 211004
 Demonstration Kit
 Each
 \$80.50

 211006
 Classroom Kit
 Each
 \$331.25

 211007
 Replacement Kit
 Each
 \$120.25

Nature's Dice: A Genetic Screening Simulation Kit Great for merging classical Mendelian genetics and modern molecular biology!

Intermediate—Easy to perform; requires some background knowledge.

This lab is designed to help your students understand:

- · Genetic screening of an extended family
- Classical Mendelian genetics
- Molecular basis of heredity
- Ethical and social implications of genetic testing

· Modern molecular biology

Students receive a 24-member family tree and DNA samples presumably taken from each family member. They determine the genotype of each of the relatives by cutting the DNA samples with a restriction enzyme and separating the fragments by gel electrophoresis. The genotypes revealed by the class are used to determine the pattern of inheritance of the "gene" being analyzed and to predict each person's phenotype. In this simulation, the teacher and students choose a fictitious phenotype to link to the gene, although the principles and issues raised would apply to real situations. Classroom Kit contains instructions, sets of apparatus, and enough materials to run 5 gels. Refill Kit contains everything in the Classroom Kit except gel apparatus and gel loading apparatus. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211018 211018P 211018A 211018AP 211018C 211019A	Autosomal Recessive Trait Classroom Kit (with voucher) Autosomal Recessive Trait Classroom Kit (with perishables) Autosomal Recessive Trait Refill Kit (with voucher) Autosomal Recessive Trait Refill Kit (with perishables) DNA and Marker Only (from item #211018) Sex-Linked Trait Refill Kit (with voucher)	Each Each Each Each Each	\$368.25 \$368.25 \$174.00 \$174.00 \$132.50 \$180.95
		Each Each Each	\$180.95 \$180.95 \$144.30

Exploring Restriction Analysis and Electrophoresis of DNA Kit

Intermediate—Easy to perform; requires some background knowledge.

Students set up their own restriction digests of lambda DNA with BamHI, EcoRI, and HindIII using Instant DNA and Instant Enzymes. They then separate the resulting DNA fragments by electrophoresis. Gels can be run in 3½ hours using three 9-V batteries or overnight with 1 battery. **Demonstration Kit** contains instructions and 1 set of apparatus with materials for 2 separate experiments. **Classroom Kit** contains instructions and 5 sets of apparatus (with 4-well comb) with materials for 10 separate experiments. **Replacement Kit** contains everything in the Classroom Kit except the sets of apparatus. Visit **Carolina.com** for complete lists of kit materials. **Note:** Distilled or deionized water, batteries, and a 37° C water bath are needed but not included.

 211008
 Demonstration Kit
 Each
 \$96.00

 211010
 Classroom Kit
 Each
 \$378.50

 211011
 Replacement Kit
 Each
 \$197.50



Room Temperature Storage DNA

Kits displaying this icon include DNA formulated to be stable at room tem-

perature for a limited period of time.

Exploring Electrophoresis Using Forensic DNA Evidence Kit

Intermediate—Easy to perform; requires some background knowledge.

- Introduces students to the use of DNA analysis in forensic investigations
- Perform a technically simple, hands-on experiment in 45 minutes with 9-V batteries
- · Discuss advanced topics of PCR and DNA fingerprinting

Solve a forensic mystery using the tools of biotechnology and the concept of DNA fingerprinting. Students cast agarose gels, load predigested DNA samples, and perform electrophoresis. They stain the gels and analyze the banding patterns of DNA collected from the suspects and the crime scene. Includes beautifully illustrated instructions as well as needed materials and equipment. **Demonstration Kit** contains 1 set of apparatus and sufficient supplies for 1 instructor to demonstrate the lab twice to a classroom. **Classroom Kit** contains 5 sets of apparatus and sufficient supplies for 5 groups to perform the lab twice. Materials are durable and

reusable with replacement parts available. **Replacement Kit** contains enough *Carolina*BLU® stain, agarose, 20× TBE buffer, DNA evidence samples, and pipet tips for 5 groups of students to perform the lab twice. All kits include 1-year subscription to digital resources; visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**. **Note:** *Distilled or deionized water, batteries or power supply, and hot water bath are needed but not supplied.*

 211033
 Demonstration Kit
 Each
 \$82.00

 211034
 Classroom Kit
 Each
 \$309.00

 211038
 Replacement Kit
 Each
 \$216.50

Gel from 211034 Exploring Electrophoresis Using Forensic DNA Evidence Classroom Kit

Electrophoresis



211034 Exploring Electrophoresis Using Forensic DNA Evidence Classroom Kit

Exploring Electrophoresis Series Accessories



Carolina® Electrophoresis Power Supply

Designed for use with the Exploring Electrophoresis Series—never again worry about batteries

A low-voltage power supply designed to run low-voltage applications. Use with the Exploring Electrophoresis Series in place of batteries. Two-channel design lets you run 2 gel boxes simultaneously. Five voltage settings from 10 to 60 V in 10-V increments.

213674 Each \$155.95



211026 Replacement Gel Chamber Assembly

Exploring Electrophoresis Series Replacement Parts

211022 Pipetting Devices (five 1-mL syringes with

150 tips)

Per set **\$45.50**

211015 Replacement Gel Chamber (for the Explor-

ing Electrophoresis Series; comb, leads, and carbon-fiber electrodes not included)

Each **\$22.00**

211026 Replacement Gel Chamber Assembly

(includes chamber, 4- and 6-well combs, 1 pair of electrical leads, and a 10×10 -cm sheet of replacement carbon filter)



211022 Pipetting Devices



Energizer® Industrial Strength Alkaline Batteries

High-energy, long-lasting, Energizer® alkaline batteries.

756313	C Battery	Each	\$3.30
756315	AAA Battery	Each	\$2.50
756316	AA Battery	Each	\$3.05
756317	D Battery	Each	\$4.55
756318	9-V Battery	Each	\$6.60



Triple-Row Comb

This unique comb is designed for making your own practice pipetting station plates (petri plate and agar not included).

213626 Each \$18.75

Electrophoresis Introductory Kits





211148 Introductory Gel Electrophoresis 8-Station Kit (detail shown above)

Introductory Gel Electrophoresis Kit A

Beginning—Easy to perform; requires little or no prior knowledge.

Excellent for teaching basic electrophoresis principles. Students become familiar with general techniques used in molecular biology, such as preparing agarose gels, loading samples into sample wells, using gel chambers and power supplies, observing results, and measuring migration distances. This kit utilizes 5 unique dyes to demonstrate differences in migration rates and charges. Both the Teacher Demonstration Kit (1 station) and the 8-Station Kit contain agarose, TBE buffer, disposable pipetting devices, rulers, plastic trays, 5 known dye samples, 3 unknown dye samples, and instructions. Equipment needed but not supplied includes a gel electrophoresis chamber and a power supply with at least a 50-V capability.

211147 Teacher Demonstration Kit Each \$28.00 211148 8-Station Kit Each \$68.25 \$20.25 211144 Dye for 8 Stations Each



Practice Pipetting Stations Kit

Beginning—Easy to perform; requires little or no prior knowledge.

Train your students to measure, dispense, and mix liquids accurately every time. No more waste due to errors and inexperience. Kit provides materials for 10 stations, including reusable practice gels that will last for years, Practice Gel Chambers (also sold separately) to hold the practice gel in place while students learn to load ideal gels for electrophoresis, instructions, and 1-year access to digital resources. Visit Carolina.com for a complete list of kit materials. The easy-to-follow activities in this kit prepare your students for success by building their laboratory skills.

211145 Each \$69.50 211157 Practice Gel Chamber Each \$4.00

Biotechnology



211040 Criminal DNA Fingerprinting Simulation Kit

Criminal DNA Fingerprinting Simulation Kit

Intermediate—Easy to perform; requires some background knowledge.

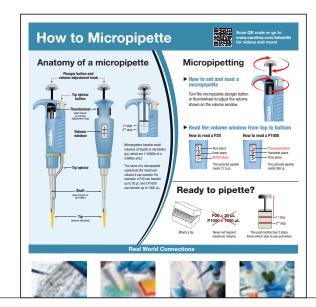
Students act as forensic scientists in this hands-on activity that explores the theory. process, and applications of VNTR-based DNA fingerprinting. Using color-coded popbead models, students simulate molecular biology procedures to create a simplified DNA fingerprint for a murder suspect. In groups, students use the materials in this kit to simulate restriction enzyme digestion, gel electrophoresis, Southern transfer, probe hybridization, and autoradiography. Finally, students compare the DNA fingerprint they create to the DNA fingerprints provided and determine if the murder suspect is guilty or innocent. Kit includes teacher's manual with reproducible student guide and enough materials for a class of 32 students. Paper Refill Kit replenishes consumed materials. Visit Carolina.com for complete lists of kit materials. Replacement beads and connectors can be purchased separately (items #171041 through #171049).

211040 Kit \$180.00 Fach 211042 Paper Refill Kit Each \$32,25

Boost Student Lab Skills

The new Carolina Lab Skills series Learn more

offers free resources for teaching foundational lab skills such as micropipetting, pouring plates, and measuring pH.



Intermediate/Advanced Kits

Fast Gels Kit

Intermediate—Easy to perform; requires some background knowledge.

- Run gels in as little as 15-18 minutes!
- Introduce your students to genetic screening or environmental forensics

A great way to do an electrophoresis lab in short class periods. The patented buffer allows gels to be run at high voltages (high speed) without the loss of resolution usually seen in gels run at high speed. The lab manual provides 2 different investigative scenarios, with basic and more advanced background material for each scenario to aid in teaching at multiple levels. In the first, students determine whether a father has passed his cancer-associated mutation on to his children. In the second, students determine whether a fisherman illegally fished from a river on protected land. Both scenarios include positive and negative controls to demonstrate the importance of controls in experimentation. Visit Carolina.com for complete lists of kit materials. Gels require a 290-V power supply (not included) to run at full speed. A lower-voltage power supply can be used, but gels will run more slowly. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211036	4-Station Kit (with voucher)	Each	\$140.75
211036P	4-Station Kit (with perishables)	Each	\$140.75
211035	8-Station Kit (with voucher)	Each	\$223.50
211035P	8-Station Kit (with perishables)	Each	\$223.50

Fast Gels Electrophoresis Pack

Decrease DNA electrophoresis run-time from 45 minutes on average to 10–20 minutes. These packs are designed to be used with Carolina PCR kits (DNA fragments <1 kb) and work best using a 250- to 290-V power supply. Pack contains enough materials to run and stain 8 gels (2% or lower) using the specified stain. Visit Carolina.com for complete lists of materials.

217307 Fast Gels Electrophoresis Pack: *Carolina*BLU Stain Each \$31.00 Fast Gels Electrophoresis Pack: GelGreen Stain Each \$83.75



Room Temperature Storage DNA

Kits displaying this icon include DNA formulated to be stable at room tem-

perature for a limited period of time.



Restriction Enzyme Cleavage of DNA Kit Students electrophorese pre-cut DNA fragments a classic lab

Intermediate—Easy to perform; requires some background knowledge.

- Complete kit (just supply distilled or deionized water and equipment)
- Load and go with aliquoted, ready-to-use DNA samples
- Easy-to-use teacher's manual and student guide
- Contains 2 bonus dry labs: "DNA Goes to the Races" and "DNA Scissors"

It's easy to teach students the basics of DNA gel electrophoresis and analysis with this classic lab. Using convenient pre-cut DNA fragments, students electrophorese, stain, and visualize uncut lambda DNA (control) and DNA predigested with *Eco*RI and *Hin*dIII (standard molecular weight marker). They then determine the sizes of the DNA fragments. Enough materials for 4 or 8 teams of students; visit Carolina.com for complete lists of kit materials. **Note:** *Cannot be shipped via USPS*.

 211148Y
 4-Station Kit
 Each
 \$87.95

 211149
 8-Station Kit
 Each
 \$120.00

 211149A
 8-Station Refill (DNA only)
 Each
 \$66.75



211036P Fast Gels 4-Station Kit (with perishables)

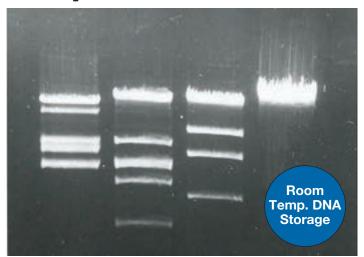


217307 Fast Gels Electrophoresis Pack: Carolina BLU Stain

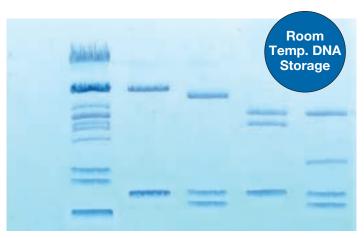


Restriction digest of DNA from bacteriophage lambda using 2 different enzymes (left to right: uncut, EcoRI, HindIII)

Electrophoresis



Restriction digest of DNA from bacteriophage lambda using 3 different enzymes (right to left: uncut, HindIII, EcoRI, and BamHI)



Gel from 211175 Restriction Mapping of Plasmid DNA Kit

Restriction Mapping



Gel from 211173 Restriction Mapping of Lambda DNA Kit

Biotechnology

Restriction Enzyme and DNA Kit
Similar to the DNA Restriction Analysis Kits (items #211103, #211103P, #211104, #211106P, and #211107) except this kit comes with dried enzymes and dried DNA

Advanced—For experienced high school and college classes; requires some technical skill.

This kit features our Instant Enzymes and Instant DNA. No more pipetting errors when adding enzyme to DNA; no more freezer storage or frozen samples; no more next-day and ice pack shipping charges. The stable Instant DNA is simply rehydrated with distilled or deionized water. After hydration, DNA is added to the tubes containing the Instant Enzymes (*BamHI*, *EcoRI*, and *HindIII*) and incubated at 37° C. After incubation, the DNA samples are electrophoresed on an agarose gel and stained. The kit contains sufficient materials for 8 teams of students, including 1-year access to digital resources that support 3-dimensional instruction. **DNA and Enzyme Refills** include consumable items. Visit **Carolina.com** for complete lists of kit materials. Materials are shipped via ground service.

211185	CarolinaBLU Kit	Each	\$146.50
211186	CarolinaBLU Kit DNA and Enzyme Refill	Each	\$77.75
211193	GelGreen Kit	Each	\$163.00
211194	GelGreen Kit DNA and Enzyme Refill	Each	\$86.50

Restriction Mapping of Plasmid DNA Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Includes step-by-step instructions and practice problems
- 4- and 8-station kits to match your needs and budget

Electrophoresis of precut DNA with an analytical application. Students cast gels and perform electrophoresis of ready-to-load samples of predigested plasmid DNA. After staining with *Carolina*BLU® stain, students determine the sizes of the plasmid DNA fragments in each sample and use the data to deduce a restriction map of the plasmid. Kits contain sufficient materials for either 4 or 8 teams of students to perform the exercise.

 211174
 4-Station Kit
 Each
 \$101.00

 211175
 8-Station Kit
 Each
 \$166.75

 211176
 DNA Only (from 8-Station Kit)
 Each
 \$117.50



DNALC

Restriction Mapping of Lambda DNA Kit

Advanced—For experienced high school and college classes;

requires some technical skill.

This kit provides data that allow students to assemble a map of cutting sites for *Apal, Eco*0109I, and *Hind*III on the genome of the lambda virus. This is accomplished by digesting lambda DNA with the 3 restriction enzymes alone and in combination. A restriction map can be generated by using information gained from the electrophoresis of the lambda restriction fragments. Materials are sufficient for 6 teams of students or 6 separate instructor demonstrations; visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Kits with perishable materials included should not be shipped over a weekend. Carolina recommends that you request these items to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Foreign orders require special handling.*

 211173
 Kit (with voucher)
 Each
 \$180.50

 211173P
 Kit (with perishables)
 Each
 \$180.50

 211173C
 Kit Perishables Refill
 Each
 \$132.00



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.

DNA Fingerprinting Kits



PCR Forensics Simulation Kit

Intermediate—Easy to perform; requires some background knowledge.

This intermediate-level kit introduces the concepts of PCR and DNA fingerprinting and simulates the use of DNA in forensic investigations. The "DNA fingerprints" of 2 suspects are compared at 2 loci for a match with evidence DNA after being electrophoresed in agarose gels and stained with *Carolina*BLU® stain. The kit's predigested DNA can also be bought in bulk by the mL; minimum order is 1 mL. The **4-Station Kit** contains enough materials for 4 complete setups of the experiment, the **8-Station Kit** for 8 setups. Visit Carolina.com for lists of kit materials. **Note:** *Order bulk DNA 2 weeks prior to desired ship date.*

211213	4-Station Kit	Each	\$123.50
211214	8-Station Kit	Each	\$184.00
211212	DNA for 8-Station Kit	Each	\$143.50
211210E1	Evidence 1 DNA	Per mL	\$70.50
211210E2	Evidence 2 DNA	Per mL	\$70.50
211210SX1	Suspect X1 DNA	Per mL	\$78.25
211210SX2	Suspect X2 DNA	Per mL	\$78.25
211210SY1	Suspect Y1 DNA	Per mL	\$78.25
211210SY2	Suspect Y2 DNA	Per mL	\$70.50



211214 PCR Forensics Simulation 8-Station Kit



Outbreak! Fingerprinting Virus DNA Kit

Intermediate—Easy to perform; requires some background knowledge.

Students become virus hunters with this easy-to-use kit. They interpret DNA finger-prints to identify the viral strain responsible for a potentially deadly fictitious-disease outbreak. Students load harmless predigested DNA samples onto agarose gels and separate the fragments to produce DNA fingerprints. Included references to articles about emerging diseases can help students learn more. The kits contain enough materials for 4 or 8 student groups to conduct the lab (except for gel electrophoresis chambers and power supplies); visit Carolina.com for complete lists of kit materials.

 211206
 4-Station Kit
 Each
 \$71.00

 211207
 8-Station Kit
 Each
 \$138.25

 211204
 DNA for 8-Station Kit
 Each
 \$97.00





Forensic DNA Fingerprinting Kit

Advanced—For experienced high school and college classes;

requires some technical skill.

Developed in cooperation with the DNA Learning Center, this advanced lab uses plasmid isolation and restriction analysis to illustrate forensic DNA typing. Students are provided with 2 samples of *E. coli* cells to represent blood samples from 2 suspects. Plasmid DNA is extracted using a miniprep procedure and cut with restriction enzymes, along with a DNA sample representing the evidence from a crime scene. The resulting "DNA fingerprints" of the suspects are compared for a match with the evidence. Materials are sufficient for 8 teams of students or 8 teacher demonstrations and include 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Foreign orders require special handling.*

	211205	Carolina BLU	Stain k	(it (with	voucher)	Е	ach	\$176.75
Λ^2	211205P	Carolina BLU	Stain k	(it (with	perishable	es) E	ach	\$176.75
	211205C	Carolina BLU	Stain k	(it Perish	nables Ref	ill E	ach	\$108.00
	211202	GelGreen St	ain Kit (with vou	cher)	Е	ach	\$186.00
<u> </u>	211202P	GelGreen St	ain Kit (with per	ishables)	Е	ach	\$186.00
	211202C	GelGreen St	ain Kit F	Perishab	les Refill	Е	ach	\$118.04



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.



211206 Outbreak! Fingerprinting Virus DNA 4-Station Kit



Results of 211205 Forensic DNA Fingerprinting CarolinaBLU Stain Kit

Room Temp. DNA Storage

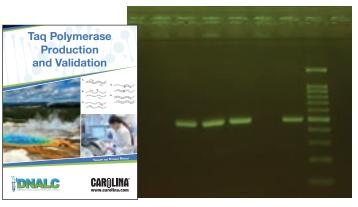
Room Temperature Storage DNA

Kits displaying this icon include DNA formulated to be stable at room temperature for a limited period of time.

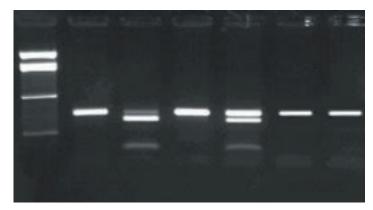
Polymerase Chain Reaction

Polymerase Chain Reaction

Biotechnology



Gel from 211167 Tag Polymerase Production and Validation Amplification and Electrophoresis Kit with GelGreen Stain



Gel from 211381 PTC Taster: Using SNP to Predict Bitter Tasting Ability Kit



New! Taq Polymerase Production and Validation Amplification Kits

Run PCR using *Tag* polymerase produced and validated by your students

Advanced—For experienced high school and college classes; requires some technical skill.

With this one-of-a-kind kit, students purify Taq polymerase, an enzyme used in polymerase chain reactions, from bacteria engineered to produce it, then test the enzyme's activity by performing PCR with it. As students gain hands-on experience with PCR, they learn the same lab skills used in the biotechnology workplace. Each kit equips 24 students working in groups of 3 and supplies sufficient materials for each of the 24 students to produce and validate their own Taq polymerase. The kit also features additional resources to help teach PCR and support students, including a paper model activity simulating the first 2 cycles of PCR, a visual lab procedure complementing the written protocol, and information on the lab's realworld connections to actual lab techniques and careers. All kits also come with free 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of the perishable materials.

211165 Tag Polymerase Production and Validation Amplification Kit (with voucher)

> Each \$99.95

211165P Tag Polymerase Production and Validation Amplification Kit

(with perishables)

\$99.95

211166 Taq Polymerase Production and Validation Amplification and

Electrophoresis Kit with CarolinaBLU Stain (with voucher)

211166P Tag Polymerase Production and Validation Amplification and

Electrophoresis Kit with CarolinaBLU Stain (with perishables)

\$145.00

211167 Tag Polymerase Production and Validation Amplification and

Electrophoresis Kit with GelGreen Stain (with voucher)

Each \$170.00

211167P Tag Polymerase Production and Validation Amplification and

Electrophoresis Kit with GelGreen Stain (with perishables)

Each **\$170.00**



Developed in cooperation with the **DNA Learning Center of Cold Spring** Harbor Laboratory. Kit has been updated



PTC Taster: Using SNP to Predict Bitter Tasting Ability Kit

This unique kit allows you to teach many different concepts, techniques, and skills in 1 lab!

Advanced—For experienced high school and college classes; requires some technical skill.

- Make a genotype-to-phenotype connection using students' own DNA
- Teach the concept and importance of SNPs and their effects on phenotypes
- Understand how analysis of SNPs can be applied in modern molecular biology
- Connect students to real-world bioinformatics

This kit explores the molecular basis of the inherited ability to taste the bitter chemical phenylthiocarbamide (PTC), which was first described in the 1930s by Cold Spring Harbor Laboratory scientist Albert Blakeslee. Students determine their ability to taste PTC using taste paper. They then use safe saline mouthwash and Chelex® extraction to obtain a sample of their own DNA and amplify a 221-nucleotide region of the PTC taste receptor gene. The 2 alleles differ by a single nucleotide, so restriction digestion of the amplified product followed by gel electrophoresis effectively differentiates the 2 alleles. One allele strongly correlates to the ability to taste PTC. After scoring their SNP genotypes, students determine how well the SNP genotypes actually correlate to tasting. Each kit includes materials for 25 PCR reactions and restriction digests; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211377 PTC Taster: Extraction and Amplification Kit with 0.2-mL Tubes

(with voucher)

Each **\$242.00**

PTC Taster: Extraction and Amplification Kit with 0.2-mL Tubes 211377P

(with perishables) Each \$242.00

211381 PTC Taster: Extraction, Amplification, and Electrophoresis Kit

with Carolina BLU Stain and 0.2-mL Tubes (with voucher)

Each \$252.00

211381P PTC Taster: Extraction, Amplification, and Electrophoresis Kit with CarolinaBLU Stain and 0.2-mL Tubes (with perishables)

Each \$252.00

New! 211383 PTC Taster: Extraction, Amplification, and Electrophoresis Kit

with GelGreen Stain and 0.2-mL Tubes (with voucher)

Fach \$265.00

New! 211383P PTC Taster: Extraction, Amplification, and Electrophoresis Kit

with GelGreen Stain and 0.2-mL Tubes (with perishables)

Each \$265.00

211376C PTC Taster: Perishables Set (primer/loading dye mix, marker, Haelll enzyme)

\$129.00 Each

211508 PTC Taster: Primers Set

\$41.00 Each

DNALC

Using DNA Barcodes to Identify and Classify Living Things Kits ▲²

Advanced—For experienced high school and college classes; requires some technical skill.

- Use DNA barcodes to identify student-collected samples of plants or animals
- · Explore organism diversity by taking taxonomy to the next level
- · Connect students to real-world bioinformatics

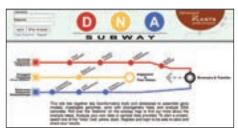
Students take a new approach to taxonomy using "DNA barcodes"—short, unique DNA sequences—to learn about the biodiversity of plants, mammals, fish, or insects. Unlock the barcodes of even more organisms by purchasing the Fungal Primer Set (item #211388, sold separately) to give students the opportunity to explore the diverse world of fungi. Using polymerase chain reaction (PCR) on specific regions of the *rbcL* or *COI* gene, students amplify their extracted DNA to create unique barcodes. These amplified sequences (amplicons) are then submitted for sequencing and can be analyzed using our custom-designed online tool, DNA Subway. Each kit contains materials for 25 DNA extractions and PCR reactions.

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211385	DNA Barcode Amplification Kit (with voucher)	Each	\$237.50
211385P	DNA Barcode Amplification Kit (with perishables)	Each	\$237.50
211386	DNA Barcode Amplification and Electrophoresis		
	Kit with <i>Carolina</i> BLU Stain (with voucher)	Each	\$248.50
211386P	DNA Barcode Amplification and Electrophoresis		
	Kit with <i>Carolina</i> BLU Stain (with perishables)	Each	\$248.50
211387	DNA Barcode Amplification and Electrophoresis		
	Kit with GelGreen Stain (with voucher)	Each	\$256.50
211387P	DNA Barcode Amplification and Electrophoresis		
	Kit with GelGreen Stain (with perishables)	Each	\$256.50

Polymerase Chain Reaction



211385P Using DNA Barcodes to Identify and Classify Living Things Amplification Kit (with perishables)



DNA Subway is a unique bioinformatics tool offering robust analysis and user-friendly interface. Optimized for usage with the Using DNA Barcodes to Identify and Classify Living Things kits, it makes bioinformatics more accessible in your classroom



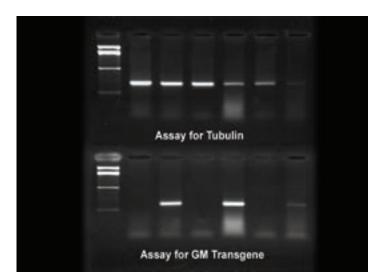
Detecting Genetically Modified Food by PCR Kits

Advanced—For experienced high school and college classes; requires some technical skill.

- · Introduce genetic engineering
- Understand the purpose of transgenes in commercial crops

Explore a modern application of genetic engineering through this exciting laboratory activity. Many commercial crops are genetically modified (GM) to include a transferred gene (transgene) for herbicide resistance. This activity investigates whether the soy or corn ingredients in various processed foods contain a genetic modification. Students isolate DNA from wild-type and GM plant material (provided controls), and from food products of their choice. They use the extracted DNA as a template in 2 separate PCR reactions run under the same conditions. One reaction serves as a positive control to amplify a portion of the tubulin gene found in all plants, and the other assays for genetic modification. Each group works with a plant control and a food product. Each kit includes materials for 25 PCR reactions and 1-year access to digital resources. Order kit to arrive 1 month before performing lab.

211367	GM Food Extraction and Amplification	tion Kit	with
	0.2-mL Tubes (with voucher)	Each	\$214.00
211367P	GM Food Extraction and Amplificat	tion Kit	with
	0.2-mL Tubes (with perishables)	Each	\$214.00
211371	GM Food Extraction, Amplification,	, and	
	Electrophoresis Kit with CarolinaBl	LU Stair	and
	0.2-mL Tubes (with voucher)	Each	\$224.00
211371P	GM Food Extraction, Amplification	, and	
	Electrophoresis Kit with CarolinaB	LU Stair	and
	0.2-mL Tubes (with perishables)	Each	\$224.00
211372	GM Food Extraction, Amplification,	, and	
	Electrophoresis Kit with GelGreen	Stain ar	ıd
	0.2-mL Tubes (with voucher)	Each	\$256.00
211372P	GM Food Extraction, Amplification,	, and	
	Electrophoresis Kit with GelGreen	Stain ar	nd
	0.2-mL Tubes (with perishables)	Each	\$256.00



Gel from Detecting Genetically Modified Food by PCR Kit

Visit Carolina.com for complete lists of kit materials.



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.

Polymerase Chain Reaction

Biotechnology



New! eDNA: Sampling Soil for Antibiotic Resistance Kit

Advanced—For experienced high school and college classes; requires some technical skill.

Engage your students in the growing field of eDNA by challenging them to participate in ongoing research to monitor the prevalence of antibiotic-resistant bacteria in soil. Students collect soil samples based on their own hypotheses about resistance hotspots, extract environmental DNA from soil, and use PCR and gel electrophoresis to test their samples for evidence of tetracycline resistance. The outcome of this kit may, or may not, demonstrate the presence of tetracycline resistance (depending on the presence or absence of resistant bacteria in the sample tested), providing your class with an authentic scientific investigation. Created in conjunction with the PARE (Prevalence of Antibiotic Resistance in the Environment) project, students contribute their final data to a national database of antibiotic resistance surveillance, making them bona fide research scientists after completing the activity! Kit provides sufficient materials for 5 reactions/student groups and is available with or without consumables. Requires approximately 3–4 class periods to complete. Includes detailed teacher and student guides accessible online as well as access to classroom slides and video lab demonstration. Visit Carolina.com for complete lists of kit materials.

211395 Kit (with consumables) Each **\$203.95 211396** Kit (without consumables) Each **\$153.95**



211404P Detecting Epigenetic DNA Methylation in *Arabidopsis* Kit (with perishables)

DAMALC

Detecting Epigenetic DNA Methylation in Arabidopsis Kit \triangle^2

Advanced—For experienced high school and college classes; requires some technical skill.

- · Introduce students to the growing field of epigenetics
- Investigate the role of DNA methylation in gene regulation
- · Gain experience working with the model plant Arabidopsis thaliana
- Use a protocol designed especially for the classroom

Utilize methylation-sensitive enzymes to explore epigenetics—heritable changes in gene expression—that affect flowering in *Arabidopsis*. By growing wild-type *Ler* and mutant *fwa-1* plants, students can observe phenotypic differences in flowering then investigate this difference using multiple molecular techniques. Students conduct DNA extraction, restriction enzyme digest, PCR, gel electrophoresis, and bioinformatics to investigate the pivotal role that DNA methylation plays in gene regulation. Each kit contains materials for 25 DNA extractions and PCR reactions. Use kit within 4 weeks of receipt.

211403	Detecting Epigenetics Amplification Kit (with voucher)	Each	\$308.00
211403P	Detecting Epigenetics Amplification Kit (with perishables)	Each	\$308.00
211404	Detecting Epigenetics Amplification and Electrophoresis Kit		
	with CarolinaBLU Stain (with voucher)	Each	\$332.00
211404P	Detecting Epigenetics Amplification and Electrophoresis Kit		
	with CarolinaBLU Stain (with perishables)	Each	\$332.00
211405	Detecting Epigenetics Amplification and Electrophoresis Kit		
	with GelGreen Stain (with voucher)	Each	\$345.50
211405P	Detecting Epigenetics Amplification and Electrophoresis Kit		
	with GelGreen Stain (with perishables)	Each	\$345.50

Forensic PCR Investigation Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Uses robust yet simple protocol designed with the classroom in mind
- Connects students to real-world forensic techniques
- Introduces and reinforces techniques such as gel electrophoresis and PCR

Looking to build on your students' classroom knowledge of DNA fingerprinting with a hands-on activity? This kit takes your forensics class to the next level by giving students the opportunity to analyze DNA samples from a (fictitious) crime scene. Students immerse themselves in attempting to identify the culprit, learning more about DNA profiling and the role of tandem repeats in the analysis. They build on that knowledge with a hands-on investigation of the samples using PCR amplification and gel electrophoresis to help close the case. This kit is a great next step for bringing molecular techniques into your forensics classroom or an ideal investigation for engaging your biology classroom in a new way. Each kit contains materials for 28 PCR reactions with students working in groups of 4. **Note:** Items #211401 and #211401P are sold only to schools and businesses.

211400	Amplification Kit (with voucher)	Eacn	\$238.00
211400P	Amplification Kit (with perishables)	Each	\$238.00
211401	Amplification and Electrophoresis Kit with Ethidium Bromide Stain (with voucher)	Each	\$271.00
211401P	Amplification and Electrophoresis Kit with Ethidium Bromide Stain (with perishables)	Each	\$271.00
211402	Amplification and Electrophoresis Kit with <i>Carolina</i> BLU Stain (with voucher)	Each	\$257.00
211402P	Amplification and Electrophoresis Kit with <i>Carolina</i> BLU Stain (with perishables)	Each	\$257.00



211400P Forensic PCR Investigation Amplification Kit (with perishables)



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.

Using Highly Variable Polymorphisms in Forensic Biology and Population Genetics Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Introduce Hardy-Weinberg equilibrium and the concept of allele frequencies in populations
- Demonstrate the use of PCR in forensics and other real-world applications

This lab illustrates the use of DNA typing to identify individuals in court cases and disasters. It assays for variable numbers of tandem repeats (VNTR) polymorphisms, which are caused by short, repeated copies of a 16-nucleotide sequence at the pMCT118 locus. Differences in the number of repeated units produce longer and shorter alleles, which can be resolved by gel electrophoresis. Because the VNTR locus has more than 29 different alleles, a panel of student types shows a variety of different genotypes. Use this kit to teach population genetics, Hardy-Weinberg equilibrium, and forensics techniques. Each kit contains instructions and materials for 25 students; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials

voucher to requ	นษระเ	delivery of peristiable materials.		
21123	3 A	Using Highly Variable Polymorphisms Extraction and Amplification	Kit with	
		0.2-mL Tubes (with voucher)	Each	\$220.00
21123	3AP	Using Highly Variable Polymorphisms Extraction and Amplification	Kit with	
		0.2-mL Tubes (with perishables)	Each	\$220.00
21123	5 A	Using Highly Variable Polymorphisms Extraction, Amplification, and	d Electro	ophoresis
		Kit with <i>Carolina</i> BLU Stain and 0.2-mL Tubes (with voucher)	Each	\$248.75
21123	5AP	Using Highly Variable Polymorphisms Extraction, Amplification, and	d Electro	ophoresis
		Kit with <i>Carolina</i> BLU Stain and 0.2-mL Tubes (with perishables)	Each	\$248.75
New! 211234	4G	Using Highly Variable Polymorphisms Extraction, Amplification, and	d Electro	ophoresis
		Kit with GelGreen Stain and 0.2-mL Tubes (with voucher)	Each	\$258.75
New! 211234	4GP	Using Highly Variable Polymorphisms Extraction, Amplification, and	d Electro	ophoresis
		Kit with GelGreen Stain and 0.2-mL Tubes (with perishables)	Each	\$258.75
211500	6	pMCT118 Primer Set	Each	\$41.00

Polymerase Chain Reaction



Gel from Using Highly Variable Polymorphisms in Forensic Biology and Population Genetics Kit

Mitochondrial DNA Polymorphisms in Human Evolution Kit Generate excitement by having your students amplify their own

mitochondrial DNA for sequencing!

Advanced—For experienced high school and college classes; requires some technical skill.

- Uses a simple, robust protocol ideal for the classroom
- Fosters engaging discussions on the molecular basis of heredity and evolution
- · Provides an introductory version of the lab that is used in forensics and the analysis of ancient DNA samples

Students use safe saline mouthwash or hair and Chelex® extraction to obtain a sample of their own DNA. Then they amplify a 440-nucleotide segment of a hypervariable region of the mitochondrial chromosome, which contains numerous single nucleotide polymorphisms (SNPs). After gel electrophoresis confirms amplification, the student samples may be sent for sequencing (the cost of sequencing is not included in the price of the kit). Students then compare their SNPs to ancient hominids and to people from different world populations to discover patterns of DNA variation and to analyze theories of human evolution. Each kit contains instructions and materials for 25 students; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

	211236A	Mitochondrial DNA Extraction and Amplification Kit with 0.2-mL	Tubes		
		(with voucher)	Each	\$224.00	
	211236AP	Mitochondrial DNA Extraction and Amplification Kit with 0.2-mL	Tubes		
		(with perishables)	Each	\$224.00	
	211238A	Mitochondrial DNA Extraction, Amplification, and Electrophoresis Kit with			
		CarolinaBLU Stain and 0.2-mL Tubes (with voucher)	Each	\$234.00	
	211238AP	Mitochondrial DNA Extraction, Amplification, and Electrophoresis Kit with			
		CarolinaBLU Stain and 0.2-mL Tubes (with perishables)	Each	\$234.00	
New!	211237G	Mitochondrial DNA Extraction, Amplification, and Electrophores	, and Electrophoresis Kit with		
		GelGreen Stain and 0.2-mL Tubes (with voucher)	Each	\$248.00	
New!	211237GP	Mitochondrial DNA Extraction, Amplification, and Electrophores	cation, and Electrophoresis Kit with		
		GelGreen Stain and 0.2-mL Tubes (with perishables)	Each	\$248.00	
	211504	mtDNA Primer Set	Each	\$41.00	



Developed in cooperation with the **DNA Learning Center of Cold Spring** Harbor Laboratory.



Gel from Mitochondrial DNA Polymorphisms in Human Evolution Kit



Carolina offers a selection of thermal cyclers; see them on pages 272 and 287.

Polymerase Chain Reaction

Biotechnology



Gel from Using an Alu Insertion Polymorphism to Study Human Populations Kit

DNALC

Using an Alu Insertion Polymorphism to Study Human Populations Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Explain population genetics and evolution using PCR technology
- Incorporates Hardy-Weinberg equilibrium and chi-square analysis
- · Helps demonstrate real-world applications of PCR
- Discover how Alu insertions are used to track world population migrations

Introduce your students to human population genetics through PCR analysis of their own genotypes. Students use safe saline mouthwash or hair and Chelex® extraction to obtain a sample of their own DNA. Then they use polymerase chain reaction (PCR) to amplify a 300-nucleotide *Alu* insertion in an intron of the H-cadherin gene. Gel electrophoresis separates the 2 alleles, and each student determines his/her own genotype. The experiment provides an introduction to human population genetics as participants learn to score genotypes and to calculate genotype and allele frequencies. Each kit contains instructions and materials for 25 students and is available in 2 versions. The first version, for DNA extraction and amplification only, includes Chelex®, proteinase K, Ready-to-Go Beads™ (in 0.2-mL reaction tubes), primer/loading dye mix, mineral oil, and DNA markers.

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	211230A	Alu DNA Extraction and Amplification Kit with 0.2-mL Tuber	S		
		(with voucher)	Each	\$220.00	
	211230AP	Alu DNA Extraction and Amplification Kit with 0.2-mL Tubes			
		(with perishables)	Each	\$220.00	
	211232A	Alu DNA Extraction, Amplification, and Electrophoresis Kit with			
		CarolinaBLU Stain and 0.2-mL Tubes (with voucher)	Each	\$230.00	
	211232AP	Alu DNA Extraction, Amplification, and Electrophoresis Kit v	DNA Extraction, Amplification, and Electrophoresis Kit with		
		CarolinaBLU Stain and 0.2-mL Tubes (with perishables)	Each	\$230.00	
New!	211231G	Alu DNA Extraction, Amplification, and Electrophoresis Kit v	Kit with		
		GelGreen Stain and 0.2-mL Tubes (with voucher)	Each	\$240.00	
New!	211231GP	Alu DNA Extraction, Amplification, and Electrophoresis Kit v	Kit with		
		GelGreen Stain and 0.2-mL Tubes (with perishables)	Each	\$240.00	
	211502	Alu PV92 Primer Set	Each	\$41.00	



Human Mitochondrial DNA Haplotyping Kit (AT)

Advanced—For experienced high school and college classes; requires some technical skill.

- Perform PCR and restriction enzyme analysis to determine students' own mitochondrial haplotype
- Explore real-world applications of analyzing mtDNA

Using mitochondrial DNA isolated from their cheek cells or hair, students perform PCR and a restriction enzyme digest to determine their haplotypes with respect to a locus in the mitochondrial genome. Concepts explored in this kit include haplotyping, evolution, and the application of PCR technology. Includes materials for 25 PCR reactions and restriction enzyme digests.

211341 Haplotyping DNA Extraction and Amplification Kit with 0.2-mL Tubes (with voucher)

Each \$236.50

211341P Haplotyping DNA Extraction and Amplification Kit with 0.2-mL Tubes (with perishables)

Each **\$236.50**

211345 Haplotyping DNA Extraction, Amplification, and Electrophoresis Kit with 0.2-mL Tubes (with voucher)

Each **\$278.75**

211345P Haplotyping DNA Extraction, Amplification, and Electrophoresis Kit with 0.2-mL Tubes

(with perishables)

Each \$278.75



211345P Human Mitochondrial DNA Haplotyping Kit (AT) (with perishables)

Gel from Human Mitochondrial DNA Haplotyping Kit (AT)



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has not been updated but will be soon.

Visit Carolina.com for complete lists of kit materials.

Note: Order kits with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. **Kits with perishable materials included should not be shipped over a weekend.** Carolina recommends that you request these items to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Polymerase Chain Reaction

Illustra™ PuReTaq™ Ready-to-Go™ PCR Beads

Save time in your classroom and lab with PCR beads that are preformulated, predispensed, and include all reagents required for PCR reactions in a 0.2-mL tube. Simply add your DNA template, water, and primers. Less pipetting means less contamination and fewer errors, yielding robust, reproducible results. Use these beads with confidence to replenish your Carolina PCR kits or for other PCR reactions. **Note:** Store at ambient temperature.

211470 25-Reaction Pack Each **\$98.75 211471** 96-Reaction Pack Each **\$305.00**



211470 Illustra PuReTaq Ready-to-Go PCR Beads

PCR Primers

PTC Taster Primers

For use with PTC Taster: Using SNP to Predict Bitter Tasting Ability Kit (items #211377 through #211383P). One set of primers in cresol red loading solution for PCR amplification of the locus associated with the ability to taste phenylthiocarbamide (PTC). Sufficient materials for 25 student reactions. 700 $\mu\text{L}.$

211508 Per set \$41.00

mtDNA Primers

For use with Mitochondrial DNA Polymorphisms in Human Evolution Kit (items #211236A through #211238AP). One set of primers in cresol red loading solution for PCR amplification of a 440-bp sequence within the control region of the mitochondrial DNA. Sufficient materials for 25 student reactions. $700~\mu$ L.

211504 Per set \$41.00

Alu PV92 Primers

For use with Using an Alu Insertion Polymorphism to Study Human Populations Kit (items #211230A through #211232AP). One set of primers in cresol red loading solution for PCR amplification of the PV92 locus. Sufficient materials for 25 student reactions. 700 μ L.

211502 Per set \$41.00

pMCT118 Primers

For use with Using Highly Variable Polymorphisms in Forensic Biology and Population Genetics Kit (items #211233A through #211235AP). One set of primers in cresol red loading solution for PCR amplification of the pMCT118 locus. Sufficient materials for 25 student reactions. 700 $\mu L.$

211506 Per set \$41.00



211506 pMCT118 Primers

Alu TPA Primers

One set of primers for PCR amplification of TPA-25 *Alu* insertion. Materials (165 µL of each primer) are sufficient for 30 reactions. **Note:** *Not for use with Using an* Alu *Insertion Polymorphism to Study Human Populations Kit (items #211230A through #211232AP).*

211496 Per set \$41.00

Plani Primi To Louisi Stores LAB US

211511 DNA Barcoding Primer, Plant rbcL Primer Set



Barcoding
Primer, Fish COI
Primer Set



211513 DNA Barcoding Primer, Insect/ Mammal Primer Set



211388 DNA Barcoding Primer, Fungal Primer Set

DNA Barcoding Primers

For use with Using DNA Barcodes to Identify and Classify Living Things Kits (items #211385, #211385P, #211386, #211386P, #211387, and #211387P). Primers are in cresol red loading solution for PCR amplification of genes needed for conducting DNA barcoding. Each primer set provides sufficient materials for 25 student reactions. 700 μ L. **Note:** The fungal primer is not recommended for use with CarolinaBLU® stain.

 211511
 Plant rbcL Primer Set
 Each
 \$41.95

 211512
 Fish COI Primer Set
 Each
 \$41.95

 211513
 Insect/Mammal Primer Set
 Each
 \$41.75

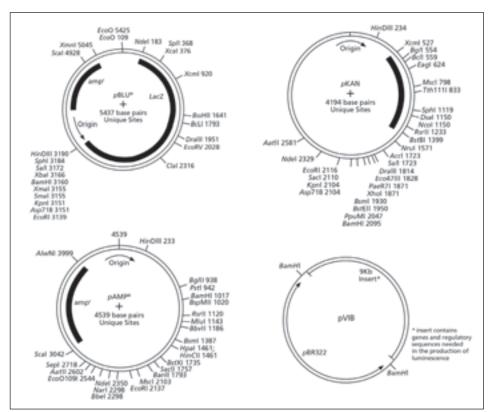
 211388
 Fungal Primer Set
 Each
 \$41.95

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.

Plasmid & Lambda DNA

Plasmid & Lambda DNA



Restriction maps: (top left) pBLU Plasmid (items #211420 to #211427); (bottom left) Plasmid pAMP (items #211429 to #211438); (top right) Plasmid pKAN (items #211439 to #211443); (bottom right) Plasmid pVIB (item #211447)

Lambda DNA

Supplied with TE buffer.

211408 10 μg (100 μL; 0.1 μg/μL)

Each \$21.50

211410 40 μg (200 μL; 0.2 μg/μL)

Each \$44.00

211414 80 μg (200 μL; 0.4 μg/μL)

Each \$88.00

Customer Review

"The prepackaged Lambda DNA is purchased by our campus biology department because of its ease to use by students, and we get good results every time."

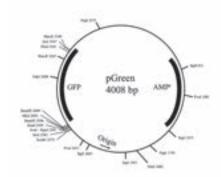
University Lab Manager

Bulk quantities and special orders are available on request. Contact Carolina's **Biotechnology Department** at 800.334.5551 for details.

Instant Lambda DNA

Lambda DNA dried in tris-EDTA buffer: stable for years at room temperature. Simply reconstitute with distilled water prior to use; refrigerate after reconstitution. 10 \times 10 μ g.

211419 Each \$70.75



Restriction map for Plasmid pGreen (item #211449)

Plasmid pGREEN

Green phenotype; will also glow under UV light; transformation concentration only. 1 µg (200 µL; 0.01 µg/ μL).*

211449 Each \$17.00

Biotechnology

pBLU® Plasmid

Developed by Dr. Greg Freyer (coauthor of DNA Science: A First Course-2nd Edition, item #212209) exclusively for Carolina. This plasmid contains the gene for ampicillin resistance as well as the entire β-galactosidase gene. It does not depend on complementing a partial β-galactosidase gene product as does pUC. In addition, the host, E. coli DH5a, does not need to be maintained on minimal medium for pBLU® transformation. The *lac* suppressor gene is inactivated. eliminating the need for IPTG in the medium.

10 μg (50 μL; 0.2 μg/μL) 211420 Each **\$102.50** 211421 $20 \mu g (100 \mu L; 0.2 \mu g/\mu L)$ Each \$157.50 211424 20 μg (50 μL; 0.4 μg/μL) Each \$157.50 211427 1 μg (200 μL; 0.005 μg/μL)* \$15.25

Plasmid pAMP

Each

Ampicillin-resistant phenotype.

211429 10 μg (50 μL; $0.2 \mu g/\mu L$) Each \$95.00 211430 20 μg (100 μL; 0.2 μg/μL) Each **\$143.00** 40 μg (200 μL ; 0.2 $\mu g/\mu L$) 211431 Each \$213.00 211433 40 μg (100 μL; 0.4 μg/μL)

Each **\$213.00** 211438 1 μg (200 μL ; 0.005 $\mu g/\mu L$)* \$12.75 Each

Plasmid pKAN

Kanamycin-resistant phenotype.

211439 10 μg (50 μL; 0.2 μg/μL) \$94.50 Each 211440 20 μg (100 μL; 0.2 μg/μL) Each \$143.00 211441 40 μg (200 μL; 0.2 μg/μL) Each **\$213.00**

40 μg (100 μL ; 0.4 $\mu g/\mu L$) 211443 Each \$213.00

Plasmid pVIB

Transformation concentration. 1 μg (200 μL ; 0.005 μg/μL).* Bacteria containing pVIB should be grown at 30° C or cooler for glowing to be seen.

211447 Each \$12.75

Plasmid pUC18

Ampicillin-resistant phenotype. Contains the α -peptide of the lacZ (β -galactosidase) gene. 10 μ g.

211462 Each \$80.50

Plasmid pBR322

Ampicillin and tetracycline-resistant phenotype. 10 µg $(100 \ \mu L; \ 0.1 \ \mu g/\mu L).$

211450 Each \$72.75

*Transformation concentration; use 10 µL/transformation.

Biotechnology Electrophoresis Reagents/DNA Markers & Enzymes **Electrophoresis Reagents**



Electrophoresis Reagent Refill

DNA refills for our 6-station biotechnology kits help you save on costs by allowing you to reuse instructions and use your own electrophoresis supplies. The Electrophoresis Reagent Refill complements these DNA refills by supplying materials needed to conduct electrophoresis of DNA for *any* of our 6-Station Refill Kits. The Electrophoresis Reagent Refill contains 4 g of agarose, 150 mL of 20× TBE buffer concentrate, *Carolina*BLU® concentrate, and 6 staining trays. All you need to provide is the electrophoresis equipment, instructions, and DNA samples from your favorite kit.

211303 Each \$54.75

DNA Gel Electrophoresis Reagent Set

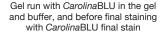
Contains all reagents needed for separating DNA restriction fragments using agarose gel electrophoresis. Includes tris-borate-EDTA (TBE) electrophoresis buffer concentrate for 10 L $1\times$ buffer; electrophoresis-grade agarose, 25 g; loading dye, 1 mL; and your choice of ethidium bromide (5 mg/mL, 1 mL), CarolinaBLU®, or GelGreen® stain. **Note:** Item #211300 is sold only to schools and businesses.

 211300
 Ethidium Bromide Stain Set
 Each
 \$151.50

 211301
 CarolinaBLU Stain Set
 Each
 \$125.75

 New!
 211307
 GelGreen Stain Set
 Each
 \$147.75







After staining with CarolinaBLU final stain

CarolinaBLU® DNA Stain

An ultra-safe, 2-step staining system in which a small amount of stain is added to the agarose and buffer prior to running the gel. This causes DNA bands to become faintly visible during electrophoresis. After electrophoresis, simply stain as usual to enhance visualization of bands. *Carolina*BLU® stain gives better results than methylene blue because of increased sensitivity, reduced background, and reduced staining time. Includes 30 mL of stain to be added to the agarose and buffer solutions and 250 mL of the final staining solution.

217300 Each \$14.00



Gel run with GelGreen

GelGreen®

A safer alternative to ethidium bromide

GelGreen® is a stable, low toxicity stain with sensitivity comparable to ethidium bromide and is non-mutagenic by Ames test. GelGreen's main UV absorption peak is between 250 nm and 300 nm, but it also absorbs well at 500 nm. Thus, DNA stained with GelGreen® can be visualized using a 254-nm UV transilluminator or equipment such as a Dark Reader™, Visi-Blue™, or a 488-nm laser-based scanner. Stain comes in a 150-µL tube of 10,000× solution. Suggested use is as a $3\times$ solution for post-electrophoresis staining of double- or single-stranded DNA and RNA in agarose gels. The stain can also be used at $1\times$ concentration incorporated into the gel, but this may affect DNA band mobility. Not recommended for use with acrylamide gels.

217305 Per tube \$82.00

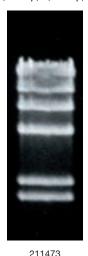
DNA Markers & Enzymes

Molecular Weight Marker

Lambda DNA/*Hin*dIII. Contains bands of the following sizes: 23,123 bp; 9,416 bp; 6,557 bp; 4,361 bp; 2,322 bp; 2,027 bp; and 564 bp.

211473 50 μg (200 μL; 0.25 μg/μL) Each **\$84.00 211473A** 25 μg (100 μL; 0.25 μg/μL) Each **\$52.75**

For individual electrophoresis reagents, see Chemicals on pages 258–259.



211473 Molecular Weight Marker

DNA Markers & Enzymes

Molecular Weight Marker

Lambda DNA/*Eco*RI. Contains bands of the following sizes: 21,226 bp; 7,421 bp; 5,804 bp; 5,643 bp; 4,878 bp; and 3,530 bp. 50 μ g (200 μ L; 0.25 μ g/ μ L).

211474 Each \$84.50

Molecular Weight Marker

Lambda DNA/Bst EII. Contains bands of the following sizes: 8,454 bp; 7,242 bp; 6,369 bp; 5,686 bp; 4,822 bp; 4,324 bp; 3,675 bp; 2,323 bp; 1,929 bp; 1,371 bp; 1,264 bp; 702 bp; 224 bp; and 117 bp. 50 μ g (200 μ L; 0.25 μ g/ μ L).

211475 Each \$101.00

Molecular Weight Marker

pBR322/BstNI. This plasmid-based DNA ladder has fragments of 1,857; 1,058; 929; 383; and 121 bp. Supplied at a concentration of 0.075 μ g/ μ L; 130 μ L (enough for 6 gels) is provided. This is an excellent ladder for comparing with other plasmid restriction digests or PCR reactions. 9.75 μ g.

211479 Each \$55.00

Carolina® SmartCheck™ All Blue Protein Markers

Blue protein standards with 10 pre-stained proteins covering a wide range of molecular weights—from 10 to 180 kDa in tris-glycine buffer (9 to 170 kDa in bistris [MOPS] buffer and bis-tris [MES] buffer). Proteins are covalently coupled with a blue chromophore, and 2 reference bands (at 25 kDa and 72 kDa, in the presence of tris-glycine buffer) are enhanced in intensity. Enough for 10 reactions. Unit of 50 µL. **Note:** Shipped on gel cold packs. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Store at 4° C for up to 3 months or at –20° C for up to 24 months.

211505 Each \$24.91

Molecular Weight Marker

1 kb. Reference bands with increased intensity for easy size determination. Plasmids digested to completion and purified using a multi-step chromatography process. Simply load 5 μ L per lane for green nucleic. DNA ladder has fragments of 10,000; 8,000; 6,000; 5,000; 4,000; 3,000; 2,500; 2,000; 1,500; 1,000; 750; 500; and 250 bp. Supplied at a concentration of 0.1 μ g/ μ L; 50 μ L (enough for 10 gels). **Note:** *DNA ladders are shipped at ambient temperature. On arrival, store at -20° C for optimum stability and long-term storage for up to 15 months.*

211481 Each \$22.75

Molecular Weight Marker

100 bp. Reference bands with increased intensity for easy size determination. Plasmids digested to completion and purified using a multi-step chromatography process. Simply load 5 µL per lane for green nucleic. DNA ladder has fragments of 1,000; 900; 800; 700; 600; 500; 400; 300; 200; and 100 bp. Supplied at a concentration of 0.1 µg/µL; 50 µL (enough for 10 gels).

211480 Each \$22.75

Carolina® SmartCheck™ Tricolor Protein Markers

Three-color protein standards with 10 pre-stained proteins covering a wide range of molecular weights—from 10 to 180 kDa in tris-glycine buffer (9 kDa to 170 kDa in bis-tris [MOPS] buffer and bis-tris [MES] buffer). Proteins are covalently coupled with a blue chromophore except for 2 reference bands, 1 green and 1 red band (at 25 kDa and 75 kDa, respectively, in the presence of tris-glycine buffer). Enough for at least 10 reactions. Unit of 50 μ L. **Note:** Shipped on gel cold packs. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Store at 4° C for up to 3 months or at -20° C for up to 24 months.

211507 Each \$28.34

Instant Restriction Enzymes

overnight. Packaged in 16 reaction tubes.

BamHI

FcoRI.

*Hin*dIII

211721

211723

211725

No more worry about enzymes losing activity! No

more waste from pipetting errors! These enzymes are

freeze-dried in reaction buffer in individual reaction

tubes and are stored at room temperature. Each tube

contains sufficient activity to digest 1.5 µg DNA in 20

minutes. Simply add DNA to the enzyme tube and incu-

bate at 37° C for 20 minutes or at room temperature

Pack of 16 Pack of 16

Pack of 16

\$66.00

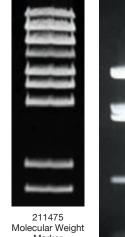
\$66.00

\$66.00

Biotechnology



211474 Molecular Weight Marker



Marker

211479 Molecular Weight Marker

Batel	Cather	STATE OF THE STATE	(MOPS)	(MES)	
1	Shell .	180	120	119	
2	Mur	140	130	230	
1	Dist.	100	19	.90	-
8.	Bire	73	44	70	
5	Sin	100	58	14	
	Stor.	48-	- 41	40.	- 10
1.	Blok :	Th:	100	100	-
	Bire.	25	53	.23	
	Blue	10	- 14	. 10	
10	Non-	20			

211505 Carolina SmartCheck All Blue Protein Markers

Band	Color	SUTDIVE	(MOPS)	DIS-TRIS.	
2	Bio.	180	170	(376)	
2	But	940	130	190	
3	Bus	100	10	. 39	
4	Red	21	79	7.00	
8.	Biox	- 60	1.6	. 58	
	Book	01	40	48	
2.	But	19.	190	10	
	Serent.	311	. 10	-31	
*	Bird	10	1.6	141	
10	Distr.	- 10		123	

211507 Carolina SmartCheck Tricolor Protein Markers

Restriction Enzymes

Liquid enzymes are shipped next day on gel cold packs. Foreign orders may require special handling. Liquid enzymes should be stored at -20° C. All enzymes are sent with 10× restriction enzyme buffer. **Note:** *Should not be shipped over a weekend.* Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

Bam HI

211660 200 μL (2,000 units) Each \$66.00

Hin dIII

211690 200 μL (2,000 units) Each \$66.00

Eco RI

211670 200 μL (2,000 units)

Hae III
211712 40 μL (400 units) Each \$48.75

Each

\$66.00

IELL.

Instant Restriction Enzymes

Modifying Enzymes

T4 DNA Ligase

With 10× ligation buffer/ATP.

211740 50 μL (10,000 units) Each **\$140.00 211741** 100 μL (20,000 units) Each **\$258.50**

RNase A

5 mg/mL.

211745 500 μL Each **\$19.75**

Biotechnology ELISA & Microarray

ELISA



ELISA Simulation Kit

Intermediate—Easy to perform; requires some background knowledge.

Explore infectious diseases using a hands-on simulated ELISA assay. ELISA (Enzyme-Linked Immunosorbent Assay) is a common laboratory technique used to test blood serum for antibodies against disease-causing agents. Using the ELISA Simulation Kit, students work in pairs to diagnose 6 fictitious patients for HIV, Lyme disease, avian influenza (bird flu), or West Nile virus with 1 simulated antigen. Hypothetical scenarios are provided for each patient being tested for each disease. This kit poses no risk of infection because it does not contain actual serum

samples, antibodies, antigens, or disease-causing agents. **Kit** includes enough materials for 32 students. **Refill Kit** contains all kit materials except microtiter plates and teacher's manual. Visit **Carolina.com** for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Freeze perishable samples upon arrival.

 211248
 Kit (with voucher)
 Each
 \$144.50

 211248P
 Kit (with perishables)
 Each
 \$144.50

 211249
 Refill Kit (with voucher)
 Each
 \$74.95

 211249P
 Refill Kit (with perishables)
 Each
 \$74.95





211248P ELISA Simulation Kit (with perishables)

Antibody and Antigen Models

Introduce your students to the protein structure of the antibody with these 3-dimensional antibody and antigen models before discussing its role in the immune system. On the plastic $8\frac{1}{2}$ antibody model, the heavy chains are yellow, the light chains are red, and the carbohydrate is blue, which stabilizes the heavy chains in the molecule. On the nylon $3^{1}/2^{1}$ antigen model, the heavy chains are white, the light chains are red, and the carbohydrate is blue. Models should be handled with care. Set includes 1 antibody model and 2 antigen models.

211159 Per set \$83.50



Microarray



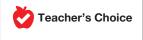
DNA Chips: Genes to Disease Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Simple microarray simulation Comprehensive 2- to 4-day lesson plan
- No special equipment 45-minute experiment
- olan Affordable lab option

This microarray simulation provides an inexpensive, hands-on lab to introduce students to microarrays, the complexities of gene expression, and the role of gene expression in cancer. Using simulated microarray technology, students compare the relative expression levels of 6 different genes in healthy lung cells and lung cancer cells. They then discuss the significance of the relative expression levels with respect to the genes' roles in causing cancer. **Kit** contains enough material for 10 groups to perform the experiment twice, plus a teacher's manual with instructions for a bonus dry lab. **Refill Kit** replenishes solutions and microarray worksheet. Visit **Carolina.com** for complete lists of kit materials.

211520 Kit Each **\$125.50 211521** Refill Kit Each **\$73.25**



Teacher Testimonial

"We ran this simulation in a 300-level genetics lab (college, not high school) last semester along with the supplementary math analysis that Dr. Laurie Heyer and Dr. Malcolm Campbell (Davidson College) developed. It was a great success! Not only did the students enjoy the lab . . . they [also] had significant gains in understanding. I really like this simulation!"

Pamela A. Marshall, PhD

Assistant Professor of Integrated Natural Sciences Arizona State University, West Campus Glendale. AZ



211520 DNA Chips: Genes to Disease Kit

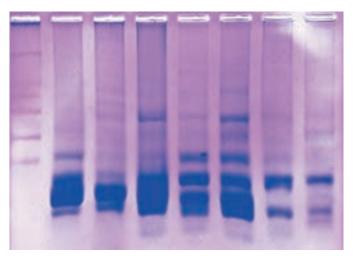
From 211520 DNA Chips: Genes to Disease Kit



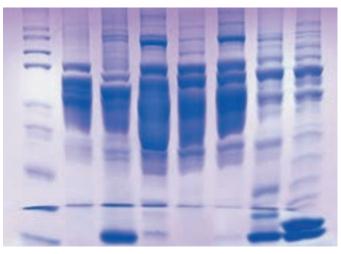
Protein Analysis & Protein Gel Electrophoresis

Biotechnology ctrophoresis

Protein Analysis & Protein Gel Electrophoresis



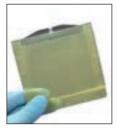
Gel from 211255 Fish Protein Fingerprinting on Agarose Gels Kit



Gel from 211260 Fish Protein Fingerprinting on Polyacrylamide Gels Kit



Need a vertical gel system? Go to page 277.



211375 Precast Polyacrylamide Gel

Fish Protein Fingerprinting Kits

Good for inquiry-based learning; both kits come with prepared fish protein samples, and all electrophoresis materials are included—no need to purchase acrylamide gels or agarose

Advanced—For experienced high school and college classes; requires some technical skill.

Explore the evolution of fish species through protein analysis. Students perform gel electrophoresis on extracted muscle protein mixtures from 7 different types of fish. The fish protein extracts are provided ready for use. Electrophoresis of the protein extracts creates a unique pattern of bands, called a protein fingerprint, for each fish species. Students compare the protein fingerprints from the 7 different types of fish, hypothesize on the degree of relatedness of the fish, and compare their ideas to a standard evolutionary tree of fish. The Fish Protein Fingerprinting on Agarose Gels Kit uses fine-sieving agarose gels for separation of protein bands and contains sufficient materials for running 6 gels. The Fish Protein Fingerprinting on Polyacrylamide Gels Kit uses precast polyacrylamide gels for separation of protein bands and contains sufficient materials for running 4 gels (6 gels if additional marker and gels are purchased). Polyacrylamide gels provide greater protein resolution than fine-sieving agarose gels do but require vertical electrophoresis chambers. Additional polyacrylamide gels and other reagents can be purchased separately. Visit Carolina.com for a complete list of kit materials. Note: Order the kits with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Kits with perishable materials included should not be shipped over a weekend. Carolina recommends that you request these items to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Protein samples require freezer storage. Avoid repeated freezing and thawing of samples.

211255	Fish Protein Fingerprinting o	n Agarose Gels	Kit	
	(with voucher)	1	Each	\$256.00
211255P	Fish Protein Fingerprinting o	n Agarose Gels	Kit	
	(with perishables)	1	Each	\$256.00
211255C	Perishables Refill Kit A	1	Each	\$192.00
211260	Fish Protein Fingerprinting o	n Polyacrylamid	е	
	Gels Kit (with voucher)		Each	\$290.00
211260P	Fish Protein Fingerprinting o	n Polyacrylamid	е	
	Gels Kit (with perishables)		Each	\$290.00
211260C	Perishables Refill Kit B	I	Each	\$194.43

Expand your kit to serve more students by ordering extra electrophoresis materials.

Item No.	Description	Size/ Quantity	Each
211375	Precast Polyacrylamide Gel	9.5×10 cm, 1 mm thick	\$29.00
217088	Protein Gel Agarose	14 g	\$99.00
211510	Protein Size Standards	50 μL	\$43.25
219030	Tris-Glycine-SDS Buffer	500 mL	\$26.00
219784	COOMASSIE® Protein Stain Solution, 1×	500 mL	\$12.25
219785	COOMASSIE® Destain Solution, 5×	500 mL	\$13.75

^{*}Sold only to schools and businesses.

Customer Review

"These fish proteins gave us great results on acrylamide gels. The different species were easy to distinguish and the samples were of great quality. This product allowed me to design a lab activity in which I tied in molecular biology, proteins, evolution, and taxonomy. I highly recommend it!"

University Professor

Protein Analysis & Protein Gel Electrophoresis/ Alternative Energy

Protein Assay Kit

Intermediate—Easy to perform; requires some background knowledge.

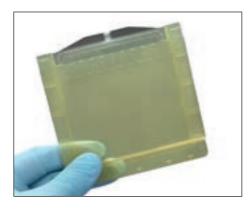
Students use a standard curve to analyze data in this experiment. They gather data by performing a BCA assay to determine the amount of protein in a standard versus 3 different food samples (included). Optionally, they can supply and test a fourth liquid food sample of their choosing. A spectrophotometer is used to obtain numerical values for the absorbances of dilutions of the standard and the samples. Students graph absorbance versus protein concentration for the standard and use the resulting curve to interpolate the concentration of protein in the samples. Kit includes enough materials for 8 stations. Visit Carolina.com for a complete list of kit materials.

211285 Per kit \$324.50

Results from 211285 Protein Assay Kit



Protein Sets, Reagents, & Markers for Protein Analysis



Precast Polyacrylamide Gel

12% polyacrylamide gel in tris-glycine-SDS buffer for separation of proteins. Gel cassette is 9.5 \times 10 cm, 1-mm thick, with 10 sample wells. Fits Carolina's vertical gel box as well as many others. On precast gels we guarantee a minimum 30-day shelf life from date of shipment when gels are kept refrigerated.

211375 Each \$29.00

Protein Size Standards

Invitrogen. A mixture of 12 proteins ranging in size from 2.5 kD to 200 kD (200, 116.3, 97.4, 66.3, 55.4, 36.5, 31, 21.5, 14.4, 6, 3.5, and 2.5 kD). Approximately 0.5 mg/mL of each protein. Load 5 μ L per lane. Store in refrigerator. Unit of 50 μ L. **Note:** *Shipped on gel cold packs.* **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

211510 Each \$43.25

Carolina Teacher Tips

- · Store fish protein sets in the freezer.
- Repeated freezing and thawing can degrade protein. To prevent loss of useable protein, aliquot it into smaller volumes before freezing.

Fish Protein Sample Set

Examine the relatedness of different types of fish by comparing their protein profiles. Set contains extracts of 7 different species of fish. Extracts are ready to load onto acrylamide or agarose gels. Use 10 μL per gel lane on our precast acrylamide gels. Each sample is 150 μL . Store in freezer. See item #211255 on page 253 for picture. **Note:** Shipped 2nd day on gel cold packs. **Should not be shipped over a weekend.** Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping.

211515 Each \$75.00

Protein Gel Agarose

This special fine-sieving agarose is preferable to standard agarose for separation of proteins. Use at 4% concentration for most applications. 14 g.

217088 Each \$99.00

Tris-Glycine-SDS Buffer

 $5 \times$ concentrate. For electrophoresis of proteins. 500 mL. **219030** Each **\$26.00**

Alternative Energy



210000 Microbial Fuel Cell Kit

Microbial Fuel Cell Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Investigate cellular respiration
- Explore an alternative fuel source
- See microbes in a new light

Use this high-quality fuel cell in an exciting crosscurricular lab that explores cellular respiration, electrical currents, microbiology, and the need for alternative fuels. The fuel cell uses the metabolic activity of ordinary baker's yeast to create a small electric current; its design is based on original research done by Dr. Peter Bennetto, formerly of King's College, London. Chemicals arrive dry, in premeasured amounts.

Kit includes:

Fuel Cell with 2 Sets of Neoprene Gaskets Cation-Exchange Membrane Sodium Phosphate* Glucose* Methylene Blue*

Potassium Hexacyanoferrate* Carbon Fiber for Electrodes* Set of Leads Whiz-Away™ Wipe Cloth*

Manual

Needed but not included:

Distilled Water 5- or 10-mL Serological Pipets or Syringes (for measuring fluid and loading the cell) Active Dry Yeast Digital Voltmeter (that measures 0.4–0.6 V and 1–50 mA)

210000 Kit 210001 Refill Kit (all * items) 210002 Replacement Cation-Exphance Membrane Each **\$349.00** Each **\$42.90**

Exchange Membrane Each \$78.75

Gene Expression

Gene Expression



211100P Exploring Gene Expression Through Transformation Kit (with perishables)



171027P Carolina BioKits: Introduction to Gene Regulation: The *lac* Operon (with perishables)



Biotechnology

Exploring Gene Expression Through Transformation Kit

Intermediate—Easy to perform; requires some background knowledge.

- · Explain the importance of promoters and gene regulation
- Perform a successful bacterial transformation
- Describe the role of transformation in genetic engineering
- Articulate the importance of the controls in an experiment

Using β -thalassemia as a medical example, students explore the phenomenon of gene regulation in this hands-on kit. As students progress through the lab, they answer why changes in the DNA sequence in front of a gene (not in the gene's coding sequence) affect how much functional protein is produced by the gene. They also use a new plasmid in a transformation experiment that includes a gene for kanamycin resistance. They learn to utilize IPTG as a compound to turn on gene expression for certain promoters. Finally, students successfully transform plasmid to produce green fluorescent protein (GFP). Kit includes enough materials for a class of 32 students working in 8 groups of 4, as well as 1-year access to digital resources that support 3-dimensional instruction; visit **Carolina.com** for complete lists of kit materials. **Note:** Order kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

211100 Kit (with voucher) Each **\$99.00 211100P** Kit (with perishables) Each **\$99.00**

Carolina BioKits®: Introduction to Gene Regulation: The lac Operon

Introduce your students to gene regulation with this lab activity focused on the *lac* operon. During the lab, students test the β -galactosidase levels of 3 cultures grown in the presence of glucose, lactose, or glucose and lactose. You have the option of allowing students to perform the activity as a quantitative lab (with spectrophotometer) or as a qualitative lab (without spectrophotometer). This kit is designed for students working in 8 groups of 2 to 4. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. The o-nitrophenyl- β -D-galactopyranoside must be kept frozen.

171027 Kit (with voucher) Each **\$115.35 171027P** Kit (with perishables) Each **\$115.35**

Genes and ConSEQUENCES Kit

In today's fast-paced world of genetics, a tremendous number of DNA sequences are being generated by scientists around the world. Unlocking the power of these sequences requires a specific skill set and a keen understanding of using databases and conducting sequence comparisons. Accessing the National Center for Biotechnology Information (NCBI) database, students use the Basic Local Alignment Search Tool (BLAST) to compare their sequences to gene segments published in the database. Using a case study approach, students continue to explore their sequences as they work to determine the location and role of their gene in a disease. Kit is designed to continually reinforce the central dogma of biology and give students basic knowledge of these database tools. Designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

214805 Per kit \$61.00



To view more HudsonAlpha kits, turn to pages 224–226.

Nematode Genetics

C. elegans as a Model Organism

These worms grow quickly—from embryo to adult in 3 days—are easy to culture, and can be stored in a freezer. The embryos, larvae, and adults are transparent, making observations of morphology and development in living worms easy. *C. elegans* can be grown at room temperature on small petri dishes seeded with the bacterium *E. coli*. To observe *C. elegans*, all that is required is a dissecting microscope. With these minimal requirements and a few simple tools, students can observe *C. elegans* behavior, development, and mutant phenotypes.





Culturing and Observing C. elegans Kit

Intermediate—Easy to perform; requires some background knowledege.

Students will:

- Observe the powerful effect of mutations on phenotype
- Practice their microscope skills
- · Get hands-on experience with an important model organism

This simple kit makes it easy to introduce students to the model organism *C. elegans*, a microscopic nematode worm used in Nobel Prize-winning studies on development, programmed cell death (apoptosis), and RNA interference. *C. elegans* is also widely used in studies to gain insight into the function of many human genes. In this lab, students perform "chunking," a simple way to move worms from 1 plate to another. They then observe the morphology, life cycle, and behavior of both wild-type and mutant worms. The observation that different mutants have different phenotypes emphasizes the relationship of genotype to different phenotype. Visit **Carolina.com** for a complete list of kit materials. **Note:** *Because of the time-sensitive preparation* and limited shelf life of the kit's living materials, please order a minimum of 2 weeks prior to the desired ship date. Plan on using the materials within a week of receiving them. Kit ships only on Mondays, Tuesdays, and Wednesdays and is shipped standard overnight delivery.

211390 Per kit \$103.75



173525P Caenorhabditis elegans Culture Kit (with perishables)

Caenorhabditis elegans Culture Kit

For teacher demonstration or individual use. This kit contains enough materials for maintaining *C. elegans* over a period of 6 subcultures. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For kit with perishables included, order 2 weeks prior to the requested delivery date. Keep* C. elegans and bacteria cultures at room temperature; do not incubate or refrigerate.

173525 Kit (with voucher) Each **\$127.70 173525P** Kit (with perishables) Each **\$127.70**



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.



Caenorhabditis elegans N2

Wild-type strain. Extensively used for genetic studies. *Caenorhabditis elegans* completes its life cycle in 3 days, developing from egg through 4 larval stages to adult. The worms can be aseptically maintained in the laboratory at 20° C on Nematode Growth Agar (item #173520) using *Escherichia coli* (item #155068) as the feeder host.

173500 Each \$17.10



173501 Caenorhabditis elegans OSM Mutant

Caenorhabditis elegans OSM Mutant

This *C. elegans* mutant strain is often used for adaptation and feedback mechanisms in homeostasis experiments. To sustain your culture, *Escherichia coli* 0P50 can be used as a feeder host (cultured on a nutrient agar plate at 37° C). Each culture contains enough material for a class of 30 students.

173501 *Caenorhabditis elegans* OSM Mutant, Plate Culture

Each **\$17.10**

155073 Escherichia coli OP50, Plate Culture

Each \$17.25



173522 Nematode Agar, High Salt

Nematode Growth Agar

Designed for use with *C. elegans*. No autoclave needed. Each bottle of bacteriological medium contains 125 mL of ready-to-use material, enough to pour up to 5 plates or 15 to 20 tubes. **Nematode Growth Agar** is ideal for most *C. elegans* cultures and applications. To test the response, growth, and development of *Caenorhabditis elegans* OSM Mutant strain (item #173501), **Nematode Agar, Low Salt** and **Nematode Agar, High Salt** are also available.

 173520
 Nematode Growth Agar
 Each
 \$9.70

 173521
 Nematode Agar, Low Salt
 Each
 \$9.70

 173522
 Nematode Agar, High Salt
 Each
 \$9.70

Gene Expression RNA Interference (RNAi)

Biotechnology





211392P Examining the RNAi Mechanism Kit (with perishables)

DNALC

Inducing RNAi by Feeding Kit Students silence genes and then observe the results!

Advanced—For experienced high school and college classes; requires some technical skill.

- Demonstrate to your students the power of silencing a single gene.
- Teach about a powerful method for determining gene function.
- Introduce your students to a model organism used for studying many aspects of biology, including development and gene function.
- Engage in bioinformatics exercises exploring protein function and C. elegans and human gene relatedness.

RNA interference (RNAi) is a Nobel Prize-winning technique that allows you to silence the expression of a chosen gene by specifically degrading the gene's mRNA. In this lab, wild-type worms are fed lab strains of E. coli that express double-stranded RNA (dsRNA) corresponding to either of 2 target genes: BLIstered cuticle (bli-1) or DumPY (dpy-11). The ingestion of the dsRNA initiates the destruction of mRNA expressed from the target genes. Students then examine the phenotypes induced by silencing these genes. Silencing bli-1 leads to the formation of clear blisters in a worm's outer cuticle; silencing dpy-11 leads to a worm developing a short, fat body. In accompanying bioinformatics exercises, students explore the function of the protein encoded by the silenced gene and the relatedness of worm and human genes. Kit includes 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For kit with perishables included, order 2 weeks prior to requested delivery date. Perishables are only shipped on Mondays, Tuesdays, and Wednesdays. Plan to use perishable materials within 1 week of receiving.

 211391
 Kit (with voucher)
 Each
 \$213.95

 211391P
 Kit (with perishables)
 Each
 \$213.95

 702700
 Micro Spatula, Both Ends Flat
 Each
 \$6.05



Developed in cooperation with the DNA Learning Center of Cold Spring Harbor Laboratory. Kit has been updated.

DNALC

Examining the RNAi Mechanism Kit

Advanced—For experienced high school and college classes; requires some technical skill.

- Demonstrate to your students the power of silencing a single gene.
- Teach about a powerful method for determining gene function.
- Explore the relationship between phenotype, genotype, and RNAi-induced phenotype.
- Perform bioinformatics exercises exploring protein function in *C. elegans*, and human relatedness.

Examining the RNAi Mechanism allows students to use the Nobel Prize-winning technique RNA interference (RNAi) to silence the dpy-13 gene in C. elegans. They observe wild-type worms eat a lab strain of E. coli that expresses double-stranded RNA (dsRNA) corresponding to the targeted gene, DumPY 13 (dpy-13). Ingestion of the dsRNA from the bacteria initiates the destruction of mRNA expressed from the targeted dpy-13 gene. Students examine the short, fat phenotype induced by silencing the dpy-13 gene, then isolate DNA from the RNAi-induced dpy-13 worms, wildtype worms, and from dpy-13 worms with a deletion in the dpy-13 gene. They then amplify the region of the dpy-13 gene containing the mutation to determine if the corresponding region in the wild-type worms and the RNAi-induced dpy-13 worms has the same mutation. The deletion mutation creates a band size difference easily observed by gel electrophoresis. In accompanying bioinformatics exercises, students explore function of the protein encoded by the silenced gene and relatedness of the human and worm genes. Kit includes 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For kit with perishables included, order 2 weeks prior to requested delivery date. Perishables are only shipped on Mondays, Tuesdays, and Wednesdays. Plan to use perishable materials within 1 week of receiving.

211392 211392P 211393	RNAi and Amplification Kit (with voucher) RNAi and Amplification Kit (with perishables) RNAi, Amplification, and Electrophoresis Kit w	Each Each rith	\$336.50 \$336.50
	CarolinaBLU Stain (with voucher)	Each	\$346.50
211393P	RNAi, Amplification, and Electrophoresis Kit w	rith	
	CarolinaBLU Stain (with perishables)	Each	\$346.50
New! 211397	RNAi, Amplification, and Electrophoresis Kit w	rith	
	GelGreen Stain (with voucher)	Each	\$366.50
New! 211397P	RNAi, Amplification, and Electrophoresis Kit w	rith	
	GelGreen Stain (with perishables)	Each	\$366.50

Chemicals

We supply premium-quality chemicals and stains. The chemicals in this section include those materials that we routinely maintain in stock. For an explanation of chemical grades and details on shipping, go to page 946. Special orders can be quoted and are usually shipped in 2 weeks.

Carolina is concerned with safety. Our safety communications are under continual update and improvement. In the event of a serious spill, contamination, ingestion, or other emergency situation, information is available from Carolina by calling product information at 800.227.1150 or 336.584.0381 and explaining your emergency. This service is available 8 AM to 5 PM (ET) Monday through Friday. For chemical emergencies during all other hours, contact your local poison control center at 800.222.1222 within the US.

Carolina provides a safety data sheet (SDS) with each hazardous chemical (as defined by OSHA) shipped to you. For your protection, the safety requirements listed on the data sheet should be followed.

Stains & Dyes



A safer alternative to ethidium bromide

GelGreen® is a stable, low toxicity stain with sensitivity comparable to ethidium bromide and is non-mutagenic by Ames test. GelGreen's main UV absorption peak is between 250 nm and 300 nm, but it also absorbs well at 500 nm. Thus, DNA stained with GelGreen® can be visualized using a 254-nm UV transilluminator or equipment such as a Dark Reader™, Visi-Blue™, or a 488-nm laser-based scanner. Stain comes in a 150-µL tube of 10,000× solution. Suggested use is as a 3× solution for post-electrophoresis staining of double- or single-stranded DNA and RNA in agarose gels. The stain can also be used at 1× concentration incorporated into the gel, but this may affect DNA band mobility. Not recommended for use with acrylamide gels.

217305 Per tube \$82.00

Ethidium Bromide DNA Stain

250 mL at 1 µg/mL (no dilution required). **Note:** *Sold only to schools and businesses.*

217422 Each \$49.25

Loading Dye

For gel electrophoresis of DNA, $10\times$ concentration. 1 mL.

218200 Each \$8.75



Gel run with CarolinaBLU in the gel and buffer, and before final staining with CarolinaBLU final stain



After staining with CarolinaBLU final stain

CarolinaBLU® DNA Stain

An ultra-safe, 2-step staining system in which a small amount of stain is added to the agarose and buffer prior to running the gel. This causes DNA bands to become faintly visible during electrophoresis. After electrophoresis, simply stain as usual to enhance visualization of bands. CarolinaBLU® stain gives better results than methylene blue because of increased sensitivity, reduced background, and reduced staining time. Includes 30 mL of stain to be added to the agarose and buffer solutions and 250 mL of the final staining solution.

217300 Each \$14.00

Buffers

Tris-Borate-EDTA (TBE)

20× electrophoresis buffer concentrate.

219025 150 mL for 3 L of 1× Buffer

Each **\$20.00**

219027 500 mL for 10 L of 1× Buffer

Each **\$44.95**

Tris-Acetate-EDTA (TAE)

Buffer used for electrophoresis. Comes as a $50\times$ concentrate.

219032 50 mL for 2.5 L of 1× Buffer

Each **\$17.75**

219033 100 mL for 5 L of 1× Buffer

Each **\$26.00**

Tris-Glycine-SDS Buffer

5× concentrate. For electrophoresis of proteins. 500 mL.

219030 Each \$26.00



217330 Carolina Electrophoresis Buffer Pack, TAE

Carolina® Electrophoresis Buffer Packs

Premeasured, powdered packs offer extreme convenience and save preparation time in your lab. Simply add contents of pack to 1 L of distilled water and mix until dissolved. A single pack makes 1 L of 1× buffer solution. No pH adjustment; quality and consistency guaranteed; nuclease and protease free; long shelf life.

217330 TAE Pack Each **\$5.75 217332** Tris-Glycine-SDS Pack Each **\$4.50**

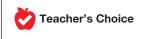
Decontaminate

Obliterase

Eliminates RNase, DNase, and DNA contamination on beakers, flasks, pipettes, and tubes. Can be used on glass, plastics, and stainless steel. Residue- and phosphate-free/ biodegradable. 32-oz spray bottle.

211601 Each \$31.00





General Chemicals

Agarose

Electrophoresis grade; low EEO. 217075 5 g Each \$20.75 **217080** 25 g Each \$81.95

Protein Gel Agarose

This special fine-sieving agarose is preferable to standard agarose for separation of proteins. Use at 4% concentration for most applications. 14 g.

217088 Each \$99.00

Sodium Dodecyl Sulfate (SDS), Solid

50 g.

218820 Each \$46.00



211320 Calcium Chloride, 50 mM

Calcium Chloride, 50 mM

For the preparation of competent *E. coli* cells. The $5 \times$ 100-mL quantity is sufficient for at least 40 individual preparations.

211320 5 × 100 mL Each \$58.50 **211322** 8 × 3 mL Each \$19.25

Melt-n-Pour Agarose, 400 mL

Made with TBE buffer. Just melt in microwave or boiling water bath. **217084** 0.8% Each **\$32.95**

217085 1.0% Each **\$35.95 217086** 2.0% Each **\$40.50**

> 217085 Melt-n-Pour Agarose, 400 mL, 1%



Antibiotics

Solutions

Antibiotics are added to culture media (after autoclaving and cooling to 50°C) at a rate of 1 mL of antibiotic solution per 100 mL of media. Antibiotic solutions are stable for 1 month refrigerated or longer if frozen. Please spec-

ify delivery date to ensure fresh materials.

Ampicillin/X-gal

7.5 mg/mL. Add 1 mL of antibiotic per 75 mL of medium. 5.4 mL.

216874 Each \$34.50

Kanamycin

10 mg/mL. 100 mL.

216861 Each \$57.95

Ampicillin

10 mg/mL.

216858 4 mL \$7.50 Fach **216860** 100 mL Each \$55.00



216874

Ampicillin/X-gal

Dry Powder

Ampicillin

5 g.

216880 Each \$62.00

Kanamycin

5 g.

216881 Each \$73.25



216880 Ampicillin

Media Ingredients

Tryptone

500 g.

216741 Each \$127.75

Yeast Extract

500 g.

216746 Each \$135.95



216746 Yeast Extract

Carolina Pledge: **Excellent Customer Support**

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.

Culture Media

Biotechnology Culture Media

Media are formulated with LB or LB agar base. Please give use date on your order. When you receive your material, refrigerate it immediately at 2 to 8° C. Antibiotics should be frozen unless the media they are added to is used within 2 months of receiving the antibiotic. Media with antibiotics last for approximately 2 months from the date the antibiotic is added.

Media Plates

Ready-to-use prepoured plates (100×13 mm or 100×15 mm).



216600 Luria Broth Agar Plates

Luria Broth Agar

Rich nutrient agar for the growth of E. coli colonies.

216600 Pack of 10 \$26.50

Luria Broth Agar + Ampicillin

Selects for ampicillin resistance. **216601** Pack of 10 **\$29.50**

Luria Broth Agar + Ampicillin + X-gal

Selects for ampicillin resistance and gives blue colonies if bacteria contains gene for $\beta\text{-galactosidase}.$

216604 Pack of 10 \$51.75

Ready-to-Pour Media

Each set contains premixed, sterile agar sufficient for pouring 25 plates. Simply melt in a microwave oven, water bath, or autoclave; cool; add antibiotic; and pour into the sterile plates provided. Each bottle is sealed to prevent contamination and drying. Antibiotic solutions are provided separately in sterile aliquots to be added after the agar has been melted and cooled to 50° C. Antibiotics should be frozen unless the media they are added to is used within 2 months of receiving the antibiotic.



216620 Luria Broth Agar

Luria Broth Agar

Rich nutrient agar for the growth of E. coli colonies.

216620 Per set \$36.50

Luria Broth Agar + Ampicillin

Selects for ampicillin resistance.

216621 Per set \$40.50

Luria Broth Agar + Kanamycin

Selects for kanamycin resistance.

216622 Per set \$40.25

Media Solutions

Luria Broth Vials

Sterile, in 3.0-mL vials. **216655** Pack of 8 **\$17.25**



Luria Broth Bottles

These sterile 50-mL aliquots of Luria broth are ready to use for small overnight suspension cultures of *E. coli* for isolating plasmid DNA or for aiding in spreading small volumes of cells. In 50-mL bottles.

216650 Pack of 5 \$31.25

Dehydrated Media (Premixed)

Our dehydrated media are the finest quality available. They are convenient to use and uniform in composition.

Luria Broth Base

Rich nutrient broth for suspension cultures of *E. coli*. Mix contains correct proportions of tryptone, yeast extract, and sodium chloride. Suspend in distilled water, adjust pH, and autoclave. 500 g.

216710 Each \$103.00

Luria Broth Agar Base

Rich nutrient agar for isolating *E. coli* colonies. Mix contains correct proportions of tryptone, yeast extract, sodium chloride, and agar. Suspend in distilled water, adjust pH, autoclave, and pour.

216700 500 g Each **\$145.50 216701** 1 kg Each **\$260.52**



216710 Luria Broth Base

Models & Simulations

Models & Simulations

Dynamic DNA Kit®

A next generation teaching tool

Beginning—Easy to perform; requires little or no prior knowledge.

3D Molecular Designs. Twist! Untwist! Replicate! Transcribe! Now students can do it all with the Dynamic DNA Kit®. Whether making health-care decisions for themselves and their families or preparing for careers in medicine, research, or drug development, today's students need to understand DNA. Research shows that while students know DNA contains genetic information, they have trouble understanding how that genetic information is revealed and used. The kit helps students to:

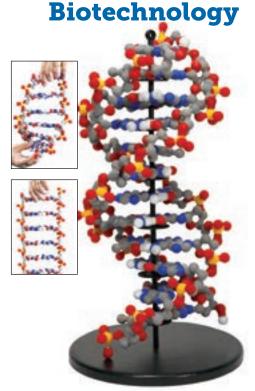
- Delve into DNA replication
- Explore transcription
- Understand how proteins bind to specific sites in the major groove
- · Visualize adenosine triphosphate, the universal currency of energy
- · Feel the inherent flexibility of DNA
- Easily separate and reassemble the nucleotide's nitrogen base, sugar, and phosphate group
- Identify the 5' to 3' direction of each strand

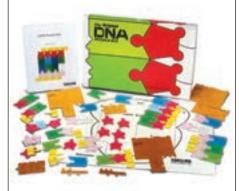
Kit equips 24 students working in groups of 4. Visit Carolina.com for a complete list of kit materials.

211143 Per kit \$319.95







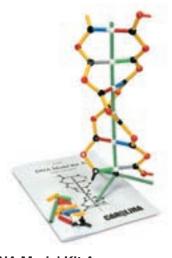


Original DNA Puzzle Kit Change is good, but nothing beats an original

- Includes improved extra-thick, durable cardboard pieces
- Covers DNA replication, transcription, and translation
- Reinforces science practices through hands-on learning

Based on customer feedback, we've learned that nothing beats the original. So we are proud to introduce the Original DNA Puzzle Kit, which features extra-durable cardboard pieces that fit together snugly and are designed to withstand years of classroom abuse. Of course, we've also updated the teacher instructions and activities to give you the same great product with useful improvements. With this kit, students study the structure of DNA and RNA, and the processes of replication, transcription, and translation (protein chain formation). Fully reusable. With teacher instructions.

171050D Per kit \$52.30



DNA Model Kit A

For building a simplified representation of a short segment of double-stranded DNA. All pieces are plastic and identified by color. Completed model is in the shape of a double helix about 25 cm H containing 6 paired nucleotides. Recommended for use with our item #171050D Original DNA Puzzle Kit. With instructions.

Kit includes:

- 12 Deoxyribose Units
- 12 Phosphoric Acid Units
- 3 Adenine Units
- 3 Guanine Units 3 Cytosine Units
- 3 Thymine Units
- 6 Hydrogen Bond Centers
- 24 Nucleotide Connectors
- Support Stand

171055 Per kit \$20.25



Individual DNA and Molecular Model Kit

Lab-Aids®. For 1 student. Kit contains over 150 plastic, color-coded pieces representing nitrogenous bases (A, T, G, C), hydrogen bonds (flexible), phosphates, and sugars needed to construct a model of a short DNA segment with 8 base pairs. Also included are atoms of carbon, oxygen, nitrogen, hydrogen, and phosphorus, with the covalent bonding pieces needed to construct a DNA or RNA nucleotide. Models are easy to assemble and disassemble; all components are reusable. Includes a student instruction manual.

171056 Per kit \$41.70

Carolina Cares About Safety

These products are educational materials, not toys or games. They are to be used only under adult supervision and for instructional purposes by middle school and older students. Not for use by children less than 8 years old.

Models & Simulations



217100 Carolina Biotechnology Simulator: Bacterial Transformation (in use)

Carolina® Biotechnology Simulator: Bacterial Transformation A truly unique biotechnology simulator

Powered by Unreal Engine®. Bring open-world exploration of biotechnology into your classroom. This interactive simulator is based on Carolina's bacterial transformation kit protocols and follows those procedures step by step. With full functionality, the software lets YOU pick the single colonies, YOU perform the heat shock, YOU perform the experiment, and YOU see real results! You and your students will experience lifelike smooth graphics while engaging in a fun, familiar format. Delivers bacterial transformation labs in a new, safe, and effective environment. Winner of the Best of STEM™ 2021 Award, the simulator is available for Windows® computers, as a Google Play® app, and for other platforms; visit Carolina.com for more details and specifications. Available in a Single User License and a Classroom License for up to 24 users. Note: License duration is 1 year (12 months) from date of activation.

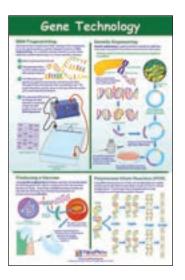
217100 Single User License Each **\$10.50 217101** Classroom License Each **\$159.50**



Flow of Genetic Information Kit[®] A³

3-D Molecular Designs, Interact with and model the central dogma using this powerful simulation. Kit comes with durable color-coded foam nucleotides, tRNAs, placemats, and more, which allow students to model DNA replication, transcription of DNA into RNA, and translation of RNA into proteins. Addresses challenging concepts such as DNA strand directionality, anti-parallel structure, leading/lagging strands, and implications of encoded proteins due to changes in the DNA code. Demonstrates the structural differences between RNA/DNA and models the flow of genetic information from DNA to RNA to proteins. Visit Carolina.com for a complete list of kit materials. PDFs of Teacher Notes (an activity guide) can enhance student understanding of the central dogma, and student handouts supplement or reinforce concepts presented in the classroom; both are available on the 3-D Molecular Designs website.

211130 Per kit \$148.95



Biotechnology Poster

This informative, illustrated, 23×35 " poster depicts DNA fingerprinting using gel electrophoresis; genetic engineering; polymerase chain reaction (PCR); and vaccine production. With colorful, eye-catching diagrams and sturdy construction, it is a fantastic addition to any biotechnology or biology classroom. Laminated.

213417 Each \$20.95



Stem Cells Poster

 $23\times35".$ This informative poster depicts and describes stem cells—what they are, how they are made, where they are found—and details prospective future developments in stem cell technology. The colorful, eyecatching diagrams and sturdy construction can benefit any biotechnology or biology classroom. Laminated.

213418 Each \$20.95

Download our Biomolecules Apps

- · Interactive, intuitive, and fun!
- Available from the Apple® App StoreSM and Google Play® (search for "Carolina Biological Supply")



Models & Simulations

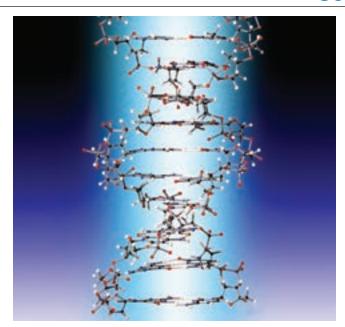
Biotechnology



Molymod® DNA Model Set

Teach the primary and secondary structure of DNA with this durable, attractive model. Colorful pieces reveal the polymeric nature of DNA, including base pairs, phosphate ester linkages, and ribose units. Adenine and thymine bases are attached by 2 pegs to model their 2 hydrogen bonds and 3 pegs link cytosine and guanine base pairs. Model even shows major and minor grooves. Size, 18" H.

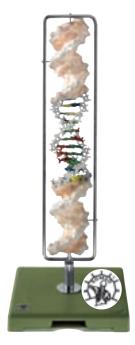
840203 Per set \$99.95



Orbit™ Proview DNA Model

Large-scale 3-D model helps students visualize and understand the base pairs, sugar rings, and phosphate groups of the DNA structure. Students construct the subassemblies then join them together to make the complete DNA model. Model includes 750 atoms and 850 bonds, a suspension framework of pre-strung wooden plates, assembly instructions, and a student worksheet. Size, 85 cm H \times 40 cm W. You can suspend the model from a hook or display it on a laboratory ring stand.

840225 Each \$230.15





Somso® DNA Double Helix

Scale: $30\times106:1$. Section of B-DNA double helix is based on data gained from X-ray diffraction studies. Clockwise double helix has 10.5 base pairs per coil, equivalent to a passage height of about 3.4 nm. Structure correlates closely with the model of DNA developed by Watson and Crick in 1953. In 1 piece; mounted on a rotating stand with green base. Size, $7\times7\times16^{1/2}$ " H.

561700 Each \$1,900.00

Somso® Chromosome

About 50,000× life size. Model shows a submetacentric metaphase chromosome in exquisite detail. The 2 chromatids are connected in the region of the centromere. The lower arm of the right chromatid is shown with supportive proteins removed to reveal loop domains of the fundamental fibril. Mounted on a stand with green base. Overall size, $46 \times 18 \times 18$ cm.

561705 Each \$757.90

Origami Organelles™ 3-D Model Kits

Make the complex, unseen world of molecular biology simpler and more visible with easy-to-assemble and economical 3-D paper models.

- Powerful and effective—The hands-on building of models is an engaging way to teach structures and sequential processes.
- Comprehensive—Each kit includes a teacher resource guide with illustrated readings, activities, and an assessment.
- Based on 5E and 3-dimensional standards—Using models is a key component of the Next Generation Science Standards*; the kit activities also offer 5E opportunities for students to Engage, Explore, Explain, Extend, and
- Convenient and economical—Every kit comes with a carrying case and enough materials for students to cooperatively build 5 paper models.

Description	Item No.	Per kit
DNA Structure Model Kit	211311	\$34.95
Cell Membranes Model Kit	211312	\$34.95
Gene Cloning Model Kit	211313	\$34.95
Stem Cells Model Kit	211314	\$34.95
CRISPR Model Kit	211317	\$34.95
Coronavirus Structure Model Kit	211318	\$34.95
Cell Cycle & Mitosis Model Kit	211730	\$34.95
DNA Replication Model Kit	211731	\$34.95
RNA Vaccines Model Kit	211732	\$34.95
Transcription Model Kit	211733	\$34.95
Translation & Protein Synthesis Model Kit	211734	\$34.95

^{*}Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

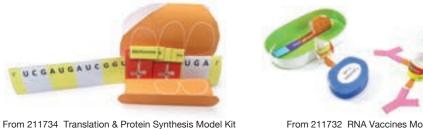


From 211312 Cell Membranes Model Kit



From 211314 Stem Cells Model Kit

From 211730 Cell Cycle & Mitosis Model Kit



From 211732 RNA Vaccines Model Kit

Models & Simulations





From 211317 CRISPR Model Kit



From 211313 Gene Cloning Model Kit



From 211318 Coronavirus Structure Model Kit



From 211731 DNA Replication Model Kit



From 211733 Transcription Model Kit



UCGAUGAUCG

Models & Simulations

Super DNA Models: Molecular Model Kits

Beginning—Easy to perform; requires little or no prior knowledge.

From Ryler Enterprises. The difficult task of teaching abstract, complicated biotechnology concepts becomes easier with these colorful, easy-to-assemble, plastic model kits. Each durable kit includes background information, Web resources, instructions, teaching ideas, and assessments.

- Proven in the classroom—designed and developed by science teachers
- Flexible—can be used for stand-alone lessons or can be coordinated for a series of lessons
- Hands-on/minds-on activities—by creating and manipulating their own molecules, students learn more about DNA structure and function, transcription and translation, and recombinant DNA technology
- Helps meet National Science Education Standards
- · Ideal for introducing and reinforcing concepts before or after labs

Biotechnology



211113 DNA Structure and Function Kit (in use)



Translation Kit

Kit contains enough parts to create a 15-nucleotide model of mRNA (including a stop codon) and 4 tRNAs with their specific amino acids. Also includes a ribosome illustration to use to simulate polypeptide formation.

211116 Per kit \$73.00



Transcription Kit

211113 Per kit \$56.00

Kit contains enough parts to create a 15-nucleotide mRNA model that corresponds to the DNA from the DNA Structure and Function Kit (item #211113). Also includes a methyl guanosine cap and a short poly A tail.

211114 Per kit \$56.00

Simulations of Heredity Kit Series

Create Models of the Building Blocks of Life

- · Hands-on kit series that simulates the basics of DNA, RNA, and chromosomal behavior
- Color-coded beads unlock the enigmas of molecular genetics
- Enough kit elements for 30 students
- Excellent tool for reinforcing base-pairing rules

The biochemical intricacies of molecular genetics are enough to overwhelm just about any biology student. This series of study kits simplifies the complexities of genetics by allowing students to use plastic color-coded beads to:

- Build and visualize the nucleotide base pair bonds of DNA
- Examine intrinsic DNA structure and execute the basics of DNA replication
- Study chromosomal behavior during mitosis and meiosis
- Demonstrate the processes of RNA synthesis (transcription) and protein synthesis (translation) using the same durable bead system
- Simulate crossing-over and several chromosome aberrations for easier understanding

Models & Simulations



DNA Simulation

DNA Simulation Manual Manual

171030 Carolina BioKits: DNA Simulation 10-Station Kit

Carolina BioKits®: DNA Simulation

Looking for an easier way to visualize deoxyribonucleic acid (DNA) and molecular events in your classroom? Give students an opportunity to go handson with these DNA manipulatives and help them grasp key molecular processes. The easy-to-use, colorful beads make teaching the structure and function of DNA a simple and engaging process. Both kits include teacher's manual and reproducible full-color student guide. The **10-Station Kit** is designed for a class of 30 students working in groups of 3; the **1-Station Kit** equips 1 to 3 students. Visit Carolina.com for a complete list of materials.

171030 10-Station Kit Each **171033** 1-Station Kit Each

Each **\$167.50**Each **\$52.25**

Teacher's Choice

RNA Simulation

RNA Simulation BioKit®

For a class of 30. Using color-coded beads, students transcribe the code of heredity held in the nucleotide order of a DNA sense strand to a messenger RNA (mRNA) molecule. After migrating to the ribosome, the mRNA sequence is translated into an amino acid chain via protein synthesis. This kit is recommended for use with our item #171030 Carolina BioKits®: DNA Simulation. Visit Carolina.com for a complete list of kit materials.

171035 Per kit \$162.25

Simulation Components

Bulk Beads and Connectors

Clear connectors and 4-way beads from Carolina BioKits®:

DNA Simulation (item #171030), RNA Simulation BioKit® (item #171035), and Carolina BioKits®: Chromosome Simulation Kit (item #171100). Beads are 12 mm W.

A STATE OF THE PARTY OF THE PAR				
	Item No.	Description	Quantity	Per pack
	171041	White 4-Way Beads	Pack of 300	\$18.10
TO 18 4 (W. 20)	171042	Pink 4-Way Beads	Pack of 300	\$18.10
	171043	Red 4-Way Beads	Pack of 300	\$18.10
100	171044	Green 4-Way Beads	Pack of 300	\$18.10
G . Take	171046	Yellow 4-Way Beads	Pack of 300	\$18.10
V- 32 37	171047	Orange 4-Way Beads	Pack of 300	\$18.10
No. of the last	171048	Purple 4-Way Beads	Pack of 300	\$18.10
+ + + + .	171049	Clear Connectors	Pack of 300	\$26.73
A TOTAL W				

Carolina Cares About Safety

These products are educational materials, not toys or games. They are to be used only under adult supervision and for instructional purposes by middle school and older students. Not for use by children less than 8 years old.

Models & Simulations



Magnetic DNA Whiteboard Set

- · Replaces paper cutout DNA activities—permanently!
- Features attention to detail, including whiteboard mat, accurate bonding, and 3' to 5' orientation
- · Offers economical price with durable classroom design

Looking for a truly unique way to brighten up your DNA lessons and make sure they stick with your students? Never again worry about losing valuable class time to students cutting out paper nucleotides for your DNA activities. This fully reusable set comes with color-coded nucleotides (A, T, G, C, U) for students to model strands of DNA and RNA. Each nucleotide features notches to represent bonding, and pieces are designed to allow students to accurately represent 3' to 5' orientation. The magnetic board doubles as a whiteboard, providing endless possible classroom activities. Purchase this magnetic DNA set and say goodbye to those paper nucleotide labs forever. Size, 18×12 ".

211102 Per set \$24.95



Modeling DNA to Protein Kit

Students follow a hypothetical scenario of an infant, "Baby Terra," diagnosed with sickle cell disease. As they do, they are introduced to the process of translation by modeling the flow of genetic information on a region of the beta hemoglobin gene. The kit investigations allow students to model transcription and translation using unique magnetic nucleotide bases, develop their own protein translation model, and use clay to demonstrate the physiological effects of the sickle cell mutation. Have your students explore the question "Why did Baby Terra get sick?" through Mendelian and molecular modeling. The **1-Station Kit** equips 1 group of 4 students; the **8-Station Kit** equips 32 students working in groups of 4. Both kits include digital resources; visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

211181 1-Station Kit Each **\$47.50 211183** 8-Station Kit Each **\$189.95**

Biotechnology



DNA Manipulatives Kit

Intermediate—Easy to perform; requires some background knowledge.

Explore the concept of recombinant DNA technology with this easy-to-use kit. Use manipulatives to demonstrate plasmid DNA cut with restriction enzymes. Fragments are labeled with base pair overhangs, fragment size, and antibiotic resistance. Kit is sufficient for 30 students. Includes both teacher demonstration and student manipulatives, instructional CD-ROM, and teacher's manual. All components are reusable.

211161 Per kit \$330.00



Genetic Kinship: Following the Globin Gene Through Time Kit

Intermediate—Easy to perform; requires some background knowledge.

This kit introduces genetic similarity and variation by evolutionary processes. Students can examine the evolution of the globin gene family with 3 dynamic activities. In the first activity, students use magnetic nucleotide bases to model DNA and RNA structure. They generate a mutation in the sequence and investigate subsequent changes in the amino acid sequence. In the second activity, students focus on gene duplication by making cladograms. In the final activity, students model biotechnology techniques including restriction enzyme digestion, polymerase chain reaction, and gel electrophoresis to diagnose an individual with sickle-cell anemia. The **1-Station Kit** equips up to 4 students. Both kits include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Kit includes:

Nucleotide Magnet Set(s) Magnet-Receptive Whiteboard Container(s) with Lids Teacher's Manual and Student Guide

211105 8-Station Kit Each **\$179.00 211108** 1-Station Kit Each **\$31.95**

Models & Simulations





From 211129 Amino Acid Starter Kit, Set of 3 Kits



Bioinformatics Map of the Human β -Globin Gene[®] Set \mathbb{A}^3

Intermediate/Advanced—For experienced high school and college classes; less experienced classes may require more instructor guidance.

- · Recommended for teaching mRNA processing
- · Reusable and easy to use

3-D Molecular Designs. Don't just tell your students about triplet codons, reading frames, and introns and exons—let them explore these elegant features of eukaryotic genes as they examine the map of the human β -globin gene. Searching through the sequence to find the β -globin gene reinforces students' knowledge of the genetic code and their understanding of the role of bioinformatics software in automating DNA sequence analysis. The maps are laminated so students can use highlighters or dry-erase pens to mark the exons on the DNA sequence; afterward the markings can be erased easily and the maps reused. For use with individual students or small student teams. Set includes 12 student maps, 1 teacher's map, and online access to teacher's notes, student activities, background information, and a list of additional resources.

211124 Per set \$246.50

Amino Acid Starter Kit® 113

Dynamic, durable side chain models feature embedded magnets and embedded plastic balls to graphically indicate atomic structure

Intermediate—Easy to perform; requires some background knowledge.

3-D Molecular Designs. Using these captivating models and tools, students explore proteins' primary, secondary, and tertiary structures. They learn the chemical properties of the 20 amino acid side chains using dynamic side chain models. These models feature dual-coloring schemes—a colored band at the base indicates chemical properties—and embedded plastic balls show atomic structure. Since understanding the structural and chemical properties of the amino acid side chains is essential to grasping the basics of protein structure, working with the side chain models helps students comprehend protein structure. An additional protein-folding activity further deepens students' understanding as they explore the role of the side chains' properties in creating secondary structure.

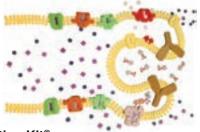
Kit includes:

Chemical Properties Circle Amino Acid Side Chain Chart 4-ft Mini-Toober® Set of Red and Blue Endcaps 22 Clear Bumpers 22 Amino Acid Side Chains

mpers 6 Hydrogen Bond Connectors cid Side Chains

22 Plastic Clins

211126 Kit Each **\$101.50 211129** Set of 3 Kits Each **\$263.75**



Synapse Construction Kit[©]

211153 Synapse Construction Kit

3-D Molecular Designs. Engage your classroom with hands-on modeling of neuronal communication. Students can use this kit's colorful foam pieces to:

- . Discover how the resting potential of a neuron is established
- Demonstrate the propagation of an action potential down an axon
- Simulate the action of the sodium-potassium pump in resetting the resting potential
- Explore the effects of neurotransmitters acetylcholine, dopamine, and GABA on a postsynaptic neuron
- Model cholinergic, dopaminergic, and GABAergic synapses
- · Compare and contrast metabotropic and ionotropic receptors
- Analyze the impact of various substances such as nicotine, cocaine, sarin gas, and propofol on neuronal signaling
- And much more

Visit Carolina.com for a complete list of kit materials. Go to the 3-D Molecular Designs website for additional resources: PDFs of Teacher Notes (an activity guide) to help you consider different ways to use the kit materials and additional guides to supplement or reinforce concepts presented in the classroom.

211153 Kit Each **\$146.95 211154** Set of 3 Kits Each **\$420.00**

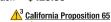


3D Molecular Designs. Help your students achieve a better understanding of multiple biotechnology concepts, including diagnostics, forensics, and bacterial transformation, with this hands-on modeling kit. Using the kit's color-coded foam nucleotides and teacher-developed activities, students can:

- Model polymerase chain reaction and how flanking primers result in the exponential amplification of a short product
- Model the Sanger DNA sequencing method using chain-terminating fluorescent dideoxy nucleotide analogs
- Model DNA cloning using restriction endonucleases to cut DNA at specific sequences

Kit equips 1 group of 4 students. Visit Carolina.com for a complete list of kit materials.

211151 Per kit \$114.95



Models & Simulations

Biotechnology



Carolina® Messenger: The RNA Game™ A fun, meaningful way to teach and learn about genes, messenger RNA, and proteins!

Age 13 and up. Without messenger RNA (mRNA), your genes are useless. Messenger RNA transfers genetic information from a cell's nucleus to its cytoplasm to direct protein synthesis. Rolling the DNA Dice™, students have fun as they learn how an mRNA copy of genetic DNA information is made. Using simple charts, they discover how to convert DNA codon sequences into mRNA codons. These charts also show students how mRNA codons specify amino acids during protein synthesis on ribosomes. In the end, seemingly complex events are all made easy to understand through the game's DNA Dice™, simple charts, and illustrated educational game book. For 2 to 5 players.



Gene Rummy[®]: The DNA Card Game[®] Develop your knowledge of DNA and genetic engineering and have fun with this classic science game!

A fun, engaging twist on a classic game, to help students understand the relationship between DNA and proteins. Players compete with each other to manipulate the 4 bases of the genetic code, select codons for the 20 amino acids, and genetically engineer proteins. The game can be played on a number of educational levels to accommodate a wide range of students. Includes playing cards, score cards, genetic code dictionary, and game booklet. For 2 to 4 players.

441204 Each \$54.25

441206 Each \$50.25



Carolina® Codon™: The DNA Game™

A fun, dice-based matching game for teaching about DNA, amino acids, proteins, and their relation to human diseases

Age 13 and up. Student "scientists" identify amino acid sequences for key proteins in 5 common human diseases: cancer, AIDS, cystic fibrosis, muscular dystrophy, and diabetes. The game is played by rolling dice and associating codons with the appropriate amino acids. It includes a Genetic Code Dictionary and an informative booklet containing facts about DNA, genes, and human genetic diseases, along with the benefits and social implications of genetic engineering. For 2 to 5 players.

441202 Each **\$53.00**



Carolina® Mutation: A DNA Dice Game

Grade 6–College. Help students discover how sequences of bases called codons encode the amino acids that comprise proteins. In this fun, engaging tabletop game, student "scientists" roll and arrange the DNA Dice to form a codon that codes for a specific amino acid. They repeat the process until they complete chains of amino acids from proteins that are linked to genetic diseases. Once the short protein sequence is completed, students roll the dice to reveal the single base change that causes the disease. Simple, fun, and educational. Portable enough to bring on field trips and durable enough to last many years. Undoubtedly one of the most entertaining resources for helping your students learn about single nucleotide polymorphisms (SNPs) and how they influence human disease. For up to 8 single players or 1 team.

441208 Each \$46.50

Biotechnology Equipment & Labware

Equipment & Labware

The **CAROLINA** Brand

Innovation, Quality, and Value

We reserve the Carolina brand for products of exceptional quality and value. In the laboratory and classroom, count on these products for superb performance at a reasonable cost.

- Wide product selection
- Designed for durability and ease of use
- Selected with the classroom in mind
- Excellent customer support



Power Supplies Page 275



Gel Electrophoresis Chambers
Page 276



Gel Viewing Systems Page 278



Centrifuges Page 280



Wet & Dry Baths Page 282



Rockers & Shaking Incubators Page 284



Thermal Cyclers Page 287



Micropipettors Page 288

Find additional advanced biotechnology equipment—

such as spectrophotometers, microplate absorbance readers, and homogenizers not included in this catalog—at Carolina.com.

Equipment Equipment minipcr

Who Is MiniPCR®?

Carolina is proud to be partnered with miniPCR®, which develops innovative tools for everyone to experiment hands-on with DNA. It is a company of scientists driven to inspire the next generation, and they partner with educators to achieve this vision.

P51™ Molecular Fluorescence Viewer

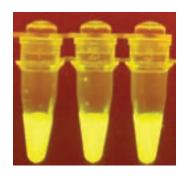
A new approach to inquiry in the classroom, this handheld viewer uses fluorescence to enable students to visualize molecules in real time, making it ideal for studying biological structures, functions, and processes. The viewer is easy for students to assemble and can be used/reused with any BioBits® and P51™ Glow Labs™ kits to teach a diverse and growing array of labs. Named in tribute to Rosalind Franklin's infamous photo 51 x-ray diffraction image of DNA, the viewer powerfully engages your students with the dynamic role that visualizations play in scientific discovery. Includes setup guide. Requires USB-C connection (charger not included) or one 9-V battery (not included).

216321 Each \$38.50



BioBits[®] & P51[™] Glow Labs[™]

Kits and Labs that Use P51™ Molecular Fluorescence Viewers

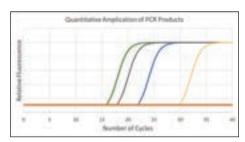


DNA Glow Lab™: Exploring DNA Structure

Intermediate—Easy to perform; requires some background knowledge.

In this lab, students use a fluorescent dye to investigate the conditions that influence DNA structure and its transition from double helix to single strand, and vice versa. Students can test conditions that influence Watson-Crick base pairing between complementary DNA strands, using temperature to differentiate between DNA of different sequences, and establishing the melting temperature of each sample. They carry out 3 investigations exploring DNA composition, concentration, the chemical milieu, and their influence on Watson-Crick pairing. Kit includes sufficient materials for a class of 32 working in 8 groups; visit Carolina.com for a complete list of kit materials. Note: Ships with perishable materials. Keep refrigerated until use.

216322 Per kit \$91.75



Results from 216326 P51 qPCR Lab: Principles of Quantitative PCR

P51™ qPCR Lab: Principles of Quantitative PCR

Watch the PCR product glow—without the need for gels!

Intermediate—Easy to perform; requires some background knowledge.

In this hands-on activity, students perform a modified version of a quantitative polymerase chain reaction (gPCR), gPCR monitors the amount of PCR product produced in real time using fluorescent dyes or probes. The lab modifies the reaction so students can observe the change in fluorescence firsthand using low-cost equipment and without the need for a qPCR machine. It is an excellent illustrative tool for learning how fluorescence and PCR can be used to quantify nucleic acids while introducing the process of PCR in general. During the activity, students can practice hands-on skills such as micropipetting, PCR, qPCR, and gel electrophoresis (optional). The activity can be completed in one 120-minute block or extended into 3 class periods. Kit contains materials for 8 groups (32 students); visit Carolina.com for a complete list of kit materials. Note: Reagents require frozen storage. Shelf life is 12 months when stored at -20°C.

216326 Per kit \$114.75



BioBits®: Protein Structure and Function Kit

Proteins are essential tools for life. But how does a simple string of amino acids fold into an intricate threedimensional structure capable of performing a specific task, such as emitting fluorescence? Using fluorescent proteins as a model, students explore a protein's primary, secondary, and tertiary structures and relate those structures to protein function in an integrative, hands-on lab. They compare different fluorescent protein sequences at the primary, secondary, and tertiary levels and use that analysis to predict protein functions, then express these fluorescent proteins using a simple cell-free protocol to test their predictions. The activity is an excellent interactive introduction to the basics of protein structure and function, as well as a springboard for discussing more advanced topics such as protein engineering. Kit provides materials for 8 groups; visit Carolina.com for a complete list of kit materials. A P51™ Molecular Fluorescence Viewer (item #216321) or blue light transilluminator is needed but not included. Note: Reagents require refrigerated storage. BioBits® pellets are best used within 3 months of receipt when stored at 4° C.

216340 Per kit \$126.95

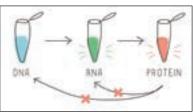


P51[™] Enzyme Lab: β-Gal Glow[™]

This lab enables students to investigate enzyme activity and the conditions that affect it. During the lab's 4 investigations, students observe the reaction progress and quantify the effect of different factors-pH, temperature, enzyme and substrate concentration, and competitive inhibition—on enzyme reaction rates. Kit contains enough materials for 8 groups; visit Carolina.com for more information and a complete list of kit materials. Note: Reagents require refrigerated storage and have a shelf life of 6 months when stored at 4° C.

216323 Per kit \$111.95

Equipment



BioBits®: Central Dogma Lab

Illuminate transcription and translation with the BioBits® cell-free system

Intermediate—Easy to perform; requires some background knowledge.

The BioBits® system uses cell-free reactions, making this cutting-edge technology accessible anywhere to anyone interested in learning molecular biology. It is an excellent teaching tool to enhance biology education both within and beyond the classroom. With this kit, students use the BioBits® system to visualize the flow of genetic information and monitor transcription and translation in real time through fluorescence. Kit contains enough materials for 8 groups; visit Carolina.com for more information and a complete list of kit materials. A P51™ Molecular Fluorescence Viewer (item #216321) or blue light transilluminator is needed but not included. Note: Reagents require refrigerated storage. BioBits® pellets are best used within 3 months of receipt when stored at 4° C.

216325 Per kit \$121.50

Equipment Packages



213900 blueGel Integrated Electrophoresis a nd Visualization System

Electrophoresis and Visualization

This innovative unit integrates electrophoresis and

DNA visualization into 1 convenient system. The blue-

Gel™ produces rapid results, allowing you to visualize

DNA instantly. Other unique safety features include the

use of safe green DNA dyes, low-voltage power sup-

ply, and automatic current shutoff. Never run a gel

backwards again with the error-proof load feature. The

user-friendly casting system eliminates leaks and uses

up to 10× less reagent. The combs stow away for easy

storage, and their configuration accommodates 9 to 26

wells per gel. Document results using any smart device

or camera. The blueGel™ Bundle includes 4 complete

blueGel™ systems. Visit Carolina.com for more fea-

Each

Each

\$399.95

\$1,470.00

blueGel™ Integrated

tures and specifications.

213900 blueGel System

213910 blueGel Bundle

System

216302 miniPCR mini16X Thermal Cycler

Updated!



216300 miniPCR mini8X Thermal Cycler

miniPCR® Thermal Cycler and

tion System (item #213900) for 1 low price.

Amplify, digest, electrophorese, visualize, and docu-

ment using a single package! This combo includes the

miniPCR® mini8X Thermal Cycler (item #216300) and

the blueGel™ Integrated Electrophoresis and Visualiza-

miniPCR® Thermal Cyclers

With the philosophy that PCR is for everyone, everywhere, miniPCR® Thermal Cyclers are practical units that can be used in a classroom, a laboratory, or the field. Their sleek, sturdy designs are built to withstand drops or collisions, and their small footprint make them portable for field use. Each has intuitive, easy-to-use software that monitors and analyzes the process in real time and demonstrates each cycle with colorful animations. Software is compatible with Windows®, Macintosh®, iOS®, Google® Chrome™, and Android® devices. AC- or battery-powered (battery not included). Visit Carolina.com for more features and specifications.

216300 mini8X Thermal Cycler \$764.95 mini8X Thermal Cycler 216310 Pack of 4 \$2.815.00 216302 mini16X Thermal Cycler \$945.95 Fach

216320 Each \$1.070.75

blueGel™ Combo

See more equipment packages on the next page.

Equipment

Biotechnology



Carolina® Electrophoresis Lab Station Equipment Package

Entry level equipment that doesn't sacrifice quality or features

This package is the right choice for introductory and advanced biotechnology activities that involve electrophoresis and micropipetting.

Package includes:

- 1 Carolina® Dual200 Power Supply (item #213677)
- 2 Carolina® NG Electrophoresis Chambers (item #213641)
- 2 Micropipets

213603 Each \$885.00

Want to build your own custom equipment package?

Contact our Quotations Department and they'll do it for you!
Call 800.334.5551.



Carolina® Electrophoresis and Visualization Lab Station Equipment Package

Perfect for use in AP® Biology and the ABC Technologies CORD curriculum!

- · Save time using preselected materials
- Run 12 gels simultaneously
- Use mobile phones and smart devices to document gels

This package contains enough quality equipment to run 12 gels at a time, and now includes our redesigned, easy-to-use Carolina® Laboratory Pipettors for sample loading. Not an expert in molecular biology? Not a problem. The package also includes *DNA Science: A First Course*, a lab manual with complete instructions on basic molecular techniques for educators trained in science but lacking a background in molecular biology.

Package includes:

- 3 Carolina® Dual200 Power Supplies (item #213677)
- 6 Carolina® NG Electrophoresis Chambers (item #213641)
- 6 Carolina® Laboratory Pipettors (item #214623)

Carolina® LED Light Box (item #213694) Carolina® Light Box Photo Hood (item #213701) DNA Science: A First Course, 2nd Edition (item #212209)

213621 Each \$2,935.00

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Carolina® Separation Station I

Pour gels without masking tape when using Carolina® Deluxe Gel Electrophoresis Chambers

The essentials for conducting electrophoresis experiments. Station I runs 2 gels at 1 time.

Package includes

Carolina® NG Electrophoresis Power Supply (item #213704) 2 Carolina® Deluxe Gel Electrophoresis Chambers (item #213710)

213600 Each \$999.95



Carolina® Separation Station II

The essentials for conducting electrophoresis experiments. Station II runs 4 gels at 1 time.

Package includes:

Carolina® NG Electrophoresis Power Supply (item #213704) 2 Carolina® NG Electrophoresis Chambers (item #213641)

213602 Each \$803.25



Carolina® Electrophoresis Equipment Package I

- . Materials preselected for your class to save you time
- Equipment for running 12 gels simultaneously

Perfect for use in AP® Biology. Package I contains enough quality equipment to run 12 gels at 1 time. Not an expert in molecular biology? Not a problem. The package also includes *DNA Science: A First Course*, with complete instructions on basic molecular techniques for educators trained in science.

Package includes:

3 Carolina® NG Electrophoresis Power Supplies (item #213704)

6 Carolina® NG Electrophoresis Chambers (item #213641)

Disposable Wiretrol® II Micropipet Set

Carolina® LED Light Box (item #213694)

DNA Science: A First Course (item #212209)

213620 Each \$2,700.00

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Carolina® College Electrophoresis Equipment Package Pour gels without masking tape when using Carolina® Deluxe Gel Electrophoresis Chambers

Our college package contains enough equipment to set up 10 lab stations and to run 10 gels at one time. *DNA Science: A First Course* gives complete instructions on basic molecular techniques for educators trained in science.

Package includes:

5 Carolina® Deluxe NG Electrophoresis Power Supplies (item #213708)

10 Carolina® Deluxe Gel Electrophoresis Chambers (item #213710)

10 Carolina® Research Pipettors, 2.0 to 20 µL (item #214540)

Carolina® LED Light Box (item #213694)

Carolina® Light Box Photo Hood (item #213701)

Carolina® Water Bath (item #216248) Microcentrifuge (item #214072)

DNA Science: A First Course (item #212209)

213624 Each \$9,817.50



Carolina® White-Light Equipment Package

You can load 6 gels at a time with the micropipettors, run 12 gels simultaneously with the gel electrophoresis equipment, view *Carolina*BLU®-stained gels on the white light box, and record the lab data using a smart device (not included) with the Carolina® Light Box Photo Hood.

Package includes:

3 Carolina® NG Electrophoresis Power Supplies (item #213704)

6 Carolina® NG Gel Electrophoresis Chambers (item #213641)

6 Carolina® Research Pipettors, 2.0 to 20 μL (item #214540)

Carolina® LED Light Box (item #213694) Carolina® Light Box Photo Hood (item #213701)

213630 Each \$3,750.00



214619 Carolina Pipette

New! Carolina® Micropipette Starter Bundle

The perfect bundle for beginning with micropipetting or for those looking to develop their pipetting skills. Four of the most popular-sized micropipettes (1.0–10 μ L, 2.0–20 μ L, 20–200 μ L, and 100–1,000 μ L), the Carolina® Pipette Carousel Stand (item #214619), and 3 racks of micropipette tips are combined with our Practice Pipetting Stations Kit (item #211145) to provide everything you need to teach the essential lab skill of pipetting. Get your students practicing their skills on simulated gels with a variety of micropipettes and tip sizes—right out of the box. Visit Carolina.com for a complete list of materials.

214547 Per bundle \$749.00

Equipment

Power Supplies

Biotechnology



Carolina® QuadTouch300 Power Supply Power meets versatility

At home in both classroom and research settings, this exceptional power supply features intuitive timer and voltage control via a backlit LCD touchscreen. Four-channel output makes running samples for a large classroom less hassle. The QuadTouch300 can be set up vertically or horizontally to fit tight spaces and its LCD automatically selects the correct orientation. Separate nucleic acids or proteins confidently with 5 V or 5 mA increments using constant voltage or constant current settings on a timer (up to 99 hr, 59 min). Warranted by the manufacturer for 2 years.

Specifications:

Current: 5 to 400 mA (in 5-mA increments)

Max Power: Output Jack Sets:

10 to 300 V (in 5-V increments) Voltage Output:

Dimensions: $21.5\times15.5\times9.75~\text{cm}$

Weight: 213712 Each \$645.00



Carolina® Dual200 Power Supply

The standard in affordable classroom electrophoresis power supplies

Compact yet powerful, the Dual200 offers a maximum output of 200 V. It can run 2 gels simultaneously, and its sleek, stackable design conserves space in your laboratory or classroom.

Specifications:

Output Jack Sets: 2 200 mA Max Current: Max Power: 40 W

Output Voltages: 100 V, or 200 V constant Dimensions: $6 \times 11.5 \times 5.7$ cm

Weight: 0.4 kg Warranty: 2 yr 213677 Each \$266.75



Carolina® Deluxe NG **Electrophoresis Power Supply**

This sturdy, high-quality, metal-encased power supply is the deluxe model in the Carolina® NG Electrophoresis Power Supply line. It has all the features of the Carolina® NG Electrophoresis Power Supply (item #213704), plus a 4-digit LED display that allows you to precisely adjust and monitor output voltage. The 2 independently operating channels are continuously adjustable to supply 25- to 150-V DC. Each channel is protected by its own type 3AG fuse (250 V, 300 mA; size, $1^{1}/_{4} \times {}^{1}/_{4}$ "). Great for running 2 gels at the same voltage or at different voltages.

Specifications:

Input: 120 V AC, 60 Hz

Voltage Output: 25- to 150-V DC per channel,

continuously adjustable

Current: 0 to 300 mA per channel Dimensions: $5^2/_5$ " W × $7^1/_{10}$ " D × $3^3/_{10}$ " H

Weight: $4^{1}/_{2}$ lb 213708 Each \$628.00



Carolina® NG Electrophoresis **Power Supply**

- · Simultaneously run 2 gel boxes
- · Sturdy metal construction

This sturdy, high-quality, metal-encased power supply is the next generation in the Carolina® Electrophoresis Power Supply line. The 2 independently operating channels are continuously adjustable to supply from 25- to 150-V DC. Settings for 25, 50, 75, and 145 V are marked. Each channel is protected by its own type 3AG fuse (250 V, 300 mA; size, $1^{1}/_{4} \times {}^{1}/_{4}$ "). Great for running 2 gels at the same voltage or at different voltages.

Specifications:

Input: 120-V AC, 60 Hz

Voltage Output: 25- to 150-V DC per channel,

continuously adjustable with 25-, 50-, 75-, and 145-V settings

marked

Current: 0 to 300 mA per channel $5^{2}/_{5}$ " W × $7^{1}/_{10}$ " D × $3^{3}/_{10}$ " H Dimensions:

 $4^{1/2}$ lb Weight: **213704** Each \$489.00



Mini Electrophoresis Power Supply Priced right for classrooms on a tight budaet!

This affordable power supply enables you to run 2 gels simultaneously, each at the same or at a different voltage. Easy-to-read operating instructions are printed on the front panel. Other features include convenient slide switches, a red overload light to indicate when current exceeds 350 mA, and a detachable grounded cord. Manufactured by an ISO 9001:2000-certified company. Warranted by the manufacturer for 2 years (repair or replacement).

Specifications:

Output Voltages: 15, 75, or 150 V Max Power: 52.5 W Max Current: 350 mA Output Jack Sets:

Glass encased Fuse:

Power: 120- to 240-V AC. 50/60 Hz Dimensions: 10.2 cm D \times 12.7 cm W \times 7 cm H

 $1^{1}/_{2}$ lb

Weight: 213675 Each **\$298.00**

Electrophoresis Chambers

Carolina® NG Electrophoresis Chamber

- Tray makes a gel $3^1/_4 \times 3^1/_2$ "
- Stackable gel trays run up to 32 samples at a time
- Flexible dams for pouring gels—no more need for tape
- Trays have notches in the center to accommodate a second comb

• Platinum wire prevents corrosion

• Safe—unit will not operate unless lid is in place

Compatible with most power supplies

Our premium gel chamber, featuring design enhancements that include a taller chamber, platinum wires to prevent electrode wear down, and flexible tray dams to make pouring gels easy. This sturdy apparatus can withstand high volume use over many years. **Electrophoresis Chamber** includes 1 gel box, electrodes, 1 pair of leads, 2 stackable gel trays, 4 eight-well combs, and 4 flexible dams. Replacements for the 8-well comb, leads, flexible dams, bottom chamber, chamber trays, and chamber lid are sold separately. Outside dimensions, $8" L \times 6" W \times 3^1/5" H. Wt, 1^1/10 lb$.

213641 **Electrophoresis Chamber** \$343.00 Fach New! 213641RB Each Replacement Bottom Chamber \$195.00 New! 213641RU Replacement Chamber Lid \$95.00 Each 213641RC Replacement 8-Well Comb Each \$9.95 213641RD Replacement Flexible Dams Pair \$20.00 **⚠** 213641RL \$40.00 Replacement Leads Pair Replacement Chamber Trays New! 213641RT Pair \$29.95





213654 Carolina Gel Electrophoresis Chamber Set

213668 Carolina Gel Electrophoresis Chamber



213710 Carolina Deluxe Gel Electrophoresis Chamber

Carolina® Gel Electrophoresis Chamber Set

Two gels; one chamber

- Run 2 gels in 1 chamber and use half the number of gel boxes
- Four 8-well combs, notches in the center of each tray, and stackable gel trays offer the option of running 32 samples at 1 time
- Durable 1/4" acrylic construction
- Safe—unit will not operate without lid securely in place

This **Chamber Set** is the same as our Carolina® Gel Electrophoresis Chamber (item #213668), except the set includes 4 combs and 2 stackable gel trays. This gives you the option of running 2 gels at once in the same chamber. Simply load the first gel as usual, place the second casting tray on top of it, add additional buffer, then load the second gel. The trays make gels $3^{1}/_{4}^{\text{U}}$ W \times $3^{3}/_{4}^{\text{U}}$ L. **Stackable Casting Trays Set** provides 2 more stackable casting trays and four more 8-well combs.

 213654
 Chamber Set
 Each
 \$399.95

 213655
 Stackable Casting Trays Set

 Each
 \$66.75

Carolina® Gel Electrophoresis Chamber

- Durable 1/4" acrylic construction
- Includes 1 non-warping tray that makes a gel $3^{1}/_{4}^{\prime\prime}$ W \times $3^{3}/_{4}^{\prime\prime}$ L
- Center tray notches and two 8-well combs (included) offer the option of running 16 samples per gel
- Safety interlock lid prevents operation unless lid is securely in place
- Easy to use and includes instructions for operation
- · Compatible with most power supplies

Expand your use of the Carolina® Gel Electrophoresis Chamber with available add-ons. The Multi-Gel Precasting System lets you simultaneously cast 8 gels that fit this chamber's casting tray. The Carolina® Stackable Casting Trays Set (item #213655) runs 32 samples at a time.

213668 Carolina Gel Electrophoresis Chamber

Each \$408.00

213669 Multi-Gel Precasting System

Each **\$212.00**

213667 Extra 8-Well Comb Each \$17.75 Electrophoresis Chamber
Easy-to-use design allows you to

Carolina® Deluxe Gel

Easy-to-use design allows you to cast gels without using tape or gates!

- Durable 1/4" acrylic construction
- Safe—unit will not operate without lid securely in place
- Heavy, nonwarping gel-casting tray is marked for easy loading
- Notches in the center of the tray and two 8-well combs offer the option of running 16 samples per gel
- Tray makes a gel 3¹/₄" W × 3³/₄" L

This unit is the same as our Carolina® Gel Electrophoresis Chamber (item #213668), except gaskets in the ends of the gel tray eliminate the need for tape. Simply turn the gel sideways in the gel chamber to cast the gel.

213710 Chamber Each **\$417.00 213647** Replacement Leads Per pair **\$50.00**

See more electrophoresis chambers on the next page.



Equipment

Biotechnology

New! E-Gel® Power Snap Electrophoresis System

- Simple 3-step workflow: load, run, and analyze
- Precast E-Gels® run in as little as 10 minutes

Traditional gel electrophoresis takes a lot of time—from casting the gel, to loading and running it, and finally visualizing and imaging the result. The E-Gel® Power Snap Electrophoresis System significantly simplifies the process with a compact runner, precast agarose gels, and imaging solution that save time and bench space. It requires no connection to a desktop computer, so you can run gels and capture images on the spot. The system's precast dry E-Gel® agarose gels eliminate the tedious tasks of making buffers and pouring hot agarose.

The all-in-one E-Gel® Power Snap Electrophoresis Device provides everything you need for DNA gel electrophoresis and gel visualization in a small, lightweight benchtop system. When coupled with the E-Gel® Power Snap Camera, instant, real-time capture of high-resolution gel images is possible with no required external power supply or connection to a desktop computer. View additional device features and specifications at Carolina.com. To meet the needs of any protocol, compatible agarose gels are available: E-Gel®, 2% with SYBR® Safe*; E-Gel®, 1% with SYBR® Safe; and E-Gel®, Double Comb, 2% with SYBR® Safe. Note: E-Gels® have a limited shelf life. Order them within 2 weeks of use.

213811	Electrophoresis Device	Each	\$1,834.00
213812	Camera	Each	\$1,834.00
213809	E-Gel, 2% Agarose	Pack of 6	\$126.75
213813	E-Gel, 1% Agarose	Pack of 6	\$135.00
213814	E-Gel, Double Comb, 2% Agarose	Pack of 6	\$211.00





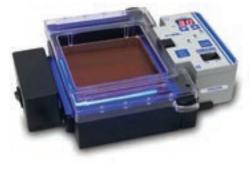
Carolina® SmartGel Combo Complete electrophoresis system!

Streamline your lab with this clever, integrated, 2-in-1 system that combines power supply and electrophoresis chamber in 1 unit. Choose from 3 voltage settings and a timed mode (up to 99 min) to run up to 44 samples at once—a whole class's worth! Safety features include a magnetic interlocking lid and a vented safety lid. Included gel trays, casting stand, and double-sided combs make gel casting quick and simple. Just choose a gel tray, place it in the casting stand, pick your combs, and you are set to pour.

Specifications:

Input: 120-V AC, 60 Hz
Output Voltages: 35, 50, or 100 VDimensions: $19 \times 13 \times 5.5 \text{ cm}$ Weight: 0.45 kg

213642 Per system \$655.25



Carolina® SmartGel Combo with LED Transilluminator 3

Complete electrophoresis and illumination system!

This clever, integrated, 4-in-1 system combines power supply, electrophoresis chamber, LED illumination, and documentation. Its bright 465-nm illumination makes this system compatible with many green fluorescent DNA stains. Features 3 voltage settings, fixed or continuous timer, and ability to run the samples of an entire class (up to 44) simultaneously. Safety features include magnetic interlocking lid and vented safety lid. Also includes an imaging dock for smart devices, get trays, double-sided combs, and casting stands. These accessories make gel casting quick and simple. Just choose your gel tray, place it in the casting stand, pick your combs, and you are set to pour. For more features and specifications, visit Carolina.com.

213643 Per system \$1,045.00



213714 Western Blot/Nucleic Acid Transfer Apparatus

Carolina® Vertical Dual Gel Electrophoresis Chamber

This high-quality, leak-proof gel box is designed for teaching and research labs. Its sleek, safe design is reliable and easy to use. Use with Precast Polyacrylamide Gels (item #211375) or standard 8×10 -cm gel cassettes or slightly taller. **Electrophoresis Chamber** comes with 2 replacement gaskets. Purchase the transfer apparatus for a complete western blot transfer system; it includes chamber, transfer-blot core, 2 gel holder cassettes, and 4 foam pads.

213713 Electrophoresis Chamber

Each **\$445.00**

213714 Western Blot/Nucleic Acid Transfer

Apparatus

Each \$760.00

*SYBR® Safe is a safe stain with the same sensitivity as ethidium bromide. The light source used to visualize EthBr, as well as other light sources, can be used to visualize SYBR® Safe, but different filters may be required for photography. For SYBR® Safe gels, we guarantee a minimum 2-week shelf life from date of shipment. Call Carolina at 800.334.5551 for more information.



Carolina® GelView System

Looking for an easy way for students to visualize electrophoresis results, digitally capture and share them, and drop them into their electronic lab notebooks? This 1-stop imaging system allows students to do all that with a camera-equipped smart device such as a phone or tablet. They simply place GelView over the stained gel, place the smart device camera on the stage over the optical filter, align, and snap an image. Students can share the images via email, text, or cloud-sharing apps. GelView is an innovative, cost-effective way to document results without making compromises. Includes a 535-nm band-pass filter for green dyes.

213742 Per system \$1.050.00



Carolina® UV Transilluminator 113

A UV transilluminator with a space-saving design so it fits perfectly in any busy laboratory. The illuminated surface is made of a special black glass that is easy to clean, durable, and scratch resistant. The dual-intensity switch can be used to lower the UV intensity from 100% to 50%. The acrylic UV-blocking cover allows safe viewing of samples and has 2 friction hinges on the front edge to allow angling of the cover for gel access. The cover can be positioned to 90° (straight up) to fit a gel-imaging hood, such as the Carolina® GelView System (item #213742). Visit Carolina.com for more features and specifications.

213727 Each \$1.110.00



Carolina® LED Light Box

Perfect for use with CarolinaBLU® or GelGreen® DNA stains

Analyze gels under white or blue light. With powerful long-lasting dual LEDs, the light box emits either white or blue light, giving you increased options during gel staining and viewing. In the white light mode, the box emits safe light ideal for visualizing gels stained with *Carolina*BLU®. Using the blue light setting with the included filter provides a safer alternative to UV light for observing gels stained with GelGreen®. Designed for the classroom with a durable molded polymer casing and compact footprint for easy storage. Add the **Photo Hood** to document gel images and photograph GFP and pBLU® colonies on petri-plates; hood is compatible with mobile phones and smart devices.

213694 Light Box Each **\$249.95 213701** Photo Hood Each **\$52.50**



Blue LED Light Transilluminator

This blue light transilluminator is the perfect partner for the most common, *safe* DNA stains. It emits blue light at a wavelength of 465 nm, perfect for excitation of most green DNA nucleic acid stains. It can also work for excitation of EtBr. This transilluminator comes with a 2-position emission filter cover. The amber cover, which rests above the viewing surface and gel, filters out the blue light, allowing the fluorescent DNA bands to be seen clearly. The cover is designed to fit flat for general gel viewing or to be placed at an angle to provide easy access to the gel for band excision. Two-year warranty. Visit Carolina.com for more information.

213749 Each \$768.00

Equipment Stirrers

Biotechnology

Carolina® Mini Vortex Mixer

- Fixed 2,800-rpm speed
- Small 4 × 4" footprint
- Fully enclosed mixing cup
- Flexible, durable, easy-to-clean contact surface that resists stains
- · Sturdy, stable metal base
- . Handles 30-mm tubes
- Automatic on/off—just push down
- One-year warranty

With a brand-new design that is functional, durable, and attractive, the Carolina® Mini Vortex Mixer meets all of your basic vortexing, agitation, and mixing needs at an affordable price. The fixed 2,800-rpm speed provides great mixing power, and the fully enclosed cup provides a becoming, sturdy surface. To use, simply push down on the cup head and start mixing. The small 4×4 " footprint saves valuable work space but remains stable. One-year warranty. 115 V; wt, 2 lb.

701076 Each \$262.00









701040 Carolina Digital Hot Plate/Stirrer, 10" Top

Carolina® Bench Mixer Setting the new standard in vortex mixing

With advanced Q-Drive technology, the Carolina® Bench Mixer provides smooth instant vortexing of even the largest samples. Its unique counterbalance system creates maximum vortexing action while minimizing noise and vibration, resulting in quieter, more efficient, and longer-lasting operation. Other features include "no walk" suction feet; cold room/incubator compatibility (ambient operating range, 4 to 45° C); touch and continuous operating modes; continuously adjustable speed control from 200 to 3,200 rpm; and spill-proof electronic controls. Size, $5\times 6^3/_{10}\times 7$ "; wt, 8.4 lb. 115-V AC. CSA® compliant.

701077 Each \$312.00

New! Carolina® Digital Vortex Mixer

Combines dependable performance and an intuitive digital interface with 3 easy-to-change adapters, for broad mixing versatility in a relatively small footprint (127 \times 147 \times 128 mm). Mixes almost any liquid or powder at high speed and with efficiency—choose from 2 work modes (inching or continuous), then select speed (200 to 3,000 r/min) and time (1 sec to 99 min). Sturdy construction with counterweight, centric balance, and suction feet ensure this vortex mixer stays in place and runs quietly. One-year warranty. CE approved. 110-V AC. Visit Carolina.com for more features and specifications.

216420 Each \$335.00

Carolina® Digital Hot Plate/Stirrer

- Digital displays
- · Fast, reliable, and safe
- · Ceramic work surface
- Two-year warranty

Better than the original! These hot plates/stirrers are fast and simple to use with easy-to-read digital displays and dials for stirring speed and heating temperatures. Each unit features a maintenance-free, 1-piece ceramic work surface containing advanced microprocessor controls and a strong magnetic stirrer. These units can boil 400 mL of water in 20 minutes! A safety indicator LED displays when the plate is hotter than 50° C. 115-V AC. CE approved.

Item No.	Top Size	Stir Speed	Temp Range	Each
701038	7 × 7"	150 to 1,500 rpm	Ambient +5° C to 400° C	\$562.00
701040	10 × 10"	150 to 1,500 rpm	Ambient +5° C to 400° C	\$727.00

Equipment

Biotechnology Centrifuges



214092 Carolina Centrifuge

Carolina® Centrifuge

The centrifuge is designed for a wide range of applications in clinical and research laboratories. Its 8-position rotor accepts a variety of tubes (optional adapters may be necessary and are sold separately) and removes easily from the chamber for cleaning. The backlit LCD provides full control over run time and rotational speed. A momentary switch is provided for short spins. For safety, the centrifuge's microprocessor confirms that the lid has been closed and the safety lid lock is engaged prior to start. An advanced imbalance detection system constantly monitors balance and vibration, automatically bringing the rotor to a stop if an imbalance is detected. Two-year warranty. Visit Carolina.com for more features and specifications.

1 214092

Carolina Centrifuge

\$511.50 Each Centrifuge Adapters

214093 Set of 8 \$117.00



Carolina® High-Speed Microcentrifuge-Touch

This compact high-speed microcentrifuge offers outstanding features, making it an asset to any laboratory or classroom. Its color touch screen control panel makes it easy to adjust settings, monitor operation, and store/recall up to 9 speed/time profiles. Spin samples at high speed (up to 13,500 rpm/16,800 \times g) with whisper quiet operation. The unique COMBI-Rotor™ accommodates standard microcentrifuge tubes (1.5/2.0 mL) and PCR tubes/strips (0.2 mL). Two-year warranty. Visit Carolina.com for more features and specifications.

214090 Each \$2,460.00



Revolutionary Centrifuge

Revolutionary Science Centrifuge RS-102

An inexpensive microcentrifuge with excellent features, the RS-102 is 9" H \times 7" diam with 3 speed selections (pulse; 6,000 rpm; and 10,000 rpm). Can generate 6,238 maximum g force. Oversized soft rubber base efficiently absorbs vibration, stops bench walking, and resists tipping. Includes 1 rotor that can spin up to sixteen 1.5- or 2.0-mL tubes. Optional RevSpin PCR Strip Rotor that accommodates four 0.2-mL strip tubes is sold separately. Wt, 5 lb. Twoyear manufacturer's warranty (repair or replacement). Revolutionary Science is an ISO 9001:2008-certified company. Made in USA.

214072 Centrifuge RS-102 Each \$442.00 214074 RevSpin PCR Strip Rotor Each \$72.00



217223 OHAUS Frontier 5000 Multi Centrifuge, Model FC5707 (with rotor)

OHAUS Frontier™ 5000 Multi Centrifuges

Reliable and compact, these centrifuges are ideal for general lab applications. They can process round and conical bottom tubes (including common blood tubes) and can be adapted easily with accessories to process smaller tubes. Model FC5707 includes a pre-installed 8×15 -mL fixed angle rotor and operates at 100- to 230-V AC. The 120-V Model FC5706 comes without a rotor; purchase rotors separately online (item #217234 or item #217236). Both models feature an intuitive interface for easy operation and a compact profile to save valuable bench space in labs. Visit Carolina.com for more details and specifications, and to purchase rotors and accessories.

217223 **1**3 217221

Model FC5707 Centrifuge (with rotor) Each Model FC5706 Centrifuge

\$1,850.00 Each \$2,410.00

Find tube adapters for OHAUS centrifuges at Carolina.com.



217214 OHAUS Frontier Multi-Pro Centrifuge, Model FC5714 4 × 100 ml

OHAUS Frontier™ Multi-Pro Centrifuges A3

Powerful and versatile universal centrifuges for virtually every lab application

Multi-Pro Centrifuges are designed for universal use in multiple applications in research, industrial, and clinical laboratories and can be combined with our range of rotors and accessories (purchased separately) for customized use. Available in 7 models with capacities from 0.2 mL to $4 \times 750 \text{ mL}$, they feature high-speed performance at maximum volume, automatic rotor identification, and safety features. Go to Carolina.com for more details and specifications, and to purchase rotors, tube adapters, racks, and buckets.

217214	Model FC5714 Centrifuge, 4 × 100 mL	Each	\$3,810.00
217215	Model FC5718 Centrifuge Plus, 4 × 100 mL	Each	\$5,684.00
217216	Model FC5718R Centrifuge Plus, Refrigerated, 4 × 100 mL	Each	\$8,483.00
217217	Model FC5816 Centrifuge, 6 × 250 mL	Each	\$6,564.00
217218	Model FC5816R Centrifuge, Refrigerated, 6 × 250 mL	Each	\$9,966.00
217219	Model FC5916 Centrifuge, 4 × 750 mL	Each	\$8,525.00
217220	Model FC5916R Centrifuge, Refrigerated, 4×750 mL	Each	\$12,329.00

Equipment



Carolina® MicroCentrifuge

The Carolina® MicroCentrifuge can be the true workhorse of any classroom or lab with its unmatched versatility, powerful motor, and small footprint. This small, full-feature centrifuge eliminates the need to change rotors when switching between microtubes and PCR strips. With a fixed speed that produces $2,000 \times g$, the unit is perfect for fast spin downs. It quickly and quietly ramps up to 5,500 rpm, and when the lid is opened, the unit decelerates instantly for added safety. This is a personal centrifuge with unmatched capacity and flexibility. One-year warranty. Replacement adapter packs available. Visit Carolina.com for more features and specifications.

 214081
 Carolina MicroCentrifuge
 Each
 \$485.00

 214083
 Replacement Adapter, 0.5 mL
 Pack of 6
 \$29.50

 214084
 Replacement Adapter, 0.2 mL
 Pack of 6
 \$29.50



217212 OHAUS Frontier 5000 Series Model FC5515 Micro Centrifuge Plus

OHAUS Frontier™ 5000 Micro Centrifuges ▲3

These centrifuges deliver high-speed operation for a range of essential lab applications, such as DNA/RNA preparation, ultrafiltration, and more. Optional biocontainment rotors (available at Carolina.com) enable research involving hazardous samples. Engineered with convenience of operation in mind, each model features an intuitive interface, with all key parameters immediately accessible for observation and adjustment. The compact design saves valuable bench space in the lab. A rotor is needed but not supplied. Go to Carolina.com for rotors and accessories, additional details, and complete specifications.

 217211
 Model FC5513 Micro Centrifuge
 Each
 \$2,253.00

 217212
 Model FC5515 Micro Centrifuge Plus
 Each
 \$3,324.00

 217213
 Model FC5515R Micro Centrifuge Plus, Refrigerated
 Each
 \$7,100.00

Biotechnology



Carolina® Mini Centrifuge

The next-generation Carolina® Mini Centrifuge

- Increased capacity—8-position microtube rotor
- Near silent operation with automatic braking
- Clik-n-Lok[™] instant rotor attachment system
- · Built-in storage compartment for rotor and adapters
- Compact design—conserves valuable bench space

Despite its incredibly compact size $(4^1/2 \times 5^9/10 \times 4^1/2^{"})$, the Carolina® Mini Centrifuge packs loads of features into a reliable, durable, user-friendly unit. Its near silent motor can quickly reach 6,000 rpm yet brake instantaneously for safety, making it the perfect classroom centrifuge. Centrifuge includes 2 interchangeable rotors for spinning eight 1.5- or 2.0-mL tubes or thirty-two 0.2-mL tubes. With the new Clik-n-Lok™ rotor attachment system, changing rotors no longer requires any tools and is truly a snap. Built-in underside storage securely houses the additional PCR tube rotor and eight 0.5-mL tube adapters when not in use. One-year warranty.

214061 Each \$349.00



Spectrafuge[™] 16M Microcentrifuge

This compact, quiet, and fast microcentrifuge is ideal for applications involving DNA. It features a maintenance-free brushless motor, an 18-place rotor with a removable lid, and a quick button for momentary operation. Can be operated in a cold room. Visit Carolina.com for more features and specifications. CE/CSA® compliant.

214060 Each **\$2,365.00**

Find tube adapters for OHAUS centrifuges at Carolina.com.

Water Baths



Carolina® Explorer Digital Water Baths

Appropriate for a variety of molecular and biological procedures, this water bath is at home in any classroom, lab, or industrial setting. The large corrosion-resistant, stainless-steel tub can accommodate glassware, lab plastics, and more. Three-digit digital display lets you adjust temperature in 0.1° C increments; temperature also may be calibrated. Temperature range, ambient to 99.9° C; accuracy, $\pm 0.1^{\circ}$ C. Visit Carolina.com for additional specifications. Can hold a tube rack (not included). Cover adjusts to different sizes of glassware. One-year warranty. 110-V AC.

216303 6-L Water Bath Each \$338.00 216304 12-L Water Bath Each \$415.50



Carolina® Water Bath

Our 9-L water bath with stainless-steel tank is ideal for molecular biology and teaching labs. It has a temperature adjustment knob and features a temperature range from ambient to 82° C with lid off and from ambient to 93° C with lid on. Temperature control is $\pm 0.5^{\circ}$. Illuminated on/off switch. Tub inner dimensions, $11^{1}/_{2}\times 9^{1}/_{2}\times 6"$; tub outside dimensions, $16\times 11^{1}/_{2}\times 7"$. 110-V AC. Bath may look different from picture.

216248 Each **\$655.00**



Revolutionary Science Digital Water Bath From the makers of the popular Revolutionary Science Centrifuge RS-102 (item #214072)

Accurate and affordable, this 5-L water bath has a durable polypropylene exterior that is resistant to dents and chemical attacks of virtually all kinds. The chamber, also polypropylene, does not corrode and does not bend or distort during use. A large 3-digit temperature display makes adjusting the bath temperature fast and easy. Comes with lid. Settings are automatically saved during power interruptions. Revolutionary Science is an ISO 9001:2008-certified company. Made in USA. Visit Carolina.com for more features and specifications.

216244 Each \$599.95



Revolutionary Science Dual-Chamber Poly ProBath®

Get 2 water baths in 1! This reliable, affordable apparatus has two 5.5-L chambers made of durable polypropylene that do not corrode, distort, or bend during use. The long-lasting exterior, also made of polypropylene, defies dents and chemical attacks of all kinds. Comes with 2 impact-resistant, see-through polymer covers. Settings are automatically saved during power interruptions. Also features low-water alarm and automatic shutoff. Revolutionary Science is an ISO 9001:2008-certified company. Made in USA. Visit Carolina.com for more features and specifications.

216242 Each \$955.00

Equipment

Biotechnology

Go to Carolina.com to purchase module blocks for your OHAUS Dry Block Heater.



217200 OHAUS 1-Block Dry Block Heater, Digital

216266 Carolina Digital Water Bath, 4 L, with racks

216268 Carolina Digital Water Bath, 8 L

Carolina® Digital Water Bath Series

This series offers best-in-class features in compact, reliable units perfect for any classroom or laboratory. Available in 4 sizes and with a variety of accessories, each water bath can be customized to meet the demands of your laboratory. Water Bath, **4** L comes with 3 tube racks; for other models, purchase tube racks separately. Visit Carolina.com for more features and specifications. Note: Tube racks are not compatible with item #216264.

216264 216266	Water Bath, 2 L Water Bath, 4 L (includes racks)	Each Each	\$799.99 \$1,182.00
216268	Water Bath, 8 L	Each	\$1,250.00
216278	Water Bath, 12 L	Each	\$1,472.00
216286	Tube Rack, 40×0.5 mL	Each	\$104.75
216287	Tube Rack, $40 \times 1.5/2.0$ mL	Each	\$99.50
216288	Tube Rack, 76×15 mL	Each	\$239.00
216289	Tube Rack, 30 × 50 mL	Each	\$239.00

OHAUS Dry Block Heaters A

- · Designed for everyday use
- Ideal for applications that require temperature stability

These versatile dry block heaters hold either 1 or 2 optional interchangeable modular blocks. An assortment of block accessories (sold separately) can accommodate lab tubes of varying sizes. The blocks are easy to use, no tools required. Close tube-toblock contact enables maximum heat retention, resulting in efficient heating. Heaters are available in analog and digital models. Additional features include painted steel housing and support rod holder with locking knob. Visit Carolina.com for more details and specifications, and to purchase block accessories. **Note:** Analog models require an external thermometer or temperature device for temperature setpoint.

217200	1-Block Dry Bath, Digital	Each	\$537.00
217201	2-Block Dry Bath, Digital	Each	\$653.00
217202	1-Block Dry Bath, Analog	Each	\$403.00
217203	2-Block Dry Bath, Analog	Each	\$522.00

Dry Baths 216253 Carolina Mini Drv Bath (right) and 216255 Mini Dry Bath Block (left) Carolina® Mini Dry Bath

A personal-sized dry bath that can serve an entire classroom!

Perfect for classrooms with limited lab space and on a budget, this dry bath was designed with educators in mind. Featuring compact construction and a userfriendly digital interface, the unit also provides consistent temperature performance you can trust for heat shocks, restriction digests, and more. Choose from a variety of block accessories. Visit Carolina.com for more features and specifications. Note: A block is needed to operate this dry bath but not included; blocks are sold separately.

216253	Mini Dry Bath	Each	\$355.00
216255	Block with 15 Wells for 1.5- or 2.0-mL Tubes	Each	\$120.75
New! 216400	Block with 40 Wells for 2.0-mL Tubes	Each	\$125.00
New! 216401	Block with 24 Wells for 0.5-mL Tubes	Each	\$125.00
New! 216402	Block with 15 Wells for 1.5-mL Tubes	Each	\$125.00
New! 216403	Block with 15 Wells for 12/13-mm Tubes	Fach	\$142.25



216259 Labnet Digital Dry Bath with 216262 Block with Holes

Labnet Digital Dry Bath

This updated, economically priced digital dry bath features microprocessor control and easy calibration. Just set the temperature using the dual digital display; no need to check the thermometer and readjust the temperature. Timer can be set in 1-min increments for 99 hr 59 min or for continuous operation. Temperature range, ambient +5 to 150° C; resolution, 0.1° C; accuracy, $\pm 0.3^{\circ}$ C. Dimensions, $8^{3}/_{10} \times 12^{4}/_{10}$ \times 47/10". Wt, 7 lb. 115-V AC, 50/60 Hz. Comes with power cord, block lifter, and lid; Block with Holes must be purchased separately. Three-year manufacturer's warranty. CE/CSA® compliant.

216259	Dry Bath	Each	\$525.00
216262	Block with Holes (for 20 × 1.5-mL Tubes)	Each	\$163.00

Rockers & Shakers



213730 Carolina Mini Benchtop 3-D Rocker (in use)

Carolina® Mini Benchtop 3-D Rocker

This mini rocker offers a unique set of features that meets the rigors of the classroom and the research lab bench. The 3-dimensional motion of the ultra-compact unit delivers speed and tilt for all of your blotting, washing, mixing, and staining needs. Designed to handle up to 4-lb loads, it has maintenance-free, brushless motors and works in cold rooms and incubators (4 to 65° C). Includes flat autoclavable mats; Rocker Dimpled Mat optional. Optional Rocker Stacking Platform with Mat doubles the surface area and offers a 3" clearance. Visit Carolina.com for more features and specifications.

213730	Mini Benchtop 3-D Rocker, 115 V	Each	\$535.00
213731	Rocker Stacking Platform with Mat	Each	\$125.50
213732	Rocker Dimpled Mat	Fach	\$38.75



213735 Carolina Benchtop 3-D Rocker (in use)

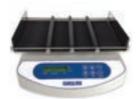
Carolina® Benchtop 3-D Rocker

This platform rocker offers a set of features that meets the rigors of the classroom and the research lab bench. The 3-dimensional motion of the unit delivers speed and tilt for all of your blotting, washing, mixing, and staining needs. Designed to handle loads up to 4 lb, it has maintenance-free, brushless motors and works in cold rooms and incubators (4 to 65° C). Comes with flat autoclavable mats; **Rocker Dimpled Mat** optional. Optional **Rocker Stacking Platform with Mat** doubles the surface area and offers a 3" clearance. Visit **Carolina.com** for more features and specifications.

213735	Benchtop 3-D Rocker, 115 V	Each	\$605.00
213736	Rocker Stacking Platform with Mat	Each	\$118.00
213737	Rocker Dimpled Mat	Each	\$39.50



216231 Flat Platform with Rubber Mat (in use)



216232 Universal Platform with Adjustable Bars (in use)



216230 Carolina Orbital Shaker



216233 Platform (6 × 250-mL Flasks/ 6 × 400-mL Beakers; in use)

Carolina® Orbital Shaker

This orbital shaker allows for smooth, horizontal, orbital motion for mixing bottles, flasks, beakers, and more. Appropriate for mixing liquids, chemicals, biological solutions, and cultivation. The unit provides gentle or vigorous mixing, depending on the chosen speed, while maintaining an equal amplitude across the platform. Visit Carolina.com for more features and specifications. Interchangeable platforms available separately.

216231	Orbital Shaker Flat Platform with Rubber Mat Universal Platform with Adjustable Bars Platform (6 × 250-mL Flasks/6 × 400-m	Each Each Each	\$1,380.00 \$76.00 \$78.00
216234	Beakers) Platform (12 × 100-mL Flasks/12 × 150-	Each	\$74.75
	Beakers)	Each	\$76.00



216234 Platform (12 × 100-mL Flasks/12 × 150-mL Beakers; in use)

Equipment Shaking Incubators



214745 Carolina Shaking Incubator and 214747 MAGic Clamp Universal Platform (in use; labware not included)

Carolina® Shaking Incubator

The Carolina® Shaking Incubator can meet the demands of your most strenuous experiments. Designed for heavy workloads and continuous use, it features a powerful brushless induction drive meant to give you years of trouble-free operation. Able to hold a wide range of temperatures—from ambient to 60° C—and a shaking speed of 30 to 300 rpm, the unit is packed full of features and built to last. Increase the incubator's flexibility by adding an optional platform or upgrading to the MAGic Clamp™ System, which lets you fully customize every aspect of your shaking incubator. Visit Carolina.com for more features, specifications, and platform descriptions. 115 V.

214745	Carolina Shaking Incubator	Each	\$7,560.00
214747	MAGic Clamp Universal Platform	Each	\$406.00
214748	Universal Spring Platform	Each	\$659.00
214749	Platform Shelf	Each	\$160.00

MAGic Clamp™ System Accessories

Using the MAGic Clamp™ System will completely change the way you use your laboratory equipment. Pairing the MAGic Clamp™ Universal Platform (items #214742 and #214747) with these unique accessories gives you an unprecedented level of customization in your lab equipment. The MAGic Clamp™ System works with the Carolina® Shaking Incubator (item #214745) and Carolina® Shaking Mini Incubator (item #214740). By adding the MAGic Clamp™ platform, which offers a unique magnetic, interchangeable surface, you can quickly exchange flasks, tubes, and other accessories of different sizes in your MAGic Clamp™-compatible products.

Item No.	MAGic Clamp™ Accessory	Carolina® Shaking Incubator Max	Carolina® Shaking Mini Incubator Max	Each
214755	500-mL Flask Clamp	16	5	\$53.50
214756	250-mL Flask Clamp	25	8	\$53.50
214757	125-mL Flask Clamp	36	12	\$47.00
214758	50-mL Flask Clamp	49	20	\$44.75
214759	Microplate Clamp	8	4	\$113.50
214760	Tube Rack (30 \times 15 mL; 20 \times 50 mL)	4	1	\$226.00
214761	Tube Rack (32 \times 15 mL)	8	2	\$226.00
214762	Tube Rack (15 \times 50 mL)	8	2	\$220.00
214763	Tube Rack (4 \times 500 mL; 4 \times 600 mL conical)	4	-	\$249.00
214764	Tube Rack (12 \times 1.5 mL; 12 \times 2 mL)	6	2	\$155.50
214765	Tube Rack (4 \times 15 mL)	8	4	\$152.00
214766	Tube Rack (2 \times 50 mL)	8	4	\$152.00
214767	2,000-mL Flask Clamp	5	-	\$105.00
214768	1,000-mL Flask Clamp	9	4	\$85.50
214769	3,000-mL Flask Clamp	4	-	\$128.00

Biotechnology



214740 Carolina Shaking Mini Incubator (in use; labware not included)

Carolina® Shaking Mini Incubator

Offering an unmatched miniature footprint, this unit performs a variety of tasks and boasts a large 11¹/₂ × 9¹/₂" workspace. Able to hold a wide range of temperatures—from ambient to 60° C—and a shaking speed of 30 to 300 rpm, the unit is packed full of features. Includes a standard nonslip platform. Improve the incubator's versatility by upgrading to the MAGic Clamp™ System. The MAGic Clamp™ Universal Mini Platform offers a unique interchangeable surface using a magnetic attachment method. Or add the Universal Spring Mini Platform, designed to hold uncommon vessels. Visit Carolina.com for more features, specifications, and platform descriptions. 115 V.

214740	Carolina Shaking Mini Incubator, 115 V	Each	\$3,685.00
214742	MAGic Clamp Universal Mini Platform	Each	\$299.00
214743	Universal Spring Mini Platform	Each	\$612.00

Carolina Teacher Tips

Carolina shaking incubators are compatible with magnetic MAGic Clamp™ System accessories but not with screw-in accessories.



214760 MAGic Clamp Tube Rack (30 × 15 mL; 20 × 50 mL) (tubes not included)







214764 MAGic Clamp Tube Rack (12 × 1.5 mL; 12 × 2 mL)

Equipment



217266 OHAUS Incubating Heavy-Duty Orbital Shaker, 25 mm

OHAUS Incubating Heavy-Duty Orbital Shakers As Save space with these benchtop models!

Designed for a variety of shaking and incubating applications, these orbital shakers offer exceptional temperature uniformity. Additional features include:

- The exclusive Opti-Flow Forced Ventilation System, which utilizes twin induction or a single large fan; air is deflected around samples and not directly on them, creating a circular flow of air, ensuring uniformity
- For repeatable results, the exclusive Accu-Drive shaking system to ensure speed accuracy
- The Triple Eccentric Drive, providing consistent shaking motion throughout the entire speed range
- Independent LED displays for temperature, speed, and time
- Temperature calibration feature, overload protection, overshoot protection (temperature), load sensor, and PID temperature controller
- Aluminum and Cycoloy[™] construction
- ullet Two models (items #217266 and #217267) with a chamber large enough to hold 2 \times 6-L Erlenmeyer flasks with optional clamps and platforms

Optional shaker accessories (items #217265 through #217276, sold separately) are available to meet your specific requirements and to safely secure your samples. Visit Carolina.com for additional information and individual item specifications.

217264	Orbital Shaker, 19 mm	Each	\$4,558.00
217266	Orbital Shaker, 25 mm	Each	\$8,456.00
217267	Orbital Shaker, 25 mm, Cooling	Each	\$11,574.00

Carolina Teacher Tips

OHAUS Incubating Heavy-Duty Orbital Shakers are compatible with screw-in accessories when combined with an OHAUS Universal Platform (item #217265 or item #217268). OHAUS Incubating Shakers are not compatible with magnetic MAGic Clamp™ System accessories.



Looking for traditional incubators?

Turn to pages 1069–1070.



217265 Universal Platform, 28 × 33 cm, Stainless Steel

OHAUS Incubating Heavy-Duty Orbital Shaker Accessories

Use these OHAUS shaker accessories to increase the versatility of your OHAUS shaker, meet your specific laboratory requirements, and safely secure your samples. **Universal Platform** options hold irregular samples or traditional flask clamps, media bottle clamps, and tube racks. Platforms can increase the amount of usable space for your samples and, in some cases, can be stacked to increase throughput and double the capacity. **Flask Clamps** are available in stainless steel or PVC and can be used with all 3 shaker models. All accessories include the necessary hardware for mounting to the shaker. Visit **Carolina.com** for additional information and item specifications.

Item No.	OHAUS Accessory	Each
217265	Universal Platform, 28 \times 33 cm, Stainless Steel (use with item #217264 OHAUS Orbital Shaker, 19 mm)	\$247.00
217268	Universal Platform, 46×46 cm, Stainless Steel, I-IR (use with item #217266 OHAUS Orbital Shaker, 25 mm, and item #217267 OHAUS Orbital Shaker, 25 mm, Cooling)	\$438.00
217269	Flask Clamp, 125 mL, Stainless Steel	\$48.75
217270	Flask Clamp, 250 mL, Stainless Steel	\$48.75
217271	Flask Clamp, 500 mL, Stainless Steel	\$54.00
217272	Flask Clamp, 1 L, Stainless Steel	\$72.00
217273	Flask Clamp, 125 mL, PVC	\$53.25
217274	Flask Clamp, 250 mL, PVC	\$54.00
217275	Flask Clamp, 500 mL, PVC	\$60.50
217276	Flask Clamp, 1 L. PVC	\$68.50



217269 Flask Clamp, 125 mL, Stainless Steel



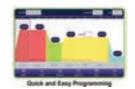
217272 Flask Clamp, 1 L, Stainless Steel



217276 Flask Clamp, 1 L, PVC

Equipment Thermal Cyclers

Biotechnology







216350A MultiCycler Dual-Block Thermal Cycler

216351A MultiCycler Triple-Block Thermal Cycler

New! MultiCycler™ Multi-Block Thermal Cyclers Run multiple PCR protocols at the same time with the same thermal cycler!

Multi-Cycler™ Multi-Block Thermal Cyclers feature dual (item #216350A) or triple (item #216351A) independent cycling blocks, making them perfect for busy labs or for use across multiple class periods. No more waiting in line and no need for multiple thermal cyclers. A large, adjustable 10" full-color touch screen provides ease of access to advanced programming features including gradient, adjustable ramp rates, time adjustments, and user password protection to prevent interference on existing runs. A USB port allows for unlimited program storage and easy transfer of protocols between MultiCycler™ machines. Visit Carolina.com for more features and specifications.

216350A Dual-Block Cycler Each **\$9,995.00 216351A** Triple-Block Cycler Each **\$11,440.00**



Carolina® Touchscreen Thermal Cycler Consistent, reliable results in an economical package

- Intuitive touchscreen control
- Program wizard for user-friendly protocol entry
- Fully adjustable heated lid
- Unique multiformat block for 0.2- or 0.5-mL tubes or PCR plates

The Carolina® Touchscreen Thermal Cycler is a feature-packed unit ideal for class-rooms and laboratories. Combining intuitive touchscreen controls, exceptionally fast cycling times, an easy-to-use interface, fully adjustable heated lid, and a unique multiformat block that accepts 96 \times 0.2-mL or 39 \times 0.5-mL tubes or PCR plates all help make this unit an asset to any classroom or laboratory. Visit Carolina.com for a complete list of features and specifications.

216295 Each \$7,325.00



Carolina® Compact Thermal Cycler

You don't need to sacrifice quality and programmability to get a low throughput, cost-effective unit. Perfect for small labs and educational facilities, this cycler features a full-color touch screen with programming features typically found only on larger units. The user interface is exceptionally easy to navigate. Program functions include time and temperature increment/decrement, pause, skip, and resume after power failure. Sample capacity is 32 \times 0.2-mL tubes. A low thermal mass block allows for fast, uniform cycling. Just over 6" wide, the cycler requires very little bench space. Two-year warranty. Visit Carolina.com for more features and specifications. 115-V AC.

216298 Each \$3,350.00

Clean PCR Environment



216352A SureAir PCR Workstation

New! SureAir™ PCR Workstation

The SureAir™ PCR Workstation reduces contamination and provides a clean room environment at a fraction of the space and cost of a typical PCR workstation, making it perfect for those with limited lab space. A high-powered, yet quiet internal fan works with the included HEPA filter to purify air within the chamber, meeting ISO 5 cleanliness standards, and filters 99.97% of particles 0.3 µm and larger. An included UVC light eliminates any stray DNA that may contaminate samples, automatically shuts off after 15 minutes, and is operational only when the cover is closed to protect users. To meet your lab needs, the workstation can accommodate up to 3 standard-sized pipettes, and power cables can easily be routed through an access port in the chamber. Highly compact footprint is 22 × 16". 115 V; 60 Hz. Replacement Filter and Prefilter available separately. Visit Carolina.com for additional features and specifications.

 216352A
 PCR Workstation
 Each
 \$2,250.00

 216352F
 Filter
 Each
 \$335.00

 216352P
 Prefilter
 Each
 \$54.95

Biotechnology Labware

Micropipetting Devices

Basic Micropipetting Devices



Sterile Transfer Pipet, Calibrated 1 mL

Plastic. Draws approximately 3.5 mL in a single squeeze. Made of low-density polyethylene. Individually wrapped. Length, 15 cm.

214551 Pack of 100 **\$43.50 214552** Box of 500 **\$135.00**



Disposable, Plastic, Needle-Point Pipet

Draws approximately 1 mL. Suitable for loading 10 μ L or greater quantities of predigested DNA into agarose gel wells. Length, 10 cm.

214561 Pack of 100 \$26.75



Disposable Wiretrol® II Micropipet Set

For use with DNA Restriction Analysis Kit (item #211103, #211103P, #211106, or #211106P). An inexpensive alternative to digital micropipets. Contains 6 Wiretrol® stainless-steel plungers and 125 precision disposable 10- μ L glass bores (calibrated 1 to 5 μ L).

211155 Per set \$53.00



214302 Fixed-Volume MiniPipet, 20 μ L

CAROLINA

214310 Carolina Fixed-Volume Micropipette

214608 Student Micropipet

Fixed-Volume MiniPipets

These high-quality, fixed-volume micropipets offer an inexpensive pipetting option for today's high-tech classroom on a limited budget. MiniPipets use standard tips and feature the double-stop action of more expensive multi-volume micropipets. Accuracies for each pipet are listed in parentheses next to the pipet size.

214300	5 μL (±0.075 μL)	Each	\$46.75
214301	10 μL (±0.1 μL)	Each	\$46.75
214302	20 μL (±0.1 μL)	Each	\$46.75
214303	50 μL (±0.2 μL)	Each	\$46.75
214304	100 μL (±0.3 μL)	Each	\$46.75
214309	500 μL (±2.5 μL)	Each	\$46.75
214506	1 000 ul (+5 ul)	Fach	\$46.75

New! Carolina® Fixed-Volume Micropipettes

- Reliably draw and dispense fixed volumes in microliters (µL)
- Color coded to easily identify each volume
- Use Micropipet Tips (1 to 200 μL), Yellow
- Single-stop action

These fixed-volume budget micropipettes are perfect for student use and conveniently dispense the same volume each time without calibration. Easy-to-use, inexpensive, and worry-free, these small micropipettes deliver accurate results.

214310	10 uL	Each	\$20.00
214311	20 uL	Each	\$20.00
214312	50 uL	Each	\$20.00
214313	100 μL	Each	\$20.00
214314	200 uL	Each	\$20.00

Student Micropipets

An inexpensive alternative to digital micropipets. These fixed-volume micropipets fit easily into the hand. Sure-grip design and simple 1-stop depressor allow competent operation by even novice students. Rugged construction resists breakage. Fits standard 2- to 200- μL tips.

214608 10 μL Each **\$38.75 214610** 20 μL Each **\$38.75**

Labware

Adjustable-Volume Micropipetting



New! Carolina® Micropipette Starter Bundle

The perfect bundle for beginning with micropipetting or for those looking to develop their pipetting skills. Four of the most popular-sized micropipettes (1.0–10 $\mu L, 2.0–20~\mu L, 20–200~\mu L,$ and 100–1,000 $\mu L)$, the Carolina® Pipette Carousel Stand (item #214619), and 3 racks of micropipette tips are combined with our Practice Pipetting Stations Kit (item #211145) to provide everything you need to teach the essential lab skill of pipetting. Get your students practicing their skills on simulated gels with a variety of micropipettes and tip sizes—right out of the box. Visit Carolina.com for a complete list of materials.

214547 Per bundle \$749.00

214633 nUVaClean UV Pipette Carousel



Carolina® Research Pipettors

- · Easy operation for right- and left-handed users
- Low pipetting forces
- · Highly durable shaft
- UV resistant

 Λ^3

• In-lab recalibration system

Ergonomically designed Carolina® Research Pipettors feature a slim, comfortable handle plus excellent accuracy and precision combined with great durability. Set of 3 includes 1 each of the 3 most popular volumes. Optional nUVaClean™ UV Pipette Carousel organizes, protects, and decontaminates up to 6 pipettes. Visit Carolina.com for more details and specifications.

214539	0.5 to 10 μL	Each	\$238.00
214540	2.0 to 20 µL	Each	\$238.00
214543	10 to 100 μL	Each	\$238.00
214541	20 to 200 μL	Each	\$238.00
214542	100 to 1,000 μL	Each	\$238.00
214545	Set of 3 (2.0 to 20		
	100 to 1,000 μL)	Each	\$658.25
214633	nUVaClean UV Pipe	ette Cai	ousel
		Each	\$370.00

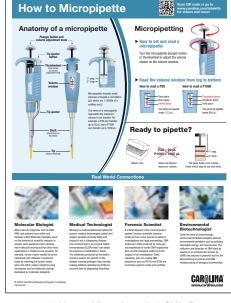
Boost Student Lab Skills

The new Carolina Lab Skills series offers free resources for teaching foundational lab skills such as micropipetting, pouring plates, and measuring pH.

New! How to Micropipette Lab Skills Poster

 $18\times24^{\shortparallel}$. Help students master the essential lab skill of micropipetting with this informative, illustrated poster. Colorful, eye-catching diagrams describe the anatomy of a micropipette, descriptions provide guidance and tips on how to correctly pipette, and real-world connections are made to careers that frequently use the skill of micropipetting. A QR code leads to an instructional video, downloadable handout, and more. Truly a must-have for any biotechnology classroom.

211460 Each \$9.95



Biotechnology

211460 How to Micropipette Lab Skills Poster

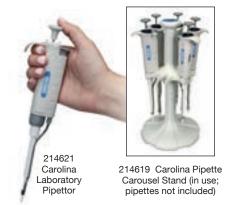


BioPette[™] Plus Pipettors

- Volume adjusted by digital micrometer or push button
- Adjustable and removable stainless steel tip ejector
- Fits comfortably in the right or left hand
- Includes tool for in-lab recalibration

Lightweight and well balanced, BioPette™ Plus pipettors are designed with a finger hook for exceptional comfort and easy single-hand operation. The continuously adjustable, digital micrometer is slightly recessed with a volume lock to prevent unintentional change while pipetting. Chemically resistant, maintenance-free seals and finely polished pistons provide unsurpassed accuracy, sample after sample, making these pipettors a lab favorite. Sized to fit standard pipet tips. Autoclavable. Three-year manufacturer warranty.

214675	0.1 to 2 µL, Clear Tip	Each	\$369.95
214676A	0.5 to 10 μL, Clear Tip	Each	\$369.95
214670	2 to 20 µL, Clear Tip	Each	\$369.95
214677A	10 to 100 µL, Yellow Tip	Each	\$369.95
214672	20 to 200 µL, Yellow Tip	Each	\$369.95
214674	100 to 1.000 uL. Blue Tip	Each	\$369.95



Carolina® Laboratory Pipettors

- Lightweight, ergonomic design but still durable
- In-lab recalibration system

Every aspect of accuracy, reliability, and user comfort has been carefully considered in designing this series. The result is an advanced pipette with superior accuracy and ergonomics, priced to fit a classroom budget. Autoclavable. Optional Carolina® Pipette Carousel Stand and Carolina® Micro-Pipette Rack are perfect for storage and display. Visit Carolina.com for more features and specifications.

214621	1.0 to 10 µL, Clear Tip	Each	\$149.50
214623	2.0 to 20 µL, Clear Tip	Each	\$149.50
214625	5.0 to 50 µL, Yellow Tip	Each	\$149.50
214631	10 to 100 μL, Yellow Tip	Each	\$149.50
214627	20 to 200 µL, Yellow Tip	Each	\$149.50
214629	100 to 1,000 μL, Blue Tip	Each	\$149.50
214619	Carolina Pipette Carousel		
	Stand	Each	\$95.75
214618	Carolina Micro-Pipette		
	Rack	Fach	\$69 50

See more adjustable-volume micropipettors on the next page.

Biotechnology

Labware



214712 Jupiter Electronic Pipettor, 100 to 1,000 µL

214638 Propette LE 8-Channel Pipette, 20 to 200 μL

Propette™ LE 8-Channel Pipettes

Ideal for 96-well applications, these devices are lightweight, rugged, and can stand up to the demands of everyday use in a busy laboratory environment. The finely polished, high-precision piston and chemically resistant, maintenance-free seals provide unsurpassed accuracy. Adjust the volume in increments as small as 0.02 µL. Compatible with standard tips, as well as all standard filter tips. Fully autoclavable. Three-year warranty. Visit Carolina.com for more features and specifications.

214630 2 to 20 μL Each **\$410.00 214638** 20 to 200 μL Each **\$412.50**

New! Jupiter Electronic Pipettors

Combining an ergonomic design with electronic operation, Jupiter Electronic Pipettors provide accurate results while protecting users against repetitive motion injury. Convenient 2-knob control enables quick selection between modes (pipetting, stepper dispensing, and diluting), volumes, and speeds. Digital displays provide clear status indicators. Jupiter pipettors are powered by lithium-ion batteries that easily recharge via the included AC adapter, USB cable, and stand. Mount the stand on a flat surface or wall and connect it to the charger for maximum ease of use. Jupiter pipettors are true essentials for lab managers and others frequently using pipettors.

214711 0.5 to 10 μL Each **\$595.00 214712** 100 to 1,000 μL Each **\$595.00**

Pipetting Large Volumes



(left to right) 736871 2-mL, 736872 10-mL, and 736873 25-mL Fast-Release Pipette Pumps III

CAPCUNI

214410 Carolina Pipette Controller

Fast-Release Pipette Pump™ III Designed for fast and accurate 1-hand operation

Scienceware®. The optimally located thumbwheel on these pipettors allows the operator to easily aspirate or dispense as little as a drop at a time, or to blow out the pipet—yet maintain a relaxed grip. A fast-release trigger dispenses the pipet's entire contents. These pipettors are resistant to acids, alkalis, and most solvents, and can be disassembled for cleaning. A self-stabilizing collar inside the silicone chuck holds glass or plastic pipets. Available in 3 pipet volumes: 2, 10, and 25 mL, each color-coded for easy identification. Overall length, 6³/4".

736871 For Pipets up to 2 mL (blue)

Each **\$28.85**

736872 For Pipets up to 10 mL (green)

Each **\$29.70**

736873 For Pipets up to 25 mL (red)

Each \$41.95

Carolina® Pipette Controller

- Unmatched durability, convenience, and precision
- Rechargeable battery lasts for 8 hours of continuous operation

The Carolina® Pipette Controller is lightweight and designed to fit comfortably in either the right or left hand. A long-life rechargeable lithium battery gives you cordless freedom. The controller also offers great versatility with an easy-fit silicone nosepiece, which accepts pipette sizes from 1 to 100 mL. **Controller** comes with charger, filters, holder, and instructions. Additional replacement components sold separately; visit **Carolina.com** to learn more.

214410 Controller

Each **\$268.25**

214413 Replacement Filter, 0.45 µm

Pack of 5 \$19.25



Tie-Dye Safety Pipet Fillers

New! Tie-Dye Safety Pipet Filler

Add some personality to your lab with these colorful, tie-dye safety pipet fillers. The dependable, easy-to-manage rubber pipet fillers each feature 50-mL bulb capacity, 3 standard valves, and 1/4"-diam flanged opening. They accommodate pipets up to 100 mL and draw 50 mL at a time.

214420	Green/Yellow	Each	\$32.00
214421	Blue/Yellow	Each	\$32.00
214422	Red/Yellow	Each	\$32.00
214423	Red/Black/Yellow	Each	\$32.00

Labware Pipet Tips



215060 Non-Sterile Micropipet Tip (100 to 1,000 µL), Blue, Long

Micropipet Tips (100 to 1,000 μ L), Blue, Long

Micropipet tips have a long tip length of 10 cm, making it easy to pipette into deep and narrow tubes. Tips fit BioPette™ Plus, Labpette™, Sealpette, Eppendorf®, Carolina®, and Volac pipettors.

215060	Non-Sterile	Rack of 96	\$19.00
215061	Non-Sterile	Case of 960	\$117.00
215062	Sterile	Rack of 96	\$22.50
215063	Sterile	Case of 960	\$150.25
215064	Non-Sterile Bulk	Ran of 1 000	\$69.00

215050 Non-Sterile Micropipet Tips (1 to 200 µL), Yellow

Micropipet Tips (1 to 200 μ L), Yellow

Micropipet tips fit BioPette™ Plus, Labpette™, Sealpette, Eppendorf®, and Carolina® pipettors.

215050	Non-Sterile	Rack of 96	\$17.00
215051	Non-Sterile	Case of 960	\$97.25
215052	Sterile	Rack of 96	\$19.00
215053	Sterile	Case of 960	\$122.00
215055	Non-Sterile Bulk	Bag of 1,000	\$68.75

Biotechnology



215066 Ultra Micropipet Tips (Eppendorf, 0.5 to 20 µL)

Ultra Micropipet Tips (Eppendorf®, 0.5 to 20 μ L; Generic, 0.5 to 10 μ L), Clear

Both types of tip fit BioPette™ Plus, Labpette™, Eppendorf®, and Carolina® pipettors

215066	Eppendorf	Rack of 96	\$29.00
215067	Eppendorf	Case of 960	\$228.95
215070	Generic	Rack of 96	\$18.00
215071	Generic	Case of 960	\$86.00



215062S Micropipet Tip (100-1,000 μ L), Blue, Short

New! Micropipet Tips (100–1,000 μL), Blue, Short

These micropipet tips have a short tip length of 7 cm, saving on plastic consumption and cost! Comparable to the older and shorter (7 cm) model of our Micropipet Tips (100 to 1,000 $\mu L)$, Blue, Long and will fit older model tip boxes. These tips fit BioPette Plus, Labpette Sealpette, Eppendorf Carolina, and Volac pipettors.

215062S Sterile Rack of 96 **\$20.00 215064S** Non-Sterile Bag of 1,000 **\$63.00**



New! LoadWell[™] Micropipet Tips (20 to 200 μL)

- Universal fit for standard pipettors
- · Free of RNase, DNase, and pyrogens

Make loading samples into gel electrophoresis wells easier with LoadWell™ micropipet tips. These unique, flexible, narrow-diameter capillary tips can help students to avoid puncturing wells and transfer complete volumes during electrophoresis experiments. Sterile.

215150 Rack of 96 \$20.50



215059 Filtered Micropipet Tips (2 to 20 µL)

Filtered Micropipet Tips

Protect against cross-contamination with these racked, sterile, filtered micropipet tips. Filters are manufactured with a hydrophobic design to prevent liquids and aerosols from entering the micropipet. Tips are noncytotoxic, nonhemolytic, and have 99.9% bacterial aerosol filtration efficiency. DNase, RNase, and pyrogen free.

215059	2 to 20 μL	Rack of 96	\$12.00
215069	2 to 200 µL	Rack of 96	\$12.00
215079	100 to 1,000 μL	Rack of 96	\$14.50

Biotechnology

Tubes



215230 Microcentrifuge Tube, 1.5 mL, Polypropylene, Clear/Non-Sterile

Microcentrifuge Tubes, 1.5 mL, Polypropylene

Used for micro-reactions such as restriction digests of DNA and isolation of bacterial plasmids. Tubes can be autoclaved or are available sterile.

215230 Clear/Non-Sterile

Pack of 1,000 \$53.00

215232 Mixed/Non-Sterile

Pack of 1,000 **\$58.75**

215236 Clear/Sterile

Pack of 1,000 \$70.00

215238 Mixed/Sterile

Pack of 1,000 \$75.00



Carolina® Premium Microcentrifuge Tubes, 1.5 mL

Our premium tubes are designed to improve sample visualization, safety, stability, and overall ease of use. Manufactured under clean room conditions (sterile), they use materials formulated to be crystal clear without compromising centrifugal strength. Tubes are tested at $28,000 \times g$, stable in temperatures from -90 to 121° C; and RNase, DNase, and pyrogen free. In **Colorless** and **Assorted Colors** (100 tubes each of 5 colors) and in self-standing bags for effortless distribution.

 215244
 Colorless
 Pack of 500
 \$45.00

 215245
 Colorless
 Pack of 50
 \$21.25

 215249
 Assorted Colors
 Pack of 500
 \$49.00

PureAmp[™] PCR Tube 8-Strips with Caps

These 0.2-mL PCR tubes in strips of 8 are precision manufactured to maintain tight dimensional tolerances of ultra-thin wall thickness, for improved thermal transfer. Made of heat-resistant, medical-grade polypropylene that is certified free of RNase, DNase, DNA, and PCR inhibitors. Available With Attached Individual Flat Caps or With Separate Flat Cap Strips.

215246 With Attached Individual Flat Caps Pack of 120 **\$85.75**

215247 With Separate Flat Cap Strips Pack of 120 \$78.00



Transformation Tube, 15 mL

This sterile polypropylene tube has the appropriate thermal properties for yielding a high number of competent cells for transformation. This tube is free of surfactants and detergents that inhibit bacterial transformations. Size, 17 \times 100 mm with polypropylene snap cap.

215090 Pack of 25 \$20.95



215099 SpectraTube Centrifuge Tubes

SpectraTube™ Centrifuge Tubes

SpectraTube's proven conical tubes are conveniently configured in a foam rack and feature 5 different-colored caps to make sample identification a breeze. Caps are flat, brightly colored, and frosted to make them easy to write on. Conicals are made of premium polypropylene with exceptionally uniform wall thickness for clarity and withstand $12,000 \times g$ (15-mL tube) or $15,000 \times g$ (50-mL tube). These tubes and caps may be used for sample storage at temperatures as low as -86° C and are suitable for stem cell research; certified sterile; and RNase, DNase, and pyrogen free.

215098 15 mL Pack of 50 **\$39.50 215099** 50 mL Pack of 25 **\$20.75**



Culture Tube, 15 mL

This sterile polystyrene tube, with snap cap, is useful when it is necessary to pellet bacterial cells using a low-speed centrifuge. Size, 17×100 mm. Not appropriate for heat shock/transformation.

215088 Pack of 25 \$14.00

Labware

Tube Racks & Storage Boxes

Biotechnology





New! Frosty Mate[™] Color Change Freezer Racks

Frosty Mate[™] Color Change Freezer Racks provide a visual indicator of temperature levels by dramatically changing color from yellow to dark green when their temperature is below 7° C and back to yellow when their temperature rises above 7° C. The reusable polypropylene racks have an operating range of -86° C to $+121^\circ$ C and can maintain a temperature of less than 4° C for almost $3^1/_2$ hr (with lid on) at room temperature. They include an alphanumeric grid for organizing samples and are autoclavable. The **1.5/2.0-mL Tube Rack** accommodates twenty-four 1.5/2.0-mL tubes in a 6 \times 4 array and six 0.5-mL tubes with included adapters. The **0.2-mL PCR Tube or Strip Rack** accommodates ninety-six 0.2-mL PCR tubes or strips in a 12×8 array.

215584 1.5/2.0-mL Tube Rack Each **\$110.00 215585** 0.2-mL PCR Tube or Strip Rack Each **\$110.00**

Carolina® Chill Block™ Portable Tube Chiller

A compact, convenient substitute for ice buckets, keeping perishable enzymes and other samples handy and cold, without degradation due to temperature increase or fluctuation. The 2-sided design offers flexible storage options. One side accommodates 36×1.5 - to 2.0-mL tubes. The other side holds 96×0.2 -mL tubes, 12×0.2 -mL strips, or 1×96 -well PCR plate, in addition to 10×1.5 - to 2.0-mL tubes. Simply place the Carolina® Chill Block in a freezer overnight. It will then maintain samples at approximately 0° C for up to 4 hr. Size, 5^6 /10" L $\times5^6$ /10" W $\times2^1$ /2" H; wt, 2 lb.

215587 Each \$126.00





Reversible Microcentrifuge Tube Racks

Use these reversible racks for 0.5- or 1.5-mL tubes. Both sides hold up to 108 tubes and feature an alphanumeric grid for inventory management. Included transparent lid covers either side and provides a clear view while protecting stored tubes. Autoclavable. Set of 5: red, orange, yellow, green, and blue. Size of each rack, $210 \times 133 \times 52$ mm.

215577 Per set \$74.50

Microtube Rack

This compact, convenient 80-well rack is designed to keep your tubes neatly and efficiently organized. It is compatible with conical and self-standing microtubes, and all wells have raised, molded numbers for quick identification. The bottom of each well has been recessed to improve conical tube stability without sacrificing the stability of self-standing tubes. Made of autoclavable polypropylene and supplied in a pack of 5 rainbow colors.

215579 Per pack \$33.50

New! Multilevel Test Tube Rack

Experience unmatched flexibility and adaptability on your lab bench with this test tube rack. Made of durable polypropylene, it accommodates tubes from 0.2 mL to 50 mL, and the multilevel structure makes it easy to keep the tubes organized. Autoclavable.

215540 Each \$14.95

See more tube racks and storage boxes on the next page.

Biotechnology

Labware



Microcentrifuge Tube Storage Box

This plastic storage box is transparent, allowing visual examination of box contents without removing lid. Constructed of durable polypropylene that will not become water saturated like cardboard boxes. Autoclavable, unbreakable, with a frosted writing surface on the lid for easy labeling. Capacity, 50 tubes.

215258 Each \$18.75



Microcentrifuge Tube Storage Box

Natural color plastic storage box with hinged lid holds up to 100 tubes. Durable plastic with alphanumeric coding on lid allows for easy sample identification.

215273 Each \$24.00



Foam Rack

This 13 \times 9-cm foam rack holds 24 tubes ranging in size from 0.5 to 1.5 mL. Rows and columns are labeled for easy identification of samples.

216000 Each \$8.95



Polypropylene Micro Test Tube Rack

Rack has 20 places to hold 1.5-mL microcentrifuge tubes. Color may vary.

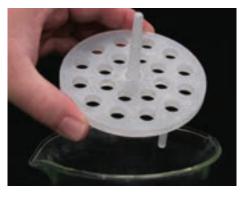
215570 Each \$7.50



Floating Microtube Rack

Polypropylene rack conveniently holds 16 filled, 1.5-mL microcentrifuge tubes in a $4\times4"$ array for incubation at elevated or reduced temperatures in water or ice baths. Rack will float with a full load of filled tubes. Tubes are supported below the lip while conical ends are immersed in water. On benchtop, rack legs prevent bottom of tubes from touching bench surface. Molded-in handle allows convenient transport, agitation, and removal from water bath. Excellent temperature resistance from -70 to 100° C.

215578 Each \$16.50



Bel-Art® Floating Microtube Rack

Fits easily into a 1-L beaker. Holds twenty 1.5-mL or 0.5-mL tubes. Has $^{3}/_{4}$ " legs and a 2" center handle.

215576 Each \$18.00

Labware

Miscellaneous Supplies



215620 Labeling Tape and 215622 Dispenser

A premium grade of printable masking tape with

excellent adhesion qualities, resistant to water,

solvents, and oils, Performs well in water baths.

incubators, autoclaves, refrigerators, and freez-

ers. Tape comes in a pack of 10 rolls in assorted

colors. Size, $1/2 \times 500$ " with a 1" core. Optional

plastic Dispenser has suction-cup feet to prevent

sliding and holds up to thirteen 1/2" rolls of tape

Pack of 10

Each

\$79.00

\$90.00

with 1" core. Size, $9^{1/2}$ " L × 4" H.

Dispenser

Labeling Tape

Labeling Tape

215620

215622



Disposable Inoculating Loops

Disposable Inoculating Loops

Individually wrapped and sterile. A convenient and safe way to inoculate culture media for bacteriological testing. Suitable where flaming is not practical.

215850	Loop Capacity 1 µL	Pack of 250	\$94.25
215851	Loop Capacity 1 µL	Case of 500	\$177.50
215856	Loop Capacity 10 µL	Pack of 250	\$98.95
215857	Loop Capacity 10 µL	Case of 500	\$189.95

Biotechnology



215600 Parafilm and 215602 Carolina Parafilm Dispenser

Parafilm®

Parafilm® is convenient for sealing test tubes, flasks, and other containers. The moisture-proof, semitransparent, flexible thermoplastic seals even irregular surfaces with ease. Resistant to alcohol, gases, and most acids. Roll measures $4"\times 125$ ft. Optional Dispenser is made of 1/4" clear acrylic so you see how much Parafilm® is left. The steel serrated blade cuts without deforming or stretching the material. Holds one $4"\times 125\text{-ft}$ roll of Parafilm®.

215600 Parafilm Each **\$33.25 215602** Dispenser Each **\$142.00**



Pellet Pestle

Suitable for homogenizing small amounts of tissue inside a microcentrifuge tube for the purpose of extracting DNA. Pestle is 70 mm long. Pack of 5.

215828 Per pack \$11.50



Glass Beads

For use in spreading bacterial cultures. Beads require no flame or sterilization procedures and can be autoclaved for repeated use. 1-oz container, approximately 150 beads per jar.

215821 Each \$8.30



215567 Western Blot Boxes

Western Blot Boxes

These crystal-clear boxes feature corners formed at 90° angles and a uniformly flat bottom surface to further reduce the consumption of reagents and antibodies. Selected sizes are also available in opaque black for light-sensitive samples. Each box includes a lid.

215567	$2^{7/8} \times 1^{3/16} \times {}^{3/4}$ "	Pack of 5	\$20.25
215568	$2^{7}/_{8} \times 2 \times 1^{1}/_{4}$ "	Pack of 5	\$26.75
215569	$3^{1}/_{2} \times 2^{9}/_{16} \times 1"$	Pack of 5	\$34.25
215571	$3^{1}/_{2} \times 2^{9}/_{16} \times 1^{"}$		
	Black	Pack of 5	\$42.75
215573	$3^{3}/_{4} \times 1^{3}/_{16} \times {}^{5}/_{8}$ "	Pack of 5	\$27.00
215574	$4^{3}/_{8} \times 2^{1}/_{16} \times 1^{7}/_{8}$ "	Pack of 5	\$43.25
215779	$4^{5}/_{8} \times 3^{1}/_{2} \times 1^{1}/_{8}$ "	Pack of 5	\$47.75
215780	$4^{5}/_{8} \times 3^{1}/_{2} \times 1^{1}/_{8}$ ",		
	Black	Pack of 5	\$45.50
215781	$4^9/_{16} \times 4^9/_{16} \times 1^1/_4$ "	Pack of 5	\$60.25
215782	$4^9/_{16} \times 4^9/_{16} \times 1^1/_4$ ",		
	Black	Pack of 5	\$64.25
215783	$6 \times 4 \times 1^{1}/_{4}$ "	Pack of 5	\$60.25
215784	$6 \times 4 \times 2$ "	Pack of 5	\$62.50

AP® Biology

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Carolina Has the Right Kits and Materials for Your Students, No Matter How You Want to Teach AP® Biology

All of Carolina's kits (except materials kits) come with a comprehensive teacher's manual, student guide, and the materials needed to conduct the investigation (excluding common classroom items).

Which Kit for AP® Biology Is Right for You?



Exclusive kits designed with the help of expert AP® teachers and aligned to the AP® Biology curriculum. These kits are designed for students to engage in inquiry as they develop a greater understanding of the Big Ideas.

Sets of materials needed to conduct the activities in the College Board® AP® Biology Lab Manual. **No instruction manual included.**



The traditional AP® Biology Labs that many teachers still love.

Hands-on investigations that, while not written specifically for the AP® curriculum, may be used to enhance your students' AP® Biology experience or in place of another investigation.



Carolina Investigations® for Use with AP® Biology Kits are designed to align to units, topics, and enduring understandings in the 2019 AP® Biology Course and Exam Description.

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AP Biology

Carolina Investigations® for Use with AP® Biology

Kits that support the AP® curriculum and, more important, your classroom

Our exclusive approach to the AP® curriculum

We built these kits from the ground up—creating new inquiry-based labs or adding inquiry twists to traditional investigations—so they align with the AP® Biology framework and bring inquiry into your classroom. But like our original kits for AP® Biology, we made sure the new kits still engage students and encourage success. These kits aren't just meant to address the curriculum; they also are designed to give your students an unmatched opportunity to use the Science Practices in your classroom.

- Classroom tested, teacher approved
- Exclusive kits aligned to the 2019 curriculum
- Designed to support inquiry-based learning
- · Access to digital resources

	Item No.	Kit Title	Unit Connection	Topic	Enduring Understanding
<u></u>	747650	Osmosis and Diffusion	2	2.3; 2.8	ENE-1; ENE-2
	747820	Evolving Enzymes	3	3.3; 3.7	ENE-1; SYI-3
	747840	Plant Pigments and Photosynthesis	3	3.5	ENE-1
	747830	Photosynthesis Using Leaf Disk Assay	3	3.5	ENE-1
<u>^2</u>	747760	Photosynthesis and Cellular Respiration with Algae Beads	3	3.5; 3.6	ENE-1
<u>^</u> 1	747600*	Cell Respiration	3	3.6	ENE-1
	747740	Cell Communication	4	4.1; 4.3	IST-3
	747720*	Exploring Mendelian Genetics	5	5.3	IST-1
	747770	Electrophoresis and Simulated Genetic Screen	6	6.8	IST-1
Λ^3	747780	Transformation	6	6.8	IST-1
<u></u>	747520	Natural Selection	7	7.2; 7.3	EV0-1
Λ^3	747510*	Population Genetics and Evolution	7	7.4; 7.5	EV0-1
	747530	Origin of Life	7	7.13	SYI-3
	747750	Exploring Animal Behavior with Isopods	8	8.1	ENE-3; IST-5
<u></u>	747610*	Transpiration	8	8.1	ENE-3
	181079	Primary Consumer Energy Flow	8	8.2	ENE-1
<u></u>	747810	Species Interaction	8	8.2	ENE-1
	747620	Physiology of the Circulatory System			

Digital Resources Included

With any Carolina Investigations® for Use with AP® Biology Kit purchase you receive digital resources to use in your classroom. Look for an email after purchase with your access code to get these valuable resources! Digital resource packages can also be purchased separately.

International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.



Carolina Investigations® for Use with AP® Biology Bundle

- Meets College Board® requirements for AP® Biology
- One-stop shopping for AP® Biology saves you time and money
- Seamlessly weaves multiple Big Ideas throughout your course
- · Access to digital resources for each kit

Looking for a convenient way to order your lab activities for the AP® Biology curriculum, while still meeting the College Board® standards? Carolina has you covered. This **Bundle** of 12 kits brings the curriculum to life in your classroom with memorable lessons and engaging activities. Each kit includes materials for 8 groups plus a teacher's manual and reproducible student guide. **Replacement Bundle** includes replacement materials for all 12 labs, including perishable items and consumables (printed teacher's manuals are not included). The Bundle and Replacement Bundle also include a 1-year subscription to the kits' online digital resources. **Note:** Several kits include a voucher for prepaid delivery of perishable material. Contact us or return the voucher to request delivery of perishable material. Sold only to schools and businesses; cannot be shipped via USPS.

Now includes 2 more kits for you and your students!

Bundle includes:

747505EBK

Origin of Life 8-Station Kit (item #747530) Exploring Mendelian Genetics Kit (item #747720)

Population Genetics and Evolution 8-Station Kit (item #747510) Transformation 8-Station Kit (with voucher, item #747780) Natural Selection 8-Station Kit (item #747520)

Cell Communication 8-Station Kit (with voucher, item #747740) Cell Respiration 8-Station Kit (item #747600)

^3 **747505** Bundle ^3 **747506** Replacement B

Bundle Each Replacement Bundle Each Digital Resource Package Each

Plant Pigments and Photosynthesis 8-Station Kit (with voucher, item #747840)
Transpiration 8-Station Kit (item #747610)

Exploring Animal Behavior with Isopods Kit (item #747750)

Electrophoresis and Simulated Genetic Screen 8-Station Kit (item #747770) Evolving Enzymes Kit (item #747820)

Digital Resource Package (item #747505EBK)

\$1,498.80 \$1,028.50 \$149.80

Updated content

to reflect the 2019 Course and Exam Description



WARNING: Cancer – www.P65Warnings.ca.gov











747650 Osmosis and Diffusion 8-Station Kit

Osmosis and Diffusion Kit

- Connected to Unit 2: Cell Structure and Function, topics 2.3: Cell Size and 2.8: Tonicity and Osmoregulation
- Addresses content in Enduring Understandings ENE-1 and ENE-2

During the Guided Investigation, students explore how cell volume and surface area, molecule size, and concentration affect osmosis and diffusion. They use the data collected to determine the concentration of an unknown solution and calculate water potential of model cells. In the Inquiry Investigation, students design their own experiment to further investigate osmosis and diffusion. Visit Carolina.com for a complete list of kit materials.

↑ 747650 8-Station Kit Each \$121.25 747650EBK Digital Resources Each \$12.95

For additional materials and kit refills or to learn more about each kit, visit

Carolina.com.

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Evolving Enzymes Kit

- Connected to Unit 3: Cellular Energetics, topics 3.3: Environmental Impacts on Enzyme Function and 3.7: Fitness
- Addresses content in Enduring Understandings ENE-1 and SYI-3

Students investigate enzyme kinetics and the evolutionary relationship of catalase in 4 different species as they work toward understanding how natural diversity affects interactions with the environment. In the Guided Investigation, students conduct an experiment on catalase concentration and reaction rate, then they investigate the evolutionary relationship of catalase among 4 species. In the Inquiry Investigation, students design an experiment to further investigate enzymes. The 8-Station Kit includes enough materials for 8 groups. The 1-Station Kit includes materials for 1 group. The 8-Station Refill replaces consumed items. Visit Carolina.com for complete lists of kit materials. Note: Order the kit and refill with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher to request delivery of the perishable material

747820 747820P	8-Station Kit (with voucher) 8-Station Kit (with perishable)	Each Each	\$95.80 \$95.80
747821	1-Station Kit (with voucher)	Each	\$54.80
747821P	1-Station Kit (with perishable)	Each	\$54.80
747822	8-Station Refill (with voucher)	Each	\$52.40
747822P	8-Station Refill (with perishable)	Each	\$52.40
747820EBK	Digital Resources	Each	\$12.95

AP Biology

Plant Pigments and Photosynthesis Kit

- . Connected to Unit 3: Cellular Energetics, topic 3.5: Photosynthesis
- Addresses content in Enduring Understandings ENE-1

Students explore plant pigments and discover how different factors affect the rate of photosynthesis. In the Guided Investigation, students first use chromatography to separate pigments found in spinach or ivy leaves, then they determine the rate of photosynthesis for different treatments of chloroplasts. In the Inquiry Investigation, students design an investigation to further explore photosynthetic pigments or the light reactions of photosynthesis. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher to request delivery of the perishable material.

 747840
 8-Station Kit (with voucher)
 Each
 \$138.60

 747840P
 8-Station Kit (with perishable)
 Each
 \$138.60

 747840EBK
 Digital Resources
 Each
 \$12.95



747830 Photosynthesis Using Leaf Disk Assay 8-Station Kit

Photosynthesis and Cellular Respiration with Algae Beads Kit

- Connected to Unit 3: Cellular Energetics, topics 3.5: Photosynthesis and 3.6: Cellular Respiration
- Addresses content in Enduring Understandings ENE-1

Students explore the processes of photosynthesis and cellular respiration and their interrelationship using algae beads. In the Guided Investigation, groups of students use algae
beads in an indicator solution placed under different colored filters to investigate how different wavelengths of light impact photosynthesis and cellular respiration. In the Inquiry
Activity, students design an investigation to further explore photosynthesis and respiration in algae beads. Visit Carolina.com for complete lists of kit materials. Note: Order
the kit with the perishable material included or with a voucher to request the perishable
material later at your convenience. Contact us or return the voucher to request delivery
of the perishable material.

↑ 747760 8-Station Kit (with voucher) Each \$94.80 ↑ 747760P 8-Station Kit (with perishable) Each \$94.80 ↑ 747760EBK Digital Resources Each \$12.95



747840P Plant Pigments and Photosynthesis 8-Station Kit (with perishable)

Photosynthesis Using Leaf Disk Assay Kit

- Connected to Unit 3: Cellular Energetics, topic 3.5: Photosynthesis
- Addresses content in Enduring Understandings ENE-1

Students investigate photosynthesis using a leaf disk assay. In the Guided Investigation, they measure the rate of photosynthesis by counting the number of leaf disks floating at each time. Students test the effect of using solutions with and without a carbon source. In the Inquiry Investigation, students develop and follow an experimental plan to investigate the effect of a chosen variable on photosynthesis. Visit Carolina.com for a complete list of kit materials.

747830 8-Station Kit Each **\$38.60 747830EBK** Digital Resources Each **\$12.95**



747760P Photosynthesis and Cellular Respiration with Algae Beads 8-Station Kit (with perishable)







747600 Cell Respiration 8-Station Kit

Cell Respiration Kit*

- Connected to Unit 3: Cellular Energetics, topic 3.6: Cellular Respiration
- Addresses content in Enduring Understanding ENE-1

Students investigate the metabolic process of cellular respiration in germinating pea seed. In the Guided Investigation, students use respirometers to measure the rate of respiration based

on the rate of relative oxygen consumption. In the Inquiry Activity, students design an investigation to further explore cellular respiration. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit **Carolina.com** for complete lists of kit materials.

1 747600	8-Station Kit	Each	\$224.50
1 747601	1-Station Kit	Each	\$97.50
747602	8-Station Refill	Each	\$64.90
747600EBK	Digital Resources	Each	\$12.95

International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

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747740P Cell Communication 8-Station Kit (with perishables)

Cell Communication Kit

747741P

747740EBK

- Connected to Unit 4: Cell Communication and Cell Cycle, topics 4.1: Cell Communication and 4.3: Signal Transduction
- Addresses content in Enduring Understanding IST-3

Students explore communication between cells using different strains of yeast. In the Guided Investigation, students use sterile technique to investigate the life cycle of yeast cells. Then they culture and mix 2 strains of yeast and observe the role that pheromones play in cell communication. In the Inquiry Activity, students design an investigation to further explore cell communication in yeast. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials (all \lozenge items) included or with a voucher to request perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Kit does not have a refill because the materials are completely used during the activity. Cannot be shipped via IISPS

completely used during the activity. Cannot be shipped via USPS.					
Kit includes: HAO (a-type) Saccharomyces cerevisiae Culture Slant⟨⟩ HBO (alpha-type) Saccharomyces cerevisiae Culture Slant⟨⟩ Sterile Toothpicks		Culture Tubes Transfer Pipets YED Agar Media, 350 mL Sterile Water, 20 mL Petri Dishes Coverslips		Microscope Slides Sterile Cotton Applicators YED Broth Media, 100 mL Teacher's Manual and Reproducible Student Guide	
Needed but not included: Permanent Markers Compound Microscopes with 40× Objective Lenses Forceps		Bag (for yeast-conta material disposal) Incubator (optional)	minated		
747740P 8-Station Kit ((with voucher) (with perishables) (with voucher)	Each Each Each	\$154.50 \$154.50 \$86.50	

1-Station Kit (with perishables)

Digital Resources

\$86.50

\$12.95

Each

Each

AP Biology



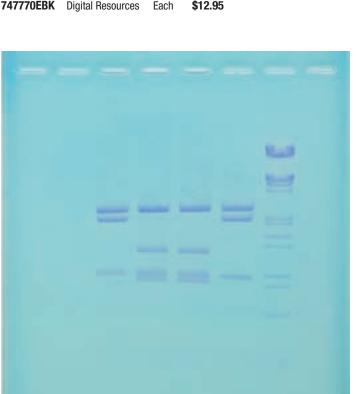
747770 Electrophoresis and Simulated Genetic Screen 8-Station Kit

Electrophoresis and Simulated Genetic Screen Kit

- · Connected to Unit 6: Gene Expression and Regulation, topic 6.8: Biotechnology
- Addresses content in Enduring Understandings IST-1

Students conduct a simulated genetic screen using gel electrophoresis, which builds toward further understanding of heritability and the use of biotechnology. In this Guided Inquiry investigation, students assume the role of a lab technician tasked with performing a genetic screen to assess for the cystic fibrosis allele. Students learn how to pour and run an agarose gel, interpret a DNA fingerprint, and explore the techniques of PCR and restriction digests. Visit Carolina.com for complete lists of kit materials.

747770 8-Station Kit Each **\$165.00 747771** 1-Station Kit Each **\$57.80 747770FRK** Digital Resources Fach **\$12.95**





747780P Transformation 8-Station Kit (with perishable)

Transformation Kit

- Connected to Unit 6: Gene Expression and Regulation, topic 6.8: Biotechnology
- Addresses content in Enduring Understandings IST-1

Students explore the process of transformation as they build toward further understanding of heritability and the use of biotechnology. In the Guided Investigation, students perform a transformation activity using sterile technique. They build knowledge regarding plasmid function, genotype/phenotype connection, and antibiotic resistance. Then during the Inquiry Investigation, students design a new experiment to further develop their understanding of transformation. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher to request delivery of the perishable material.

↑ 747780 8-Station Kit (with voucher) Each \$156.80 ↑ 747780P 8-Station Kit (with perishable) Each \$156.80 ↑ 747780EBK Digital Resources Each \$12.95

Our gel electrophoresis chambers and power supplies can help you make the most of your genetic screen.
View them starting on page 276.



For additional materials and kit refills or to learn more about each kit, visit Carolina.com.

AP Biology

Carolina Investigations



747720 Exploring Mendelian Genetics Kit

Exploring Mendelian Genetics Kit*

- Connected to Unit 5: Heredity, topic 5.3: Mendelian Genetics
- Addresses content in Enduring Understanding IST-1

Students uncover and experience the mechanism of Mendelian genetics with Wisconsin Fast Plants®. In the Guided Investigation, students germinate the F_1 and F_2 generations of a population to learn about the inheritance of traits. In the Inquiry Investigation, students must design an investigation to determine the genotype of an unknown sample of Wisconsin Fast Plants® seed. Kit includes enough materials for 8 groups; visit Carolina.com for a complete list of kit materials.

747720 Kit Each **\$169.80 747720EBK** Digital Resources Each **\$12.95**

Natural Selection Kit

- Connected to Unit 7: Natural Selection, topics 7.2: Natural Selection and 7.3: Artificial Selection
- Addresses content in Enduring Understanding EVO-1

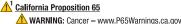
Students investigate natural genetic variation leading to variable survival rates in brine shrimp. Students place brine shrimp eggs in solutions of different salinity and measure hatching viability. Then students design and conduct an experiment to investigate further another factor that may impact hatching viability or survival rates of brine shrimp. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit Carolina.com for complete lists of kit materials.

	747520	8-Station Kit	Each	\$71.80
	747521	1-Station Kit	Each	\$42.50
<u> </u>	747522	8-Station Refill	Each	\$63.00
	747520EBK	Digital Resources	Each	\$12.95



747540 Investigating Selection with Wisconsin Fast Plants Kit







New! Investigating Selection with Wisconsin Fast Plants® Kit

- Connected to Unit 7: Natural Selection, topics 7.2: Natural Selection and 7.3: Artificial Selection
- Addresses content in Enduring Understanding EVO-1

In 2 guided investigations, students explore selection as a mechanism that can drive change in a population. They plant Wisconsin Fast Plants® seeds that vary in the number of cotyledons present on the seedlings, then examine the seedlings to determine their traits and how these traits vary. They then perform a selection experiment, crossing polycot plants to each other to see how cross pollination affects the frequency of polycots in the offspring population. Kit includes enough materials for 8 groups; visit Carolina.com for a complete list of kit materials.

747540 Kit Each \$98.80 747540EBK Digital Resources Each \$12.95

International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

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747510 Population Genetics and Evolution 8-Station Kit

AP Biology

Population Genetics and Evolution Kit*

- Connected to Unit 7: Natural Selection, topics 7.4: Population Genetics and 7.5: Hardy-Weinberg Equilibrium
- Addresses content in Enduring Understanding EVO-1

Students examine the genetics of a population and consider how allelic frequencies can provide evidence about the evolution of species. Students model a population using cards to represent individual alleles, then collect phenotypic data from a population of Wisconsin Fast Plants®. Using direct counting and the Hardy-Weinberg equation, students determine the frequencies of the 2 alleles. Then students design and conduct an experiment to investigate population genetics further. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit **Carolina.com** for complete lists of kit materials.

^3 747510	8-Station Kit	Each	\$118.80
^ 747511	1-Station Kit	Each	\$87.50
747512	8-Station Refill	Each	\$90.80
747510EBK	Digital Resources	Each	\$12.95

Origin of Life Kit

- Connected to Unit 7: Natural Selection, topic 7.13: Origin of Life on Earth
- Addresses content in Enduring Understandings SYI-3

Students explore the origin of life as they create coacervates, which provide evidence about how life may have formed on Earth. In the Guided Investigation, students follow a procedure to create the coacervates. In the Inquiry Investigation, students explore the life-like properties of coacervates through an experimental question of their own design. Visit Carolina.com for a complete list of kit materials.

747530 8-Station Kit Each **\$88.80 747530EBK** Digital Resources Each **\$12.95**



747530 Origin of Life 8-Station Kit

Exploring Animal Behavior with Isopods

747750P Exploring Animal Behavior with Isopods 8-Station Kit (with perishable)

Exploring Animal Behavior with Isopods Kit

- Connected to Unit 8: Ecology, topic 8.1: Responses to the Environment
- · Addresses content in Enduring Understandings ENE-3 and IST-5

Students explore animal behavior through habitat preference, conduct a chi-square analysis of class data, and consider the ultimate question of how behavior impacts survival. They use choice chambers to collect data about isopod habitat preferences, then analyze the class data using a chi-square analysis. In the Inquiry Investigation, students design their own experiment to further investigate the behavior of choice in isopods. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher to request delivery of the perishable material.

747750	8-Station Kit (with voucher)	Each	\$104.50
747750P	8-Station Kit (with perishable)	Each	\$104.50
747750EBK	Digital Resources	Each	\$12.95

AP Biology

Carolina Investigations



747610 Transpiration 8-Station Kit

Transpiration Kit*

- Connected to Unit 8: Ecology, topic 8.1: Responses to the Environment
- Addresses content in Enduring Understandings ENE-3

Students investigate water loss in plants as they build toward an understanding of osmoregulation and plant responses to the environment. In the Guided Investigation, students construct and use a

simple potometer to measure water loss from transpiration of bush bean seedlings. In the Inquiry Activity, students explore a question about one of the various factors that affect the rate of transpiration. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit Carolina.com for complete lists of kit materials.

↑ 747610 8-Station Kit Each \$92.00 ↑ 747611 1-Station Kit Each \$46.20 747612 8-Station Refill Each \$21.70 747610EBK Digital Resources Each \$12.95

Quantitative Analysis and Statistics Kit Practice quantitative analysis and statistics in biology using corn segregating ears and past and present hominids with biometric data

- Aligned with Big Idea 3 and Essential Knowledge 3.A.3 and 3.C.1
- Emphasizes Science Practices 1, 2, 4, and 5

This advanced kit, which reinforces data analysis, visualization, and statistical evaluation skills, is a great opener or end-of-year review for your AP^{\otimes} Biology class. The optional pre-lab inquiry, when students test a hypothesis during a demonstrated magic trick, emphasizes to students the value of statistics when applied to hypothesis testing. Next, students complete any or all 3 guided-inquiry-based activities to reinforce their understanding of Mendelian genetics, chi-square test for fit, and other concepts. **Kit** includes enough materials for a class of 32 students working in groups of 4; visit **Carolina.com** for a complete list of kit materials.

747805 Kit Each **\$94.80 747805EBK** Digital Resources Each **\$12.95**



747805 Quantitative Analysis and Statistics Kit

International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.

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For additional materials and kit refills or to learn more about each kit, visit Carolina.com.

New! Primary Consumer Energy Flow Kit

 Connected to Unit 1: The Living World: Ecosystems, topics 1.9: Trophic Levels and 1.10: Energy Flow and the 10% Rule

Students investigate the efficiency with which developing painted lady butterflies (*Vanessa cardui*) incorporate their food into their body mass. In this lab, painted lady larvae, representing a primary consumer, feed on a growth medium that represents a primary producer. To track the amount of medium consumed over time, students daily measure and record the mass of a control cup and a cup containing the larvae or chrysalises. At the end of the experiment, students graph their data in multiple ways, analyze the results, and calculate efficiency. Kit provides materials for 15 groups of students. Visit Carolina.com for complete lists of kit materials. **Note:** *Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Cannot be shipped into Puerto Rico. Painted lady butterflies cannot be released in CT or ND.*

 180803
 Kit (with voucher)
 Each
 \$69.80

 180803P
 Kit (with perishables)
 Each
 \$69.80

 180803EBK
 Digital Resources
 Each
 \$12.95

AP Biology

180803P Primary
Consumer Energy Flow Kit (with perishables)

Species Interaction Kit

Explore dissolved oxygen consumption in the presence of producers and consumers in an aquatic food chain

Help your students make a big picture connection across communities and populations by characterizing food webs and other factors, such as predation and abiotic factors. Students master the Winkler titration method for measuring dissolved oxygen concentrations. Using this tool, they measure dissolved oxygen fluctuations to assess the relationships between species in an aquatic food chain (*Daphnia*, *Chlorella*, and *Hydra*). After understanding the dynamics of the aquatic food chain, students introduce new variables to design their own experiment using the producers and consumers. The **8-Station Kit** includes enough materials for a class of 32

students working in groups of 4. The **1-Station Kit** includes materials for 1 group of 4 students. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Kit* includes 2 vouchers to request perishable materials in 2 shipments about 2 weeks apart; kit cannot be shipped with perishables. Contact us or return the vouchers to request delivery of perishable materials. Kit does not have a refill because most materials are completely used during the activity.

↑ 747810 8-Station Kit Each \$360.00 ↑ 747811 1-Station Kit Each \$124.50 521011 Digital Teacher's Manual Each \$5.95



747810 Species Interaction 8-Station Kit

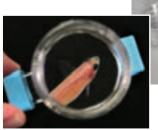
Physiology of the Circulatory System Kit

Explore how open and closed circulatory systems maintain homeostasis

Students use *Daphnia* and Casper Fish™ to observe the differences between open and closed circulatory systems. In the inquiry activity, students monitor *Daphnia's* heart rate to investigate the organism's response to various environmental changes. The **8-Station Basic Kit** includes enough materials for a class of 32 students working in groups of 4. The **1-Station Basic Kit** includes materials for 1 group of 4 students. The **8-Station Refill** replaces consumed items. **Note:** *Order basic kit and refill with perishable materials included or with a voucher to request perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishable materials; established aquarium required. Basic kit and refill should not be shipped*

over a weekend. Carolina recommends that you request your order to arrive on a Wednesday, Thursday, or Friday (or even a Saturday) to avoid weekend shipping. Visit Carolina.com for complete lists of kit materials.

747620	8-Station Basic Kit (with voucher)	Each	\$177.80
747620P	8-Station Basic Kit (with perishables)	Each	\$177.80
747621	1-Station Basic Kit (with voucher)	Each	\$88.00
747621P	1-Station Basic Kit (with perishables)	Each	\$88.00
747622	8-Station Refill (with voucher)	Each	\$103.00
747622P	8-Station Refill (with perishables)	Each	\$103.00
521009	Digital Teacher's Manual	Each	\$ 5.95





747620P Physiology of the Circulatory System 8-Station Basic Kit (with perishables)

Restriction Notice

The Casper Fish™ provided are intended for non-commercial, internal research and educational purposes only. The sale, lease, license, or other transfer of the Casper Fish™ to a for-profit organization, uses of the Casper Fish™ by any organization, including Recipient, to perform contract research, to screen compound libraries, to produce or manufacture products for general sale, or to conduct research activities that result in any sale, lease, license, or transfer of the Casper Fish™ to a for-profit organization are strictly prohibited. However, industrially sponsored academic research shall not be considered a use of the Casper Fish™ for commercial purposes per se, unless any of the above conditions are met. Customers seeking to use the Casper Fish™ for commercial purposes should contact the Technology and Innovation Development Office of Children's Hospital Boston.

AP Biology **Materials Kits**

Materials for College Board® AP® Example Labs

Looking to bring the AP® example labs into your classroom? Carolina is doing its best to meet your needs. We have designed materials kits for select investigations, focusing on labs and materials typically not available to teachers. While these kits do not come with instructions, they do include all materials you need to follow the College Board® example lab manual. Incorporating College Board® example labs into your classroom will be a simple, frustration-free process, Carolina also offers all of the components to support the example labs.



Need materials for the College Board® example labs? Carolina has you covered. We've put together materials kits for some of the key labs, saving you time and money. Simply pair them with the College Board® lab manual. To learn more about these products, go to Carolina.com.

	Item			
	No.	Lab	Materials Kit	Per kit
	747900	Lab 1	Artificial Selection Materials Kit	\$102.50
<u>^</u> 3	747901*	Lab 4	Diffusion and Osmosis Materials Kit (with voucher)	\$180.00
<u>^</u> 3	747901P*	Lab 4	Diffusion and Osmosis Materials Kit (with perishable)	\$180.00
	747906	Lab 5	Photosynthesis Materials Kit	\$75.80
	747910	Lab 6	Cellular Respiration Microrespirometer Materials Kit	\$77.00
<u>^</u> 2	747902	Lab 7	Cell Division: Mitosis and Meiosis Materials Kit (with voucher)	\$217.50
<u>^</u> 2	747902P	Lab 7	Cell Division: Mitosis and Meiosis Materials Kit (with perishables)	\$217.50
	747907	Lab 8	Biotechnology: Bacterial Transformation Materials Kit (with voucher)	\$124.80
	747907P	Lab 8	Biotechnology: Bacterial Transformation Materials Kit (with perishables)	\$124.80
	747908	Lab 9	Biotechnology: Restriction Enzymes Analysis of DNA Materials Kit	\$209.80
	747909	Lab 11	Transpiration Materials Kit	\$79.80
	747911	Lab 12	Fruit Fly Behavior Materials Kit (with voucher)	\$74.00
	747911P	Lab 12	Fruit Fly Behavior Materials Kit (with perishables)	\$74.00
	747903	Lab 13	Enzyme Activity Materials Kit	\$142.80
<u></u> ^3	747912		Bundle (includes items #747900, 747901, 747902, 747903, 747906, 747907, 747908, 747909, 747910, and 747911)	\$1,140.50



Want to bring modern technology to your

> Check out Carolina's biotechnology equipment starting on page 271.



747905 Cell Division: Mitosis Study Cards

Cell Division: Mitosis Study Cards

This set of laminated onion root tip flash cards was designed to support the College Board®-developed AP® Biology Investigative Lab 7: Cell Division: Mitosis and Meiosis. These cards offer your students an excellent opportunity to perform the chi-square goodness of fit test with both treated and untreated samples, allowing them to conduct their own investigations of the 2 treatments. Set includes 32 discretely labeled, $5^{1/2} \times 4^{1/4}$ " cards; 16 samples treated with kidney bean lectin (a mitogen); and 16 untreated samples. These full-color cards are laminated for durability and coated to allow students to use dry-erase markers during counting. Includes teacher instructions.

747905 Per set \$40.50



International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional

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AP Biology

Traditional Kits for AP® Biology

Carolina will continue to offer kits for the traditional AP® Biology labs, along with their replacement sets and refills. Many of these labs already build in elements of inquiry or can be easily adapted with your own ideas to make the familiar labs more inquiry-based. They are a great starting point for many teachers, offering you and your students another level of variety as you design your AP® lab investigations.

Visit Carolina.com to learn more about Carolina's kits for the traditional AP® Biology labs.

Traditional		Item	
Lab No.	Kit Title	No.	Per kit
1	Diffusion and Osmosis Kit	746410	\$189.80
2	Enzyme Catalysis Kit	1 746430	\$180.00
3	Mitosis and Meiosis Kit	746450	\$376.00
4	Plant Pigments and Photosynthesis Kit	746470	\$169.50
5	Cell Respiration Kit	1 746490	\$246.00
6A	Molecular Biology: Green Gene Colony Transformation Kit	211082	\$129.00
	Molecular Biology: pBLU® Colony Transformation Kit	211146	\$138.95
6B	Molecular Biology: Restriction Enzyme Cleavage of DNA Kit	211149	\$120.00
7A	Genetics of Organisms: Genetics of Drosophila Kit	746530	\$199.80
8	Population Genetics and Evolution Kit	746540	\$29.50
9	Transpiration Kit	1 746570	\$227.25
10	Physiology of the Circulatory System Kit	746580	\$398.80
11	Animal Behavior Kit	746614	\$138.80
12	Dissolved Oxygen and Aquatic Primary Productivity Kit	^¹ 746630	\$444.50



Carolina® Complete Advanced Biology Lab Package A

- One-stop shopping for all your AP® Biology lab components
- Save time and money

This convenient package of Carolina kits for all 12 traditional AP® labs has what you need. Each kit includes materials for 32 students, with teacher and student instructions. **Replacement Set Package** includes replacement sets for all 12 classic AP® labs (except items #746540 Population Genetics and Evolution Kit and #746580 Physiology of the Circulatory System Kit) and consumables for items #211146 pBLU® Colony Transformation Kit and #211149 Restriction Enzyme Cleavage of DNA Kit. The Complete Lab Package and Replacement Set Package do not include item #171100 Carolina BioKits®: Chromosome Simulation Kit, Activity C, or item #171967 Carolina BioKits®: *Drosophila*, Part B. Both of these kits are available separately. Visit **Carolina.com** for complete lists of kit materials. **Note:** Several kits include a voucher for prepaid delivery of perishable materials. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Cannot be shipped via USPS.

Diffusion and Osmosis Kit (item #746410) Enzyme Catalysis Kit (item #746430) Mitosis and Meiosis Kit (item #746450) Plant Pigments and Photosynthesis Kit (item #746470) Cell Respiration Kit (item #746490)

748500 Complete Lab Package Each **\$2,315.50 748550** Replacement Set Package Each **\$922.50**

Molecular Biology: pBLU® Colony Transformation Kit (item #211146) Restriction Enzyme Cleavage of DNA Kit (item #211149) Genetics of Organisms: Genetics of *Drosophila* Kit (item #746530) Population Genetics and Evolution Kit (item #746540) Transpiration Kit (item #746570)
Physiology of the Circulatory System Kit (item #746580)
Animal Behavior Kit (item #746614)
Dissolved Oxygen and Aquatic Primary Productivity Kit (item #746630)

Looking for Wisconsin Fast Plants[®] seed stocks or lighting solutions?







Plant your eyes on pages 86-87 and 107-108.



We offer *Drosophila* cultures for Lab 12: Animal Behavior.
See our selection on page 209.

Missing just a few components for your AP® example lab?

Carolina has you covered. We offer all of the necessary and hard-to-find components to support the example labs.

AP Biology

Supplemental Inquiry Activities

In addition to the many lab kits available for AP® Biology, Carolina is proud to offer a wide array of unique activities that focus on inquiry. With the flexibility of the new curriculum, these activities can be easily plugged in to your course.



158776 Wisconsin Fast Plants Investigating Artificial Selection Using Plant Populations Kit

Natural Selection with Drosephita Great for Big Idea 1: Evolution

Supplemental Inquiry Activities

171995P Natural Selection with *Drosophila* Kit (with perishables)

Wisconsin Fast Plants[®] Investigating Artificial Selection Using Plant Populations Kit

Grade 6–College. For a class of 32 students. Previously titled Hairy's Inheritance: Competing to Make the Hairiest Fast Plant Kit, this open-ended experiment (perfect for AP® Biology) utilizes inquiry and cooperative learning. The activities can be used to study the process of science, natural selection, plant breeding, genetics, plant growth, and reproduction. Starting with the standard Wisconsin Fast Plants® seed stock, students use a quick, simple method to count leaf hairs and select the hairiest plants to produce seed for the next generation. Comparison of the average number and distribution of leaf hairs in both generations enables students to describe the pattern of inheritance for hairiness and to test a hypothesis. Experiment time varies—typically 55 days to grow and evaluate 2 generations. Go to Carolina.com for a refill seed set (item #158785B).

Kit includes:

Standard Fast Plants® Seed All Other Planting Materials
Supplies for Planting a Second Generation Instructions

158776 Per kit \$114.70

Leaf Disk Assay

Students use the floating leaf disk method to study the effects of light intensity and CO₂ availability on the rate of photosynthesis. You must supply fresh, green leaves for the activity. Spinach and other fresh, green leafy vegetables or leaves of Wisconsin Fast Plants® are suitable sources.



Great for Lab 5:

Recommended for Pre-AP® and other introductory biology courses or as a supplement or extension to an AP® Biology lab. Kit contains enough materials for 32 students working in pairs. Visit Carolina.com for complete list of kit materials.

744676 Per kit \$52.50

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Natural Selection with Drosophila Kit

Bringing a realistic model of natural selection and evolution into your classroom has never been easier. Using the model organism *Drosophila melanogaster*, students introduce a single advantageous "mutation" (red eyes) into a population of white-eyed "ancestral" strain flies. They then observe and calculate the new trait's spread and the shift in population phenotypes over generations. The fitness advantage offered by the "mutation" classically exhibits evolution by natural selection—and your students can see it happen right in the classroom. This kit is designed for 32 students working cooperatively in 8 groups of 4. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. Please order at least 2 weeks in advance of desired ship date.

171995 Kit (with voucher) Each **\$128.00 171995P** Kit (with perishables) Each **\$128.00**

Cell Size and Diffusion Kit A

Grades 6–12. Diffusion is central to cellular life, and its limitations have a profound effect on the structure of cells. In this lab, students are asked to consider why cells are generally not larger in size. To build knowledge toward answering the question, students construct agar cubes representing cells of different sizes. They then observe how efficiently a basic solution can diffuse throughout the mass of each of the cubes. Through this investigation, students are introduced to the ratio of cel-

lular surface area to volume and to the significance of this ratio in cell sustainability. **Kit** is designed for 32 students working in 8 groups; **Refill Kit** replaces consumed items. Visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

684064 Kit Each **\$80.80 684065** Refill Each **\$54.20**



684064 Cell Size and Diffusion Kit

Supplemental Inquiry Activities



Using DNA Barcodes to Identify and

Advanced—For experienced high school and college classes; requires some technical skill.

\$237.50

\$237.50 \$248.50

\$248.50

\$256.50 \$256.50

Perfect

for Lab 3:

BLAST

Each Each

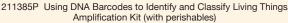
Each Each

Each

Students take a new approach to taxonomy using "DNA barcodes"—short, unique DNA sequences—to learn about the biodiversity of plants, mammals, fish, or insects. Unlock the barcodes of even more organisms by purchasing the Fungal Primer Set (item #211388, sold separately) to give students the opportunity to explore the diverse world of fungi. Using polymerase chain reaction (PCR) on specific regions of the rbcL or COI gene, students amplify their extracted DNA to create unique barcodes. These amplified sequences (amplicons) are then submitted for sequencing and can be analyzed using our custom-designed online tool, DNA Subway. Each kit contains materials for 25 DNA extractions and PCR reactions.

211385	DNA Barcode Amplification Kit (with voucher)
211385P	DNA Barcode Amplification Kit (with perishables)
211386	DNA Barcode Amplification and Electrophoresis
	Kit with <i>Carolina</i> BLU Stain (with voucher)
211386P	DNA Barcode Amplification and Electrophoresis
	Kit with <i>Carolina</i> BLU Stain (with perishables)
211387	DNA Barcode Amplification and Electrophoresis
	Kit with GelGreen Stain (with voucher)
211387P	DNA Barcode Amplification and Electrophoresis
	Kit with GelGreen Stain (with perishables)

True **Using DNA Barcodes** inquiry for Big to Identify and Classify Living Things Ideas 1 and 3





214805 Genes and ConSEQUENCES Kit

Genes and ConSEQUENCES Kit

In today's fast-paced world of genetics, a tremendous number of DNA sequences are being generated by scientists around the world. Unlocking the power of these sequences requires a specific skill set and a keen understanding of using databases and conducting sequence comparisons. Accessing the National Center for Biotechnology Information (NCBI) database, students use the Basic Local Alignment Search Tool (BLAST) to compare their sequences to gene segments published in the database. Using a case study approach, students continue to explore their sequences as they work to determine the location and role of their gene in a disease. Kit is designed to continually reinforce the central dogma of biology and give students basic knowledge of these database tools. Designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

214805 Per kit \$61.00



Disorder Detectives® Classroom Kit

Students jump into the role of cytogeneticists working in a hospital or clinic as they explore the diagnostic power of karyotyping in this one-of-a-kind activity. This kit provides students with a hands-on experience studying human chromosomes and connecting various karyotypes with chromosomal disorders. Students work on 1 of 15 case studies to complete patient karyotypes and help make appropriate disease diagnoses. They gain exposure to a wide range of chromosome anomalies and normal karyotype spreads during the investigation. Students deal with chromosome abnormalities resulting from nondisjunction, deletion, inversion, and translocation. Kit materials are reusable and offer your students an exceptional experience that can change the way you approach karyotyping in your classroom. Classroom Kit is designed for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials. **Decal Set** provides additional reusable decals for the kit.

\$195.00 214800 Classroom Kit Each 214801 Decal Set Each \$59.50

Introduce students to cutting-edge CRISPR technology. Check out our CRISPR in a Box™ Kit on page 234.

Use Nobel Prize-winning research in your classroom!

RNAi is a perfect fit for Big Ideas 2 and 3. Learn more on page 257.

Caenorhabditis elegans



AP Biology

Supplemental Inquiry Activities

211181 Modeling DNA to Protein 1-Station Kit

Modeling DNA to Protein Kit

Students follow a hypothetical scenario of an infant, "Baby Terra," diagnosed with sickle cell disease. As they do, they are introduced to the process of translation by modeling the flow of genetic information on a region of the beta hemoglobin gene. The kit investigations allow students to model transcription and translation using unique magnetic nucleotide bases, develop their own protein translation model, and use clay to demonstrate the physiological effects of the sickle cell mutation. Have your students explore the question "Why did Baby Terra get sick?" through Mendelian and molecular modeling. The **1-Station Kit** equips 1 group of 4 students; the **8-Station Kit** equips 32 students working in groups of 4. Both kits include digital resources; visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

211181 1-Station Kit Each **\$47.50 211183** 8-Station Kit Each **\$189.95**

Gene to Protein: Green Fluorescent Protein Necklace Kit

Illuminate the dark corners of your students' curiosity by teaching them about proteins. This simple classroom exercise enables students to isolate the green fluorescent protein (GFP) found in jellyfish, while teaching them about recombinant proteins and genetic engineering. After students isolate the GFP, they expose their samples to ultraviolet (UV) or blue LED light and watch them glow. Students then create necklaces with their glowing GFP and wear them proudly. With this beginner's activity, you can show your students that protein science can be approachable and engaging, but not overwhelming. Kits equip 32 students and include teacher's manual with reproducible student guide and 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

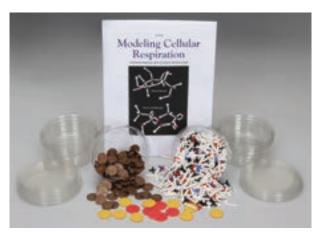
 211555
 Kit (with voucher)
 Each
 \$84.00

 211555P
 Kit (with perishables)
 Each
 \$84.00

 211902
 Carolina UV LED Flashlight
 Each
 \$28.50



211555P Gene to Protein: Green Fluorescent Protein Necklace Kit (with perishables)



746500 Modeling Cellular Respiration Kit

Modeling Cellular Respiration Kit

Working in groups, students use molecular models to explore the energy-yielding oxidation of glucose. Each group is assigned a step of the Krebs cycle to model. Students determine what is released and/or consumed during their reaction and what energy-related change occurs. They learn concepts central to cellular respiration and how the concepts apply to the reaction they model. After completing the hands-on model building activity, each group presents its reaction to the class. This enables the entire class to understand the overall process by which cells harvest chemical energy from glucose. Recommended as a supplement or extension. Kit contains enough materials for 8 groups of up to 4 students.

746500 Per kit \$144.50

Modeling Photosynthesis: The Calvin Cycle

Working in groups, students use molecular models to explore the reduction of carbon dioxide to various organic molecules, which occurs during the Calvin cycle. Each group models a different reaction in the cycle and determines what is released and/or consumed during the reaction. This helps students understand concepts that are central to photosynthesis and how those concepts apply to the reaction they model. After completing the model-building activity, the groups then present their reaction to the class so everyone understands the process by which plant cells store chemical energy as organic molecules. Recommended as a supplement or extension. Kit contains enough materials for 8 small groups of students working cooperatively.

746478 Per kit \$133.50



746478 Modeling Photosynthesis: The Calvin Cycle

Additional Resources

Additional Resources

Don't forget we have all the materials you need to outfit a successful AP® Biology classroom, from our wide variety of living materials to our high-quality preserved specimens. Check out these other useful products frequently purchased by AP® educators.

Choice Chamber

Test animal behavior and habitat preference in small arthropods, especially terrestrial isopods, with this chamber. Each compartment is 3½" in diameter and about 5/8" deep. A snug-fitting lid with small tab handles covers both compartments and the connecting passageway. **Note:** *Live organisms not included.*

746618 Pack of 10 **\$51.80 746619** Each **\$5.75**

Carolina® Large Choice Chamber Kit

Developed from teacher requests! The large, sturdy, reusable, clear plastic Carolina® Large Choice Chamber has been developed so you can observe and monitor animal behavior. Construct a hypothesis about habitat preference and test your idea. Not only is this new chamber large enough (6" in diameter and 1" deep) to use for isopods, it's great for bessbugs, millipedes, and hissing roaches. **Kit** comes with 2 chambers, 2 chamber lids, a tunnel system with lid, and 4 "gates" to allow you to control access to your chambers. The exclusive design also allows you to add up to 2 Additional Large Choice Chambers and Lids in order to test multiple parameters simultaneously. No need to worry if a part gets misplaced; simply order the Replacement Choice Chamber Tunnel, Lid, and 4 Gates to complete your set. You can also order the Black Large Choice Chamber and Lid for more habitat preference options.

143051 Kit

Each \$19.20 5+ Kits Each \$17.30

143052 2 Additional Large Choice Chambers and Lids

Each \$13.20

143053 Replacement Choice Chamber Tunnel, Lid, and 4 Gates

Each **\$7.60**

143055 Black Large Choice Chamber and Lid

Each **\$9.00**



143051 Carolina Large Choice Chamber (above) and in use (right) (beetles and wood not included)

DataClassroomSM: Digital Graphing and Statistics

Data skills are key to solving the biggest problems of tomorrow, and DataClassroomSM helps teach students these skills. DataClassroomSM is a web app for graphing, statistics, and data analysis in the grades 6–12+ science and math classroom. Students can use the app with data generated from their own experiments or from provided data. As they work through the app's built-in graph wizard, Data-ClassroomSM defines and explains the conditions necessary to use different types of graphs—and students learn to communicate with data. The tool runs on any web browser on a PC or tablet, requires no software installation to use, and integrates with learning management systems such as SchoologySM, Clever, and Google ClassroomTM. Because DataClassroomSM was designed by teachers, it allows them to easily incorporate next-generation data skill development with the learning experiences they are already creating. For more information and license details visit Carolina.com.

747970 1-Year License Each **\$595.00 747972** 2-Month License Each **\$39.99**

DataClassroom: Digital Graphing and Statistics (in use)

Allied Health & Health Sciences

Kits

New! Carolina® Healthcare Simulations Kit Series

In the Carolina® Healthcare Simulations Kit Series, students practice clinical skills, techniques, and procedures. Each simulation includes a case study that provides students with background information about a patient who presents with relevant symptoms. While performing a series of investigations, in addition to gaining an understanding of human anatomy and physiology, students learn and practice skills that can be used in a healthcare setting. Visit Carolina.com for a description of each kit and complete lists of kit materials. Includes 1-year access to digital resources that support NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

 694508
 Vital Signs Kit
 Each
 \$202.85

 700106
 Blood Glucose Kit
 Each
 \$165.00

 700109
 Blood Hematocrit Kit
 Each
 \$115.05

 700117
 Blood Typing Kit
 Each
 \$60.25



Equipment

Student Aneroid Blood Pressure Set Blood pressure made easy

- No pinstop, allowing visual calibration check of gauge
- Velcro® cuff is easy to use and fits a wide range of arm sizes

Includes a clinical quality stethoscope

Teach your students the basics and importance of measuring blood pressure with this popular, easy-to-use set. The durable, accurate aneroid blood pressure monitor is perfect for teaching measurement techniques and performing classroom exercises.

A latex-free Velcro® cuff and artery position mark assure easy, precise application in the right location. The gauge has no pinstop and clips to the cuff for convenience and security. The bulb has a standard thumbscrew valve.

A lightweight stethoscope is included, with a nursescope-type head and high-amplification diaphragm for excellent sound transmission. The entire set comes in a convenient zipper case for easy storage.

691088 Per set \$48.40



Lightweight Nursescope

Streamlined nurse's stethoscope with excellent acoustics. Red.

691639 Each \$23.85

312





Sprague-Rappaport Style Stethoscope

Professional clinical stethoscope is actually 5 stethoscopes in 1. Dual head features adult and pediatric diaphragms that can be interchanged as needed with appropriate bells. Dual rubber tubing gives unparalleled sound amplification. Comes with accessory pouch containing extra diaphragms, 3 bells (adult, pediatric, and newborn sizes), and 2 pairs of extra ear tips.

691659 Each \$45.05







Economical Digital Blood Pressure Monitor

Despite the attractive price, this digital blood pressure monitor measures systolic and diastolic blood pressures and heart rate with clinically proven accuracy. The latex-free, D-ring cuff is easy to self-apply and has size guide markings to assure correct placement. Bulb has automatic deflation valve to simplify measurement. Jumbo LCD display is easy to read; automatic power-off feature saves batteries. Powered by 4 AA alkaline batteries (not included).

691130 Each \$101.50

Equipment/Simulated Drugs & Medications



New! Proscope[™] Complete Diagnostic Instrument Set

This full-featured, 2.5-V diagnostic instrument set features multiple attachments, including an otoscope, ophthalmoscope, illuminator, mirror, and tongue depressor. Each instrument head has bayonet-locking mounts to allow secure connection to the battery handle. The C-cell powered, satin-finish battery handle features a knurled finish and rheostatic on/off switch. Comes in zippered case with fitted insert that is scuff and scratch resistant and cleans easily. Wt, 23¹/₂ oz. Inspected, assembled, and packaged in the USA from foreign components. Visit Carolina.com for more information. **Note:** Requires 2 C alkaline batteries (not included).

694739 Per set \$225.95



569703 McKesson True Metrix Pro Professional Monitoring Blood Glucose System

New! McKesson® True Metrix® Pro Professional Monitoring Blood Glucose System

Measure blood glucose levels efficiently with the highly accurate McKesson® True Metrix® Pro Blood Glucose Meter, which offers users a full-size meter with a large LED screen. This meter was developed with size and ergonomic design in mind to provide a secure grip during testing. The large screen is intended to facilitate quick and easy viewing of blood glucose test results. Meter Only includes True Metrix® Pro Blood Glucose Meter, user manual, quick-reference guide, self-test log book, installed 3-V battery, and carrying case. Test Strips are available separately. Visit Carolina.com for more features and specifications. Note: Not for diagnostic use. For educational use only.

569703 Meter Only Each **\$15.95 569704** Test Strips Vial of 50 **\$38.30**

Allied Health & Health Sciences



New! Fingertip Pulse Oximeter

Measure blood oxygen saturation (Sp02) and pulse rate quickly and accurately. The 1½" display shows Sp02 and pulse rate values with large, easy-to-read numbers. Simply insert fingertip, turn on unit, then read values. Unit automatically powers off to conserve battery life. Uses 2 AAA batteries, included.

569700 Each **\$61.60**



New! Disposable Penlight with Pupil Gauge

This disposable penlight with pupil gauge features a sealed concentric beam, which is activated by depressing the stainless-steel pocket clip. Uses carbon zinc AAA batteries (included; 18-month life span). Size, 5" L \times $^{1}\!/_{2}$ " diam.

695682 Each \$37.50

Simulated Drugs & Medications



569590 Demo Dose EPINEPHrin Adrenaln

10 Dunns

569577 Demo Dose Dextros, 5%, 50 mL

New! Demo Dose® Simulated Drugs

Teach the proper administration of various drugs with these simulations. Demo Dose® simulated drugs provide authentic experiences in simulated medical scenarios, enabling participants to practice clinical skills and medication administration in a safe way. Visit Carolina.com for kit and set materials lists. Note: For instructional use only. Not for human or animal use.

 569590
 EPINEPHrin Adrenaln (10-mL syringe)

 Each
 \$5.80

 569591
 Lidocain 2% (5-mL syringe)

 Each
 \$5.80

 Atropin (1-mg [0.1 mg/mL] syringe)
 Each
 \$5.80

 569613
 Steril Practice Drug (100-mL vial)

 Each
 \$2.80

569612 Narcn (10-mL vial) Each **\$2.80**

569615

569616 Naloxon Narch Response Kit Each \$26.30

569614 Simulated Code Drugs Set #1 (6 drugs) Each **\$35.70**

Simulated Code Drugs Set #2 (9 drugs) Each **\$42.30**

New! Demo Dose® Simulated Fluids

Provide students with the most authentic experience during training and practice. Demo Dose® simulated fluids are for instructional use in healthcare simulation settings. The **Steril Water** is for use as a simulated sterile diluent and can be used to teach sterile injection techniques. The **Dextros** and **Dextros** and **Sodium Chlorid** are for use as simulated IV fluids and can be used to teach IV fluid administration. **NOTE:** For instructional use only. Not for human or animal use.

569575	Steril Water	10 mL	\$3.45
569576	Steril Water	20 mL	\$3.80
569577	Dextros, 5%	50 mL	\$4.40
569579	Dextros, 5%	250 mL	\$4.45
569582	Dextros, 5%, and		
	Sodium Chlorid, 0.9%	50 mL	\$3.80

Allied Health & Health SciencesSuture Practice

Suture Practice



567900 Basic Suturing Kit with Synthetic Human Tissue

Basic Suturing Kit with Synthetic Human Tissue

This basic suturing kit utilizes synthetic human tissues that are perfect for suturing practice. They have a lifelike texture and appearance that enables students to realistically practice placement and removal of sutures and staples, anastomosis, laceration repair, cannulation, and application of adhesives. The synthetic tissue is compatible with laser scalpels, electrocautery and RF ablation devices, harmonic blades, mono- and bipolar devices, plasma knives, ultrasound equipment, and all known imaging equipment. **Kit** includes an $8\times6\times4"$ storage case, instruction manual, student-grade tools, scalpel with 3 blades, 3 assorted sutures, and synthetic tissue. **Kit Refill** includes 10 scalpel blades, 10 sutures, and 8 tissue-mounting pins.

567900 Kit Each **\$405.75 567904** Kit Refill Each **\$95.25**



Economy Suture Practice Kit

Provide your students with the materials to practice suture techniques on multiple wound types. Designed by physicians, this kit supplies everything needed to practice suturing skills. The suture pad (dimensions, $6^{1/2} \times 5^{3/4}$ "; thickness, $^{1/2}$ ") features realistic texture and a variety of common cuts and lacerations, as well as irregular wounds and Y-shaped wounds for cornerstitch practice. In addition to the suture pad, kit includes 3 different sutures with needles (3–0 nylon monofilament, 4–0 nylon monofilament, and 3–0 braided silk), a 5" needle holder, toothed forceps, suturing scissors, and 2 tubing pieces to practice securing tubes, drains, and catheters. **Note:** *Instructions for suturing techniques are NOT included.*

567920 Per kit \$79.40



Carolina® Suture Practice Kit

Practice your suture techniques with this affordable kit. The reusable 3-layered suture pad mimics human skin, subcutaneous fat, and underlying muscle, letting you make incisions, close deep and subcutaneous wounds, and practice superficial suturing techniques. Kit is perfect for students or healthcare professionals looking to refine their suturing skills. Convenient zippered carrying case keeps all materials together and easily accessible. Comes with basic suturing instructions that include protocols and images for practicing the simple interrupted suture and instrument knot tying techniques. Visit Carolina.com for a complete list of kit materials. Carrying case measures 5¹/₄ × 7¹/₄ × 1¹/₄".

567910 Per kit \$151.55



No-Snag Needle Holder

Sterile, floor-grade needle holder. With serrated jaw. Latex free. Length, 51/4".

567912 Each **\$8.75**



Carolina® Suture Pad

Your students can practice and demonstrate making incisions, suturing techniques, and knot tying with this 3-layered suture pad that simulates muscle, fat, and epidermis. Reusable. Size, $3^{1/2} \times 4^{5/8} \times {}^{1/2}$ ". ISO 10993-10 compliant; dielectric strength, >350 V/mil.

567909 Each \$62.70



Dynarex® 9100 Monofilament Nylon Suture

Give students the opportunity to realistically practice suturing techniques with this standard, easy-to-use suture. The Dynarex $^{\circ}$ 9100 features a PC31, 3 / 8 circle, 19-mm needle for precision reverse cutting and synthetic, nonabsorbable, black monofilament nylon thread. Size, 4–0. Length, 18". Sterile. Pack of 12.

567914 Per pack **\$61.35**

Training Models

Allied Health & Health Sciences

Training Models



Life/form® Complete IV Arm and Pump Set A3

A complete set of IV arm simulators for blood collections, intravenous injection, and infusion. The arms are designed to allow training in real clinical settings, with delicate needle-tip resistance and "flashback" confirmation. Simulators feature soft material with realistic tactile feeling and offer true-to-life needle-tip resistance. The circulation pump offers leak-free connections with easy setup and maintenance.

567202 Per set \$2,325.95



Life/form® Simulated Venous Blood 113

This Life/form® venous blood is used for first aid and phlebotomy training. Although not the same viscosity as real blood, Life/form® simulated blood adds a sense of reality to any activity. For use with Life/form® Adult Venipuncture and Injection Training Arm (item #567200 or #567203), Life/form® Complete IV Arm and Pump Set (item #567202), and Life/form® First Aid Arm (item #567201). 1-qt bottle.

567212 Each \$28.48



567220 Life/form Intradermal Injection Simulator with Light Skin

Life/form® Intradermal Injection Simulator A3

Practice intradermal injections safely with this simulator. Cast from a real forearm from the wrist to just below the elbow, its soft vinyl skin has a lifelike texture and appearance to ensure a realistic training experience. The simulator provides 8 sites for injection practice; each is reusable by dozens of students. When the simulator is injected correctly, a characteristic welt forms beneath the skin, which can be removed by withdrawing the fluid after practice. Includes arm section with 8 injection sites, 2-oz bottle of **Liquid Skin Repair**, syringe, instruction manual, and storage box. Available with light or dark skin. Additional Liquid Skin Repair sold separately. Size, $13 \times 11 \times 5$ "; wt, $2^{1/4}$ lb.

 567220
 Simulator with Light Skin
 Each
 \$545.00

 567221
 Simulator with Dark Skin
 Each
 \$540.00

 567223
 Liquid Skin Repair
 Each
 \$17.25



567223 Life/form Liquid Skin Repair



567200 Life/form Adult Venipuncture and Injection Training Arm

This Life/form® training arm is the ideal way to teach venipuncture and injection techniques, including starting simple IVs and introducing over-the-needle IV catheters. The simulated skin and veins have a realistic feel; the skin rolls as the vein is palpated, and the characteristic "pop" can be felt as the needle penetrates the vein. Veins are accessible at the antecubital fossa, along the forearm and at the back of the hand, making it possible to practice venipuncture at any of these sites. Practice of intramuscular injection is equally realistic. A foam pad simulates muscle tissue, and the boundaries are identified by natural bonelike landmarks. This training arm is designed to be used with replaceable skin and veins. Includes a 5-year warranty.

 567200
 Light Skin Arm
 Each
 \$785.00

 567203
 Dark Skin Arm
 Each
 \$785.00

 567210
 Light Skin Replacement Kit
 Each
 \$203.00

 567211
 Dark Skin Replacement Kit
 Each
 \$203.00

Life/form® Adult and Infant Auscultation Training Set 🔥

The Life/form® Adult and Infant Auscultation Training Set includes innovative auscultation training simulators that deliver site-specific sounds heard through the SmartScope[™] or an external speaker system. This cost-effective set includes the Life/form® Adult Auscultation Trainer and SmartScope[™] and the Life/ form® Infant Auscultation Trainer with Airway Management. The adult trainer has 6 anterior heart sites with 12 conditions, as well as 5 anterior, 10 posterior, and 2 midaxillary lung sites with 16 conditions. The infant trainer has 1 anterior heart site with 11 conditions in addition to 1 bowel sound site with 4 conditions. The conditions are selected through a remote control, and the sounds are heard through a SmartScope™. Airway management and umbilical cannulation can also be performed on the infant. Note: One remote and 1 SmartScope[™] can be used to program multiple trainers within a 100-ft radius; however, adult remotes and SmartScopes are only compatible with Adult Auscultation Trainers, and infant remotes and SmartScopes are only compatible with Infant Auscultation Trainers.

567300 Per set **\$7.825.50**





New! Life/form[®] Airway Larry[™] Adult Airway Management Trainer with Stand

Train your students in intubation and other airway management skills with this realistic adult airway management simulator. Anatomically correct in size and detail, its landmarks include nostrils, teeth, tongue, oral and nasal pharynx, larynx, cricoid ring, epiglottis, arytenoid, false and true vocal cords, trachea, and esophagus. Comes with stand, spray lubricant, simulated left and right lungs, simulated stomach, hard carrying case, and 5-year warranty. Size, $24^4/_5 \times 12 \times 16$ "; wt, 32 lb.

567105 Each \$1,509.45



New! Life/form[®] 15-Lead ECG Placement Trainer [№]

Teaches up to 15-lead ECG electrode placement anatomically and provides visual feedback on the accuracy of the electrode placement. Students learn the placement of the electrodes on the adult trainer using anatomical landmarks, such as intercostal spaces, midclavicular line, anterior axillary line, midaxillary line, and scapula. Features connection sites for 4 limb leads and V1 through V9, with the ability to attach right- or left-sided electrodes. The trainer does not provide ECG output signals, but simulations of rhythms and handsfree defibrillation can be performed by adding any ECG arrhythmia simulator directly to an ECG monitor.

567400 Each \$6.152.95



Life/form[®] Complete KERi[™] Manikin 🔥

The Complete KERi™ Manikin has an appearance that is not age-specific. It has unique visual features to reinforce the importance of inspecting patients and noting changes in their appearance. All joints have maximum realistic range of motion not found in any other manikin. Life/form® simulations have been included in KERi™ to allow the practice of more than 35 patient care procedures. The Complete KERi™ Manikin is excellent for all levels of health care education—from nursing assistants to medical students. Great for all OBRA-required training. Includes 5-year warranty.

567101 Each \$2,685.00

Training Models

Allied Health & Health Sciences





567510 Life/form Basic Buddy Adult/Child Lung/Mouth Protection Bags

567500 Life/form Basic Buddy CPR Manikins Classroom Pack

Life/form® Basic Buddy® CPR Manikins 113

The Life/form® CPR manikin is a dramatic, inexpensive, and state-of-the-art manikin designed for teaching the life-saving techniques of CPR. It offers a realistic and affordable way to provide each student with his/her own CPR manikin. The 1-piece, disposable lung/mouth protection system makes this manikin completely sanitary—there is no risk of cross contamination and no need to sanitize the manikin after use! The airway opens using the head tilt/chin lift method, and there is a visible chest rise when ventilated. The xiphoid process provides an anatomical reference point for hand placement and compressions. The Basic Buddy® manikin also features both adult and child capabilities. Manikins are simple to assemble and provide trouble-free maintenance. Rugged carrying bags make transporting the Basic Buddy® and Baby Buddy® 5-packs easy and convenient. Classroom Pack contains 5 adult/child manikins, 5 infant manikins, 50 adult/child lung/mouth protection bags, 50 infant lung/mouth protection bags, 10 lung insertion tools, carrying bags, and instructions. Includes 5-year warranty. Note: Use only AED pads designed for foam body manikins.

567500	Classroom Pack	Each \$	1,275.95
567501	Adult/Child Manikin	Each	\$155.50
567502	Infant Manikin	Each	\$155.50
567510	Adult/Child Lung/Mouth Protection Bags	Pack of 100	\$72.95
567520	Infant Lung/Mouth Protection Bags	Pack of 100	\$69.25



New! Simulaids[®] Econo VTA (Visual Training Assistant) CPR Trainer ⚠³

Make CPR training and practice simple with this costeffective manikin. Landmarks for proper hand placement are palpable throughout its vinyl skin. Its face
shield lung system allows for use without cleaning,
disinfecting, or disassembly. The manikin's chest rises
with rescue breaths to verify ventilation. A rate light
shows when proper compression rate is reached, and
a second light shows correct depth of compression
with proper release. These lights indicate the quality
of CPR being delivered to the patient. Other features
include a head tilt/chin lift feature for opening the airway, vinyl skin for extended life, and a foam-filled torso
for resistance to compressions. Includes 3 airways and
instructions.

567503 Each \$302.00



Adult CPR Mask

This ready-to-use CPR mask is a highly effective one-way filtering system that shields rescuer and patient from cross contamination. Its clear plastic design makes placement easy, and its soft inflated cuff improves fit and patient comfort. The mask has standard 22-mm fittings that are compatible with any resuscitator. Easy-to-understand instructions are printed on the included hard plastic carrying case.

567505 Each \$23.25



Life/form® First Aid Arm A3

The Life/form® First Aid Arm provides extremely realistic appearance and function to make your training exercise true-to-life. Looks and feels like a real arm. Synthetic blood can be made to flow from the cut on the forearm, the severed thumb, or both at the same time. The severed thumb allows training in proper care and handling of separated body members. Easily regulate the rate of bleeding and create venous or arterial flow. Blood returns to collection tray for reuse. Pressure points function realistically at wrist and upper arm. Students will need to react just as in an actual emergency and select the appropriate method to control bleeding and treat the wound. Includes vinyl arm with wound, severed thumb, collection tray, arterial pulse bulb, venous supply bag, simulated blood, instructions, and carrying case. Fluid supply stand not included. Includes 5-year warranty.

567201 Each **\$1,006.85**

Physiology

Enzymes

The following enzymes are commercial grade. These enzymes may be stored at 5° C for up to 1 year without appreciable loss of activity.

Alpha-Amylase

Fungal. Granules. Breaks starch into the form of maltose. 100-g bottle. **Note:** *This enzyme contains a residual amount of reducing sugars due to its fermentation process and stabilization. Benedict's test solution does not work with this enzyme as it will provide a false positive. Refer to our Introduction to Enzymes booklet, included with this enzyme.*

202350 Per bottle \$46.20

Bacterial Protease

Liquid. Converts protein to amino acid. 100 mL per bottle.

202390 Per bottle \$20.95

Bacterial Amylase

Liquid. Breaks starch into dextrins. 100 mL per bottle. **202360** Per bottle **\$20.95**

Amyloglucosidase

Liquid. Breaks starch into dextrose. 100 mL per bottle. **202370** Per bottle **\$20.95**

Microbial Rennet

Used for production of cheese. 100 mL per bottle. **202375** Per bottle **\$20.95**

Pectinase

Liquid. Used to break down fruit into fruit juice. 100 mL per bottle.

202380 Per bottle \$35.00

Termamyl

A heat-stable bacterial alpha-amylase. This enzyme is used in the starch, alcohol, brewing, and sugar industries for high-temperature liquefaction of starch containing mashes. Also used in the textile industry in high-temperature and continuous desizing processes and in the detergent industry to remove starch-based stains. 100 mL per bottle.

202410 Per bottle \$20.95



202500 Food Nutrient Analysis Kit

Carolina BioKits®: Molecules of Life

For a class of 30. Students study the basic structure and chemistry of carbohydrates, lipids, and proteins by constructing molecular models. Each packet of molecular parts includes 56 flexible bonds, 36 hydrogen atom centers, 18 carbon atom centers, 12 oxygen atom centers, and 2 nitrogen atom centers.

Kit includes:

15 Packets Molecular Parts Paper Tape 30 Lipids Student Guides

201100 Per kit \$239.95

30 Proteins Student Guides 30 Carbohydrates Student Guides



201100 Carolina BioKits: Molecules of Life

Food Nutrient Analysis Kit[⚠]

In this introduction to food chemistry, students perform qualitative tests for sugar, starch, lipid, protein, and vitamin C on standards and control samples. Students then use these tests to determine the identity of 2 unknown substances. Instructional material describes the function of these nutrients in the body, their importance, and how the qualitative tests work. Materials are sufficient for a class of 30 working in pairs and include digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202500 Kit Each **\$115.75 202501** Refill Each **\$91.90**



202316P Carolina BioKits: Exploring with Pectinase: An Introduction to Enzymes (with perishables)

Carolina BioKits®: Exploring with Pectinase: An Introduction to Enzymes

For 32 students working cooperatively in 8 groups of 4. Introduce your students to enzymes and how temperature and concentration affect an enzyme's ability to convert reactants into products. In this activity, students add increasing amounts of the enzyme pectinase to applesauce and observe how much juice is released at various temperatures. They then mathematically depict the effect of increasing enzyme concentration by graphing the volume of enzyme used versus the volume of juice released. **Note:** *Order this kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*

 202316
 Kit (with voucher)
 Each
 \$64.90

 202316P
 Kit (with perishables)
 Each
 \$64.90

Enzymes/Osmosis & Diffusion



202270 Exploring Enzymes and Evolution Through Lactose Intolerance Kit

Exploring Enzymes and Evolution Through Lactose Intolerance Kit

Provide a hands-on enzyme lab that incorporates real-world aspects about lactose intolerance. This lab integrates topics including evolution, single nucleotide polymorphisms, geography, physiology, and the use of controls. Students test baby formula, milk, and other controls in the presence and absence of lactase, and measure the activity of the enzyme by using glucose test strips. Materials are sufficient for 8 groups of students working in groups of 4.

202270 Per kit \$120.90





202273 Experimental Enzymology with Catalase Kit

Experimental Enzymology with Catalase Kit

For 32 students working in 8 groups of 4. With this kit, students explore the basics of enzymes. Students investigate the enzyme catalase that enhances the decomposition of hydrogen peroxide, a toxic byproduct of cellular metabolism. They determine how enzyme and substrate concentration affect enzyme activity by graphing rate vs. concentration. They then examine how temperature and pH affect catalase activity by graphing rate vs. temperature and rate vs. pH. By adjusting enzyme concentration, substrate concentration, temperature, and pH, students optimize the conditions for the enzymatic reaction.

202273 Per kit \$93.30

Physiology



202306P Carolina BioKits: Enzymes and the Science of Cheesemaking (with perishable)

Carolina BioKits®: Enzymes and the Science of Cheesemaking

Give your students hands-on experience in the biology and chemistry of cheesemaking. Using the kit, they learn about the connection between enzymes, pH, and microbes and study their role in the cheesemaking process. Students then explore the use of microbial rennet to coagulate milk, and design and perform an experiment to study the conditions affecting coagulation. Kit supplies materials for 30 students working in pairs and includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material.

 202306
 Kit (with voucher)
 Each
 \$84.35

 202306P
 Kit (with perishable)
 Each
 \$84.35

Osmosis & Diffusion

Dialysis Tubing

Medical quality made affordable

Quality material economically priced for the classroom
 Easy to cut and tie
 Yields consistent, reliable results

If you're looking for an excellent membrane for general demonstrations of osmosis and diffusion, get the best results with the best materials. Our economical, high-quality dialysis tubing is ready to cut, soak, tie, and fill.

Dialysis tubing is excellent for demonstrations of osmosis in general biology and cell biology labs, as well as in plant and human physiology labs. It helps students understand the following essential principles:

Permeability
 Equilibrium
 Fluid balance
 Concentration gradients
 Plasmolysis



Dialysis tubing

Dialysis Tubing

Made of seamless regenerated cellulose with a typical molecular weight cutoff of 12,000 to 14,000 Daltons, this medical-quality dialysis tubing is top quality yet affordable. Includes instructions. Size given is flat width and length of roll.

684202	$^{3}/_{8}" \times 10 \text{ ft}$	Each	\$18.25
684204	$^{3}/_{8}" \times 50 \text{ ft}$	Each	\$82.35
684206	$^{3}/_{8}$ " × 100 ft	Each	\$158.10
684212	1" × 10 ft	Each	\$10.75
684214	1" × 50 ft	Each	\$40.15
684216	1" × 100 ft	Each	\$73.00
684218	15/16" × 50 ft	Each	\$39.50
684219	1 ⁵ / ₁₆ " × 100 ft	Each	\$76.55
684224	$1^{3}/_{4}$ " × 50 ft	Each	\$43.95
684226	$1^{3}/_{4}$ " × 100 ft	Each	\$76.85
684234	3" × 50 ft	Each	\$101.85
684236	3" × 100 ft	Each	\$192.15



684200 Carolina Dialysis Tubing Clamps

Carolina® Dialysis Tubing Clamp

Carolina's economical, reusable dialysis tubing clamp. Appropriate for tubing with flat diameters of $^3/_8$ ", 1", $^{15}/_{16}$ ", and $1^3/_4$ " (50 mm or less).

684200	Each	\$6.45
684201	Pack of 100	\$477.70

Carolina® Osmosis Chamber

A simple, elegant way to perform osmosis and diffusion experiments. The chamber comes with 2 nanofiltration membranes that allow water molecules to pass through but not larger molecules, such as sugars. This chamber is a more authentic model for how osmosis works in the cell membrane. To run experiments, different solutions are injected into each side of the chamber using a pipette. Students observe changes in volume on each side of the chamber and make both qualitative and

quantitative observations. The chamber also comes with access to digital resources including lab sheets, setup videos, and a template so your students can cut membranes out of other materials, such as dialysis tubing. Additional precut **Nanofiltration Membranes** are available.

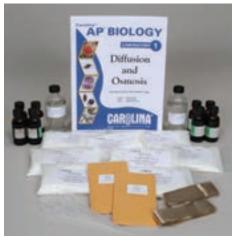
684270 Carolina Osmosis Chamber

Each **\$22.45**

684271 Nanofiltration Membranes

Each **\$11.20**

684270 Carolina Osmosis Chamber



746415 Diffusion and Osmosis 8-Station Refill



746410 Diffusion and Osmosis 8-Station Kit (in use; electronic balance and potatoes not included)



684260 Carolina BioKits: Diffusion-Osmosis

Diffusion and Osmosis Kit

On the move: Examine the mechanisms of diffusion and osmosis

- . Model diffusion across the cell membrane
- Investigate the relationship between solute concentration and osmosis
- Address the concept of water potential in relation to water movement using plant cells

Diffusion and osmosis are complex processes, but this kit captures students' interest and makes the concepts easier to understand. The streamlined kit format reduces teacher prep time with required reagents and precut dialysis tubing. Teacher instructions and reproducible student sheets are also provided. The **8-Station Kit** includes enough materials for a class of 32 students working in groups of 4. The **8-Station Refill** replaces consumed items. Visit Carolina.com for complete lists of kit materials.

746410 8-Station Kit Each **\$189.80 746415** 8-Station Refill Each **\$117.00**

Carolina BioKits®: Diffusion-Osmosis

For a class of 30. Students use dialysis tubing and solutions to study the movement of materials across a semipermeable membrane by diffusion and osmosis.

Kit includes:

Dialysis Tubing, 15-m Roll (50 ft)
Glucose Solution, 20%
Glucose Solution, 70%
Idiacose Solution, 70%
Idiacose Solution, 70%
Idiacose Tost Solution, 2%
Glucose Test Strips
Red, White, and Blue Thread
Plastic Dropping Pipets
Cups
Rulers
Teacher's Manual with

Reproducible Student Guide

Needed but not included:

Distilled or Deionized Water (10 L)
Container (4 L/1 gal)
Containers for Water
Beakers (250 mL)
Electronic Balances (accurate to 0.1 g)
Scissors
Paper Towels
Additional Plastic Dropping Pipets (optional)
Additional Small Beakers (optional)

684260 Per kit \$149.55

Physiology

Cell Size and Diffusion Kit ¹⁄₄

Grades 6–12. Diffusion is central to cellular life, and its limitations have a profound effect on the structure of cells. In this lab, students are asked to consider why cells are generally not larger in size. To build knowledge toward answering the question, students construct agar cubes representing cells of different sizes. They then observe how efficiently a basic solution can diffuse throughout the mass of each of the cubes. Through this investigation, students are introduced to the ratio of cellular surface area to volume and to the significance of this ratio in cell sustainability. Kit is designed for 32 students working in 8 groups; Refill Kit replaces consumed items. Visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

684064 Kit Each **\$80.80 684065** Refill Each **\$54.20**

Customer Review

"I have used this kit for years. While the students may need help with the mathematical concepts involved, they readily understand the limiting relationship diffusion has on cell size."

High School Chemistry Teacher



684064 Cell Size and Diffusion Kit

Osposida al J Different Apparation The Control of t

Smometer 🖔

Designed for individual student exercises; reusable. Composed of the item #684020 Osmometer Tube and a graduated, 8-oz plastic cup with retaining ring and lid. Dropping pipet and 1 replacement membrane included.

684025 Each \$35.95

Deluxe Osmometer

Ideal for rapid and sequential demonstrations of osmotic pressure. A complete bag of thin, selectively permeable animal membrane is secured to a Y-shaped, 5-mm glass tube mounted on a 2 \times 12" plastic board alongside an accurate millimeter scale. Includes a metal support stand, hardware for hanging the osmometer, a squeeze-type bottle for filling the membrane bag, a Plexiglas reservoir, and instruction booklet.

1 684112 Deluxe Osmometer Each **\$208.15**

684115 Replacement Osmometer Tube

Each **\$78.55**



251022 Examining Cellular Transport Kit

Examining Cellular Transport Kit A

Students explore the processes of osmosis and diffusion using a semipermeable model of the cell membrane. They examine how concentration, molecular size, surface area, and volume relationships affect these processes. Students further their learning by determining the concentration of an unknown salt solution.

251022 Kit Each **\$270.36 251070** Refill Each **\$170.54**



684030 Membrane Discs

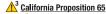
Membrane Disc

A 3"-diam, genuine animal membrane for use in osmosis and diffusion exercises requiring a selectively permeable membrane. Shipped in a plastic box with gum rubber bands. This is the membrane used in our items #684020 Osmometer Tube and #684100 Osmosis Demonstration Unit. 12 discs per pack (minimum shipment).

684030 Per pack \$82.30



684112 Deluxe Osmometer





Physiology Cellular

Cellular Respiration & Photosynthesis

Cellular Respiration and Fermentation Kit

For a class of 32 students working in pairs. This kit highlights physiological differences between aerobic cellular respiration and fermentation. Students learn about the production of ATP in glycolysis, Krebs cycle, and electron transport system, and then compare these to the ATP production of both lactic acid fermentation and alcohol fermentation. They observe a demonstration of carbon dioxide production by the aerobic respiration of wheat seeds and the anaerobic respiration of yeast. Next, students apply scientific methodology to investigate yeast alcohol fermentation in the presence of different sugars. They answer questions, perform calculations, and interpret results to evaluate their hypothesis and demonstrate their learning. **Note:** *Sold only to schools and businesses.*

202215 Per kit \$69.35



202215 Cellular Respiration and Fermentation Kit



202202 Carolina BioKits: Basic Fermentation

202208 Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads Kit

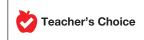
For 32 students working in groups of 4. This kit introduces students to the cycling of carbon from glucose to carbon dioxide in aerobic and anaerobic conditions. Students develop a model based on initial observations in an open system. After measuring the volume of carbon dioxide evolution over time in a closed system, and observing an indicator for the presence of oxygen, they graph the rate of carbon dioxide evolution and revise their models. Kit provides enough consumable materials for 2 class sections and includes a 1-year single teacher subscription to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202208 Per kit \$72.60

Carolina BioKits®: Basic Fermentation

For 30 students working in pairs. Using 3 different sugar solutions, students learn about fermentation and study yeast's carbon dioxide production rate. In Activity 1, students conduct an experiment to determine how fermentation rate varies between glucose and sucrose and with concentration. During Activity 2, the class develops and carries out an experiment to answer a question of their choosing about fermentation.

202202 Per kit \$55.00







206000P Carolina BioKits: Photosynthesis (with perishable)

Carolina BioKits®: Photosynthesis

For a class of 30. Students carry out activities demonstrating the role of light, chlorophyll, carbon dioxide, and oxygen in photosynthesis. They test elodea leaves, grown in light and in dark, for the presence of starch. They also collect oxygen produced by photosynthesis and demonstrate the depletion of carbon dioxide from water as photosynthesis occurs. Kit includes free 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Elodea cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped Elodea canadensis, Elodea najas, or Chara, depending on availability. Canadian orders require a permit from the Canadian government.

206000 Kit (with voucher) Each \$155.20 206000P Kit (with perishable) Each \$155.20



206100P Algae Bead Photosynthesis Kit (with perishable)

Algae Bead Photosynthesis Kit A2

For a class of 30 students working in groups of 3. Looking for a way to brighten your photosynthesis lessons? Use algae beads! In this activity, students learn how to make their own algae beads and get hands-on experience developing and testing a hypothesis. They begin by learning about the correlation between light wavelength and photosynthesis. From there, student groups form hypotheses about how different colored light filters affect photosynthesis rate. Finally, they test their hypotheses using colored filters, their algae beads, and a bicarbonate indicator solution. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. This lab activity addresses the following Next Generation Science Standards*: HS-LS1-5 and HS-LS1-6. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.

206100 Kit (with voucher) Each **\$119.00 206100P** Kit (with perishable) Each **\$119.00**

Homeostasis



Daphnia

Homeostasis in Animals Kit

For a class of 32 working in groups. Maintaining homeostasis is one of the most important functions that animals perform for their own survival. While animals maintain some processes through behavioral changes, many are handled through physiological changes such as changing heart rate, sweating, or muscle contractions. In this 4-part lesson students first examine their own heart rate, then design their own experiment to test external stimuli on *Daphnia*'s cardiovascular system. The activities address the following Next Generation Science Standards*: HS-LS1-3, Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. Includes digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: *Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.*

 206210
 Kit (with voucher)
 Each
 \$56.75

 206210P
 Kit (with perishable)
 Each
 \$56.75



Enhance student cellular studies with the Altay® Plant Cell Model (item #563946) and the Altay® Eukaryotic Cell Model (item #566766) at Carolina.com.

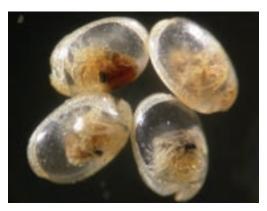
563946 Altay Plant Cell Model

566766 Altay Eukaryotic Cell Model



*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

ATP & Bioluminescence



From 203430 Sea Firefly

Sea Firefly

Cypridina hilgendorfii. Collected from the Sea of Japan, these desiccated organisms provide an example of a luciferin-luciferase system not requiring ATP for bioluminescence. Used by soldiers in World War II to provide a dim night-light; you simply crush the animals in sand and water to get a blue luminescence. Make separate luciferin and luciferase preparations which, when mixed, will luminesce. Instructions included.

203430 500-mg Unit Each **\$81.30 203431** 1-q Unit Each **\$133.90**

CAROLINA 250ml SORDSILICATE GLASS 150 Aurea 100

153305 Bioluminescent Dinoflagellates (in use; flask not included)

Bioluminescent Dinoflagellate Medium

Specifically formulated to keep bioluminescent dinoflagellates healthy in your classroom or research lab. 1 L.

153757 Medium Each **\$27.50 153305** Culture Each **\$9.95**



Cellular

153305 Bioluminescent Dinoflagellate Culture



153757 Bioluminescent Dinoflagellate Medium

ATP & Glycerinated Muscle



203526 ATP Muscle Kit

ATP Muscle Kit

Grade 9–College. This activity is designed for minimal prep time and can be completed in 1 class period. Students observe and measure the contraction of real muscle tissue using the materials included. The kit features glycerinated (preserved) muscle tissue that amazingly retains the ability to contract when ATP and the appropriate ions are added. The glycerinated muscle is processed from striated muscle tissue. During processing, much of the water-soluble content is extracted in cold glycerol, while the striations are left intact and can be easily observed under low-power magnification. We prepare the ATP solutions as close to shipping time as practical to reduce loss in chemical activity. When they arrive, refrigerate the solutions at 4 to 10° C and use them within 7 days. Place the tubes with muscle strips in a freezer compartment at –20 to –10° C. Each strip of glycerinated muscle can be cut into 2- to 3-cm lengths. Kit materials are sufficient for 16 to 32 students and include 1-year single teacher subscription to digital resources that support 3-dimensional instruction; visit Carolina.com for complete lists of kit materials. Note: Perishable; please provide use date on order.

203526 ATP Muscle Kit Each \$200.00 203527 Replacement Kit Each \$195.95

ATP Muscle Set

Grade 9–College. Amazingly, glycerinated muscle tissue, although no longer alive, retains the ability to contract when ATP and the appropriate ions are added. Using these materials, students can observe and measure muscle shortening without a microscope. This activity is designed for minimal prep time and can be completed in 1 class period. Glycerinated muscle in this set is processed from striated muscle tissue. Much of the water-soluble content of the muscle fibers is extracted in cold glycerol. The striations are left intact and are easily observed with a microscope. We prepare the ATP solutions as close to shipping time as practical to reduce loss in chemical activity. When the materials arrive, refrigerate the solutions at 4 to 10° C and use them within 7 days. Place the tube with muscle strip in a freezer compartment at –20 to –10° C. The strip of glycerinated muscle can be cut into 2- to 3-cm lengths. Materials are sufficient for 4 to 8 students or groups and include 1-year access to digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of set materials. Note: Perishable; please provide use date on order.

203525 Per set \$85.70

Glycerinated Skeletal Muscle

Includes glycerinated skeletal muscle in a tube of glycerol as used in our item #203525 ATP Muscle Set. For study of typical skeletal muscle striations and ATP-induced contraction. When it arrives, store the tube with muscle strip in a freezer compartment at -20 to -10° C. With instructions.

203520 Per tube \$60.70

Glycerinated Muscle Chemical Solutions Set

The ATP and salt solutions provided with our item #203525 ATP Muscle Set. One set consists of 5 mL each of the 3 solutions, each in a dropper vial. On arrival, refrigerate the solutions at 4 to 10° C and use them within 7 days. *Perishable*.

203530 Per set \$30.40



203530 Glycerinated Muscle Chemical Solutions Set

Immunology

Carolina BioKits®: Immunodetective Investigation

For a class of 30 students, working in teams of 2. Students use the double diffusion technique in agar gel to study the antigen-antibody reaction. Note: Contains perishable items; please give use date on order. Sold only to schools and businesses.

Kit includes:

15 Petri Dishes

4 Bottles Saline Agar (100 mL each)

Vials Green and Red Dyes

Vial Barium Chloride

Vial Potassium Sulfate

Vial Bovine Albumin

Vials Goat Anti-Bovine, Anti-Horse, Anti-Swine

Albumin

Bottle Saline

Plastic Cups

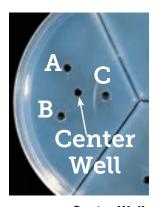
Craft Sticks

Understanding Immunology Booklet

Teacher's Manual with Reproducible Student Guide

202100 Per kit \$211.15





Agar plate demonstrating the double diffusion technique (Ouchterlony analysis) using an animal blood sera set. This plate shows the precipitin line where a specific antigen-antibody interaction has occurred. The antigen (serum albumin) has diffused from the center well in all directions. Antibody (anti-albumin) has likewise diffused from each of the surrounding wells. The homologous antibody and antigen form an insoluble precipitation, the precipitin line, where they meet at critical concentrations. The wells were loaded as indicated below

Antigen-Antibody Sets

For demonstrating immunological precipitin reactions. Set includes 5 mL saline (diluent); 1.5 mL whole pooled serum containing the natural concentration of albumin (the test antigen); 1 mL goat antiserum containing antibody specific for albumin; and Understanding Immunology booklet. Each chemical is in a vial with fine-tipped dropper suitable for filling diffusion wells.

202105 Bovine Serum/Anti-Bovine Albumin Each \$73.95 202106 Horse Serum/Anti-Horse Albumin Each \$73.95

Center Well Swine Albumin Well A

Anti-Bovine Albumin

Well B Anti-Horse Albumin Well C

Anti-Swine Albumin

Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.

Animal Blood Sera Sets

For performing qualitative antigen-antibody precipitation test by double diffusion in agar gel (Ouchterlony analysis). Use in experiments of your design or with item #202100 Carolina BioKits®: Immunodetective Investigation. Provided in vials with fine-tipped droppers convenient for filling wells. Exercises outlined in our instructions require both items #202101 and #202102 sets. Note: Perishable; please give use date on order.

Serum Antigen Set

Whole pooled sera containing natural concentrations of albumin (the test antigen). Sera can be combined or diluted as desired in the disposable mixing cups provided.

Bovine Serum (1.5 mL) Swine Serum (1.5 mL)

12 Microtip Droppers 3 Droppers, 41/2" (selected openings)

Horse Serum (1.5 mL) Understanding Immunology Booklet 12 Plastic Mixing Cups Instructions

Vial Saline Solution

202101 Per set \$83.20

Serum Antibody Set

Goat antisera containing immunoglobulin (antibodies) specific for albumin. Suitable for testing ground meat purity.

Goat Anti-Bovine Albumin (1 mL) Goat Anti-Horse Albumin (1 mL) Goat Anti-Swine Albumin (1 mL)

Understanding Immunology Booklet Instructions

202102 Per set \$140.80

Physiology Small Animal



Small Animal Basal Metabolism Studies Kit

For determining oxygen consumption of small animals weighing up to 150 grams. Consists of a Lucite® respiration chamber mounted on a plastic base and fitted with a calibrated glass tube. A galvanized steel cylindrical animal holding cage fits inside the Lucite® chamber. Complete with thermometer, mounts, and instructions, but without soda-lime or bubble solution.

682000 Per kit \$300.00

Carolina® Volumeter/Respirometer Newly updated, this volumeter's unique design makes respiration experiments a gas!

This apparatus is sure to set the standard for ease of use, data reproducibility, and value. Easy to set up **Updated** with no loose lines or awkwardly placed tubes, it is sleek, compact, and provides an airtight closed system that is simple to manipulate and generates easily read data. Ring stand compatibility makes photosynthesis and temperature-controlled experiments a cinch. This hands-on apparatus is ideal for studying metabolic rate and oxygen consumption in plants and animals such as crickets, mealworms, Elodea, and germinating peas. Dye indicator effortlessly adjusts to zero for easy data gathering without disturbing experimental setup. Detailed teacher's manual includes sample data, teacher tips, and reproducible student guides. Designed for use as a teacher demonstration or a small group activity. Visit Carolina.com for a complete list of apparatus materials.

682230 Each \$127.10











Human

Circulation

Circulation: Kits





695657 Sculpting Tool

695650 Constructing a Model of the Human Heart Kit

Constructing a Model of the Human Heart Kit

Teach students about the internal anatomy of the heart with this fun hands-on kit. Students explore the differences between cardiac, skeletal, and smooth muscle, and compare the structure and function of each muscle type within the body. They then build a clay model of the human heart, using colored clay to signify oxygenated and deoxygenated blood and adding fringed chordae tendineae to complete the model. Kit is designed for 30 students working in pairs and includes vinyl mats that guide students through the steps to build their model (and that simplify cleanup), plus 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials. An optional lightweight wooden Sculpting Tool is available to aid modelers.

695650 Kit Each **\$67.35 695657** Sculpting Tool Pack of 15 **\$24.60**



Carolina STEM Challenge®: Circulatory System Kit

Using a unique combination of tubing, pumps, and 1-way valves, student teams compete to model the heart's pumping action and gain a better understanding of how blood circulation works in the body. Students construct models of blood flow through a closed-loop system and perform a series of increasingly complex design challenges to demonstrate their knowledge of how vessels, heart valves, and contracting chambers work together. The **8-Station Kit** is designed for a class of 32 students working in groups of 4. The **1-Station Kit** is designed for 4 students working in a single group. FREE 1-year access to digital resources included. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D.

691003 8-Station Kit Each **\$195.00 691004** 1-Station Kit Each **\$40.25**

Teacher's Choice

Constructing a Model of the Human Heart Student Mini Kit

Help a student learn about the human heart's internal anatomy with this fun hands-on kit. The student builds a model of the heart using colored plastilina clay to represent oxygenated and deoxygenated blood and adds fringed chordae tendineae to complete the model. This kit contains materials for a single student, including a vinyl mat that simplifies cleanup and features a step-by-step building guide. Additional Plastilina Clay, items #695652, #695653, #695654, and #695655, sold separately at Carolina.com.

695656 Per kit **\$13.65**



From 695656 Constructing a Model of the Human Heart Student Mini Kit (in use)



691007 Carolina Peripheral Blood Flow Kit

Carolina® Peripheral Blood Flow Kit

This unique kit allows students to study and accurately map skin temperatures and changes using liquid crystal thermography. The temperature-sensitive properties of the liquid crystal material allow students to observe temperature gradients as colors and color patterns. Using different liquid crystal formulations, students explore regional variations in peripheral blood flow, test the influence of gravity on blood circulation, and observe vascular responses to heating and cooling. Materials are sufficient for 6 groups of 4 to 6 students working in pairs or teams. Detailed teacher's manual with reproducible student guide included.

691007 Per kit \$152.60

Don't Miss a Beat

Need more cardiovascular system instructional resources?

See the Carolina® Human Heart Model (item #569440) on page 489 and Carolina's Young Scientist™ Heart Dissection Kit (item #228557) on page 390.



Circulation: Sphygmomanometers

How to Select the Right Sphygmomanometer

Standard aneroid sphygmomanometer	One-hand aneroid sphygmomanometer	Digital electronic blood pressure monitor	Wrist electronic blood pressure monitor
Classic "do-it yourself" set that enables students to learn how to take blood pressure using a stethoscope. • This is the most economical blood pressure set. • Background noise in the classroom can make it difficult to hear well through a stethoscope. • Aneroid gauge needs to be recalibrated occasionally.	The best aneroid blood pressure set for self-use because pressurization and deflation of the cuff are controlled easily with 1 hand.	 A stethoscope is not required. Students spend more time studying the physiology of blood pressure and less time learning how to use the equipment. Manual and automatic inflation models are available. 	Picks up signals from the radial artery in the wrist rather than from the upper arm. • Multiple readings can be taken with the student subject in various positions. • This is the best choice for studying the effects of exercise.



691032 Blood Pressure Classroom Pack

Blood Pressure Classroom Pack A Carolina best buy!

Get 10 aneroid sphygmomanometers and 10 high-quality, nurse-type clinical stethoscopes for 1 low price. Sphygmomanometer gauge has no pinstop, allowing for visual check of calibration. Other features include a cuff clip and nylon cuff with Velcro® closure, inflation bulb, and thumbscrew valve. Gauge has 3-year manufacturer's warranty for accuracy. Stethoscope features 1-piece, non-latex tubing; metal chest piece and binaurals; molded ear tips; and excellent acoustical amplification.

691032 Per pack \$356.80





Ö

Student Aneroid Blood Pressure Set Blood pressure made easy

- No pinstop, allowing visual calibration check of gauge
- Velcro® cuff is easy to use and fits a wide range of arm sizes
- Includes a clinical quality stethoscope

Teach your students the basics and importance of measuring blood pressure with this popular, easy-to-use set. The durable, accurate aneroid blood pressure monitor is perfect for teaching measurement techniques and performing classroom exercises.

A latex-free Velcro® cuff and artery position mark assure easy, precise application in the right location. The gauge has no pinstop and clips to the cuff for convenience and security. The bulb has a standard thumbscrew valve.

A lightweight stethoscope is included, with a nursescope-type head and high-amplification diaphragm for excellent sound transmission. The entire set comes in a convenient zipper case for easy storage.

691088 Per set \$48.40

Economical Digital Blood Pressure Monitor

Despite the attractive price, this digital blood pressure monitor measures systolic and diastolic blood pressures and heart rate with clinically proven accuracy. The latex-free, D-ring cuff is easy to self-apply and has size guide markings to assure correct placement. Bulb has automatic deflation valve to simplify measurement. Jumbo LCD display is easy to read; automatic power-off feature saves batteries. Powered by 4 AA alkaline batteries (not included).

691130 Each \$101.50





691132 Automatic Digital Blood Pressure Monitor

691202 Deluxe Aneroid Sphygmomanometer **Deluxe Aneroid Sphygmomanometer**

Best-quality aneroid sphygmomanometer features comfortable latex-free nylon adult cuff with Velcro® closure, artery position label, and loop for gauge attachment. Beautiful chromed aneroid gauge is certified to 300 mm Hg. Visual check for accuracy (no pinstop). Leatherette zipper case included.

691202 Each \$207.50

Automatic Digital Blood Pressure Monitor

Because of state-of-the-art fuzzy logic technology, this self-inflating digital sphygmomanometer measures systolic and diastolic blood pressures and heart rate with unexcelled accuracy. Latex-free cuff features self-adjusting D-ring and size guide markings to assure correct fit for optimal accuracy. Extra-large vertical format LCD display is exceptionally easy to read. Other features include last-reading memory and automatic power-off function. Powered by 4 AA alkaline batteries (not included).

691132 Each \$165.85 **Sphygmomanometer Accessories**

Aneroid Gauge

Certified aneroid gauge

fits any conventional blood

pressure cuff. Dial registers

300 mm Hg; visual check

for accuracy (no pinstop).

691490 Each \$37.35

691490 Aneroid Gauge

Inflation Bulb and Standard Valve

Durable rubber inflation bulb for use with aneroid and mercurial sphygmomanometers. Includes thumbscrew-operated pressure release valve.

691484 Each \$24.95



691484 Inflation Bulb and Standard Valve

Adult Cuff

For aneroid or mercurial sphygmomanometers. A cuff and air bag for adults and older children. Inflation bulb is NOT included.

691470 Each \$36.80



691470 Adult Cuff

Circulation: Stethoscopes

How to Select the Right Stethoscope				
Bowles stethoscope	Durable utility stethoscope with a heavy, damage-resistant diaphragm; good for general classroom use.			
Nursescope	Lighter, clinical-quality stethoscope with an acoustically superior diaphragm; good for taking blood pressures and listening to heart sounds.			
Dual-head stethoscope	Chest piece swivels from a flat diaphragm (similar to the nursescope) to a shallow bell, enabling students to listen to breathing sounds.			
Sprague-Rappaport type stethoscope	Heavier, clinical-style scope that comes with a variety of accessories, including both adult and pediatric diaphragms and bells; an extremely durable, versatile instrument.			
Teaching stethoscope	Has a high-fidelity chest piece with 2 sets of tubing and binaurals to enable a pair of students (or a student plus the instructor) to listen simultaneously.			



691629 Stethoscope Value Pack

Stethoscope Value Pack

Buy a pack of 10 high-quality, nurse-type, clinical-grade stethoscopes for 1 low price. Stethoscope features 1-piece, non-latex tubing; metal chest piece and binaurals; molded ear tips; and excellent acoustical amplification.

691629 Per pack \$87.80





691631 Stethoscope Classroom Pack

Stethoscope Classroom Pack A Carolina best buy!

While similar to the Stethoscope Value Pack (item #691629), this bundle includes 30 instruments. Stethoscope features 1-piece, non-latex tubing; metal chest piece and binaurals; molded ear tips; and excellent acoustical amplification.

691631 Per pack \$218.45

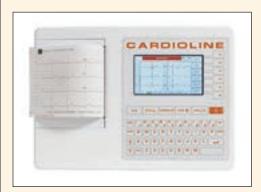


Human

Physiology

Circulation: Electrocardiograph

Working with an electrocardiograph gives students an opportunity to record clinical ECGs in a classroom setting using equipment that is identical to what might be found in a physician's office. Students can analyze the significant elements of waveforms. Our product support staff will gladly answer any questions you might have both before and after your purchase. Call Customer Service at 800.334.5551 for more information.



Cardioline ECG100S Portable Electrocardiograph

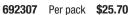
This device offers uncompromised, fully diagnostic electrocardiograph acquisition and provides state-of-the-art analysis algorithms for resting ECF interpretation. It easily connects to a computer using a USB device port for ECG transfer and PDF storage. The $4^3/_{10}$ " color LCD display is backlit for waveform real-time tracing. Includes 12 leads (I, II, III, aVR L-F, V1-6) and built-in thermal printer that simultaneously prints 6 channels on 100-mm Z-fold paper. View additional specifications at Carolina.com. Operates either as a standalone device or connected to a computer or network USB. Two-year manufacturer's warranty.

699923 Each \$3,375.90

Electrocardiograph Accessories

Single-Use ECG Electrode

Eliminate tedious
equipment and
subject cleanup
with these selfadhesive, disposable
clip-tab electrodes that
are ready to use directly
from the package. Electrodes are easy to apply and
remove with no mess. Recommended for use with subjects
in the resting or minimally active
state. Pack of 100 electrodes.







692330 ECG/Strip Chart Calipers

ECG/Strip Chart Calipers

For use in analysis of ECG and strip chart recordings. Top-quality measuring calipers constructed of matte-finish stainless steel. Black plastic cap is calibrated in millimeters.

692330 Each \$20.55



692308 Exercise ECG Electrodes

Exercise ECG Electrode

Circular, snap-center, pregelled electrodes adhere firmly for recording the ECG during physical activity. 50 electrodes per box.

692308 Per box \$66.65



692325 ECG Electrode Gel

ECG Electrode Gel

This is the only salt- and chloride-free electrically conductive gel recommended for all electromedical procedures, except defibrillation. Salt-free characteristics make it particularly suitable for long-term applications. Spectra® 360 differs significantly from all other electrically conductive media because it works by wetting the skin, thereby reducing skin resistance. 60-g tube. Note: Not recommended for

defibrillation.

692325 Each **\$7.95**

ECG Electrode Paste

Clear gel provides optimal electrode contact for ECG recording. Will not harm skin or clothing. 250-g tube.

692324

Per tube \$18.40

692324 ECG Electrode Paste



Neuromuscular Physiology

Investigating the Interactions of Muscles and Bones Kit

Students study the biophysics of human movement using an ingenious model that simulates the human arm and elbow joint. The cooperation between agonistic and antagonistic muscle groups to create movement is remarkably clear. Examining various types of levers found within the musculoskeletal system, students measure changes in mechanical advantage caused by altering the points of attachment of "muscles" to "bones." The kit contains everything you need for class demonstration or for use by 1 group of students, including instructor's manual with reproducible student instructions and data sheets.

696406A Per kit \$136.95

696406A Investigating the Interactions of Muscles and Bones Kit (left) and in use (right)



Reaction Time Ruler Set

Ingenious reaction time device is based on progressive acceleration of a falling object. Designed for use by 2 students, the ruler gives visual reaction time in milliseconds; requires no training. Detailed instruction manual contains classroom experiments and instructions for graphing and quantifying results. Set includes 3 reaction time rulers, instruction manual, and pad of reaction time data charts.

696410 Per set \$18.50



Carolina® Reflexes and Reactions Kit

For a class of 30. This kit enables students to study each other's reflexes and visually evoked reactions using clinically accepted methods and materials. They will learn the neurological difference between a reflex and a reaction as well as the protective value of various reflex mechanisms. Kit also includes 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

6 Taylor Percussion Hammers Reaction Time Ruler Set 6 Penlights

696405 Per kit \$115.05

3 Electronic Stopwatches 3 Decks Playing Cards Teacher's Manual



Plastic Goniometer A

Transparent plastic construction allows location of axis of motion and observation of joint movement. Has 90° , 180° , and 360° scales on protractor and in/cm scale on arm. Overall length, $12^1/2^{\shortparallel}$.

696471 Each \$51.60



696430 Tongue Depressors

Tongue Depressors

Sterile, individually wrapped tongue depressors. Standard adult (6") size.

696430 Box of 100 \$19.20



Percussion Hammer

Taylor. Red triangular rubber head with molded-in chrome shaft.

696435 Each \$8.25



Human Respiration

How to Select the **Right Spirometer**

Dry Spirometer

Advantages of a portable dry spirometer—

- Handheld and portable
- No setup and no special instructions necessary
- Easy cleanup and storage
- Direct-read dial
- Includes 50 reusable mouthpieces

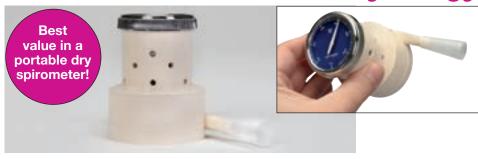
Wet Spirometer

Advantages of a wet spirometer-

- Movement of water bell gives students a visual representation of the respiratory activity being measured
- · Large enough to use for a classroom demonstration or by teams of students
- · Provides most accurate direct measurement of respiratory activities
- Includes 100 disposable mouthpieces



Physiology



692670 Portable Dry Spirometer

Portable Dry Spirometer

Breathe new life into science lessons

No calibration required
 No messy setup or teardown
 Compact, easy to use and store

Measurements of lung function can vary dramatically from person to person. You can easily demonstrate and measure these differences in your classroom with this accurate, handheld, dry gas meter. It measures vital capacity, tidal volume, and expiratory reserve volume. Students can then calculate inspiratory reserve volume and inspiratory capacity from these values. The gauge is calibrated to 7 L in 100-cc increments. Just reset the needle after each reading by rotating the dial. Includes 50 reusable mouthpieces, 7/16" ID.

692670 Spirometer Each \$278.40 692671 Disposable Mouthpieces (cardboard, cannot be reused) Pack of 100 \$38.35

Phipps & Bird™ 9-L Wet **Spirometer**

Classically styled water bell spirometer provides the reliability and accuracy required by today's physiology educators. Large, easy-to-read volumetric scale with pointer enables students to measure tidal volume, inspiratory capacity and inspiratory reserve volume, expiratory reserve volume, and vital capacity (up to 9 L). Disposable mouthpieces and plastic 1-way valves assure sanitary conditions for classroom use. Constructed of durable, lightweight HDPE plastic and aluminum for strength and easy portability. Includes instructions, lab manual of student experiments, and 100 Disposable Mouthpieces.

692658 Spirometer

Each

\$903.00 692662 Disposable Mouthpieces

> Pack of 100 \$53.80

692662 Disposable Mouthpieces 692658 Phipps & Bird 9-L Wet Spirometer



Peak Expiratory Flow Monitor

Accurate handheld respiratory flowmeter gives direct readout of maximal expiratory flow rate (MEFR) from a single forced exhalation. Measures respiratory flow up to 720 L/min; cleans easily with soap and water. Comes with reusable mouthpiece and instruction manual.

692678 Each \$52.10

692678 Peak Expiratory Flow Monitor

Physiology Human



692636 Lung Function Model

Lung Function Model

Classical bell jar model demonstrates the role of diaphragmatic contraction in causing the lungs to inflate. Dimensions: $12^4/_{10}$ " W × $10^6/_{10}$ " H. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

692636 Each \$88.90



Miniature Lung Function Model

Miniature representation of the classic bell jar model demonstrating the relationship between the human diaphragm and lungs. Use this small model to introduce and reinforce the concept of pressure as a driving force in respiration. The lungs (3" balloons) are housed in a hard plastic bell jar (3¹/4 × 2³/4") representing the thoracic cavity. Unlike other models, the diaphragm is molded to fit securely on the bell jar without further attachments. It is also made of thick, durable vinyl that resists thinning or tearing over time. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

692638 Each \$26.95



692646 Breath Volume Set (in use)

Breath Volume Set

For measuring tidal volume and respiratory minute volume. One-way valves enable subject to inhale room air and exhale directly into lung volume bag. Volume is read directly from wall of bag (scaled in 100-mL increments up to 6 L). Includes 2 one-way valves, T-adapter, lung volume bag, 3 reusable mouthpieces, mouthpiece holder, and 30 disposable mouthpieces. Order item #692647 **Mouthpiece Replacements.**

692646 Set Each **\$51.90 692647** Mouthpiece

Replacements Pack of 100 \$33.15



692645 Lung Volume Bag Set

Lung Volume Bag Set

For determining maximum lung volume (vital capacity). Student exhales fully into a bag, then squeezes the expired gas into the bottom of the bag. Vital capacity is read directly from wall of the bag (marked in 100-mL increments up to 6 L). Set includes 4 heavy-gauge plastic reusable bags with mouthpiece holders and 30 disposable mouthpieces. Mouthpiece Replacements and Lung Volume Bag Replacements are available.

 692645
 Set
 Each
 \$63.55

 692647
 Mouthpiece Replacements
 Pack of 100
 \$33.15

 692648
 Lung Volume Bag Replacements
 Pack of 4
 \$35.70

Human

Digestion & Nutrition

Carolir

Carolina BioKits®: Digestion A

Introduce students to the chemical processes behind the digestion of food. Using different enzymes, students model the breakdown of 3 types of food molecules: proteins, starches, and lipids. Students also observe the effect of temperature and pH on the enzymatic processes and the need for digestion before absorption. **Kit** materials are sufficient for 32 students working in groups of 4; **Refill** replenishes kit consumables. Both include 1-year access to digital resources that support 3-dimensional instruction; visit **Carolina.com** for complete lists of kit materials. **Note:** *Sold only to schools and businesses*.

202340 Kit Each \$192.55 202341 Refill Each \$138.70

Food Nutrient Analysis Kit A

In this introduction to food chemistry, students perform qualitative tests for sugar, starch, lipid, protein, and vitamin C on standards and control samples. Students

then use these tests to determine the identity of 2 unknown substances. Instructional material describes the function of these nutrients in the body, their importance, and how the qualitative tests work. Materials are sufficient for a class of 30 working in pairs and include digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202500 Kit

Each **\$115.75**

202501 Refill

Each **\$91.90**



202500 Food Nutrient Analysis Kit

Physiology



202340 Carolina BioKits: Digestion

Lab-Aids[®] Food Nutrient Analysis Kit <u>^</u>²

Students test and identify pure stock samples of sugar, starch, lipid, protein, and vitamin C using simple, standard analytical methods. Kit has indefinite shelf life. Students work in teams; hot water bath (not included) is required for test of simple sugars. Kit contains 30 test tubes; dropper-controlled bottles of sugar, starch, lipid, pro-



tein, and vitamin C solutions; all necessary reagents; wax pencil; 30 student work-sheets; and instruction manual with (M)SDS.

696102 Per kit \$145.25

Temperature Regulation

Carolina® Thermoregulation Kit

This innovative kit enables students to explore the physiological processes that allow them to maintain a constant body temperature. Using liquid crystal thermographic material, students examine vascular responses to temperature changes. They also examine and compare the insulating properties of various wet and dry fabrics. Materials are sufficient for 6 groups of 4 to 5 students.

Kit includes:

3 Liquid Crystal Sets 20 Plastic Cups with Lids String

Double-Sided Tape 8 Squares Wool Fabric 8 Squares Polyester-

Blend Fabric
3 Digital Thermometers
Teacher's Manual and
Reproducible Student

Guide Rul **695600** Per kit **\$101.85**

Needed but not included:

7 Beakers (50–1 000 ml.)

2 Hot Plates 6 Timers or Stopwatches

Water 12 Rubber Bands Ice

Hole Punch Paper Towels Scissors Ruler

695600 Carolina Thermoregulation





Accurate electronic fever thermometer has bold LCD readout. Gives temperature reading within $30\ s$ with audible signal at end of mea-

surement. Measurement range is 89.6 to 107.6° F (accurate to 0.2°

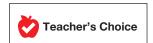
F). Automatic power shutoff prolongs battery life. Comes with durable

Digital Electronic Thermometer

storage case and 20 Disposable Probe Covers.



695673 No-Contact Infrared Thermometer



695688 Digital Electronic Thermometer

No-Contact Infrared Thermometer

This no-contact infrared thermometer measures temperature without direct contact to the forehead. Features readings in as little as 1 second with backlit display and fever alarm. Effective at 3- to 5-cm distances with 0.2° C/0.4° F accuracy. Equipped with automatic shut-off after 30 seconds to save energy. Uses 2 AAA batteries (included).

695673 Each \$108.50



Excretion





For a class of 30 working in pairs.

Students build a simple model of the renal artery, renal vein, glomerulus, and nephron to simulate kidney filtration and learn about the process of excretion. Using beads of different sizes and colors to represent essential blood components, they model the filtration process that occurs in the kidney as blood flows in via the renal artery. Students also learn about the process of complete and selective reabsorption and explore why urinalysis is such a powerful tool in diagnosing disease.

695803 Per kit \$57.45



695801 Modeling Kidney Function with Concentration Gradients and Selective Permeability Kit (right) and in use (above)

Modeling Kidney Function with Concentration Gradients and Selective Permeability Kit 🔥



Students construct a model of a kidney and observe filtration of simulated kidney blood. Using a semipermeable membrane, students filter simulated kidney blood and test the solutions with simulated salt test strips. The simulated kidney blood contains microscopic, simulated red blood cells that cannot pass through the membrane but are easily observable under a microscope. **Kit** contains materials sufficient for 15 groups of students and includes a 1-year teacher subscription to digital resources; visit **Carolina.com** for a complete list of kit materials. Replacement 250-mL bottle of **Carolina® Simulated Kidney Blood**, which contains no real blood or blood products, is available. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

695801 Kit Each **\$73.55 695804** Carolina Simulated Kidney Blood Each **\$18.00**

Ö

Carolina BioKits®: Urine Examination

For a class of 30. Examination of the urine is an essential procedure for diagnosing human disease. With this kit, students test normal and abnor-

mal simulated urine specimens and determine probable disorders. Included are tests for color, pH, specific gravity, glucose, and protein. Also includes free 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

At includes.

S Simulated Urine Specimens
Specimen Containers
pH Strips, Wide Range
Urine Hydrometer and Jar
60 Diastix
Dropping Pipets
Lab Pens
Teacher's Manual with Reproducible

Student Guide **695830** Per kit **\$123.50**



Carolina BioKits®: Urinalysis

For a class of 30. Early disease detection is dependent on simple screening tests such as urinalysis. With this kit, students test their own urine specimens for color, pH, specific gravity, glucose, and protein. Kit also includes free 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

30 Specimen Containers

pH Strips, Wide Range

2 Urine Hydrometer and Jar Sets

30 Diastix

30 Glass Vials

30 Dropping Pipets

Teacher's Manual with Reproducible Student Guide

695832 Per kit **\$109.55**

Teacher's Choice



Carolina BioKits®: Comprehensive Urine Examination/Analysis

For a class of 30. Comprehensive urine study kit provides 2 complete laboratory exercises. Students perform urinalysis testing on normal and abnormal simulated urine specimens and determine probable disorders. Students then have the opportunity to test their own urine. Included are tests for color, pH, specific gravity, glucose, and protein. A combination of Carolina BioKits® items #695830 and #695832. Includes free 1-year access to digital resources that support 3-dimensional instruction.

695834 Per kit \$212.25

695834 Carolina BioKits: Comprehensive Urine Examination/Analysis

Human



695839 Pregnancy Test BioKit

Pregnancy Test BioKit®

For a class of 30. Students learn about pregnancy by performing a simulated pregnancy test with provided solutions. Test is a simulation of popular over-the-counter pregnancy test kits. Includes aseptic red blood cells. **Note:** Perishable material; please give use date on order. Not for in vitro diagnostic use. Sold only to schools and businesses.

BioKit® includes:

Simulated Anti-HCG Serum Pregnancy Test Reagent 2 Simulated Urine Specimens 60 Calibrated Pipets

695839 Per kit **\$74.00**

30 Test Tube Holders 60 Test Tubes 30 Student Guides Teacher's Manual



Triple-scale refractometer indicates refractive index (1.333 to 1.365), serum protein (0 to 12 g/dL serum), and urine specific gravity (1.000 to 1.045) from single-drop samples. Also includes reference mark for distilled water. No charts or thermometers needed; adjustment screw compensates for temperature. Comes with instructions, screwdriver, and sturdy carrying case.

695980 Each \$900.20



695947 Urine Specific Gravity Kit

Urine Specific Gravity Kit

Students can check the specific gravity of their own urine or use one of our simulated urines. Unlimited number of tests per kit. Includes urine hydrometer, iar. and instructions.

695947 Per kit \$26.05

Simulated Urine, Low

Assayed for pH, specific gravity, glucose, and protein. Methodologies and assay values included. 500 mL per bottle. **Note:** We recommend using item #695960 Urinary Glucose Test Strip or item #695969 Chemstrip 10 with simulated urine.

695954 Per bottle \$28.50

Simulated Urine, Normal

Can be used as a normal control for pH, specific gravity, glucose, protein, and ketones. Methodologies and assay values included. 500 mL per bottle.

695955 Per bottle **\$26.30**

Simulated Urine with Glucose

Tests positive for glucose. 500 mL per bottle. **Note:** *We recommend using item #695960 Urinary Glucose Test Strip or item #695969 Chemstrip 10 with simulated urine.*

695951 Per bottle **\$28.50**

Simulated Urine with Protein

Tests positive for protein. 500 mL per bottle. **Note:** *We recommend using item #695960 Urinary Glucose Test Strip or item #695969 Chemstrip 10 with simulated urine.*

695952 Per bottle **\$28.50**

695955 Simulated Urine, Normal, 500 mL

Simulated Urine, High

Assayed for pH, specific gravity, glucose, and protein. Methodologies and assay values included. 500 mL per bottle. **Note:** We recommend using item #695960 Urinary Glucose Test Strip or item #695969 Chemstrip 10 with simulated urine.

695953 Per bottle **\$28.50**



695958 Urinary and Salivary pH Paper

Urinary and Salivary pH Paper

Students determine the pH of their own urine and saliva using convenient Hydrion® colorimetric test paper. The limited pH range (5.5 to 8.0) assures accuracy within the range of physiological normalcy. Color scale is printed on the label of each dispenser at intervals of 0.2 pH unit. Roll is sufficient for approximately 50 tests.

695958 Each \$13.10

Four-Factor Urinary Test Strip

Combination test strip for urinary glucose, ketones, protein, and pH. Vial of 50 test strips with color key.

695964 Per vial \$47.45



695964 Four-Factor Urinary Test Strips

Urinary Glucose Test Strip

Semi-quantitative test for urinary glucose requires no specific equipment; simply place a drop of urine on the indicator spot and wait 1 min. Color change indicates presence of glucose. Vial of 100 test strips.

695960 Per vial \$37.10

Chemstrip 10

Combination test strip for urinary leukocytes, nitrite, pH, protein, glucose, ketones, urobilinogen, bilirubin, specific gravity, and occult blood. Test procedure same as for item #695960 Urinary Glucose Test Strip, except each strip has 10 separate test areas. Vial of 100 test strips with color key.

695969 Per vial **\$159.15**



695969 Chemstrip 10



695960

Urinary Glucose

Test Strips

Physiology Human



Carolina® Synthetic Blood Blood Typing Without Biohazards

- Safe for classroom use
- . No risk of transmitting blood-borne disease
- Realistic blood-typing results
- Can be easily and safely discarded

Now your students can get realistic blood-typing results without using lancets and drawing blood. That means no concerns about blood-borne disease transmission.

Our synthetic blood has several advantages over other suppliers' products, which usually depend on chemical reactions producing insoluble salts that precipitate from solution. These products do not give visually realistic results. In actual blood typing, red blood cells form clumps (the agglutination reaction) that separate from the blood plasma. When mixed with the appropriate synthetic antiserum, Carolina's synthetic blood forms clumps in the same way, for a realistic blood-typing result. It's the closest to authentic blood typing that you can get without using real blood.

Our kits include materials for a class of 30 students and teacher's instructions.

- Synthetic Blood
- Synthetic Anti-B Serum
- Mixing Sticks

- Synthetic Anti-A Serum
- Blood-Typing Slides
- Synthetic Anti-Rh Serum (except for items #700107, #700108, and #700118)



700110 Carolina Frequency of Blood Types with Synthetic Blood Kit



700107 Carolina Blood Group Genetics with Synthetic Blood Kit



700113 Carolina Forensics Mystery with Synthetic Blood Kit

Carolina® Frequency of Blood Types with Synthetic Blood Kit

The frequencies and distributions of blood groups have been studied for many human populations. Such studies give important clues to the movements of prehistoric and early historic peoples. Students play the role of a research team that is studying the blood-type frequencies of a population on an isolated island. Students try to determine if the natives are related to the people on nearby islands. Does the islanders' mythology hold clues to their history? **Kit** contains enough materials for a class of 30. **Refill** contains synthetic blood and antisera replacements. **Note:** Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700110 Kit Each **\$84.95 700111** Refill Each **\$40.15**

Carolina® Blood Group Genetics with Synthetic Blood Kit

Students act as blood geneticists at a medical laboratory and serve as expert witnesses in a case of disputed inheritance. Throughout the activity, they must master basic genetic concepts including multiple alleles, codominance, and the relationship of genotype to phenotype. Kit contains enough materials for a class of 30. Refill contains synthetic blood and antisera replacements. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700107 Kit Each **\$48.05 700108** Refill Each **\$25.20**

Carolina® Forensics Mystery with Synthetic Blood Kit

Students perform a simulated test for the presence of blood on evidence collected from 2 suspects in a murder case. They then use synthetic blood typing to test whether either suspect can be linked to the crime. Kit contains enough materials for a class of 30. Refill contains synthetic blood, antisera replacements, stained cloths, and phenolphthalein solution. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700113 Kit Each **\$55.75 700114** Refill Each **\$32.25**



700118 Carolina Synthetic Blood: Whose Baby? Kit



Students use simulated anti-A and anti-B sera to determine the ABO blood groups of 2 possible mothers and 3 babies. Using their data and knowledge of genetics, they reunite an infant with its mother. Kit equips a class of 30 individual students or up to 5 classes of 30 working in groups of 5 and includes 1-year access to digital resources. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700118 Per kit \$134.65



700104 Carolina Transfusion Matching with Synthetic Blood Kit



700112 Carolina Synthetic Blood: Paternity Test

Carolina® Synthetic Blood: Paternity Test

An alleged father denies responsibility and refuses to pay child support. Is he the biological father or is someone else? Your students can identify him—using simulated anti-A, anti-B, and anti-D (Rh) sera to determine the ABO/Rh blood groups of a mother and her child and 3 possible fathers. Students use their data and knowledge of genetics in the process. Kit contains enough materials for 30 individual students or up to 5 classes of 30 students, working in groups of 5. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700112 Per kit \$129.70

Carolina® Transfusion Matching with Synthetic Blood Kit

Students act as clinical blood technicians in a hospital emergency room. Can they supply the medical team with the correct blood-type information to save the life of an accident victim? Kit contains enough materials for a class of 30. Refill contains synthetic blood and antisera replacements. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700104 Kit Each \$61.70 **700105** Refill Each \$31.80



700101 Carolina ABO-Rh Blood Typing with Synthetic Blood Kit

Carolina® ABO-Rh Blood **Typing with Synthetic Blood Kit**

The ability to type blood is an invaluable tool in medicine and criminology. Using this kit, students test 4 synthetic blood samples to identify their ABO and Rh blood types. The simulated agglutination reactions are extremely realistic. Kits contain no blood, blood products, or materials of biological origin, so there is no danger of disease transmission. Kit contains enough materials for a class of 30 working in pairs. Value Kit materials are sufficient for 4 classes. Refills contain synthetic blood and antisera replacements. All kits include 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700101 Each Kit \$61.70 700102 Refill \$31.55 Each 700160 Value Kit Each \$129.50 700161 Value Kit Refill \$69.25 Each

Bulk Synthetic Blood

Trying to teach a lot of students hands-on blood typing while on a tight budget? Buy in bulk! The same synthetic blood and synthetic antisera that come in our kits can be ordered in large volumes by the milliliter. Note: 100 mL minimum order per item. Order at least 1 week prior to desired ship date. Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700170	Bulk Synthetic A Antisera	Per mL	\$.39
700171	Bulk Synthetic B Antisera	Per mL	\$.39
700172	Bulk Synthetic D Antisera	Per mL	\$.39
700173	Bulk Synthetic Blood Type 0-	Per mL	\$.37
700176	Bulk Synthetic Blood Type 0+	Per mL	\$.37
700177	Bulk Synthetic Blood Type AB-	Per mL	\$.37
700178	Bulk Synthetic Blood Type AB+	Per mL	\$.37
700179	Bulk Synthetic Blood Type B-	Per mL	\$.40
700181	Bulk Synthetic Blood Type B+	Per mL	\$.37
700183	Bulk Synthetic Blood Type A-	Per mL	\$.37
700184	Bulk Synthetic Blood Type A+	Per mL	\$.37

Synthetic Blood Typing Student Kit

The ability to type blood is an invaluable tool in medicine and criminology. Using this kit, a single student tests 1 synthetic blood sample to identify the ABO and Rh blood

types. The simulated agglutination reactions are extremely realistic. Kit contains no blood, blood products, or materials of biological origin, so

there is no danger of disease transmission. Enough materials for 1 student plus free 1-year access to digital resources. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700999 Per kit \$8.20



Physiology Human

Aseptic Red Blood Cells

If your school district bans the drawing of human blood for blood typing, Carolina offers aseptic blood cells. These are red blood cells (no white cells or blood plasma) that have been washed and suspended in saline.

For school districts that prohibit the use of any human tissue, Carolina offers synthetic blood and synthetic antisera that contain nothing of biological origin and no biohazards. See page 338 to learn more.



700150 Blood Cells/Antisera Set



700120 Carolina BioKits: Blood Cells/Antisera



700124 Carolina BioKits: Blood Group Identification

Blood Cells/Antisera Set

For a class of 30 students. Teaches blood typing without classroom bloodletting. Set contains 1 vial each of A-, B-, AB+, and 0+ aseptic red blood cells, along with the antisera of your choice for demonstrating typical agglutinations. With instructions. **Note:** Perishable material; please give use date on order. Sold only to schools and businesses.

700150 ABO/Rh Set with Anti-A, -B, and -D (Rh)

700152 Sera Each \$109.50 ABO Set with Anti-A and Anti-B Sera Each \$82.65

Carolina BioKits®: Blood Cells/ Antisera

For a class of 30 students. Teaches blood typing without classroom bloodletting. Kit includes 1 vial each of A–, B–, AB+, and 0+ aseptic red blood cells, along with anti-A, -B, and -D (Rh) sera for demonstrating typical agglutinations. Additional materials include blood test cards, mixing sticks, and instructions. **Note:** Perishable material; please give use date on order. Sold only to schools and businesses.

700120 Per kit \$154.85

Carolina BioKits®: Blood Group Identification

For a class of 30 students. Blood grouping is an important identification procedure performed in clinical and criminal investigations. Using anti-A, anti-B, and anti-D (Rh) sera, students determine the blood groups of 4 different, unidentified aseptic red blood cell suspensions. Includes blood test cards, mixing sticks, and instructions. **Note:** Perishable material; please give use date on order. Sold only to schools and businesses.

700124 Per kit \$150.95



700156 Aseptic ABO/Rh Blood Cells Set

Aseptic ABO/Rh Blood Cells Set

For a class of 30. For ABO and Rh blood typing. Includes four 4-mL vials of blood cells (A–, B–, AB+, O+) and instructions (does not include antisera). **Note:** *Perishable material; please give use date on order. Sold only to schools and businesses.*

700156 Per set \$57.25





700126 Carolina BioKits: Transfusion Matching

Carolina BioKits®: Transfusion Matching

For a class of 30. Students perform the clinical blood type matching procedure that is required prior to hospital blood transfusions. **Note:** *Perishable material; please give use date on order. Sold only to schools and businesses.*

Kit includes:

4 Donors' Blood Cells 2 Recipients' Sera 30 Student Guides
Mixing Sticks Teacher's Instructions

700126 Per kit \$95.95



700168 Aseptic Bulk Blood Cells Set

Aseptic Bulk Blood Cells Set

Contains a 50-mL vial each of A-, B-, AB+, and 0+ blood cells. Perfect for teaching and understanding blood typing. Preparing unknowns permits an investigation of students' comprehension. Each vial sufficient for 1,000 tests. Includes instructions. (For matching quantity of antisera, order item #700224 Bulk ABO/Rh Antisera Set.) **Note:** Perishable material; please give use date on order. Sold only to schools and businesses.

700168 Per set **\$203.85**

Whole Blood

Carolina® Blood Typing Card

A simpler way to type blood

Students can test their own blood samples for ABO/Rh blood types with the Carolina® Blood Typing Card. Each card features dried antisera, making it easy to type blood without the mess and concerns about using and storing liquid antisera. Simply add a drop of the blood sample to each of the designated circles on the card using the included blood-typing sticks.



700571 Carolina Blood Typing Card Student Pack



From 700574 Carolina Blood Typing Card Classroom Pack

Carolina® Blood Typing Card Student Pack

The Student Pack includes all materials needed to test 1 sample of blood: blood typing card, alcohol prep pad, blood collection and mixing sticks, safety lancet, dropper bottle, and bandage. With instructions and free 1-year access to digital resources that support 3-dimensional instruction. **Note:** For educational use only. Not for diagnostic purposes.

700571 Per pack \$7.95

Carolina® Blood Typing Card Classroom Pack

The Classroom Pack of 30 cards includes 3 resealable, 10-card pouches with desiccant packs, as well as a dropper bottle and 120 blood collection and mixing sticks. With instructions and free 1-year access to digital resources that support 3-dimensional instruction. Safety lancets and alcohol prep pads are needed but not supplied. **Note:** For educational use only. Not for diagnostic purposes.

700574 Per pack \$138.80



Carolina® Blood Typing Card Bulk Pack

The Bulk Pack of 100 cards includes 10 resealable, 10-card pouches with desiccant packs, as well as a dropper bottle and 400 blood collection and mixing sticks. With instructions and free 1-year access to digital resources that support 3-dimensional instruction. Safety lancets and alcohol prep pads are needed but not supplied. **Note:** For educational use only. Not for diagnostic purposes.

700575 Per pack \$368.00

Human



699912 ABO/Rh Eldoncard 30 Kit



699917 ABO/Rh Eldoncard

ABO/Rh Eldoncard 30 Kit

For a class of 30 students. Includes all materials necessary for each student to type his or her own blood and obtain a permanent record. Each Eldoncard is sealed in a foil envelope. With background information, online resources, and instructions.

Kit includes:

30 Eldoncards for ABO/Rh 2 Plastic Droppers 120 Eldonsticks

30 Alcohol Preps

30 Cotton Balls 30 Safety Lancets 30 Blood Typing Quizzes

ABO/Rh Eldoncard

Each card is individually wrapped in a foil envelope and contains the reagents for typing blood with the ABO and Rh (D) systems. Pack of 100 Eldoncards plus 400 Eldonsticks.

699917 Per pack \$423.75

699912 Per kit \$196.50



699924 ABO/Rh Blood Eldoncard 30 Kit (with perishable)



699920 ABO/Rh Eldoncard School Kit



699921 ABO/Rh Eldoncard Student Kit

ABO/Rh Blood Eldoncard 30 Kit

For a class of 30 students. Similar to item #699912, but includes 1 vial each of A-, B-, AB+, and O+ aseptic blood cells for blood typing; eliminates the need for students to draw their own blood. Does not include lancets or alcohol preps. With background information, online resource, and instructions. Note: Order the kit with the perishable materials included or with a voucher to request perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

699924 Kit (with voucher) Each **\$229.00** 699924P Kit (with perishables) Each \$229.00

ABO/Rh Eldoncard School Kit

Cut the double cards in half to yield a credit card-sized unit. Use the fixation foil provided to laminate the cards once they have been allowed to dry. Students will have a permanent record of their blood typing results. Complete with instructions. Materials sufficient for 50 blood-typing exercises.

Kit includes:

25 Double Eldoncards

200 Eldonsticks

50 Sterile Cleansing Wipes

50 Cotton Balls

50 Lancets

50 Pieces Fixation Foil

Brochure with Quiz

699920 Per kit \$257.65

ABO/Rh Eldoncard Student Kit

This kit includes all the materials necessary for 1 student to type his or her own blood and obtain a permanent record. With background information and instructions.

Kit includes

Eldoncard for ABO/Rh

4 Eldonsticks Safety Lancet

Alcohol Prep

Micropipette

Cotton Ball

Instructions

699921 Per kit \$9.85

Note: The Eldoncard System is marketed for educational purposes only. Eldoncards must NOT be used as a final test prior to a transfusion or used in a blood bank or clinical setting.

Human

Physiology

ABO & Rh Antisera Kits with Safety Lancets

Carolina BioKits®: Blood Typing

For a class of 30. Each student learns his or her own genetically determined blood group using monoclonal (nonhuman) anti-A, -B, and -D (Rh) sera. Kit also includes alcohol preps, safety lancets, blood test cards, mixing sticks, and instructions.

700190 Per kit \$82.65



700190 Carolina BioKits: Blood Typing

Wright Stain Solution Kit A

For staining white blood cells for observational differentiation. Includes 30 mL of Wright stain, 60 mL of buffer solution, and instructions.

700388 Per kit \$19.25

Carolina BioKits®: Wright Readi-Stain® 12

For a class of 30 students to stain blood smears and observe white blood cells. No blood required.

Kit includes:

- 30 Unstained Human Blood Smears
- 2 Bottles Wright Stain
- 2 Bottles Wright Buffer
- 2 Human Blood Smear Slides (stained with Wright stain) 15 Blood Smear Cards
- Teacher's Manual and Reproducible Student Guide

700380 Per kit \$78.25



Monoclonal Antisera

For human blood typing (A, B, Rho, M, and N groups) by the slide method. Carolina's standard liquid monoclonal antisera are high titer and very specific for the antigens on red blood cells; supplied in dropper vials of 4 mL for about 30 tests and bottles of 50 mL for about 345 tests. With instructions.

Bulk ABO Antisera Set

50 mL each of anti-A and -B sera. **700230** Per set \$389.00

Bulk ABO/Rh Antisera Set

50 mL each of anti-A. -B. and -D (Rh)

700224 Per set \$691.55

Rh Antiserum

Anti-D (Rh) serum. 700236 4-mL Dropper Vial

\$35.85 Fach 700237

50-mL Bottle Each \$374.15



700226 ABO Antisera Set

ABO Antisera Set

One dropper vial each of anti-A and -B sera. 700226 Per set \$38.55

ABO/Rh Antisera Set

One dropper vial each of anti-A, -B, and -D (Rh) sera.

700220 Per set \$79.35

ELISA Simulation Kit

Intermediate—Easy to perform; requires some background knowledge.

Explore infectious diseases using a hands-on simulated ELISA assay. ELISA (Enzyme-Linked Immunosorbent Assay) is a common laboratory technique used to test blood serum for antibodies against disease-causing agents. Using the ELISA Simulation Kit, students work in pairs to diagnose 6 fictitious patients for HIV, Lyme disease, avian influenza (bird flu), or West Nile virus with 1 simulated antigen. Hypothetical scenarios are provided for each patient being tested for each disease. This kit poses no risk of infection because it does not contain actual serum samples, antibodies, antigens, or disease-causing agents. Kit includes enough materials for 32 students. Refill Kit contains all kit materials except microtiter plates and teacher's manual. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Freeze perishable samples upon arrival.

211248 Kit (with voucher) Each \$144.50 211248P \$144.50 Kit (with perishables) Each 211249 Refill Kit (with voucher) \$74.95 Each 211249P Refill Kit (with perishables) Each \$74.95



Kit (with perishables)

Blood Alcohol Determination Kit A

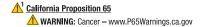
Contains all materials necessary for 30 students to check the blood alcohol content of simulated blood samples (State Bureau of Investigation formulations). Includes alcohol indicator reagent, simulated blood samples, petri dishes, marking pen, instructions, and background information. Note: Kit has a 4-month shelf life.

699772 Per kit \$93.25



699772 Blood Alcohol Determination Kit

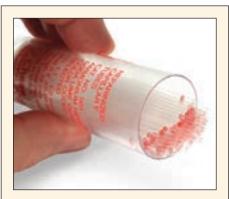






Physiology Human

Blood Typing Supplies



700702 Heparinized Capillary Tubes

Heparinized Capillary Tubes

Length, 75 mm; OD, 1.5 mm; ID, 1.1 mm. Contains minimum of 2 USP units ammonium heparin per tube.

700702 Vial of 100 \$16.85



700703 Capillary Tube Sealer

Capillary Tube Sealer

A quick, flameless way to seal capillary tubes. Disposable plastic holder contains special sealing clay. Up to 24 tubes can be stored and identified by numbers on the edges of the holder.

700703 Each \$14.05



700680 Tally Register

Tally Register

Counter. Chromium-plated case. Dials have whitefilled numbers. Four-digit size, with wire finger ring.

700680 Each \$16.50



Grafco® Hematocrit Centrifuge

Perfect for classroom determination of students' hematocrit values from single-drop blood samples. This centrifuge's rotor accommodates 24 specimens and uses standard 75-mm Heparinized Capillary Tubes (item #700702) and Capillary Tube Sealer (item #700703), available separately. Specimens are spun at 12,000 rpm to assure fast, complete separation of blood components. A convenient, built-in microhematocrit reader gives fast, accurate interpretation of results. Standard features include a digital timer (up to 99 min), fixed speed, and brake control.

Specifications:

Maximum RCF: $14,490 \times g$ Speed Range: Fixed, 12,000 rpm Timer: 1 to 99 min Warranty: 1 year

Dimensions: $10^{1/4} \times 9^{3/4} \times 9^{1/2}$ " (lid closed)

Weight: About 25 lb 700700 Each \$2.250.55



700720 Bright Line Hemacytometer Kit

Bright Line Hemacytometer Kit

With 6 aids to accuracy: even cell distribution, adequate contrast between cells and background, simultaneous resolution of cells and rulings, metallized glare-reducing background, concavity under rulings to prolong useful life, and tolerances recommended by US Bureau of Standards. Kit includes counting chamber, 2 cover glasses (each 0.4 mm thick), 1 red cell pipet, 1 white cell pipet, tubing, and plastic case.

700720	Kit	Each	\$536.60
700722	Chamber (with 2 cover glasses)	Each	\$418.25
700724	Replacement Cover Glass	Each	\$40.65

344

One-Step Safety Lancets

These single-use lancets are pre-armed for convenience and safety. The tip is concealed before use and retracts completely after a single release to prevent reuse or accidental contamination. Gentle pressure at the test site activates the lancet mechanism. These lancets are available in 3 flow options. The **Low Flow** contains a 28-gauge needle that penetrates the skin 1.7 mm, collecting 5 to 10 µL of blood; this is ideal for glucose testing. The **Medium Flow** contains a 22-gauge needle that penetrates 2.2 mm into the test site, collecting 20 to 40 µL of blood for glucose testing, blood typing, or microhematocrit exercises. The **High Flow** collects 75 to 100 µL of blood using a 19-gauge needle that penetrates the skin 1.8 mm. This lancet can be used when filling microcollection and capillary tubes or during blood-typing exercises. Each box contains 100 lancets.

 700704
 Low Flow
 Per box
 \$39.50

 700705
 Medium Flow
 Per box
 \$41.85

 700706
 High Flow
 Per box
 \$43.95



700704 One-Step Safety Lancets, Low Flow



700706 One-Step Safety Lancets, High Flow



From 700550 Blood Mixing Sticks Set



700572 Carolina Disposo-Type Slides



700554 Blood Test Cards

Blood Mixing Sticks Set

For mixing blood and antiserum samples. 1,000 each of 3 colors.

700550 Per set \$38.85

Carolina® Disposo-Type Slide

Blood-typing slide permits macro- and microscopic examination. Spill-proof depressions for reagent mixing.

700572 Box of 144 **\$52.15**

Blood Test Card

Quality cards for blood typing with printed guide on surface for foolproof reagent placement and mixing.

700554 Box of 100 \$25.05



700000 7110011011110

Alcohol Preps

For preparing skin for blood typing. Individually wrapped.

700530 Box of 100 **\$8.80 700532** Box of 1,000 **\$69.10**





Senses

Senses: Kits



696404 Physiology in Action Student Mini Kit

Physiology in Action Student Mini Kit

Develop hands-on skills used in the medical field and learn about nervous, integumentary, and cardiovascular systems with these fun, easy activities. A single student can conduct activities for heart-rate elevation, cutaneous sensations, and reflexes and reactions. Includes directions and data tables to collect and track your results. Visit Carolina.com for a complete list of kit materials.

696404 Per kit \$16.35



694505 Lab-Aids Human Senses Experiment Kit

Lab-Aids® Human Senses Experiment Kit

The perfect lab activities package for studying the human senses. Students "map" locations of various taste sensations on their tongues; investigate olfactory fatigue and recovery; "map" sections of their own skin and differentiate various receptors for heat, cold, pressure, and pain; determine 2-point threshold for various areas of the body; perform experiments to study the visual blind spot, dominant eye, accommodation, visual near point, and afterimages; and examine reflex actions. Kit contains enough materials for 15 lab groups of 2 students each to perform all activities individually and in teams. Includes 30 sets of student worksheets and instruction manual with (M)SDS.

694505 Per kit **\$153.70**



Human

694502 Carolina BioKits: Exploring Human Senses

Carolina BioKits®: Exploring Human Senses 4

Grade 9–College. Provide students with materials and procedures to explore the human senses of sight, hearing, touch, taste, and smell. The experiments in this kit explore the reception of stimuli by various sense organs and interpretation of this data by the brain. Students test their own senses as they rotate through 10 stations. Each activity takes approximately 15 min to complete; activities can be spread out over multiple class periods if necessary. Kit includes materials for 30 students working in groups of 3. Kit Refill contains applicator sticks, assorted taste papers, and 2 vials each of clove oil and peppermint oil. Both kits include 1-year access to digital resources that support 3-dimensional instruction.

694502 Kit Each **\$99.50 694503** Kit Refill Each **\$40.60**



694515 Carolina Confusing the Senses Kit

Carolina® Confusing the Senses Kit

Students participate in activities that demonstrate inaccuracies in sensory perception, including optical illusions, afterimages, odor and taste discrimination, and more. Kit includes enough materials for a class of 30 students working in small groups; visit Carolina.com for a complete list of kit materials.

694515 Per kit \$98.55

Human

Senses: Somatosensory

Carolina® Cutaneous Sensations Kit

For a class of 24 students working in small groups. Using an inked grid stamp and specialized stimulator probes, students investigate and compare the density and distribution of sensory receptors for touch, pressure, heat, and cold at various skin locations. With detailed instruction booklet.

Kit includes:

6 Two-Point Discriminators (calibrated in mm)

6 Medical Monofilaments

Rubber Grid Stamp Washable-Ink Pad

6 Aluminum Temperature Probes

695200 Per kit \$125.35

Carolina® 2-Point Discriminator

Ideal apparatus for cutaneous sensation testing. Durable and economical design allows for easy measurements of 2-point threshold. Molded scale for easy readability; measures up to 100 mm. Additional point allows experimenter to alternate between 1- and 2-point stimulation.

696417 Each \$10.50



Physiology

695200 Carolina Cutaneous Sensations Kit

Senses: Audition



694725 Tuning Forks Set

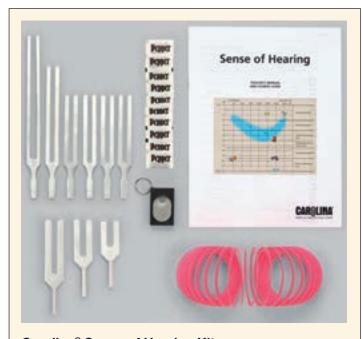
Tuning Forks Set

Top-quality aluminum magnesium tuning forks for studying auditory physiology and hearing acuity. Includes 6 forks, 1 each of the following frequencies.

128 cps 512 cps 2,048 cps 256 cps 1,024 cps 4,096 cps

694725 Per set \$145.90





Carolina® Sense of Hearing Kit

Students rotate through 10 activity stations to analyze their own hearing while studying the physiology of human hearing and the physics of sound. Using their classmates as subjects, students perform tests for bone conduction, auditory acuity, and sound localization. For a class of 30 students working in groups of 3.

694742 Per kit \$109.55



Senses: Vision



Carolina® Visual Perception Kit

This comprehensive kit enables students to investigate many of the physiological processes involved in human vision. Featured activities include testing for visual acuity, depth perception, peripheral vision, color vision, and astigmatism; positive and negative afterimages; optical illusions; and more. Kit equips a class of 30 students working in small groups and includes digital resources that support 3-dimensional instruction; visit Carolina.com for a complete list of kit materials.

694527 Per kit \$178.60





694611 Snellen Eye Examination Chart (*left*); 694616 Astigmatism Test Chart (*above*)

Snellen Eye Examination Chart

High-quality wall chart for use at 20 ft; students can check their visual acuity while they study vision physiology. Instructions included.

694611 Pack of 3 \$16.45

Astigmatism Test Chart

For classroom study of visual function; students test their own eyes for astigmatism. Chart is viewed from 10 ft. Instructions included.

694616 Pack of 3 \$19.45

Disposable Penlight

Convenient source of light for studying visual function and other classroom activities, such as dissecting. Batteries sealed inside case; pocket clip serves as off/on switch; impossible to leave on when not in use.

694650 Each \$9.60

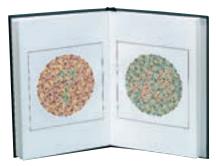


694650 Disposable Penlight

Ishihara Test, Concise Edition

Series of 14 colorful, numbered plates for mass screening and classroom use. Delineates redgreen and total color perception deficiency.

694621A Each \$317.75



694621A Ishihara Test, Concise Edition



694647 Carolina Depth Perception Tester

Carolina® Depth Perception Tester

Simple depth perception tester features 2 sliding target arrows that can be moved along a base plate from a prescribed distance. The subject attempts to align the target arrows side by side; a calibrated scale on the base plate shows depth perception errors in millimeters. Can be used for comparison of depth perception using monocular and binocular vision. White and black background panels are included to provide varying contrast with the target arrows.

694647 Each \$52.10



Human

Physiology



694512 Rubin's Eye Vision Simulator

Rubin's Eye Vision Simulator ▲¹

Students use a precision optical bench apparatus to explore the inner workings of the human eye. In addition to replicating a healthy eye, they can simulate common visual defects (myopia, presbyopia, and astigmatism) and discover how these conditions are corrected using appropriate lenses. Size, $18 \times 4^{1/2} \times 8^{"}$.

Optical Bench with Track and Indicator Markings Sliding Object Holder

Anterior and Posterior Eye Portions
694512 Each \$675.00

Halogen Light Source 5 Interchangeable Lenses with Storage Caddy Step-by-Step Illustrated Instructional Guide



From 696143 Carolina STEM Challenge: 3-D Art and Human Vision Student Mini Kit

Carolina STEM Challenge®: 3-D Art and Human Vision Student Mini Kit

Explore how the eye views 3-dimensional images with this easy and fun activity. This mini kit lets a single student choose an image and recreate it as a 3-D picture. It teaches how the eye interprets the various layers of the image that make it appear 3-dimensional. Includes directions for creating your own images. Visit Carolina.com for a complete list of kit materials.

696143 Per kit \$14.20



696142 Carolina STEM Challenge: 3-D Art and Human Vision Kit

Carolina STEM Challenge®: 3-D Art and Human Vision Kit

Explore the connection between art and science! Introduce students to the mechanics of vision and its application to 3-D art. Students investigate the structure and function of human visual perception, the transmission of messages to the brain via sensory receptors, and the basic principles of geometric optics and ray diagrams. Teams then work through a series of activities to develop their own 3-D illusions. Addresses Next Generation Science Standards*: MS-LS1-8. Kit is designed for a class of 30 students working in pairs and includes a teacher's manual that provides a design challenge scoring rubric and multiple extension activities. Kit also includes 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.



*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

Preserved Organisms

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A Cut Above the Rest

For over 80 years, Carolina has provided educators with superior preserved specimens, quality dissection equipment, and comprehensive resources to facilitate engaging, hands-on dissection experiences for students.

Explore. Excite. Engage.

Dissection helps you meet the science standards as your students explore topics such as:

- Structure and function
- Comparative anatomy
- Evolutionary relationships
- Predator-prey interactions
- Adaptations
- Forensic protocols

Interested in learning how to integrate dissection with 3-dimensional instruction?

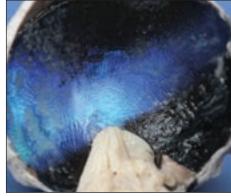


Carolina Kits 30°

View all of Carolina's NGSS dissection resources at www.carolina.com/ teachdissection.



The US Department of Agriculture, under the Animal Welfare Act, governs the procurement of animals. Carolina is proud to have an outstanding USDA inspection and compliance record, and we are committed to treating all animals in a humane manner.





Owl Pellets

Owl Pellets

A Wise Introduction to Dissection

Bring the fun of exploring the natural world into your classroom. Owl pellet products are safe and easy to use for students of all ages. Excellent for hands-on, inquiry-based learning, Carolina owl pellet dissection activities will excite and engage your students. They also help you meet many National Science Education Standards and state standards at the same time!

- Discover insights into raptors' feeding habits and food webs
- Investigate the type and availability of prey in an area
- Learn how structure supports function in living systems
- · Explore the diversity and adaptations of organisms
- Study ecosystems, predator/prey relationships, even the role of enzymes in digestion
- Integrate science, reading, math, and social studies activities

How are owl pellets formed?

Most birds cannot chew their food, and owls are no exception. Large owls feed on small

mammals, birds, and reptiles and usually swallow their prey whole. Rather than digesting the bones, teeth, hair, or feathers of its prey, the owl has a digestive system that compresses these parts into a tight pellet, which the owl regurgitates.





Owl Pellet Chart Set

A great aid for your classroom owl pellet dissection, this set includes 8 black-and-white charts. Use the *Owl Food Web* and *Owl Pellet Formation* charts to easily introduce students to owls and their feeding habits. Then guide students through the dissection using the *Bone Sorting* chart and charts showing skeletal illustrations of a vole, bird, mole, and shrew. There is also a chart that compares the skeletons of a human and a vole. Each chart measures $17^{1}/_{2} \times 23^{"}$.

455074 Per set \$39.95

Preserved Organisms



227880 Large Owl Pellets

Owl Pellets

Owl pellets contain the skeletal remains of small animals. They are affordable and easy to dissect. Our individually wrapped pellets are heat sterilized to ensure student safety. A **Large Owl Pellet** is more than 1¹/₂" L. A **Small Owl Pellet** is less than 1¹/₂" L.

227880	Large Owl Pellet	Each	\$4.75
		10+ Each	\$4.25
		50+ Each	\$3.95
227882	Large Owl Pellet	Pack of 15	\$62.00
227885	Small Owl Pellet	Each	\$2.90
		10+ Each	\$2.60



Carolina® Owl Pellet Dissection Mat

The Carolina® Owl Pellet Dissection Mat is designed to guide your study of owl pellets. This large, double-sided vinyl mat resists spills and wipes clean easily—a perfect resource for your next owl pellet dissection activity. Included on the mat are detailed bone charts of a bird, mole, and rodent, helping you identify the types of bones typically found in your pellets, plus information on owl pellet formation and instructions to guide you through your dissection. Size, 11×17 ".

229915 Each **\$8.50** 10+ Each **\$7.50**



Preserved Organisms



Owl Pellet Dissection Minikit

Everything needed for 1 person to investigate an owl pellet.

Kit includes:

Owl Pellet 2 Wooden Probes Forceps Hand Lens

Bone Chart Rat Skeleton Chart

Student Activity Sheet

227800 Per kit \$13.00 25+ Kits Each \$9.75



227802 Owl Pellet Explorer Set

Owl Pellet Explorer Set

Designed for 1 or 2 students, this economical set provides everything needed for the hands-on exploration of a large owl pellet. With the provided tools, students carefully dissect the pellet to separate the bones and fur. Using the large, double-sided dissection mat, they then sort and classify the bones to identify the owl's prey. This set includes a large owl pellet, foam dissection tray, plastic forceps, wooden probes, hand lens, reusable owl pellet dissection mat, and FREE 1-year access to digital resources that support 3-dimensional instruction. Note: Our individually wrapped owl pellets are heat sterilized to ensure student safety and are appropriate for all ages.

227802 Per set \$16.75 25+ Sets Each \$15.00



227830 Owl Pellet Study Classroom Kit



Owl Pellet Study Kits

Buy the Classroom Kit and save!

We offer 2 study kits: an Individual Student Kit for up to 6 students working in pairs, and a Classroom Kit for up to 30 students working in pairs. The Individual Student Kit contains 3 owl pellets, 6 wooden probes, and teacher's guide. The Classroom Kit has 16 owl pellets, 32 wooden probes, and teacher's guide. Teacher's guide provides reproducible student sheets, including skeleton and bone charts and pellet activities. Both kits include 1-year access to digital resources that support 3-dimensional instruction.

227801 Individual Student Kit Each \$25.00 227830 Classroom Kit Each \$74.00



227891 Classroom Owl Pellet Study Set

Classroom Owl Pellet Study Set

For a class of 30 students. Set includes Owl Pellet Study Classroom Kit (item #227830), Owl Food Chain poster (item #575130), and the DVD Carolina® All That Remains: Investigating Owls Through Owl Pellet Labs (item #492897A). Classroom Kit provides 1-year access to digital resources that support 3-dimensional instruction.

227891 Per set \$106.00



Customer Review

"My students loved . . . the owl pellets. They got so excited when they would find bones and remains of other animals. This is a great way to explore predation. Excellent purchase!"

Middle School Biology Teacher

Preserved Organisms

Comparative Skeletal Anatomy Kit Featuring Carolina's cleared and stained specimens

Grades 9–12. For a class of 30. Students gain a deep understanding of the vertebrate endoskeleton by dissecting an owl pellet and examining a cleared and stained frog, snake, and rat specimen. These activities allow students to study anatomical differences and homologous structures, as well as examine evolutionary pathways. Kit includes 3 cleared and stained specimens; 15 owl pellets, probes, forceps, and hand lenses; plus a teacher's manual and student guide with reproducible student sheets. The student guide includes background information, specimen guides, labeled illustrations for each specimen, and reflection questions.

221035 Per kit \$189.00

Customer Review

"Good product, and still a small enough kit for our class size. The cleared and stained specimens are an excellent addition to the kit!"

High School Biology Teacher







Owl Poster Series Set

This set includes the Owl Food Chain and the Pellet Palate posters.

 $\label{eq:continuous} \textit{Owl Food Chain} \ \text{Poster} --24 \times 36". \ \text{A full-color poster that realistically portrays the owl's food chain. The natural history of the barn owl is illustrated, including many examples of the owl's prey. Diagrams show the formation of pellets in the owl's stomach.}$

Pellet Palate Poster— 36×24 ". Dissect an owl pellet and you'll find bones and skulls of small animals that have fallen prey to the owl. Now you can identify these bones and determine to which animal they belong. Our full-color poster illustrates complete skeletons of the shrew, rat, mole, mouse, and bird. Realistic detail makes this an easy-to-use reference and an excellent supplement to your owl pellet and food chain studies.

 575130
 Owl Food Chain
 Each
 \$17.50

 575135
 Pellet Palate
 Each
 \$17.50

 575140
 Set (1 each of the above)
 Each
 \$29.00



Rat, Cleared and Stained In glycerin. Body length, 4 to 5". 228680 Each \$47.50

228680 Rat, Cleared and Stained



From 227840 Owl Pellet Discoveries Kit

Owl Pellet Discoveries Kit

Safely introduce young biologists to dissection with this cross-curricular kit. Activities blend science, math, and language arts to teach students about owls, their habitats, and their behavior. A teacher's guide provides background information, activities, and reproducible handouts.

Box of 250 Toothpicks

Kit includes:

12 Owl Pellets 12 Hand Lenses

24 Wooden Probes

12 Hand Lenses The Book of North American 12 Plastic Forceps Owls Carolina® All That Remains: Investigating Owls Through Owl Pellet Labs DVD

227840 Per kit \$106.00

Preserved Organisms **Better Solutions. Better Results.**

Carolina's Perfect Solution® **Specimens**

- Formalin alternative
- Innovative, proprietary tissue fixative
- Teacher's Choice for over 10 years
- Produces SUPERIOR specimens with life-like tissue texture and color
- · Safe, non-toxic

You and your students deserve the very best quality and safest preserved specimens on the market. With that objective in mind, Carolina scientists developed Carolina's Perfect Solution®. Specimens preserved with Perfect Solution® have tissues and organs with natural texture and vivid color, allowing your students to easily identify structures and learn anatomy. We guarantee that you will love Carolina's Perfect Solution® specimens!

Teacher Testimonial

"Carolina Biological is always one step in front of its competition; their Carolina's Perfect Solution® specimens set them miles ahead. The difference this solution makes in a preserved organism is truly astonishing. It is refreshing to do business with such an accommodating company that will never settle for less than perfection."

Colleen Hollimon

Human Anatomy and Physiology Ridgeland High School Ridgeland, MS

Carolina's Wetting Solution

Carolina's Wetting Solution is an excellent complement to use with any of our extensive selection of Carolina's Perfect Solution® and Carosafe® preserved specimens. This superb wetting agent with mold inhibitor can be applied to any surface after the dissection has begun. Carolina's Wetting Solution helps maintain moisture, reduce dehydration, and keep tissue pliable and easy to work with-especially when dissecting specimens over several days or an extended period of time.

220120A 16 oz Each \$12.00 220121A 1 gal Each \$57.00

Formalin Specimens

- · Classic tissue fixative
- Budget friendly
- Shipped in Carosafe®, a formaldehyde-free solution

Our formalin specimens have been the industry standard for years. Formalin-fixed specimens are transferred to Carosafe®, our formaldehyde-free holding solution, helping to reduce the amount of formaldehyde in specimen tissues. All of our preserved specimens are held to highest quality standards.



- Superior Tissue
- Amazing Color



- No Dangerous Off-Gassing
- No Special Disposal



To see how our Carolina's Perfect Solution® specimens stack up against competitors' formalin-free specimens, go to pages 355, 359, 362, and 366.

Carolina Pledge: **Excellent Customer Support**

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.



Dogfish Shark (formalin specimen)

Preserved Vertebrates

Pigs

Which Specimen Looks More Natural to You?

So you can decide for yourself, we have compared a typical Carolina's Perfect Solution® specimen with a "formalin-free" alternative from one of our competitors. The external differences are obvious. Even more striking, however, are the differences that appear upon closer examination of the internal tissues and organs.

Our unique preservation method provides a slow, firming action that results in more lifelike tissues and organs with natural, vivid colors and texture. Which specimen do you want in your classroom or lab?

Carolina's Perfect Solution® Specimen

Competitor's Specimen



Thoracic cavity: heart and lungs

Thoracic cavity: heart and lungs

(Photographs have not been retouched.)

Preserved Organisms

Carolina's Perfect Solution® Pigs A

Preserved in safe, nontoxic Carolina's Perfect Solution®. Free plastic bags included with vacuum-packed pigs.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
14" and U	þ					
228384	PS Pig	Pail	14"+	Plain	\$31.45	\$30.20
228394	PS Pig	1 Per Bag	14"+	Plain	\$31.45	\$30.20
228386	PS Pig	Pail	14"+	Single	\$33.10	\$31.85
228395	PS Pig	1 Per Bag	14"+	Single	\$33.10	\$31.85
228388	PS Pig	Pail	14"+	Double	\$35.15	\$33.90
228396	PS Pig	1 Per Bag	14"+	Double	\$35.15	\$33.90
11 to 14"						
228404	PS Pig	Pail	11 to 14"	Plain	\$31.00	\$29.75
228405	PS Pig	1 Per Bag	11 to 14"	Plain	\$31.00	\$29.75
228414	PS Pig	Pail	11 to 14"	Single	\$32.70	\$31.45
228415	PS Pig	1 Per Bag	11 to 14"	Single	\$32.70	\$31.45
228424	PS Pig	Pail	11 to 14"	Double	\$34.65	\$33.40
228425	PS Pig	1 Per Bag	11 to 14"	Double	\$34.65	\$33.40
7 to 11"						
228434	PS Pig	Pail	7 to 11"	Plain	\$30.75	\$29.50
228435	PS Pig	1 Per Bag	7 to 11"	Plain	\$30.75	
228436	PS Pig	Bulk Bag	7 to 11"	Plain	\$30.75	\$29.50
228444	PS Pig	Pail	7 to 11"	Single	\$32.40	\$31.15
228445	PS Pig	1 Per Bag	7 to 11"	Single	\$32.40	
228446	PS Pig	Bulk Bag	7 to 11"	Single	\$32.40	\$31.15
228454	PS Pig	Pail	7 to 11"	Double	\$34.00	\$32.75
228455	PS Pig	1 Per Bag	7 to 11"	Double	\$34.00	
228456	PS Pig	Bulk Bag	7 to 11"	Double	\$34.00	\$32.75
5 to 7"						
228494	PS Pig	Pail	5 to 7"	Plain	\$27.25	
228495	PS Pig	1 Per Bag	5 to 7"	Plain	\$27.25	
228496	PS Pig	Bulk Bag	5 to 7"	Plain	\$27.25	

Color Injection:

Plain: No color injection Single: Red arteries Double: Red arteries, blue systemic veins



The Classic Anatomy Lesson

Inquiry-based pig dissection surpasses anything students can learn from print or pictures

Use pig dissection as an important part of your inquiry-based instruction to encourage students to think critically. Because pig specimens are larger than, for example, frogs, they are ideal for students working in pairs or small groups, and their internal structures are typically easy for students to locate and identify. Dissecting a pig presents a real learning experience that far surpasses anything most students can have from words or illustrations alone. Students can:

- Learn vertebrate anatomy and practice dissection skills at the same time
- Examine organ systems and understand the relationship between structure and function
- Investigate the similarities and differences between pigs and other mammals, including humans



How We Obtain Our Specimens

Carolina's preserved pigs were not raised for the purpose of dissection; they are a byproduct of the pork industry. Most of the pigs were stillborn and would be discarded were they not reutilized for educational purposes.

Carolina Teacher Tips

When selecting the pig size that is best for your classroom, the measurement is taken from the tip of the snout, over the top of the head and down along the spine, to the base of the tail.

Pigs





Preserved Organisms

Formalin Pigs A

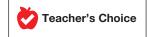
Preserved in formalin. Shipped in Carosafe®. Free plastic bags included with vacuum-packed pigs.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
14" and Up)					
228398	Pig	Pail	14"+	Plain	\$26.55	\$25.30
228390	Pig	1 Per Bag	14"+	Plain	\$26.55	\$25.30
228497	Pig	Pail	14"+	Single	\$27.80	\$26.55
228391	Pig	1 Per Bag	14"+	Single	\$27.80	\$26.55
228499	Pig	Pail	14"+	Double	\$29.75	\$28.50
228392	Pig	1 Per Bag	14"+	Double	\$29.75	\$28.50
11 to 14"						
228400	Pig	Pail	11 to 14"	Plain	\$26.20	\$24.95
228401	Pig	1 Per Bag	11 to 14"	Plain	\$26.20	\$24.95
228410	Pig	Pail	11 to 14"	Single	\$27.40	\$26.15
228411	Pig	1 Per Bag	11 to 14"	Single	\$27.40	\$26.15
228420	Pig	Pail	11 to 14"	Double	\$29.35	\$28.10
228421	Pig	1 Per Bag	11 to 14"	Double	\$29.35	\$28.10
7 to 11"						
228430	Pig	Pail	7 to 11"	Plain	\$25.65	\$24.40
228431	Pig	1 Per Bag	7 to 11"	Plain	\$25.65	
228432	Pig	Bulk Bag	7 to 11"	Plain	\$25.65	\$24.40
228440	Pig	Pail	7 to 11"	Single	\$26.85	\$25.60
228441	Pig	1 Per Bag	7 to 11"	Single	\$26.85	
228442	Pig	Bulk Bag	7 to 11"	Single	\$26.85	\$25.60
228450	Pig	Pail	7 to 11"	Double	\$28.30	\$27.05
228451	Pig	1 Per Bag	7 to 11"	Double	\$28.30	
228452	Pig	Bulk Bag	7 to 11"	Double	\$28.30	\$27.05
5 to 7"						
228490	Pig	Pail	5 to 7"	Plain	\$22.65	
228492	Pig	Bulk Bag	5 to 7"	Plain	\$22.65	

Color Injection:

Plain: No color injection Single: Red arteries Double: Red arteries, blue systemic veins

For pig organs, see page 383.



Pig Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic mammalian anatomy through dissection of the pig. Also gives an excellent demonstration of fetal circulation. **Kit** includes 15 Carolina's Perfect Solution® double-injected (arteries, red latex; veins, blue latex) pigs, 15 storage bags, a roll of cord, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Pig Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

 221480
 Kit
 Each
 \$452.00

 221480M
 Kit with Dissection Mats
 Each
 \$540.00



221480M Pig Dissection BioKit with Dissection Mats



Customer Review

"My students love doing this dissection as an autopsy. They work carefully at the cuts then remove the organ systems intact. This allows them to easily see how they are connected before continuing with dissecting the organs themselves. It gives a different spin to a regular dissection lab."

High School General Science Teacher

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Carolina® Forensic Dissection Kit ▲¹ Featuring Carolina's Perfect Solution® specimens

- A fresh, new approach to a classic mammalian dissection
- Forensic education that really engages students
- Provides a "real-world" link

8 Hand Lenses

8 Sponges

Nylon Line

8 Absorbent Pads

8 Suture Needles

40 Large Weigh Boats

Capitalize on the current popularity of crime scene investigation TV with this unique forensic lab activity. Students conduct a pig dissection by modeling the protocols used by a pathologist for a human autopsy. They carefully record the external features and use a typical "Y" incision to open the body cavity for a detailed examination. Then they remove all the organ systems. When students complete the forensic dissection, they return the organs to the body cavity and suture the incisions. A Carolina's Perfect Solution® adult pig heart and pig kidney are also included for comparison with the dissected specimen. A set of 7 prepared slides allows students to extend and enhance the dissection by examining some of the tissue types found within each system.

The detailed teacher's manual includes a reproducible student guide with autopsy instructions, background information, color photographs and diagrams, an

autopsy report, analysis questions, and a glossary of terms. Both kits include FREE 1-year access to digital resources. The **Student Kit** is for a small group of students working together at 1 station. The **Classroom Kit** is for a class of 32. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

Classroom Kit includes:

8 Carolina's Perfect Solution® Pigs Carolina's Perfect Solution® Pig Heart Carolina's Perfect Solution® Pig Kidney

7 Prepared Microscope Slides (mammal artery and vein, fundic stomach, liver, lung, kidney, epididymis, and graafian follicles)

221488 Student Kit Each **\$92.50 221489** Classroom Kit Each **\$299.00**





221550 Pig Anatomy Kit with Dissecting Set

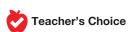


Pig Anatomy Kits ▲

Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Both kits include a double-injected (arteries, red latex; veins, blue latex) pig, disposable dissection tray, hand wipes, plastic storage bag, and *Dissection of the Fetal Pig* (item #455793) laboratory manual. **Kit with Dissecting Set** also includes a student dissecting set.

221540 Kit Each **\$41.95 221550** Kit with Dissecting Set Each **\$57.25**





221340 Pig Dissection Student Kit

Pig Dissection Student Kit A³ Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Whether students are physically distancing in the classroom or learning remotely, this kit helps them explore mammalian anatomy, including the digestive, urogenital, circulatory, and respiratory systems. Includes an 11–14" double-injected pig (red arteries, blue veins), student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, plastic storage bag, and comprehensive dissection manual.

221340 Per kit \$47.75



MARNING: Cancer – www.P65Warnings.ca.gov



Which Specimen Do You Want Your Students to Use?

Carolina's Perfect Solution® specimens are safe for you, your students, and the environment. They are nontoxic and free of dangerous off-gassing. Unlike some of our competitors' products, Carolina's Perfect Solution® specimens:

- Do not attempt to mask a formaldehyde scent with other chemicals
- Are not fixed initially with formaldehyde and then perfused with another "formalin-free" alternative
- Do not use other potentially harmful chemicals such as glutaraldehyde in the fixing process

Carolina's Perfect Solution® Specimen

Competitor's Specimen



Detail of the neck region and trachea from a Carolina's Perfect Solution Double-Injected Cat

Detail of the muscle tissue from a Carolina's Perfect Solution Cat



Detail of internal tissues and organs from a competitor's formalin-free cat

(Photographs have not been retouched.)

Preserved in safe, nontoxic Carolina's Perfect Solution®. Shipped in vacuum-sealed bags. Each specimen is thoroughly preserved and completely injected (except for appendicular veins, which may not be entirely filled because of valve closures).

	Item No.	Name	Body Length	Color Injection	Each	10+ Each
	18" and L	J p				
Ö	228001	PS Cat	18"+	Plain	\$97.00	\$95.00
	228002	PS Cat, Pregnant	18"+	Plain	\$140.00	
	228011	PS Cat	18"+	Single	\$103.00	\$101.00
Ö	228021	PS Cat	18"+	Double	\$112.00	\$110.00
	228022	PS Cat, Pregnant	18"+	Double	\$154.00	
Ö	228031	PS Cat	18"+	Triple	\$119.00	\$117.00
	14 to 18"					
	228051	PS Cat	14 to 18"	Plain	\$97.00	\$95.00
	228061	PS Cat	14 to 18"	Single	\$103.00	\$101.00
	228071	PS Cat	14 to 18"	Double	\$112.00	\$110.00
	228081	PS Cat	14 to 18"	Triple	\$119.00	\$117.00
	12 to 14"					
	228085	PS Cat	12 to 14"	Plain	\$90.00	
	228087	PS Cat	12 to 14"	Double	\$105.00	

Color Injection:

Plain: No color injection Single: Red arteries

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow hepatic system

Preserved in safe, nontoxic Carolina's Perfect Solution®. Shipped in vacuum-sealed bags. Using specimens with the skin removed saves valuable lab time when studying the muscular system. Students can begin dissection and study immediately.

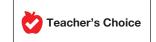
	Item No.	Name	Body Length	Color Injection	Each	10+ Each
	18" and U	р				
Ö	228110	PS Cat, Skinned	18"+	Plain	\$107.00	\$105.00
	228111	PS Cat, Skinned	18"+	Single	\$113.00	\$111.00
Ö	228112	PS Cat, Skinned	18"+	Double	\$122.00	\$120.00
Ö	228113	PS Cat, Skinned	18"+	Triple	\$129.00	\$127.00
	14 to 18"					
	228115	PS Cat, Skinned	14 to 18"	Plain	\$107.00	\$105.00
	228116	PS Cat, Skinned	14 to 18"	Single	\$113.00	\$111.00
	228117	PS Cat, Skinned	14 to 18"	Double	\$122.00	\$120.00
	228118	PS Cat, Skinned	14 to 18"	Triple	\$129.00	\$127.00

Color Injection:

Plain: No color injection Single: Red arteries

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow hepatic system





228001 Carolina's Perfect Solution Cat

How We Obtain Our Specimens

Governmentally operated or regulated humane shelters furnish euthanized cats that would be destined for the landfill were they not reutilized for science classrooms. Carolina is proud to have an outstanding USDA inspection and compliance record, and we are committed to treating all animals in a humane manner.

Cats



221530 Cat Anatomy Kit

Cat Anatomy Kits 11

Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Includes a 14 to 18" double-injected (arteries, red latex; veins, blue latex) cat, disposable dissection mat, hand wipes, plastic storage bag, and *Dissection of the Cat* (item #455573) laboratory manual.

 221530
 Cat Anatomy Kit
 Each
 \$126.00

 221532
 Skinned Cat Anatomy Kit
 Each
 \$138.00

Formalin Cats A

Preserved in Carolina's feline embalming solution. Shipped in vacuum-sealed bags. Each specimen is thoroughly preserved and completely injected (except for appendicular veins, which may not be filled entirely because of valve closures). **Note:** *Sold only to schools and businesses.*

_	tem No.	Name	Body Length	Color Injection	Each	10+ Each
1	18" and U	р				
2	228000	Cat	18"+	Plain	\$82.00	\$80.00
2	228004	Cat, Pregnant	18"+	Plain	\$124.00	
2	228010	Cat	18"+	Single	\$88.00	\$86.00
) 2	228020	Cat	18"+	Double	\$98.00	\$96.00
2	228024	Cat, Pregnant	18"+	Double	\$136.00	
2	228030	Cat	18"+	Triple	\$108.00	\$106.00
1	14 to 18"					
2	228050	Cat	14 to 18"	Plain	\$82.00	\$80.00
2	228060	Cat	14 to 18"	Single	\$88.00	\$86.00
2	228070	Cat	14 to 18"	Double	\$98.00	\$96.00
2	228080	Cat	14 to 18"	Triple	\$108.00	\$106.00
1	12 to 14"					
2	228082	Cat	12 to 14"	Plain	\$70.00	
2	228083	Cat	12 to 14"	Double	\$83.00	

Color Injection:

Plain: No color injection Single: Red arteries

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow hepatic system

Preserved Organisms



221499 Feline Necropsy Kit: An Exploration of Anatomy

Feline Necropsy Kit: An Exploration of Anatomy A Featuring Carolina's Perfect Solution® specimens

- · In-depth exploration of feline anatomy using necropsy protocols
- Includes 15 Carolina's Perfect Solution® Double-Injected Cats
- Detailed color manual makes it easier for students to learn anatomical structures

Add the excitement of forensic science to your next feline anatomy lesson. By following a cat necropsy protocol typically used by veterinarians, this kit offers a thorough exploration of mammalian anatomy. It provides materials for 15 groups of 2 students to perform all activities. Each student pair performs a cat necropsy, completing a full external and internal investigation of the cat. Student teams identify and examine all major tissues, organs, and systems. Each team gets a true representation of cat anatomy by examining its own specimen and having the opportunity to compare it to the specimens of other teams. The necropsy is intended to be conducted over several weeks, but you can customize it to fit your schedule by adding or removing activities. To complement the necropsy, the kit includes 20 professionally prepared histology slides representing each of the major organs. Also included are 15 premium Carolina's Perfect Solution® Double-Injected 18"+ Cats; 15 plastic storage bags and waterproof student name tags; Carolina's Wetting Solution (to help maintain moisture and keep tissue pliable and easy to work with for an extended period of time); and a teacher's manual with reproducible student guide that has clearly labeled color photographs, line drawings, and clear, concise background information and instructions. Note: Sold only to schools and businesses.

221499 Per kit \$1,710.00

Formalin Cats with Skin Removed At

Preserved in Carolina's feline embalming solution. Shipped in vacuum-sealed bags. Using specimens with the skin removed saves valuable lab time when studying the muscular system. Students can begin dissection and study immediately. **Note:** Sold only to schools and businesses.

	Item		Body	Color		10+
	No.	Name	Length	Injection	Each	Each
	18" and U	р				
	228100	Cat, Skinned	18"+	Plain	\$92.00	\$90.00
	228101	Cat, Skinned	18"+	Single	\$98.00	\$96.00
Ö	228102	Cat, Skinned	18"+	Double	\$108.00	\$106.00
	228103	Cat, Skinned	18"+	Triple	\$118.00	\$116.00
	14 to 18"					
	228105	Cat, Skinned	14 to 18"	Plain	\$92.00	\$90.00
	228106	Cat, Skinned	14 to 18"	Single	\$98.00	\$96.00
	228107	Cat, Skinned	14 to 18"	Double	\$108.00	\$106.00
	228108	Cat, Skinned	14 to 18"	Triple	\$118.00	\$116.00

Color Injection:

Plain: No color injection
Single: Red arteries

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow hepatic system

Frogs

Which Specimen Do You Prefer?



Frogs, 4 to 5"

(Photograph has not been retouched.)

Customer Review

"These frogs are by far the best frogs I've ever used for dissection in my 15 years as a middle school teacher."

Middle School Biology Teacher

External sexual dimorphism is not clearly discernible in frogs or bullfrogs. Therefore, sex cannot be determined without internal examination and, although we make our best effort, we cannot guarantee sex ratios with 100% accuracy.

Frogs

Why Frog Dissection?

Frogs are excellent specimens for studying vertebrate anatomy and introducing students to human anatomy and body systems.

- Frogs are economical—compared to larger vertebrates such as pigs or cats.
- Frogs are convenient and simple to use.
 - Easy to dissect and store for future use
 - No need for a scalpel—all cuts can be made with dissecting scissors
 - Small size makes frogs easy for students to handle and manage
 - Fluids are easily contained on a small tray
- Frogs are readily available.



How We Obtain Our Specimens

Carolina does not raise frogs for dissection; they come from food industry sources. Some areas have a growing frog population, which has led to the provision of frog legs for food. A small percentage of grass frogs collected for this purpose are obtained by Carolina and preserved for biological study.

Preserved Organisms

Carolina's Perfect Solution® Frogs A

Preserved in safe, nontoxic Carolina's Perfect Solution®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each	100+ Each
	5" and Up							
	227404	PS Frog	Pail	5"+	Plain	\$12.10	\$11.25	\$10.75
	227405	PS Frog	1 Per Bag	5"+	Plain	\$12.10		
	227406	PS Frog	Bulk Bag	5"+	Plain	\$12.10	\$11.25	\$10.75
	227424	PS Frog	Pail	5"+	Double	\$14.70	\$13.80	\$13.30
	227425	PS Frog	1 Per Bag	5"+	Double	\$14.70		
	227426	PS Frog	Bulk Bag	5"+	Double	\$14.70	\$13.80	\$13.30
	4 to 5"							
6	227444	PS Frog	Pail	4 to 5"	Plain	\$9.10	\$8.40	\$7.90
	227445	PS Frog	1 Per Bag	4 to 5"	Plain	\$9.10		
	227446	PS Frog	Bulk Bag	4 to 5"	Plain	\$9.10	\$8.40	\$7.90
2	227464	PS Frog	Pail	4 to 5"	Double	\$12.35	\$11.60	\$11.10
	227465	PS Frog	1 Per Bag	4 to 5"	Double	\$12.35		
	227466	PS Frog	Bulk Bag	4 to 5"	Double	\$12.35	\$11.60	\$11.10
	3 to 4"							
	227484	PS Frog	Pail	3 to 4"	Plain	\$6.90	\$6.20	\$5.70
	227485	PS Frog	1 Per Bag	3 to 4"	Plain	\$6.90		
	227486	PS Frog	Bulk Bag	3 to 4"	Plain	\$6.90	\$6.20	\$5.70
	227504	PS Frog	Pail	3 to 4"	Double	\$9.15	\$8.30	\$7.80
	227505	PS Frog	1 Per Bag	3 to 4"	Double	\$9.15		
	227506	PS Frog	Bulk Bag	3 to 4"	Double	\$9.15	\$8.30	\$7.80

Color Injection:

Plain: No color injection

Double: Red arteries, blue hepatic system



Formalin Frogs A

Preserved in formalin. Shipped in Carosafe®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each	100+ Each
	5" and Up							
	227400	Frog	Pail	5"+	Plain	\$11.25	\$10.75	
	227401	Frog	1 Per Bag	5"+	Plain	\$11.25		
	227402	Frog	Bulk Bag	5"+	Plain	\$11.25	\$10.75	
	227410	Frog	Pail	5"+	Single	\$12.80	\$12.30	
	227412	Frog	Bulk Bag	5"+	Single	\$12.80	\$12.30	
	227420	Frog	Pail	5"+	Double	\$14.00	\$13.50	
	227421	Frog	1 Per Bag	5"+	Double	\$14.00		
	227422	Frog	Bulk Bag	5"+	Double	\$14.00	\$13.50	
	4 to 5"							
Ď	227440	Frog	Pail	4 to 5"	Plain	\$7.65	\$6.95	\$6.45
	227441	Frog	1 Per Bag	4 to 5"	Plain	\$7.65		
	227442	Frog	Bulk Bag	4 to 5"	Plain	\$7.65	\$6.95	\$6.45
	227450	Frog	Pail	4 to 5"	Single	\$9.25	\$8.20	\$7.70
	227452	Frog	Bulk Bag	4 to 5"	Single	\$9.25	\$8.20	\$7.70
	227460	Frog	Pail	4 to 5"	Double	\$10.25	\$9.30	\$8.80
	227461	Frog	1 Per Bag	4 to 5"	Double	\$10.25		
	227462	Frog	Bulk Bag	4 to 5"	Double	\$10.25	\$9.30	\$8.80
	3 to 4"							
	227480	Frog	Pail	3 to 4"	Plain	\$4.95	\$4.20	\$3.70
	227481	Frog	1 Per Bag	3 to 4"	Plain	\$4.95		
	227482	Frog	Bulk Bag	3 to 4"	Plain	\$4.95	\$4.20	\$3.70
	227490	Frog	Pail	3 to 4"	Single	\$6.20	\$5.50	\$5.00
	227492	Frog	Bulk Bag	3 to 4"	Single	\$6.20	\$5.50	\$5.00
	227500	Frog	Pail	3 to 4"	Double	\$7.40	\$6.70	\$6.20
	227502	Frog	Bulk Bag	3 to 4"	Double	\$7.40	\$6.70	\$6.20



Plain: No color injection **Single:** Red arteries

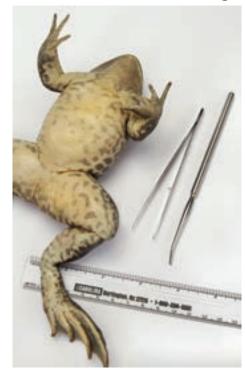
Double: Red arteries, blue hepatic system

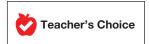


Carolina® Frog Dissection Mat

The Carolina® Frog Dissection Mat is specially designed with clear, concise, step-by-step instructions to guide your dissection and aid in your study of the frog. This large, double-sided vinyl mat resists spills and wipes clean easily—a perfect resource for your next frog dissection activity. Included on the mat are detailed color photographs that help students examine and identify both internal and external structures while working with their specimens. Labeled and defined key structures promote a better understanding of the frog. Size, 11 × 17".

229920 Each \$8.50 10+ Each \$7.50







Carolina® Frog Dissection Flip Chart

The Carolina® Frog Dissection Flip Chart is specially designed with clear, concise instructions to guide dissection and aid in frog study. Ideal for students working in small groups, the Flip Chart binder opens easily to form a sturdy stand-alone easel. Detailed color photographs are clearly labeled to help students examine and identify internal and external structures while working with specimens. The Carolina® Frog Dissection Flip Chart is designed to be viewed from 2 sides and each $8^{1}/_{2}\times11^{\rm w}$ page is made from an easy-to-clean, spill-resistant, durable, and reusable vinyl. It is the perfect teaching aid for your next frog dissection.

229975 Each **\$47.00**

Frogs



242370 4D Vision Frog Anatomy Model

4D Vision™ Frog Anatomy Model Your young scientists will love it!

Students learn anatomy while building their very own frog model. This exceptionally detailed model contains 31 detachable organs and body parts and comes with a display stand. An illustrated guidebook with assembly instructions and a detailed description of the frog's life cycle and anatomy is also included. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

242370 Each **\$36.50**

Preserved Organisms



221521 Carolina's Young Scientist Frog Dissection Kit

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Carolina's Young Scientist™ Frog Dissection Kit △¹ Featuring a Carolina's Perfect Solution® specimen

Through specimen observation and dissection, students learn basic frog anatomy and gain a better understanding of this amphibian. The step-by-step procedures and labeled color images help students locate and identify external and internal features of the frog. Designed for 1 or 2 students, the kit features a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

221521 Per kit \$14.95



221460M Frog Dissection BioKit with Dissection Mats

Frog Dissection BioKit® 🛕

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic vertebrate anatomy through dissection of the frog, a typical vertebrate. **Kit** includes 15 Carolina's Perfect Solution® plain frogs, 15 disposable dissecting trays, 15 storage bags, and a teacher's manual with reproducible student guide. Student guide includes full-color photos, step-by-step instructions, and prelab and postlab assessments. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Frog Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221460 Kit Each \$102.00 221460M Kit with Dissection Mats Each \$190.00



221470M Advanced Frog Dissection BioKit with Dissection Mats

Advanced Frog Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. A thorough dissection of the frog. Students study external anatomy, superficial muscles, digestive and urogenital organs, heart and blood vessels, and the central nervous system of the frog. **Kit** includes 15 Carolina's Perfect Solution® double-injected (arteries, red latex; hepatic system, blue latex) frogs, 15 disposable dissecting trays, 15 storage bags, and a detailed teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Frog Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221470 Kit Each **\$140.00 221470M** Kit with Dissection Mats Each **\$228.00**

Bullfrogs

Compare and See for Yourself

Carolina's Perfect Solution® Specimen



Competitor's Specimen



Bullfrogs, 6 to 7"

(Photographs have not been retouched.)

Teacher Testimonial

"I wanted to tell you again how much I love . . . Carolina's Perfect Solution®. I hadn't dissected anything since college, but I very distinctly remember how the animals looked and smelled—especially after working with them for several months. When it was my turn to order frogs for our 9th-grade biology class to dissect last year, I thought I would try the Carolina's Perfect Solution® frogs. That was one of the best decisions I could have made. I could tell as soon as we opened the package that these frogs had better color and had very little smell . . . I can't tell you how much of a difference . . . Carolina's Perfect Solution® makes in our dissection lab. Keep up the great work."

Karin Magera

Science Teacher Fayetteville High School Fayetteville, TX



External sexual dimorphism is not clearly discernible in frogs or bullfrogs. Therefore, sex cannot be determined without internal examination and, although we make our best effort, we cannot guarantee sex ratios with 100% accuracy.

Bullfrogs

Bullfrogs in the Classroom

The bullfrog is an excellent organism for studies involving animal development, physiology, anatomy, and behavior. It is commonly used in biology classes as a representative vertebrate, providing a framework to understand the anatomy of higher vertebrates. The bullfrog is larger than the common grass frog, which allows students to examine anatomical structures of the specimen more easily.



USDA

The US Department of Agriculture, under the Animal Welfare Act, governs the procurement of animals. Carolina is proud to have an outstanding USDA inspection and compliance record, and we are committed to treating all animals in a humane manner.



Preserved Organisms

Carolina's Perfect Solution® Bullfrogs At

Preserved in safe, nontoxic Carolina's Perfect Solution®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
	6" and Up						
Ö	227104	PS Bullfrog	Pail	6"+	Plain	\$19.50	\$18.20
	227105	PS Bullfrog	1 Per Bag	6"+	Plain	\$19.50	\$18.20
	227124	PS Bullfrog	Pail	6"+	Double	\$24.75	\$23.50
	227125	PS Bullfrog	1 Per Bag	6"+	Double	\$24.75	\$23.50
	5 to 6"						
Ö	227144	PS Bullfrog	Pail	5 to 6"	Plain	\$15.65	\$14.45
	227146	PS Bullfrog	Bulk Bag	5 to 6"	Plain	\$15.65	\$14.45
	227164	PS Bullfrog	Pail	5 to 6"	Double	\$19.50	\$18.30
	227166	PS Bullfrog	Bulk Bag	5 to 6"	Double	\$19.50	\$18.30

Color Injection:

Plain: No color injection

Double: Red arteries, blue hepatic system

Formalin Bullfrogs A

Preserved in formalin. Shipped in Carosafe®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
	227100	Bullfrog	Pail	5"+	Plain	\$17.10	\$15.90
	227101	Bullfrog	1 Per Bag	5"+	Plain	\$17.10	\$15.90
	227120	Bullfrog	Pail	5"+	Double	\$22.35	\$20.60
9	227122	Bullfrog	Bulk Bag	5"+	Double	\$22.35	\$20.60

Color Injection:

Plain: No color injection

Double: Red arteries, blue hepatic system



Bullfrog Dissection BioKit® 🗥

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic vertebrate anatomy through dissection of the bullfrog, a typical vertebrate. Bullfrogs are larger than grass frogs and offer easier organ identification. Kit includes 15 Carolina's Perfect Solution® bullfrogs, 15 disposable dissecting trays, 15 storage bags, FREE 1-year access to digital resources, and a teacher's manual with reproducible student guide. Student guide includes full-color photos, step-by-step dissection instructions, and prelab and postlab assessments. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221465 Per kit \$222.00

Rats

Carolina's Perfect Solution® Rats A

Preserved in safe, nontoxic Carolina's Perfect Solution®.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
228304	PS Rat	Pail	7"+	Plain	\$14.25	\$13.25
228305	PS Rat	1 Per Bag	7"+	Plain	\$14.25	
228306	PS Rat	Bulk Bag	7"+	Plain	\$14.25	\$13.25
228307	PS Rat, Pregnant	1 Per Bag	7"+	Plain	\$24.00	\$23.00
228314	PS Rat	Pail	7"+	Single	\$16.00	\$15.00
228315	PS Rat	1 Per Bag	7"+	Single	\$16.00	
228316	PS Rat	Bulk Bag	7"+	Single	\$16.00	\$15.00
228317	PS Rat, Pregnant	1 Per Bag	7"+	Single	\$26.00	\$25.00
228324	PS Rat	Pail	7"+	Double	\$18.00	\$17.00
228325	PS Rat	1 Per Bag	7"+	Double	\$18.00	
228326	PS Rat	Bulk Bag	7"+	Double	\$18.00	\$17.00
228327	PS Rat, Pregnant	1 Per Bag	7"+	Double	\$28.00	\$27.00
228334	PS Rat	Pail	7"+	Triple	\$21.25	\$20.25
228335	PS Rat	1 Per Bag	7"+	Triple	\$21.25	
228336	PS Rat	Bulk Bag	7"+	Triple	\$21.25	\$20.25

Color Injection:

Plain: No color injection Single: Red arteries Double: Red arteries, blue systemic veins

teries Triple: Red arteries, blue systemic veins, yellow hepatic system



Rat, 7"+

(Photograph has not been retouched.)

California Proposition 65 WARNING: Cancer – www.P65Warnings.ca.gov

Explore Mammalian Anatomy with Rats

Rats have become increasingly popular as dissection specimens for exploring mammalian anatomy. These fully developed animals display mature organs and organ systems for students to examine skeletal, muscular, and reproductive structures.

- Small, convenient-to-dissect mammal with little fluid in the body cavity
- Body plan allows for close comparison to human anatomy
- Economical

Customer Review

"I have been purchasing preserved rats for my school for 6 years, but just recently tried the [Carolina's] Perfect Solution® rats. They look more natural, the chemical smell is less than that of formalin, and they have a softer texture, making them easier to cut and manipulate . . . I recommend them to my colleagues as the best choice for preserved rats out there, and I buy other animal specimens in [Carolina's] Perfect Solution® whenever possible."

University Biology Lab Manager



Carolina's Perfect Solution® Mouse 🗥

Preserved in safe, nontoxic Carolina's Perfect Solution®. **228380** Each **\$5.00** 10+ Each **\$4.00**

Formalin Mouse A

Preserved in formalin. Specimen has no color injection (plain). Shipped immersed in Carosafe® in a sealed pail.

228375 Each \$4.25

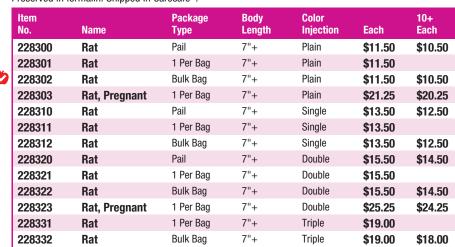


Rats

Preserved Organisms

Formalin Rats A

Preserved in formalin. Shipped in Carosafe®.





228680 Rat, Cleared and Stained

Rat, Cleared and Stained

In glycerin. Body length, 4 to 5". 228680 Each \$47.50

Color Injection:

Plain: No color injection Single: Red arteries

Double: Red arteries, blue systemic veins Triple: Red arteries, blue systemic veins, yellow hepatic system

Double-**Sided**



Dissection Mat

Carolina® Rat Dissection Mat

The Carolina® Rat Dissection Mat is specially designed with clear, concise, step-bystep instructions to guide your dissection and aid in your study of the rat. This large, double-sided vinyl mat resists spills and wipes clean easily-a perfect resource for your next rat dissection activity. Included on the mat are detailed color photographs that help students examine and identify both internal and external structures while working with their specimens. Labeled and defined key structures promote a better understanding of the rat. Size, 11×17 ".

Each \$8.50 10+ Each \$7.50



228350 Reproductive Rat Anatomy 1-Station Kit (above) and fetal rat (inset)

Reproductive Rat Anatomy Kit A Featuring Carolina's Perfect Solution® specimens

Students compare and contrast the external and internal reproductive anatomy of male and female rats to gain a better understanding of the anatomical differences and changes that occur in the female's anatomy during gestation and embryo development. The detailed dissection guide includes background information, labeled color images and dissection instructions, and a thorough summary of rat pregnancy and embryology. The 1-Station Kit is designed for a small group of students working together. The 8-Station Kit is for a class of 32.

1-Station Kit includes:

Carolina's Perfect Solution® Male Rat

Carolina's Perfect Solution® Female Rat Carolina's Perfect Solution® Pregnant Rat

8-Station Kit includes:

8 Carolina's Perfect Solution® Male Rats 8 Carolina's Perfect Solution® Female Rats

8 Carolina's Perfect Solution® Pregnant Rats

\$50.00 228350 1-Station Kit Each 228360 8-Station Kit Each \$345.00





Rat Dissection BioKit® 1

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Students, working in pairs, study the external anatomy of the rat and explore its major internal organs and organ systems through inquiry-based dissection. Kit includes 15 plain Carolina's Perfect Solution® rats as well as a detailed teacher's manual with dissection instructions, extension activities, reproducible student sheets, background information, glossary of terms, and dissection questions for discussion. Kit with Dissection Mats includes all of the above plus 15 Carolina® Rat Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

221487 \$198.00 Each Kit with Dissection Mats 221487M Each \$286.00



MARNING: Cancer – www.P65Warnings.ca.gov

Rabbits

Carolina's Perfect Solution® Rabbits A

Preserved in safe, nontoxic Carolina's Perfect Solution®, Shipped in vacuum-sealed bags. Plastic bags and waterproof student name tags are included free with each rabbit.

Item No.	Name	Body Length	Color Injection	Each	10+ Each
228205	PS Rabbit	Mature	Plain	\$64.50	\$63.00
228225	PS Rabbit	Mature	Double	\$71.00	\$69.50
228235	PS Rabbit	Mature	Triple	\$75.50	\$74.00

Color Injection:

Plain: No color injection Double: Red arteries, blue systemic veins Triple: Red arteries, blue systemic veins, yellow

Carolina's Perfect Solution® Rabbits with Skin Removed A

Preserved in safe, nontoxic Carolina's Perfect Solution®. Shipped in vacuum-sealed bags. Using specimens with the skin removed saves valuable lab time when studying the muscular system. Students can begin dissection and study immediately. Plastic bags and waterproof student name tags are included free with each rabbit.

Item No.	Name	Body Length	Color Injection	Each	10+ Each
228206	PS Rabbit, Skinned	Mature	Plain	\$73.00	\$71.50
228226	PS Rabbit, Skinned	Mature	Double	\$79.50	\$78.00



Plain: No color injection

Double: Red arteries, blue systemic veins

Formalin Rabbits A

Preserved in formalin, shipped in Carosafe® in vacuum-sealed bags. Plastic bags and waterproof student name tags are included free with each rabbit.

	Item No.	Name	Body Length	Color Injection	Each	10+ Each
	228200	Rabbit	Mature	Plain	\$61.00	\$59.50
)	228220	Rabbit	Mature	Double	\$68.00	\$66.50
	228230	Rabbit	Mature	Triple	\$71.50	\$70.00

Color Injection:

Plain: No color injection Double: Red arteries, blue systemic veins Triple: Red arteries, blue systemic veins, yellow hepatic system

Dissection Guide and Atlas to the Rabbit

Grade 8-College. David G. Smith and Michael P. Schenk. 2019. 122 pages. Complete with accurately labeled, full-color photographs and detailed illustrations. This comprehensive manual provides clear instructions on the dissection of the rabbit while also giving your students insight into the physiology of the specimen and how it compares to humans and other mammals. Important terms are

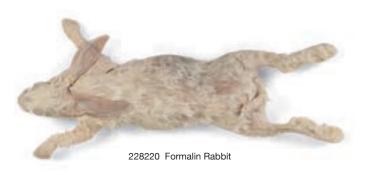
boldfaced and defined in the glossary. Pages are punched for 3-ring binder (not included). Soft cover.

455503 Each \$41.00





228206 Carolina's Perfect Solution Rabbit with Skin Removed

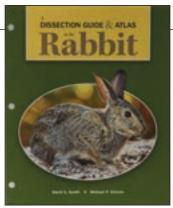


Rabbit Anatomy Kit with Dissecting Set 11 **Featuring a Carolina's Perfect** Solution® specimen For 1 or 2 students. Study mammalian

anatomy with a preserved rabbit specimen. Includes a Carolina's Perfect Solution® double-injected (arteries, red latex; veins, blue latex) rabbit, a disposable dissection mat, hand wipes, a plastic storage bag, a dissection laboratory manual, and a student dissecting set.

221570 Per kit \$78.95









Find our Mink Dissection BioKit® (item #221483) on page 394.

Carolina's Perfect Solution® Mink A

Preserved in safe, nontoxic Carolina's Perfect Solution®. Shipped in vacuum-sealed bags. Skinned. Plastic bags and waterproof student name tags are furnished free with each mink. **Note:** Due to processes in the mink industry, muscles on the ventral side of the hind legs and posterior abdomen may be damaged.

Item No.	Name	Body Length	Color Injection	Each	10+ Each
228250	PS Mink	15" avg	Plain	\$16.55	\$15.55
228251	PS Mink	15" avg	Single	\$18.85	\$17.85
228252	PS Mink	15" avg	Double	\$21.00	\$20.00
228253	PS Mink	15" avg	Triple	\$24.50	\$23.50



Color Injection:
Plain: No color injection
Single: Red arteries

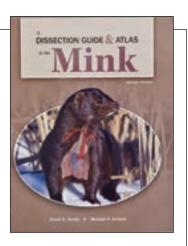
Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow hepatic system

A Dissection Guide and Atlas to the Mink

Grade 8–College. David G. Smith and Michael P. Schenk. 2020 (2nd ed). 136 pages. A student-friendly dissection manual for the mink. Clearly worded directions for dissection and observation combined with accurately labeled full-color photographs and line drawings ensure a superior dissection for study. Pages are punched for 3-ring binder (not included). Soft cover.

455504 Each \$49.00



Dogs

Carolina's Perfect Solution® Dogs A

Preserved in safe, nontoxic Carolina's Perfect Solution®. Plastic bags and water-proof student name tags are included free with each dog. **Note:** *Sold only to schools and businesses.*

Item No.	Name	Color Injection	Each
229001	PS Dog	Plain	\$200.00
229021	PS Dog	Double	\$210.00

Color Injection:

Plain: No color injection Double: Red arteries, blue systemic veins

Formalin Dogs A

Preserved in formalin. Normally shipped in 55-gal drums. **Note:** Sold only to schools and businesses.

Item No.	Name	Color Injection	Each
229000	Dog	Plain	\$190.00
229020	Dog	Double	\$200.00

Color Injection:

Plain: No color injection Double: Red arteries, blue systemic veins





220120A Carolina's Wetting Solution, 16 oz (right) and 220121A Carolina's Wetting Solution, 1 gal (left)



Carolina's Wetting Solution

Carolina's Wetting Solution is an excellent complement to use with any of our extensive selection of Carolina's Perfect Solution® and Carosafe® preserved specimens. This superb wetting agent with mold inhibitor can be applied to any surface after the dissection has begun. Carolina's Wetting Solution helps maintain moisture, reduce dehydration, and keep tissue pliable and easy to work with—especially when dissecting specimens over several days or an extended period of time.

220120A 16 oz Each **\$12.00 220121A** 1 gal Each **\$57.00**

Dogfish Sharks

A Sea of Learning

The dogfish shark, a member of the class Chondrichthyes, is a popular dissection specimen in general biology and anatomy courses. It is useful for learning about cartilaginous fish and for studying comparative and vertebrate anatomy.

- Mature specimens allow for a thorough investigation of adult structures
- Larger size is ideal for students working in pairs or small groups
- · Characteristics of the shark are intriguing to students
 - Cartilaginous skeleton
 - Five pairs of gill slits





See our Carolina® Dogfish Dissection Mat (item #229965) on page 404.



221448 Shark Dissection BioKit

Shark Dissection BioKit® 11

Grade 9–College. For a class of 30. Students working in pairs study the external anatomy of the dogfish shark, a cartilaginous fish, and explore its internal organs and organ systems through guided dissection. Kit includes 15 plain dogfish and 15 plastic storage bags. Teacher's manual contains dissection instructions, extension activities, reproducible student sheets, background information, glossary, and discussion questions. Kit with Dissection Mats includes all of the above plus 15 Carolina® Shark Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

221448 Kit Each **\$260.00 221448M** Kit with Dissection Mats Each **\$348.00**

Formalin Dogfish Sharks A

Preserved in formalin. Shipped in Carosafe®. **Note:** Due to seasonality, availability may be limited.

	Item No.	Name	Package Type	Length	Color Injection	Each	10+ Each
	27" and	Up					
	226700	Dogfish	Pail	27"+	Plain	\$18.50	\$17.75
)	226701	Dogfish	1 Per Bag	27"+	Plain	\$18.50	\$17.75
	226720	Dogfish	Pail	27"+	Single	\$20.25	\$19.30
	226721	Dogfish	1 Per Bag	27"+	Single	\$20.25	\$19.30
	226740	Dogfish	Pail	27"+	Double	\$22.00	\$21.10
	226741	Dogfish	1 Per Bag	27"+	Double	\$22.00	\$21.10
	226760	Dogfish	Pail	27"+	Triple	\$24.25	\$23.35
	226761	Dogfish	1 Per Bag	27"+	Triple	\$24.25	\$23.35
	226711	Dogfish, Pregnant	1 Per Bag	27"+	Plain	\$26.50	
	226751	Dogfish, Pregnant	1 Per Bag	27"+	Double	\$31.00	
	226771	Dogfish, Pregnant	1 Per Bag	27"+	Triple	\$33.25	
	22 to 27	ı					
	226790	Dogfish	Pail	22 to 27"	Plain	\$18.50	\$17.75
)	226791	Dogfish	1 Per Bag	22 to 27"	Plain	\$18.50	\$17.75
	226800	Dogfish	Pail	22 to 27"	Single	\$20.25	\$19.30
	226801	Dogfish	1 Per Bag	22 to 27"	Single	\$20.25	\$19.30
	226810	Dogfish	Pail	22 to 27"	Double	\$22.00	\$21.10
	226811	Dogfish	1 Per Bag	22 to 27"	Double	\$22.00	\$21.10
	226820	Dogfish	Pail	22 to 27"	Triple	\$24.25	\$23.35
	226821	Dogfish	1 Per Bag	22 to 27"	Triple	\$24.25	\$23.35
	226830	Dogfish Head	Pail	Large	Plain	\$13.25	\$12.25

Color Injection:

Plain: No color injection **Double:** Red arteries, yellow hepatic system

Single: Red arteries Triple: Red arteries, yellow hepatic system, blue systemic veins



226555 Mixed Fish Set

Mixed Fish Set ▲

Contains 9 specimens representing 3 major fish groups: the jawless fish, cartilaginous fish, and bony fish. Students study the external and internal anatomy of specimens from each of the 3 major fish groups to gain a better understanding of fish taxonomy. Students compare and contrast unique internal characteristics and anatomical structures such as skeletal composition, scales and fins, as well as respiratory and feeding structures. The teacher's manual contains extension activities and a reproducible blackline master student guide. The student guide contains background information, dissection guides for each of the fish specimens, and reflection questions. Visit Carolina.com for a complete list of set specimens. Note: Substitutions may be made based on availability.

226555 Per set \$92.50

Perch/Lamprey Perch

Preserved Organisms

Perch Dissection

Perch are vertebrates in the class Osteichthyes, the bony fishes. Preserved perch are ideal for exploring external anatomy, internal organs, and organ systems through guided dissection.

- Introduce the anatomy of vertebrates
- · Study regulation and behavior
- · Investigate the diversity and adaptations of perch



221580 Perch Anatomy Kit with Dissecting Set

Perch Anatomy Kit with Dissecting Set A

For 1 or 2 students. This is a great kit for introducing your students to anatomy. It includes a double-injected perch (arterial system, red latex; hepatic system, blue latex), disposable dissection tray, lab tools, a bag for storing the specimen between observations, and a dissection manual. The manual is easy to follow and provides step-by-step procedures that walk you through the dissection and help your students better understand fish anatomy.

221580 Per kit \$25.95

Formalin Perch A

Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Length	Color Injection	Each	10+ Each	100+ Each
9" and Up							
226900	Perch	Pail	9"+	Plain	\$7.80	\$7.05	\$6.35
226901	Perch	1 Per Bag	9"+	Plain	\$7.80		
226902	Perch	Bulk Bag	9"+	Plain	\$7.80	\$7.05	\$6.35
226910	Perch	Pail	9"+	Single	\$9.05	\$8.35	
226911	Perch	1 Per Bag	9"+	Single	\$9.05		
226912	Perch	Bulk Bag	9"+	Single	\$9.05	\$8.35	
7 to 9"							
226940	Perch	Pail	7 to 9"	Plain	\$4.10	\$3.35	\$2.85
226941	Perch	1 Per Bag	7 to 9"	Plain	\$4.10		
226942	Perch	Bulk Bag	7 to 9"	Plain	\$4.10	\$3.35	\$2.85
5 to 7"							
226950	Perch	Pail	5 to 7"	Plain	\$2.75	\$2.55	\$2.40
226952	Perch	Bulk Bag	5 to 7"	Plain	\$2.75	\$2.55	\$2.40

Color Injection: Plain: No color injection Single: Red arteries



Lamprey

Formalin Lamprey A

Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Body Length	Color Injection	Each
226600	Lamprey	Pail	15"+	Plain	\$16.00
226601	Lamprey	1 Per Bag	15"+	Plain	\$16.00

Color Injection:

Plain: No color injection.





226601 Lamprey (above); mouth detail (inset)

Salamanders



227054 Carolina's Perfect Solution Salamanders (above and right)

Carolina's Perfect Solution® Salamanders A

Ambystoma sp. Larval tiger salamanders with external gills, gill slits, and a caudal fin. Preserved in safe, nontoxic Carolina's Perfect Solution®.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
227054	PS Salamander	Pail	6 to 8"	Plain	\$9.90	\$9.15
227055	PS Salamander	1 Per Bag	6 to 8"	Plain	\$9.90	
227056	PS Salamander	Bulk Bag	6 to 8"	Plain	\$9.90	\$9.15

Color Injection: Plain: No color injection



Larval tiger salamanders are a great substitute for necturus. They have the same prominent anatomical characteristics with minimal differences. Find out more at Carolina.com.

Formalin Salamanders A

Ambystoma sp. Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
227050	Salamander	Pail	6 to 8"	Plain	\$8.80	\$8.05
227051	Salamander	1 Per Bag	6 to 8"	Plain	\$8.80	
227052	Salamander	Bulk Bag	6 to 8"	Plain	\$8.80	\$8.05

Color Injection: Plain: No color injection



227050 Formalin Salamander

Iguanas



227765 Formalin Iguanas (above and right)

Formalin Iguanas 🗥

Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
227765	Iguana	Pail	5"+	Plain	\$27.00	\$26.00
227766	Iguana	1 Per Bag	5"+	Plain	\$27.00	

Color Injection: Plain: No color injection





Other Vertebrates Other Vertebrates

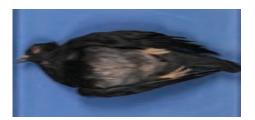
Preserved Organisms



226640 Skate

Skate <u></u>⁴

226640 Each **\$11.75** 10+ Each **\$10.75**



227900 Pigeon

Pigeon ▲¹
Plain: no color injection.

227900 Each \$15.95 10+ Each \$14.45



227760 Anolis

Carolina's Perfect Solution® Anole ▲¹

Anolis carolinensis. Size, 3"+ including tail. **227760** Each **\$4.30** 10+ Each **\$3.70**

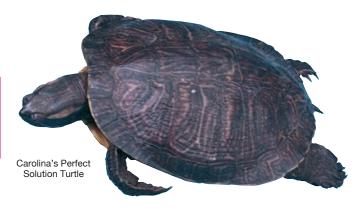
Carolina's Perfect Solution® Turtles A

To help with dissection, the plastron is pre-cut. Preserved in safe, nontoxic Carolina's Perfect Solution®.

	Item No.	Name	Package Type	Carapace Size	Color Injection	Each	10+ Each
9	227610	PS Turtle	Pail	5"+	Plain	\$20.25	\$18.75
	227630	PS Turtle	Pail	5"+	Double	\$23.75	\$22.25
	227631	PS Turtle	1 Per Bag	5"+	Double	\$23.75	



Plain: No color injection Double: Red arteries, blue veins





227724 Carolina's Perfect Solution Rattlesnake

Carolina's Perfect Solution® Rattlesnake ¹

Rattlesnake with rattles and fangs preserved in safe, nontoxic Carolina's Perfect Solution®. Specimen length varies (18"+).

227724 Each \$63.00



227736 Carolina's Perfect Solution Snake

Carolina's Perfect Solution® Snake 1

Snake preserved in safe, nontoxic Carolina's Perfect Solution®. Species and specimen length (18"+) will vary. Shipped in a vacuum-sealed bag.

227736 Each \$31.50 10+ Each \$29.50



Formalin Rattlesnake 🗥

Crotalus sp. Preserved in formalin. Shipped in Carosafe®. With rattles. Specimen length varies (18"+).

227720 Each **\$57.75**

Formalin Snake A

Preserved in formalin. Shipped in Carosafe®. Species and specimen length (18"+) will vary. Shipped in a vacuum-sealed bag.

227735 Each \$27.00

Preserved Organisms Preserved Invertebrates

Arthropods

Crayfish Dissection

Crayfish are members of the phylum Arthropoda (commonly called arthropods) and the class Crustacea. Because of their very specialized appendages, crayfish are the perfect specimens to convey to students the relationships between structure, function, and the environment.



Carolina's Perfect Solution® Crayfish

Preserved in safe, nontoxic Carolina's Perfect Solution®. **Note:** *Crayfish are priced in units of 10. However, an order for multiple units of 10 may be packed all in 1 pail.*

	Item No.	Name	Package Type	Body Length	Color Injection	Pack of 10	10+ Packs Each
	4" and U	Jp					
כ	225300	PS Crayfish	Pail	4"+	Plain	\$15.95	\$14.95
	225302	PS Crayfish	Bulk Bag	4"+	Plain	\$15.95	\$14.95
	225310	PS Crayfish	Pail	4"+	Single	\$18.65	\$17.65
	225312	PS Crayfish	Bulk Bag	4"+	Single	\$18.65	\$17.65
	3 to 4"						
	225320	PS Crayfish	Pail	3 to 4"	Plain	\$12.35	\$11.35
	225330	PS Crayfish	Pail	3 to 4"	Single	\$16.80	\$15.80

Color Injection:

Plain: No color injection Single: Color-injected circulatory system



See our Carolina® Crayfish Dissection Mat (item #229980) on page 404.



221420M Crayfish Dissection BioKit with Dissection Mats

Crayfish Dissection BioKit® A' Featuring Carolina's Perfect Solution® specimens

Carolina Kits 3D® labs at Carolina.com/3D.

For a class of 30. Students study the anatomy of a crustacean, the most widespread group of aquatic arthropods. **Kit** includes 30 Carolina's Perfect Solution® single-injected (circulatory system) crayfish, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Crayfish Dissection Mats. Both kits include FREE 1-year access to digital resources, Supports NGSS and 3-dimensional instruction. Learn more about

221420 Kit Each \$58.50 221420M Kit with Dissection Mats Each \$146.50



225299 Carolina's Young Scientist Crayfish Dissection Kit

Carolina's Young Scientist™ Crayfish Dissection Kit ▲¹ Featuring a Carolina's Perfect Solution® specimen

Students achieve a greater understanding of the crayfish, a popular invertebrate, through hands-on dissection and exploration of the crustacean anatomy. This kit leads 1 or 2 students through an introductory-level dissection activity to locate and identify the crayfish's external and internal features. Includes teacher's manual with instructional tips and additional resources, separate step-by-step student guide with labeled color images, and FREE 1-year access to digital resources that support 3-dimensional instruction.

225299 Per kit \$11.75

Arthropods

Carolina's Perfect Solution® Grasshoppers ▲

Louisiana lubber grasshoppers (Romalea microptera) preserved in safe, nontoxic Carolina's Perfect Solution®.

Item No.	Name	Qty	Each	10+ Each
225592	PS Grasshopper	Jar of 10	\$8.70	\$7.70
225594	PS Grasshopper	Jar of 25	\$18.50	
225596	PS Grasshopper	Bucket of 100	\$65.00	

Carolina's Perfect Solution® Louisiana Lubber Grasshopper, Latex Injected Romalea microptera. Giant, body length 2 to 3". Selected adults preserved in safe, nontoxic Carolina's Perfect Solution®, with tracheal system injected with colored latex. 225580 Each \$4.40 10+ Each \$3.25 Carolina's Perfect Solution Louisiana Lubber Grasshopper, Latex Injected



225598 Carolina's Young Scientist Grasshopper Dissection Kit

Carolina's Young Scientist™ Grasshopper Dissection Kit ^¹

Featuring a Carolina's Perfect Solution® specimen

Students explore the internal and external anatomy of the grasshopper using this introductory-level dissection kit. The simple, step-by-step procedures and color photographs seamlessly guide student investigation. The kit includes all materials needed for 1 or 2 students to perform the dissection and gain a better understanding of grasshopper anatomy. Includes a teacher's manual with instructional tips and additional resources, full-color student guide, and FREE 1-year access to digital resources that support 3-dimensional instruction.

225598 Per kit \$11.00



Preserved Organisms



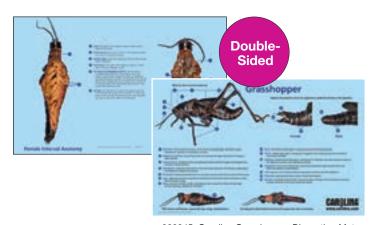
221430M Grasshopper Dissection BioKit with Dissection Mats

Grasshopper Dissection BioKit®≜¹

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the anatomy of the grasshopper, a representative herbivorous arthropod. **Kit** includes 30 Carolina's Perfect Solution® grasshoppers, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Grasshopper Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221430 Kit Each **\$39.50 221430M** Kit with Dissection Mats Each **\$127.50**



229945 Carolina Grasshopper Dissection Mat

Carolina® Grasshopper Dissection Mat

The Carolina® Grasshopper Dissection Mat is specially designed with clear, concise, step-by-step instructions to guide your dissection and aid in your study of the grasshopper. This large, double-sided vinyl mat resists spills and wipes clean easily—a perfect resource for your next grasshopper dissection activity. Included on the mat are detailed color photographs that help students examine and identify both internal and external structures while working with their specimens. Labeled and defined key structures promote a better understanding of the grasshopper. Size, 11 \times 17".

229945 Each **\$8.50** 10+ Each **\$7.50**

Carolina's Perfect Solution® Blue Crab 🗥

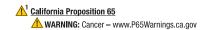
Callinectes sp. Large specimens preserved in safe, nontoxic Carolina's Perfect Solution®. Plain: No color injection. Shipped in pails.

225220 Each \$7.20 10+ Each \$6.50

Formalin Blue Crab A

 $\it Callinectes$ sp. Large specimen preserved in formalin, shipped in Carosafe®, and available in pails only. Plain: No color injection.

225222 Each \$6.40 10+ Each \$5.70



Annelids



Carolina's Perfect Solution® Earthworms ▲

Preserved in safe, nontoxic Carolina's Perfect Solution®.

Item No.	Name	Qty	Each
225010	PS Earthworm	Tube of 10	\$9.40
225014	PS Earthworm	Tube of 50	\$41.50
225016	PS Earthworm	Unit of 100	\$76.00



225024 Carolina's Young Scientist Earthworm Dissection Kit

Carolina's Young Scientist™ Earthworm Dissection Kit Featuring a Carolina's Perfect Solution® specimen

Students explore the internal and external anatomy of the earthworm in this introductory-level kit. Designed for 1 or 2 students, the kit comes with everything needed to complete the dissection of this representative annelid. The simple instructions and color photographs in the student guide help make dissection a cinch. The kit also includes a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

225024 Per kit \$10.75



221410 Earthworm Dissection BioKit

Earthworm Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the anatomy of the earthworm, a representative annelid. **Kit** includes 30 Carolina's Perfect Solution® earthworms, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Earthworm Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221410 Kit

Each **\$39.00**

221410M Kit with Dissection Mats

Each **\$127.00**

Formalin Earthworms A

Preserved in formalin.

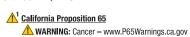
Item No.	Name	Qty	Each
225012	Earthworm	Tube of 10	\$8.40
225015	Earthworm	Tube of 50	\$36.25
225020	Earthworm	Unit of 100	\$69.25



225045 Nereis

Nereis 1 Large (8 to 12").

225045 Each \$3.10 10+ Each \$2.75





Carolina® Earthworm Dissection Mat

The Carolina® Earthworm Dissection Mat is specially designed with clear, concise, step-by-step instructions to guide your dissection and aid in your study of the earthworm. This large, double-sided vinyl mat resists spills and wipes clean easily—a perfect resource for your next earthworm dissection activity. Included on the mat are detailed color photographs that help students examine and identify both internal and external structures while working with their specimens. Labeled and defined key structures promote a better understanding of the earthworm. Size, 11×17 ".

229900 Each \$8.50 10+ Each \$7.50

Echinoderms Echinoderms

Preserved Organisms



Formalin Starfish (Asterias or Pisaster)

Preserved in formalin. Shipped in Carosafe®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
	6 to 8"						
Ö	226010	Starfish	Pail	6 to 8"	Plain	\$3.20	\$2.70
	226011	Starfish	1 Per Bag	6 to 8"	Plain	\$3.20	
	226012	Starfish	Bulk Bag	6 to 8"	Plain	\$3.20	\$2.70
	5 to 6"						
	226020	Starfish	Pail	5 to 6"	Plain	\$3.05	\$2.55
	226022	Starfish	Bulk Bag	5 to 6"	Plain	\$3.05	\$2.55
	31/2 to 5"						
	226030	Starfish	Pail	31/2 to 5"	Plain	\$2.60	\$2.10

Color Injection:

Plain: No color injection



226000 Echinoderm Collection

Starfish Starfish Procedured a Procedured

221440M Starfish Dissection BioKit with Dissection Mats

Echinoderm Collection 11

The specimens in the Echinoderm Collection can be used as teacher demonstration models or can be dissected by students working in groups at separate stations. Five Echinoderm specimens from 4 different Echinoderm classes are provided in individual containers for observation and dissection. Students compare symmetry, locomotion, and feeding styles as well as structures dealing with the digestive, reproductive, and water vascular systems. Includes teacher's manual and student guide containing reproducible blackline masters, background information, dissection guides for each of the 5 animals, and reflection questions.

226000 Per set \$29.95

Starfish Dissection BioKit® 1

For a class of 30. Introduces students to the anatomy of an echinoderm. **Kit** includes 30 plain starfish, 30 self-locking storage bags, and a teacher's manual with blackline masters for reproducible student guides. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Starfish Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

 221440
 Kit
 Each
 \$74.00

 221440M
 Kit with Dissection Mats
 Each
 \$162.00

Teacher Testimonial

"I have used Carolina Biological since I've been teaching. Every product has come in high-quality form and has aided the students in producing high-quality work. I will always order from the best: Carolina Biological!"

Brittney Howell

7th-Grade Life Sciene Teacher Indian Land Middle School Lancaster County, SC Visit our online catalog at Carolina.com for our complete selection of preserved specimens and organisms.



Mollusks

The Complex, Intelligent Squid

The squid is a fascinating animal that can be used to pique students' curiosity. A complex, intelligent invertebrate, the squid entices students to learn more and compare its peculiar structures to both higher- and lower-level animals. Use squid to teach animal diversity as students:

- Study anatomical features that are readily observable
- Investigate structural adaptations
- Observe relationships between form and function



Carolina's Perfect Solution® Squid A

Loligo pealeii or Illex illecebrosus. Preserved in safe, nontoxic Carolina's Perfect Solution®.

	Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
	12" and U	o					
Ö	224904	PS Squid	Pail	12"+	Plain	\$11.00	\$10.10
	224905	PS Squid	1 Per Bag	12"+	Plain	\$11.00	
	224906	PS Squid	Bulk Bag	12"+	Plain	\$11.00	\$10.10
	224924	PS Squid	Pail	12"+	Double	\$16.90	\$16.00
Ö	224925	PS Squid	1 Per Bag	12"+	Double	\$16.90	
	224926	PS Squid	Bulk Bag	12"+	Double	\$16.90	\$16.00
	8 to 12"						
	224934	PS Squid	Pail	8 to 12"	Plain	\$8.40	\$7.65
	224935	PS Squid	1 Per Bag	8 to 12"	Plain	\$8.40	
	224936	PS Squid	Bulk Bag	8 to 12"	Plain	\$8.40	\$7.65
	224964	PS Squid	Pail	8 to 12"	Double	\$14.15	\$13.25
	224965	PS Squid	1 Per Bag	8 to 12"	Double	\$14.15	
	224966	PS Squid	Bulk Bag	8 to 12"	Double	\$14.15	\$13.25
	Up to 8"						
	224954	PS Squid	Pail	Up to 8"	Plain	\$5.50	\$5.00
	224955	PS Squid	1 Per Bag	Up to 8"	Plain	\$5.50	
	224956	PS Squid	Bulk Bag	Up to 8"	Plain	\$5.50	\$5.00

Color Injection:

Plain: No color injection Double: Blue veins, red arteries

Formalin Squid A

Loligo pealeii or Illex illecebrosus. Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Body Length	Color Injection	Each	10+ Each
12" and Up						
224900	Squid	Pail	12"+	Plain	\$9.40	\$8.65
224901	Squid	1 Per Bag	12"+	Plain	\$9.40	
224902	Squid	Bulk Bag	12"+	Plain	\$9.40	\$8.65
224910	Squid	Pail	12"+	Single	\$11.65	\$10.90
224911	Squid	1 Per Bag	12"+	Single	\$11.65	
224912	Squid	Bulk Bag	12"+	Single	\$11.65	\$10.90
224920	Squid	Pail	12"+	Double	\$15.15	\$14.25
224921	Squid	1 Per Bag	12"+	Double	\$15.15	
224922	Squid	Bulk Bag	12"+	Double	\$15.15	\$14.25
8 to 12"						
224930	Squid	Pail	8 to 12"	Plain	\$6.95	\$6.20
224931	Squid	1 Per Bag	8 to 12"	Plain	\$6.95	
224932	Squid	Bulk Bag	8 to 12"	Plain	\$6.95	\$6.20
224940	Squid	Pail	8 to 12"	Single	\$8.55	\$7.80
224941	Squid	1 Per Bag	8 to 12"	Single	\$8.55	
224942	Squid	Bulk Bag	8 to 12"	Single	\$8.55	\$7.80
Up to 8"						
224950	Squid	Pail	Up to 8"	Plain	\$4.05	\$3.55
224951	Squid	1 Per Bag	Up to 8"	Plain	\$4.05	
224952	Squid	Bulk Bag	Up to 8"	Plain	\$4.05	\$3.55

Color Injection:

Plain: No color injection Single: Blue veins Double: Blue veins, red arteries



224970 Carolina's Young Scientist Squid Dissection Kit

Carolina's Young Scientist™ Squid Dissection

Pique students' interest in animal anatomy with the squid—a fascinating invertebrate with peculiar structures that students can compare to higher- and lower-level animals. This introductory-level dissection activity guides students to locate and identify the squid's external and internal features. Designed for 1 or 2 students, the kit includes teacher's manual with instructional tips and additional resources, step-bystep guide for the student with labeled color images, and FREE 1-year access to digital resources that support 3-dimensional instruction.

224970 Per kit \$12.70

Mollusks/Other Invertebrates



221400 Mussel Dissection BioKit

Mussel Dissection BioKit® 1

For a class of 30. Introduces students to the anatomy of the pelecypods or bivalve mollusks. Kit includes 30 mussels, 30 self-locking storage bags, FREE 1-year access to digital resources, and a teacher's manual with reproducible student guide. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221400 Per kit **\$76.00**

Preserved Organisms



Formalin Freshwater Mussel ¹

Freshwater mussel (*Pyganodon grandis*, also known by the synonym *Anodonta grandis*), 3"+, pegged. Preserved in formalin, shipped in Carosafe® in a pail.

224846 Each **\$3.15** 10+ Each **\$2.40**

224846 Formalin Freshwater Mussel

Preserved Quahog ↑¹ Mercenaria sp. Large, thickshelled marine clam. These specimens are graded no. 1 and 2 by commercial fish dealers. Shipped in a pail.

224864 Each \$3.80 10+ Each \$3.05

Other Invertebrates

Grantia A

Simple sycon-type marine sponge.

224005 Vial of 10 **\$19.55**



224005 Grantia



224228 Sea Anemone

Formalin Anthozoans (sea anemone) A

Preserved in formalin. Shipped in Carosafe®. **Note:** An order of multiple units may be packed in 1 jar.

	Item No.	Name and Description	Each	10+ Each
8	224228	Sea Anemone (Metridium) Expanded. Large, 2"+ diam at base.	\$7.50	\$6.60
	224232	Sea Anemone (Metridium) Medium, up to 2" diam at base.	\$5.20	\$4.45

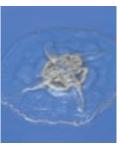


224070 Commercial Sponge Set

Commercial Sponge Set

Dry. One each of sheep's wool, yellow, grass, and hard head. Each specimen is about 4" in diameter.

224070 Per set \$62.50



224192 Common Jellyfish

Formalin Scyphozoans (jellyfish) ▲¹ Preserved in formalin. Shipped in Carosafe®. Note: An order of multiple units may be packed in 1 jar.

8	Item No.	Name and Description	Each	10+ Each
	224192	Common Jellyfish (Aurelia) Extra large, 4 to 6".	\$5.40	\$4.70
	224196	Common Jellyfish (Aurelia) Large, 3 to 4".	\$4.95	\$4.25

Carosafe®.

224405 Tube of 10

224410 Unit of 100

Ascaris lumbricoides ▲¹
Preserved in formalin. Shipped in



224405 Ascaris lumbricoides



\$23.00

\$204.00

Preserved Organisms Preserved Organs

Cow Organs

Carolina's Perfect Solution® Cow Organs A

Preserved in safe, nontoxic Carolina's Perfect Solution®.

Item No.	Name	Package Type	Color Injection	Each	10+ Each
Cow Eyes					
228903	PS Cow Eye	Pail	Plain	\$4.50	\$3.95
228904	PS Cow Eye	1 Per Bag	Plain	\$4.50	
228906	PS Cow Eye	Bulk Bag	Plain	\$4.50	\$3.95

Color Injection:

Plain: No color injection

Formalin Cow Organs At

Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Color Injection	Each	10+ Each
Cow Ey	es				
228900	Cow Eye	Pail	Plain	\$3.65	\$3.00
228901	Cow Eye	1 Per Bag	Plain	\$3.65	
228902	Cow Eye	Bulk Bag	Plain	\$3.65	\$3.00
Cow He	earts				
228910	Cow Heart With base of aorta attached; large, 41/2 lb average.	Pail	Plain	\$46.00	\$44.00
228911	Cow Heart With base of aorta attached; large, 41/2 lb average.	1 Per Bag	Plain	\$46.00	\$44.00
Cow Sp	inal Cord				
228920	Cow Spinal Cord 4" portion.	Pail	Plain	\$8.25	\$7.50
Bull Tes	sticles				
228930	Bull Testicle	Pail	Plain	\$14.15	\$13.15
228931	Bull Testicle	1 Per Bag	Plain	\$14.15	\$13.15

Color Injection:

Plain: No color injection

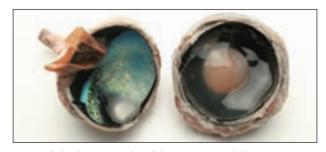
Eye Dissection Student Kit A³ Featuring a Carolina's Perfect Solution[®] specimen

For 1 or 2 students. Whether learning is in class or remote, this kit allows students to guide themselves easily through an exploration of the external and internal anatomy of the mammalian eye. Includes preserved cow eye, student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, and comprehensive dissection manual.

221310 Per kit \$16.75

Large-Scale Dissection

Because of their larger size, preserved cow organs give your students the opportunity to examine the structures of the eye and heart in greater detail.



A simple cross section of the cow eye reveals important structures such as the lens, retina, and vitreous humor.





228910 Formalin Cow Heart



228905M Mammalian Eye Dissection BioKit with Dissection Mats

Mammalian Eye Dissection BioKit® ▲¹ Featuring Carolina's Perfect Solution® specimens

For a class of 30. This hands-on dissection introduces students to the features of the eye and provides a detailed study of internal structures and physiology. **Kit** includes 30 Carolina's Perfect Solution® cow eyes, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Eye Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

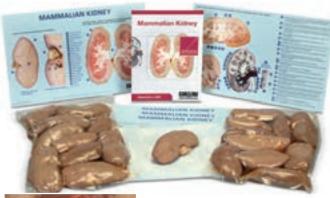
 228905
 Kit
 Each
 \$109.00

 228905M
 Kit with Dissection Mats
 Each
 \$197.00





Pig Organs Pig Organs





228585M Mammalian Kidney Dissection BioKit with Dissection Mats (above) and kidney dissected (inset)

Mammalian Kidney Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the kidney and its functions through hands-on dissection. Provides a detailed study of the internal features and physiology of the kidney. Kit includes 30 Carolina's Perfect Solution® pig kidneys, 30 self-locking storage bags, and a teacher's manual with blackline masters for reproducible student guides. Kit with Dissection Mats includes all of the above plus 15 Carolina® Kidney Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

Each \$240.00 Kit with Dissection Mats Each 228585M \$328.00



228650 Demonstration Pig Heart

Demonstration Pig Heart ▲

All 4 chambers are exposed. Right and left ventricles are cut on both sides of the muscular interventricular septum (from apex to base of auricles) to expose valves, papillary muscles, etc. Packed in resealable bag. Includes illustrated key.

228650 Each \$126.00

Visit Carolina.com for new

products and current pricing.

Preserved Organisms

Carolina's Perfect Solution® Pig Organs A

Preserved in safe, nontoxic Carolina's Perfect Solution®.

Item		Package	Color		10+
No.	Name	Туре	Injection	Each	Each
Pig Eyes					
228553	PS Pig Eye	Pail	Plain	\$2.45	\$2.00
228554	PS Pig Eye	1 Per Bag	Plain	\$2.45	
228555	PS Pig Eye	Bulk Bag	Plain	\$2.45	\$2.00
Pig Heart	s				
228563	PS Pig Heart	Pail	Plain	\$12.50	\$11.20
228564	PS Pig Heart	1 Per Bag	Plain	\$12.50	\$11.20
Pig Kidne	eys				
228573	PS Pig Kidney	Pail	Plain	\$9.25	\$8.50
228574	PS Pig Kidney	1 Per Bag	Plain	\$9.25	
228575	PS Pig Kidney	Bulk Bag	Plain	\$9.25	\$8.50
228576	PS Pig Kidney	Pail	Double	\$12.65	\$11.90
228577	PS Pig Kidney	1 Per Bag	Double	\$12.65	
228578	PS Pig Kidney	Bulk Bag	Double	\$12.65	\$11.90
228586	PS Pig Kidney	Pail	Triple	\$14.10	\$13.35
228587	PS Pig Kidney	1 Per Bag	Triple	\$14.10	
228588	PS Pig Kidney	Bulk Bag	Triple	\$14.10	\$13.35

Color Injection:

Plain: No color injection

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow uriniferous tubules

Formalin Pig Organs A

Preserved in formalin. Shipped in Carosafe®.

Item No.	Name	Package Type	Color Injection	Each	10+ Each
Pig Hearts					
228560	Pig Heart	Pail	Plain	\$10.50	\$9.20
228561	Pig Heart	1 Per Bag	Plain	\$10.50	\$9.20
Pig Kidneys					
228570	Pig Kidney	Pail	Plain	\$8.05	\$7.30
228571	Pig Kidney	1 Per Bag	Plain	\$8.05	
228572	Pig Kidney	Bulk Bag	Plain	\$8.05	\$7.30
228581	Pig Kidney	1 Per Bag	Double	\$11.35	
228582	Pig Kidney	Bulk Bag	Double	\$11.35	\$10.60
228590	Pig Kidney	Pail	Triple	\$13.50	\$12.75
228591	Pig Kidney	1 Per Bag	Triple	\$13.50	
228592	Pig Kidney	Bulk Bag	Triple	\$13.50	\$12.75

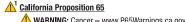
Color Injection:

Plain: No color injection

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow uriniferous tubules





Study Form and Function

Dissecting sheep organs allows students to explore the physiological links between organ systems and identify the general structures representative of mammals.

Carolina's Perfect Solution® Sheep Organs At

Preserved in safe, nontoxic Carolina's Perfect Solution®,

	Item No.	Name and Description	Package Type	Color Injection	Each	10+ Each
ľ	Sheep E	Brains				
	228703	PS Sheep Brain Dura mater removed; optic chiasma intact.	Pail	Plain	\$17.60	\$16.60
	228704	PS Sheep Brain Dura mater removed; optic chiasma intact.	1 Per Bag	Plain	\$17.60	
	228705	PS Sheep Brain Dura mater removed; optic chiasma intact.	Bulk Bag	Plain	\$17.60	\$16.60
	228709	PS Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	Pail	Single	\$29.00	\$28.00
	228713	PS Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	1 Per Bag	Single	\$29.00	
	228714	PS Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	Bulk Bag	Single	\$29.00	\$28.00
	228717	PS Sheep Brain Dura mater, hypophysis (pituitary gland), and cranial nerve roots intact.	Pail	Plain	\$21.25	\$20.25
	228718	PS Sheep Brain Dura mater, hypophysis (pituitary gland), and cranial nerve roots intact.	1 Per Bag	Plain	\$21.25	
	228719	PS Sheep Brain Dura mater, hypophysis (pituitary gland), and cranial nerve roots intact.	Bulk Bag	Plain	\$21.25	\$20.25
	228723	PS Sheep Brain in Cranial Case Whole brain. Cranial case cracked for easier brain removal.	Pail	Plain	\$18.60	\$17.60
	228733	PS Sheep Half Brain Cut longitudinally through the median plane. Complete with nerve roots and other structures.	Pail	Plain	\$11.95	\$10.95
	228734	PS Sheep Half Brain Cut longitudinally through the median plane. Complete with nerve roots and other structures.	1 Per Bag	Plain	\$11.95	
	228735	PS Sheep Half Brain Cut longitudinally through the median plane. Complete with nerve roots and other structures.	Bulk Bag	Plain	\$11.95	\$10.95
	228796	PS Sheep Brain Dura mater removed; hypophysis intact.	Pail	Plain	\$19.05	\$18.05
	228797	PS Sheep Brain Dura mater removed; hypophysis intact.	1 Per Bag	Plain	\$19.05	
	228798	PS Sheep Brain Dura mater removed; hypophysis intact.	Bulk Bag	Plain	\$19.05	\$18.05



228703 Carolina's Perfect Solution Sheep Brain

	220703 Carolina's Perfect Solution Sneep Brain						
	Item No.	Name and Description	Package Type	Color Injection	Each	10+ Each	
	Sheep Eyes						
	228763	PS Sheep Eye	Pail	Plain	\$2.70	\$1.90	
	228764	PS Sheep Eye	1 Per Bag	Plain	\$2.70		
	228765	PS Sheep Eye	Bulk Bag	Plain	\$2.70	\$1.90	
	Sheep Hearts						
	228773	PS Sheep Heart	Pail	Plain	\$9.55	\$8.55	
		PS Sheep Heart	1 Per Bag	Plain	\$9.55	-	
	228775	PS Sheep Heart	Bulk Bag	Plain	\$9.55	\$8.55	
Ó	228793	PS Sheep Heart in Pericardium	Pail	Plain	\$16.20	\$15.20	
	228794	PS Sheep Heart in Pericardium	1 Per Bag	Plain	\$16.20		
	228795	PS Sheep Heart in Pericardium	Bulk Bag	Plain	\$16.20	\$15.20	
	228833	PS Sheep Pluck Heart with aorta and lungs with trachea.	Pail	Plain	\$22.70	\$21.70	
	228834	PS Sheep Pluck Heart with aorta and lungs with trachea.	1 Per Bag	Plain	\$22.70		
	228843	PS Sheep Pluck with Liver Heart with aorta, lungs with trachea, and liver.	Pail	Plain	\$25.70	\$24.70	
	228844	PS Sheep Pluck with Liver Heart with aorta, lungs with trachea, and liver.	1 Per Bag	Plain	\$25.70		
	Sheep I	Kidneys					
	228803	PS Sheep Kidney	Pail	Plain	\$7.60	\$6.60	
	228804	PS Sheep Kidney	1 Per Bag	Plain	\$7.60		
	228805	PS Sheep Kidney	Bulk Bag	Plain	\$7.60	\$6.60	
	228813	PS Sheep Kidney	Pail	Double	\$9.45	\$8.45	
	228814	PS Sheep Kidney	1 Per Bag	Double	\$9.45		
- [PS Sheep Kidney	Bulk Bag		\$9.45	\$8.45	
		PS Sheep Kidney	Pail	Triple	\$11.00	\$10.00	
		PS Sheep Kidney	1 Per Bag		\$11.00		
	228825	PS Sheep Kidney	Bulk Bag	Triple	\$11.00	\$10.00	

Color Injection:

Plain: No color injection Single: Red arteries

Double: Red arteries, blue systemic veins

Triple: Red arteries, blue systemic veins, yellow uriniferous tubules



Sheep Organs

Formalin Sheep Organs 1 Preserved in formalin. Shipped in Carosafe®.

	Item No.	Name and Description	Package Type	Color Injection	Each	10+ Each	
	Sheep Brains						
	228700	Sheep Brain Dura mater removed. Optic chiasma intact.	Pail	Plain	\$15.65	\$14.65	
	228701	Sheep Brain Dura mater removed. Optic chiasma intact.	1 Per Bag	Plain	\$15.65		
	228702	Sheep Brain Dura mater removed. Optic chiasma intact.	Bulk Bag	Plain	\$15.65	\$14.65	
	228710	Sheep Brain Dura mater intact. With hypophysis and cranial nerve roots intact.	Pail	Plain	\$19.80	\$18.80	
	228711	Sheep Brain Dura mater intact. With hypophysis and cranial nerve roots intact.	1 Per Bag	Plain	\$19.80		
	228712	Sheep Brain Dura mater intact. With hypophysis and cranial nerve roots intact.	Bulk Bag	Plain	\$19.80	\$18.80	
	228720	Sheep Brain in Cranial Case Dura mater, hypophysis, and cranial nerve roots intact. With 1/8 to 1/2" of bone, which has been cracked in several places to make removal easier.	Pail	Plain	\$17.10	\$16.10	
	228730	Sheep Half Brain Cut longitudinally through the median plane. Each half is complete with nerve roots and other structures.	Pail	Plain	\$10.50	\$9.50	
	228731	Sheep Half Brain Cut longitudinally through the median plane. Each half is complete with nerve roots and other structures.	1 Per Bag	Plain	\$10.50		
	228732	Sheep Half Brain Cut longitudinally through the median plane. Each half is complete with nerve roots and other structures.	Bulk Bag	Plain	\$10.50	\$9.50	
	228706	Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	Pail	Single	\$26.85	\$25.85	
	228707	Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	1 Per Bag	Single	\$26.85		
	228708	Sheep Brain Dura mater removed. Injected arteries to aid in studying the brain's circulatory system.	Bulk Bag	Single	\$26.85	\$25.85	
	228745	Sheep Brain Dura mater removed. Hypophysis intact.	Pail	Plain	\$17.05	\$16.05	
	228746	Sheep Brain Dura mater removed. Hypophysis intact.	1 Per Bag	Plain	\$17.05		
	228747	Sheep Brain Dura mater removed. Hypophysis intact.	Bulk Bag	Plain	\$17.05	\$16.05	

Color Injection:

Plain: No color injection Single: Red arteries

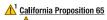
Double: Red arteries, blue systemic veins **Triple:** Red arteries, blue systemic veins, yellow uriniferous tubules

Preserved Organisms

Item No.	Name and Description	Package Type	Color Injection	Each	10+ Each	
Sheep Eyes						
228760	Sheep Eye	Pail	Plain	\$2.00	\$1.20	
228761	Sheep Eye	1 Per Bag	Plain	\$2.00		
228762	Sheep Eye	Bulk Bag	Plain	\$2.00	\$1.20	
Sheep H	learts					
228770	Sheep Heart With base of aorta attached.	Pail	Plain	\$7.35	\$6.35	
228771	Sheep Heart With base of aorta attached.	1 Per Bag	Plain	\$7.35		
228772	Sheep Heart With base of aorta attached.	Bulk Bag	Plain	\$7.35	\$6.35	
228790	Sheep Heart in Pericardium With base of aorta attached.	Pail	Plain	\$14.00	\$13.00	
228791	Sheep Heart in Pericardium With base of aorta attached.	1 Per Bag	Plain	\$14.00		
228792	Sheep Heart in Pericardium With base of aorta attached.	Bulk Bag	Plain	\$14.00	\$13.00	
228830	Sheep Pluck Heart with aorta and lungs with trachea.	Pail	Plain	\$19.25	\$18.25	
228831	Sheep Pluck Heart with aorta and lungs with trachea.	1 Per Bag	Plain	\$19.25		
228840	Sheep Pluck with Liver Heart with aorta, lungs with trachea, and liver.	Pail	Plain	\$22.50	\$21.50	
228841	Sheep Pluck with Liver Heart with aorta, lungs with trachea, and liver.	1 Per Bag	Plain	\$22.50		
Sheep Kidneys						
228800	Sheep Kidney	Pail	Plain	\$6.50	\$5.50	
228801	Sheep Kidney	1 Per Bag	Plain	\$6.50		
228802	Sheep Kidney	Bulk Bag	Plain	\$6.50	\$5.50	
228810	Sheep Kidney	Pail	Double	\$8.35	\$7.35	
228811	Sheep Kidney	1 Per Bag		\$8.35		
228812	Sheep Kidney	Bulk Bag	Double	\$8.35	\$7.35	
228820	Sheep Kidney	Pail	Triple	\$9.90	\$8.90	
228821	Sheep Kidney	1 Per Bag		\$9.90		
228822	Sheep Kidney	Bulk Bag	Triple	\$9.90	\$8.90	



228712 Formalin Sheep Brain with dura mater intact



Preserved Organisms Botany & Herbarium Supplies

and Seeds Survey Set

Seeds

268850 Per set \$104.00

Botany & Herbarium Supplies



Professional Plant Press

Constructed of hardwood strips firmly held together by rivets at all outside joints and 5/8" double-prong staples at all others. Will withstand hard usage. Comes with 25 high-grade blotting-paper driers, 25 ventilators, and two 1 × 72", extra-heavy web straps with springclosing, lever-release buckles. Press can extend to hold many specimens. Size, 18 × 12"; wt, 9 lb, 6 oz.

663050 Each \$280.00

Herbarium Mounting Paper

Good grade. Acid-free, flexible, white ledger paper. The paper is .188" thick. Size, $11^{1}/_{2} \times 16^{1}/_{2}$ ".

663211 Pack of 100 \$46.00



with the scientific and common name of the tree and features additional ecological information about the tree. Visit Carolina.com for a complete list of trees.



223500 Leaf Identification Kit

Leaf Identification Kit

Grades 3-12. Students learn to key out, identify, and classify leaves by shape, size, veins, margins, and position on twigs. Contains 39 tree leaves (3 each of 13 species), leaf identification key, 61-page Tree Finder book, and teacher's guide with hands-on activities.

223500 Per kit \$72.00





268846 Monocot and Dicot Comparison

Monocot and Dicot Comparison

Biorama[™] preparation. Using this botanical mount, students visually learn and explore the differences between monocots and dicots based on leaf structures, embryos, stems, pollen grains, and flowers. Each of these defining characteristics is represented and includes a brief explanation for both types of plant. Mounted in a 16 \times 12" Riker mount.

268846 Each \$93.00



268842 Leaf Shapes and Arrangements

Leaf Shapes and Arrangements

Biorama[™] preparation. Use this botanical mount to explore the shapes of simple and compound leaves while also examining the 3 types of leaf arrangements. Simple leaves with the following shapes are mounted first: linear, elliptic, fan, cordate, needle, lanceolate, rhomboid, scaled, deltoid, and oblong. Compound leaves with trifoliate, palmate, pinnate, and bipinnate shapes are mounted next. The last samples on the mount illustrate the 3 common leaf arrangements: alternate (1 leaf per node), opposite (2 leaves per node), and whorled (3 or more leaves per node). With this introductory mount, students easily learn how to classify leaves—a significant step in plant identification. Mounted in a 14 × 21" Riker mount.

268842 Each \$145.00

Dissection Kits

Dissection Kits

Dissection Student Kits



221310 Eye Dissection Student Kit

Eye Dissection Student Kit 1 Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Whether learning is in class or remote, this kit allows students to guide themselves easily through an exploration of the external and internal anatomy of the mammalian eye. Includes preserved cow eye, student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, and comprehensive dissection manual.

221310 Per kit \$16.75



221320 Advanced Brain Dissection Student Kit

Advanced Brain Dissection Student Kit 1 Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Studying the core organ of the nervous system has never been easier, whether students are physically distanced in class or learning remotely. Includes preserved sheep brain with dura mater intact, student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, and comprehensive dissection manual.

221320 Per kit \$32.50

Preserved Organisms



221314 Heart Dissection Student Kit

Heart Dissection Student Kit 1 Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Teaching the cardiovascular system shouldn't flatline because of in-class physical distancing or remote instruction policies. Kit allows students to guide themselves easily through a dissection of a mammalian heart. Includes preserved sheep heart, student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, and comprehensive dissection manual.

221314 Per kit \$19.00



221340 Pig Dissection Student Kit

Pig Dissection Student Kit ▲³ Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Whether students are physically distancing in the classroom or learning remotely, this kit helps them explore mammalian anatomy, including the digestive, urogenital, circulatory, and respiratory systems. Includes an 11–14" double-injected pig (red arteries, blue veins), student dissecting set, PPE (gloves and safety glasses), disposable dissection tray, plastic storage bag, and comprehensive dissection manual.

221340 Per kit \$47.75

Everything needed for an individual dissection, including PPE!



Dissection Kits

Carolina's Young Scientist™ Dissection Series

Carolina's Young Scientist™ Dissection Kits provide an introductory-level dissection activity for 1 or 2 students. With easy-to-follow instructions and labeled color images, the kits help budding young scientists in elementary and middle school to learn basic anatomy.



221021 Carolina's Young Scientist Animal Dissection Kit

Carolina's Young Scientist™ Animal Dissection Kit ▲¹ Featuring Carolina's Perfect Solution® specimens

Dissection is still the best method to teach anatomy and body systems. This step-by-step, illustrated starter kit is designed for use by 1 or 2 students and includes all the materials and instructions needed for a budding biologist. The included Carolina's Perfect Solution® specimens are safe, realistic, pleasant to work with, and do not require any special disposal. This kit introduces beginners to basic dissection techniques and internal and external anatomy of 4 very different animals: earthworm, crayfish, grasshopper, and frog. **Replacement Animals Set** includes 1 each of the 4 specimens. Kit and set also include 1-year access to digital resources that support 3-dimensional instruction.

221021 Complete Kit Each **\$28.75 221022** Replacement Animals Set Each **\$14.55**

Customer Review

"What a bargain! To have the entire kit for this amount of money is great. Made it possible to supply the entire classroom with their own kits, so nobody had to share. EXCELLENT!"

Middle School Biology Teacher



221521 Carolina's Young Scientist Frog Dissection Kit

Carolina's Young Scientist™ Frog Dissection Kit ▲¹ Featuring a Carolina's Perfect Solution® specimen

Through specimen observation and dissection, students learn basic frog anatomy and gain a better understanding of this amphibian. The step-by-step procedures and labeled color images help students locate and identify external and internal features of the frog. Designed for 1 or 2 students, the kit features a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

221521 Per kit \$14.95



226945 Carolina's Young Scientist Perch Dissection Kit

Carolina's Young Scientist™ Perch Dissection Kit <u>^</u>

Students use specimen observation and dissection skills to learn basic vertebrate anatomy and gain a better understanding of bony fish. Step-by-step procedures and labeled color images help students locate and identify external and internal features of the perch. Designed for 1 or 2 students, the set includes a teacher's manual with instructional tips, extension activities, and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

226945 Per kit \$11.25

Dissection Kits



226015 Carolina's Young Scientist Starfish Dissection Kit

Carolina's Young Scientist™ Starfish Dissection Kit ≜1

Through specimen observation and dissection, students learn basic echinoderm anatomy and gain a better understanding of this invertebrate. Students use step-by-step procedures with labeled color images to locate and identify external and internal features of the starfish. Designed for 1 or 2 students, the kit features a teacher's manual with instructional tips, extension activities, and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

226015 Per kit \$12.00

Preserved Organisms



224970 Carolina's Young Scientist Squid Dissection Kit

Carolina's Young Scientist™ Squid Dissection Kit <u>\lambda</u>¹

Pique students' interest in animal anatomy with the squid—a fascinating inverte-brate with peculiar structures that students can compare to higher- and lower-level animals. This introductory-level dissection activity guides students to locate and identify the squid's external and internal features. Designed for 1 or 2 students, the kit includes teacher's manual with instructional tips and additional resources and a step-by-step guide for the student with labeled color images. Designed for 1 or 2 students, the kit includes teacher's manual with instructional tips and additional resources, step-by-step guide for the student with labeled color images, and FREE 1-year access to digital resources that support 3-dimensional instruction.

224970 Per kit \$12.70



225299 Carolina's Young Scientist Crayfish Dissection Kit

Carolina's Young Scientist™ Crayfish Dissection Kit ▲¹ Featuring a Carolina's Perfect Solution® specimen

Students achieve a greater understanding of the crayfish, a popular invertebrate, through hands-on dissection and exploration of the crustacean anatomy. This kit leads 1 or 2 students through an introductory-level dissection activity to locate and identify the crayfish's external and internal features. Includes teacher's manual with instructional tips and additional resources, separate step-by-step student guide with labeled color images, and FREE 1-year access to digital resources that support 3-dimensional instruction.

225299 Per kit \$11.75



225598 Carolina's Young Scientist Grasshopper Dissection Kit

Carolina's Young Scientist™ Grasshopper Dissection Kit ♣¹ Featuring a Carolina's Perfect Solution® specimen

Students explore the internal and external anatomy of the grasshopper using this introductory-level dissection kit. The simple, step-by-step procedures and color photographs seamlessly guide student investigation. The kit includes all materials needed for 1 or 2 students to perform the dissection and gain a better understanding of grasshopper anatomy. Includes a teacher's manual with instructional tips and additional resources, full-color student guide, and FREE 1-year access to digital resources that support 3-dimensional instruction.

225598 Per kit \$11.00



225024 Carolina's Young Scientist Earthworm Dissection Kit

Carolina's Young Scientist™ Earthworm Dissection Kit Featuring a Carolina's Perfect Solution® specimen

Students explore the internal and external anatomy of the earthworm in this introductory-level kit. Designed for 1 or 2 students, the kit comes with everything needed to complete the dissection of this representative annelid. The simple instructions and color photographs in the student guide help make dissection a cinch. The kit also includes a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

225024 Per kit \$10.75

Dissection Kits



228557 Carolina's Young Scientist Heart Dissection Kit

Carolina's Young Scientist[™] Heart Dissection Kit **△**¹ Featuring a Carolina's Perfect Solution® specimen

Using the pig heart—which is almost identical to a human's—students learn about the basic anatomy of all mammalian hearts. This kit provides a step-by-step student guide (with labeled color images) for 1 or 2 students to participate in an introductory-level dissection activity that includes locating and identifying external and internal features of the heart. Also comes with a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

228557 Per kit \$15.10



228756 Carolina's Young Scientist Brain Dissection Kit

Carolina's Young Scientist[™] Brain Dissection Kit **△**¹ Featuring a Carolina's Perfect Solution® specimen

Students learn about the structures of the brain through dissection and observation of this fascinating organ. The kit includes a step-by-step student guide (with labeled color images) for 1 or 2 students to participate in an introductory-level lesson that includes locating and identifying external and internal features of the brain. Also comes with a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

228756 Per kit \$22.00



228925 Carolina's Young Scientist Eye Dissection Kit

Carolina's Young Scientist™ Eye Dissection Kit ▲¹ Featuring a Carolina's Perfect Solution® specimen

Through observation and dissection, students learn about the structure of the eye. The cow eye is ideal because its large size makes for easy identification of the eye's components. This kit provides a step-by-step student guide (with labeled color images) for 1 or 2 students to participate in an introductory-level dissection activity that includes locating and identifying external and internal features of the eye. Also comes with a teacher's manual with instructional tips and additional resources, plus FREE 1-year access to digital resources that support 3-dimensional instruction.

228925 Per kit \$9.20

Let us make your life easier.

Carolina Kits | 3D⁶

These hands-on investigations have everything you need for consistent, comprehensive student labs.

- Easy prep with included materials and supporting resources
- Engaging activities that emphasize content mastery
- Integrated standards to simplify your 3-dimensional instruction

Get the details at Carolina.com/3D.



CAR()LINA

Dissection Kits Introductory Kits

Preserved Organisms



221020 Basic Animal Dissection Kit

Basic Animal Dissection Kit 11

For basic dissection of 5 animals by 1 or 2 students. Students learn basic dissection techniques as they investigate major anatomical features (internal and external). Includes 5 specimens, Carolina's *Student Dissection Manual*, disposable dissecting trays, and dissection instruments with case.

inc	

Starfish Frog
Earthworm Hand Lens
Crayfish Teasing Needle
Grasshopper Handi-Pins

221020 Per kit \$29.40

Vinyl Ruler
Lens Dropping Pipet
ng Needle Scissors
i-Pins Scalpel

Plastic Forceps
5 Disposable Dissecting Trays



Owl Pellet Explorer Set

Designed for 1 or 2 students, this economical set provides everything needed for the hands-on exploration of a large owl pellet. With the provided tools, students carefully dissect the pellet to separate the bones and fur. Using the large, double-sided dissection mat, they then sort and classify the bones to identify the owl's prey. This set includes a large owl pellet, foam dissection tray, plastic forceps, wooden probes, hand lens, reusable owl pellet dissection mat, and FREE 1-year access to digital resources that support 3-dimensional instruction. **Note:** Our individually wrapped owl pellets are heat sterilized to ensure student safety and are appropriate for all ages.

227802 Per set \$16.75 25+ Sets Each \$15.00



221000 Introduction to Animal Dissection Kit

Introduction to Animal Dissection Kit A

Designed for use by 1 or 2 students, this introductory kit contains all materials needed for studying basic animal anatomy, including 5 specimens packaged together in an easy-to-open, resealable container. Kit also includes plastic dissecting pan with pad and cover, Carolina's *Student Dissection Manual*, dissection instruments with case, and supplies. **Replacement Animals Set** includes 1 each of the 5 specimens.

Kit includes:

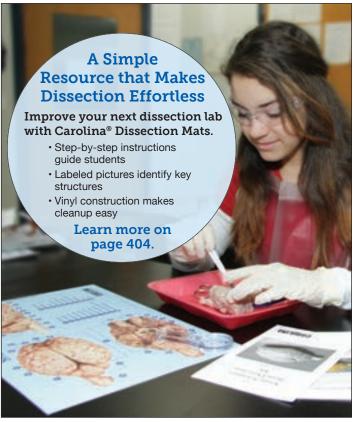
 Starfish
 Frog
 Scissors
 Vinyl Ruler

 Earthworm
 6 "T" Pins
 Forceps
 Straight Teasing Needle

 Crayfish
 Hand Wipes
 Scalpel
 Curved Teasing Needle

 Grasshopper
 Hand Lens
 Dropping Pipet
 Dissection Pan with Pad and Cover

221000 Kit Each **\$58.75** 10+ Each **\$56.75 221010** Replacement Animals Set Each **\$15.20** 10+ Each **\$14.20**



Anatomy Kits



Pig Anatomy Kits 11

Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Both kits include a double-injected (arteries, red latex; veins, blue latex) pig, disposable dissection tray, hand wipes, plastic storage bag, and *Dissection of the Fetal Pig* (item #455793) laboratory manual. **Kit with Dissecting Set** also includes a student dissecting set.

221540 Kit Each \$41.95 221550 Kit with Dissecting Set Each \$57.25



221530 Cat Anatomy Kit

Cat Anatomy Kits A

Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Includes a 14 to 18" double-injected (arteries, red latex; veins, blue latex) cat, disposable dissection mat, hand wipes, plastic storage bag, and *Dissection of the Cat* (item #455573) laboratory manual.

221530 Cat Anatomy Kit Each **\$126.00 221532** Skinned Cat Anatomy Kit Each **\$138.00**

Dissection Kits



221520 Frog Anatomy Kit with Dissecting Set

Frog Anatomy Kit with Dissecting Set A Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Includes a 3 to 4" double-injected (arteries, red latex; hepatic system, blue latex) frog, disposable dissection tray, hand wipes, plastic storage bag, dissection manual, and a student dissecting set.

221520 Per kit \$35.50



For an in-depth exploration of feline anatomy using necropsy protocols, check out Carolina's Feline Necropsy Kit (item #221499) on page 361.



Dissection Kits



228345 Rat Anatomy Kit with Dissecting Set

Rat Anatomy Kit with Dissecting Set ▲¹ Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Includes a 7"+ double-injected (arteries, red latex; veins, blue latex) Carolina's Perfect Solution® rat, disposable dissection tray, hand wipes, plastic storage bag, *Dissection of the Rat* laboratory manual, and student dissecting set.

228345 Per kit \$31.00



221580 Perch Anatomy Kit with Dissecting Set

Perch Anatomy Kit with Dissecting Set ▲

For 1 or 2 students. This is a great kit for introducing your students to anatomy. It includes a double-injected perch (arterial system, red latex; hepatic system, blue latex), disposable dissection tray, lab tools, a bag for storing the specimen between observations, and a dissection manual. The manual is easy to follow and provides step-by-step procedures that walk you through the dissection and help your students better understand fish anatomy.

221580 Per kit \$25.95

Preserved Organisms



From 221570 Rabbit Anatomy Kit with Dissecting Set

Rabbit Anatomy Kit with Dissecting Set 1 Featuring a Carolina's Perfect Solution® specimen

For 1 or 2 students. Study mammalian anatomy with a preserved rabbit specimen. Includes a Carolina's Perfect Solution® double-injected (arteries, red latex; veins, blue latex) rabbit, a disposable dissection mat, hand wipes, a plastic storage bag, a dissection laboratory manual, and a student dissecting set.

221570 Per kit \$78.95



221500 Shark Anatomy Kit

Shark Anatomy Kit A

For 1 or 2 students. Includes a 22 to 27" double-injected (arteries, red latex; hepatic portal, yellow latex) dogfish, disposable dissection mat, hand wipes, plastic storage bag, and *Photo Manual and Dissection Guide of the Shark* (item #454667).

221500 Per kit \$42.50

Dissection Kits

Carolina® BioKit® Dissection Series

The Carolina® BioKit® is a single-concept classroom unit that gives students a hands-on approach to biology. Each kit contains materials for at least 30 students plus teacher's manual with reproducible student guide that includes labeled diagrams, glossary, and information regarding the specimen's anatomy and physiology. Kits with Carolina's Perfect Solution® specimens also include information about the fixative. A second version of select BioKits comes with 15 Carolina® Dissection Mats, matched to the kit's preserved specimen. The extremely popular 11 × 17" double-sided mats are made of durable vinyl with labeled color photographs, to aid your students in their study of anatomy.



221480M Pig Dissection BioKit with Dissection Mats



Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic mammalian anatomy through dissection of the pig. Also gives an excellent demonstration of fetal circulation. Kit includes 15 Carolina's Perfect Solution® double-injected (arteries, red latex; veins, blue latex) pigs, 15 storage bags, a roll of cord, and a teacher's manual with reproducible student guide. Kit with Dissection Mats includes all of the above plus 15 Carolina® Pig Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221480 Kit Fach \$452.00 221480M Kit with Dissection Mats Each \$540.00



Rat Dissection BioKit® 11

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Students, working in pairs, study the external anatomy of the rat and explore its major internal organs and organ systems through inquiry-based dissection. Kit includes 15 plain Carolina's Perfect Solution® rats as well as a detailed teacher's manual with dissection instructions, extension activities, reproducible student sheets, background information, glossary of terms, and dissection questions for discussion. Kit with Dissection Mats includes all of the above plus 15 Carolina® Rat Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

Each \$198.00 221487 Kit 221487M Kit with Dissection Mats Each \$286.00



221483 Mink Dissection BioKit

Mink Dissection BioKit® 11

Featuring Carolina's Perfect Solution® specimens

Grade 9-College. For a class of 30. Students working in pairs study the basic external anatomy of the mink, a carnivorous mammal, and explore its internal organs and organ systems through guided dissection. Kit includes 15 plain Carolina's Perfect Solution® mink and 15 plastic storage bags. Teacher's manual contains dissection instructions, extension activities, reproducible student sheets, background information, glossary, and discussion questions.

221483 Per kit \$218.00



221497M Advanced Rat Dissection BioKit with Dissection Mats

Advanced Rat Dissection BioKit® A

- Featuring Carolina's Perfect Solution® double-injected rats
- · Also includes a cleared and stained rat

For a class of 30. Students, working in pairs, perform an in-depth study of the rat by examining its external anatomy and performing an inquiry-based dissection of its major internal organs and systems. This lab provides detailed exploration of the circulatory, urogenital, respiratory, nervous, and skeletal systems. Kit includes 15 double-injected (arteries, red latex; veins, blue latex) Carolina's Perfect Solution® rats as well as a cleared and stained rat to use for display and to study skeletal structure. Kit also includes a detailed teacher's manual with dissection instructions, extension activities, reproducible student sheets, background information, glossary of terms, and dissection guestions for discussion. Kit with Dissection Mats includes all of the above plus 15 Carolina® Rat Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

221497 Each \$285.00 Kit with Dissection Mats Each 221497M \$373.00



221460M Frog Dissection BioKit with Dissection Mats

Frog Dissection BioKit® 1

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic vertebrate anatomy through dissection of the frog, a typical vertebrate. **Kit** includes 15 Carolina's Perfect Solution® plain frogs, 15 disposable dissecting trays, 15 storage bags, and a teacher's manual with reproducible student guide. Student guide includes full-color photos, step-by-step instructions, and prelab and postlab assessments. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Frog Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221460 Kit Each **\$102.00 221460M** Kit with Dissection Mats Each **\$190.00**



221448 Shark Dissection BioKit

Shark Dissection BioKit® 1

Grade 9–College. For a class of 30. During this hands-on dissection students study the external anatomy of the dogfish shark, a cartilaginous fish, and then explore its internal organs and organ systems. Kit includes 15 plain dogfish sharks, 15 plastic storage bags, and a comprehensive teacher's manual with reproducible student guide. Kit with Dissection Mats includes all the above plus 15 Carolina® Shark Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221448 Kit Each **\$260.00 221448M** Kit with Dissection Mats Each **\$348.00**



221470M Advanced Frog Dissection BioKit with Dissection Mats

Advanced Frog Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. A thorough dissection of the frog. Students study external anatomy, superficial muscles, digestive and urogenital organs, heart and blood vessels, and the central nervous system of the frog. **Kit** includes 15 Carolina's Perfect Solution® double-injected (arteries, red latex; hepatic system, blue latex) frogs, 15 disposable dissecting trays, 15 storage bags, and a detailed teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Frog Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221470 Kit Each **\$140.00 221470M** Kit with Dissection Mats Each **\$228.00**



221450M Perch Dissection BioKit with Dissection Mats

Perch Dissection BioKit® 1

For a class of 30. Introduces students to the anatomy of a bony fish, the most numerous group of vertebrates. **Kit** includes 15 plain perch, 15 self-locking storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Perch Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® at Carolina.com/3D.

221450 Kit Each **\$60.00 221450M** Kit with Dissection Mats Each **\$148.00**



221465 Bullfrog Dissection BioKit

Bullfrog Dissection BioKit® 🛕

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to basic vertebrate anatomy through dissection of the bullfrog, a typical vertebrate. Bullfrogs are larger than grass frogs and offer easier organ identification. Kit includes 15 Carolina's Perfect Solution® bullfrogs, 15 disposable dissecting trays, 15 storage bags, FREE 1-year access to digital resources, and a teacher's manual with reproducible student guide. Student guide includes full-color photos, step-by-step dissection instructions, and prelab and postlab assessments. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221465 Per kit \$222.00

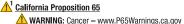


221420M Crayfish Dissection BioKit with Dissection Mats

Crayfish Dissection BioKit® featuring Carolina's Perfect Solution® specimens

For a class of 30. Students study the anatomy of a crustacean, the most widespread group of aquatic arthropods. **Kit** includes 30 Carolina's Perfect Solution® single-injected (circulatory system) crayfish, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Crayfish Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221420 Kit Each **\$58.50 221420M** Kit with Dissection Mats Each **\$146.50**





221475 Advanced Bullfrog Dissection BioKit

Advanced Bullfrog Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. This in-depth dissection study emphasizes the bullfrog's external anatomy, superficial muscles, digestive and urogenital organs, heart and blood vessels, and central nervous system. Bullfrogs are larger than grass frogs and offer easier organ identification. Kit includes 15 Carolina's Perfect Solution® double-injected (arteries, red latex; hepatic system, blue latex) bullfrogs, 15 disposable dissecting trays, 15 storage bags, FREE 1-year access to digital resources, and a detailed teacher's manual with reproducible student guide. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221475 Per kit \$274.00



221485M Squid Dissection BioKit with Dissection Mats

Squid Dissection BioKit® 🕰

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Students study the squid's external and internal anatomy, adaptations, and how form fits function through guided dissection. **Kit** includes 15 Carolina's Perfect Solution® double-injected (red arteries; blue veins) squid, a *Squid Anatomy* poster (item #573998), 15 self-locking storage bags, and a comprehensive teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all the above plus 15 Carolina® Squid Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221485 Kit Each **\$210.00 221485M** Kit with Dissection Mats Each **\$298.00**

Preserved Organisms



221440M Starfish Dissection BioKit with Dissection Mats

Starfish Dissection BioKit® 1

For a class of 30. Introduces students to the anatomy of an echinoderm. **Kit** includes 30 plain starfish, 30 self-locking storage bags, and a teacher's manual with blackline masters for reproducible student guides. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Starfish Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

221440 Kit Each **\$74.00 221440M** Kit with Dissection Mats Each **\$162.00**



221410 Earthworm Dissection BioKit

Earthworm Dissection BioKit® 1

Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the anatomy of the earthworm, a representative annelid. **Kit** includes 30 Carolina's Perfect Solution® earthworms, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Earthworm Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

221410 Kit Each **\$39.00 221410M** Kit with Dissection Mats Each **\$127.00**



221430 Grasshopper Dissection BioKit

Grasshopper Dissection BioKit®▲¹ Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the anatomy of the grasshopper, a representative herbivorous arthropod. **Kit** includes 30 Carolina's Perfect Solution® grasshoppers, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Grasshopper Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

 221430
 Kit
 Each
 \$39.50

 221430M
 Kit with Dissection Mats
 Each
 \$127.50



221400 Mussel Dissection BioKit

Mussel Dissection BioKit®▲¹

For a class of 30. Introduces students to the anatomy of the pelecypods or bivalve mollusks. Kit includes 30 mussels, 30 self-locking storage bags, FREE 1-year access to digital resources, and a teacher's manual with reproducible student guide. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221400 Per kit \$76.00



221490M Mammalian Brain Dissection BioKit with Dissection Mats

Mammalian Brain Dissection BioKit[®] A¹ Featuring Carolina's Perfect Solution[®] specimens

For a class of 30. Introduces students to the structures of the brain through hands-on dissection. Cerebrum, cerebellum, midbrain, and medulla are studied. **Kit** includes 15 Carolina's Perfect Solution® sheep brains, 15 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Brain Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221490 Kit Each **\$249.00 221490M** Kit with Dissection Mats Each **\$337.00**



228905M Mammalian Eye Dissection BioKit with Dissection Mats

Mammalian Eye Dissection BioKit[®] Featuring Carolina's Perfect Solution® specimens

For a class of 30. This hands-on dissection introduces students to the features of the eye and provides a detailed study of internal structures and physiology. **Kit** includes 30 Carolina's Perfect Solution® cow eyes, 30 storage bags, and a teacher's manual with reproducible student guide. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Eye Dissection Mats. Both kits include FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

 228905
 Kit
 Each
 \$109.00

 228905M
 Kit with Dissection Mats
 Each
 \$197.00

Explore brain anatomy at a deeper level with the Advanced Mammalian Brain Dissection BioKit[®] (item #221494). View it at Carolina.com.



221495M Mammalian Heart Dissection BioKit with Dissection Mats

Mammalian Heart Dissection BioKit[®]▲¹ Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the structures of the heart. Both external and internal features are studied. **Kit** includes 30 Carolina's Perfect Solution® sheep hearts, 30 self-locking storage bags, and a teacher's manual with blackline masters for reproducible student guides. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Heart Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

 221495
 Kit
 Each
 \$210.00

 221495M
 Kit with Dissection Mats
 Each
 \$298.00



228585M Mammalian Kidney Dissection BioKit with Dissection Mats

Mammalian Kidney Dissection BioKit® 1 Featuring Carolina's Perfect Solution® specimens

For a class of 30. Introduces students to the kidney and its functions through handson dissection. Provides a detailed study of the internal features and physiology of the kidney. **Kit** includes 30 Carolina's Perfect Solution® pig kidneys, 30 self-locking storage bags, and a teacher's manual with blackline masters for reproducible student guides. **Kit with Dissection Mats** includes all of the above plus 15 Carolina® Kidney Dissection Mats. Both kits include FREE 1-year access to digital resources that support 3-dimensional instruction.

 228585
 Kit
 Each
 \$240.00

 228585M
 Kit with Dissection Mats
 Each
 \$328.00

Comparative Dissection Kits

Preserved Organisms



227970 Comparative Sheep Organ Dissection Kit

Comparative Sheep Organ Dissection Kit A Featuring Carolina's Perfect Solution® specimens

Using preserved sheep heart, brain, kidney, and eye specimens, students explore the interdependence of organ systems and investigate the specific structures and functions of each organ. Includes a sheep heart, brain, kidney, and eye along with a set of 4 prepared slides showing detailed sections of mammal cardiac muscle, kidney, cornea, and cerebellum. Also includes a detailed teacher's manual containing background information, classroom dissection procedures, reflection questions, and extension activities for exploring the structure and function of these mammalian organs.

227970 Per kit **\$54.00**



Comparative Mammalian Heart Dissection

Comparative Mammalian Heart Dissection Kit A Featuring Carolina's Perfect Solution® specimens

For a class of 30. Using preserved pig, sheep, and cow hearts, students compare and contrast the internal and external structure of the hearts from these 3 species of mammals and explore the possible reasons for differences among them. Includes 6 Carolina's Perfect Solution® pig hearts, 6 Carolina's Perfect Solution® sheep hearts, and 1 preserved cow heart to be used for extension activities and as a demonstration model. Also includes a labeled heart poster, a set of 4 prepared slides showing cardiac muscle and blood vessels, and a detailed teacher's manual containing background information, dissection procedures, and extension activities for exploring the structure and function of mammalian hearts.

221493 Per kit \$165.00



227975 Comparative Mammalian Organ Dissection Kit

Comparative Mammalian Organ Dissection Kit A Featuring Carolina's Perfect Solution® specimens

This kit provides a set of mammalian organs for dissection to investigate the physiological links between organ systems and to help students gain an understanding of the tissue types and structures of each organ. Students investigate the specific functions of each organ and how they operate to maintain homeostasis. All specimens are preserved and shipped in safe, nontoxic Carolina's Perfect Solution®. Kit includes a sheep brain, pig heart, pig kidney, and cow eye along with a set of 4 prepared slides showing detailed sections of mammal cardiac muscle, kidney, cornea, and cerebellum. Also includes a detailed teacher's manual containing background information, classroom dissection procedures, reflection questions, and extension activities for exploring the structure and function of these mammalian organs.

227975 Per kit \$55.00



221047 Comparative Circulatory System 1-Station Kit

Comparative Circulatory System Kit A

Students investigate various types of circulatory systems as they dissect 4 different specimens and 1 mammalian heart. Students compare and contrast the open circulatory system of the crayfish and the simple closed circulatory system of the earthworm. Closed circulatory systems are explored further as they dissect a squid containing multiple single-chambered hearts, a frog with a single 3-chambered heart, and a pig heart that represents the 4-chambered heart of mammals and birds. The physiology of each circulatory system, along with its advantages and disadvantages, is described and leads to further discussions of evolution and form and function. The student guide provides detailed dissection instructions and labeled illustrations. The 8-Station Kit is designed for a class of 32 students working in groups of 4. The 1-Station Kit is designed for a single group of 4 students or as a classroom demonstration. Kits are offered with or without one of Carolina's top-selling dissection instrument sets (item #621136).

221045	8-Station Kit	Each	\$290.00
221046	8-Station Kit with Dissection Tools	Each	\$398.00
221047	1-Station Kit	Each	\$42.00
221048	1-Station Kit with Dissection Tools	Each	\$57.00

▲ California Proposition 65



227980 Organ Survey Set

Organ Survey Set ▲

Four different mammalian organs are included in this unique set designed for display or as teacher demonstration models. Stored in clear plastic jars filled with a nonformaldehyde solution, these preserved organs can be held and viewed from any angle, making them a safe, attractive teaching resource for your lab. Set includes a cow eye, pig heart, sheep brain, and a double-injected, bisected pig kidney. Also, each organ includes a durable $8^{1}/_{2} \times 11^{"}$ vinyl guide with labeled color photographs identifying key structures. An excellent complement to an anatomy course or dissection activity for years to come.

227980 Per set \$62.00



221030 Comparative Animal Dissection Kit

Dissection Kits



221035 Comparative Skeletal Anatomy Kit (with detail of rat)

Comparative Skeletal Anatomy Kit Featuring Carolina's cleared and stained specimens

Grades 9–12. For a class of 30. Students gain a deep understanding of the vertebrate endoskeleton by dissecting an owl pellet and examining a cleared and stained frog, snake, and rat specimen. These activities allow students to study anatomical differences and homologous structures, as well as examine evolutionary pathways. Kit includes 3 cleared and stained specimens; 15 owl pellets, probes, forceps, and hand lenses; plus a teacher's manual and student guide with reproducible student sheets. The student guide includes background information, specimen guides, labeled illustrations for each specimen, and reflection questions.

221035 Per kit \$189.00

Comparative Animal Dissection Kit A

For a class of 24. Working in pairs, students dissect 9 animals from different groups, comparing general structures and systems related to digestion, circulation, respiration, and reproduction. Similarities and differences observed among the specimens lead to further discussions of form and function, trends in shared characteristics, and links between groups. This classroom kit contains everything required for the dissections, plus a detailed instruction manual with reproducible blackline masters, background information, dissection guides for each of the 9 animals, reflection questions, and extension activities.

Kit includes:		
12 Sycon Sponges	12 Hydra	12 Disposable Dissecting Trays
12 Freshwater Mussels	12 Starfish	12 Standard Dissecting Sets
12 Earthworms	12 Perch	12 Hand Lenses
12 Crayfish	12 Frogs	12 Student Dissection Guides

12 Lubber Grasshoppers

221030 Per kit \$292.00

Customer Review

"This kit [item #221030] supplies a wide variety of animals for comparative anatomy. The specimens are in excellent condition and the dissection booklets and tools . . . make this whole kit well worth the money."

High School Biology Teacher



221270 Animal Diversity Set for AP Biology

Animal Diversity Set for AP® Biology A

For a class of 30. Students perform hands-on dissection to study the diversity of life using 13 specimens from the animal kingdom. By comparing shared characteristics and evolutionary patterns, students explore the phylogenic classification of animals and observe the structural differences across the animal kingdom. This set addresses National Science Education Standards and AP® Biology course topics. It includes a detailed instruction manual with reproducible blackline masters, background information, dissection guides for each of the 13 animals, reflection questions, extension activities, and 1 each of the following specimens.

 Amphioxus
 Freshwater Mussel
 Lubber Grasshopper
 Crayfish
 Perch
 Rat
 Snake

 Hydra
 Earthworm
 Sycon Sponge
 Starfish
 Planaria
 Frog

221270 Per set \$68.25

AP® is a trademark, registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.



221050 Comparative Vertebrate Anatomy Kit

Comparative Vertebrate Anatomy Kit A

For a class of 32. Working in groups of 4, students dissect and explore the anatomy and physiology of 4 vertebrate specimens. Students examine external and internal features of the dogfish shark, grass frog, pig, and rat. Each team dissects 1 specimen in detail and compares similarities and differences with specimens dissected by other groups. Students also consider how these anatomical differences make the animals well suited for their specific habitats and roles in the environment. Carolina's Wetting Solution is provided to help maintain moisture and keep tissue pliable and easy to work with for an extended period of time. The kit also contains a detailed instruction manual with reproducible student sheets that include blackline drawings, color photographs, background information, dissection guides for each of the specimens, reflection questions, and extension activities.

Kit includes:

2 Carolina's Perfect Solution® Frogs

2 Carolina's Perfect Solution® Pigs (14"+) 2 Carolina's Perfect Solution® Rats

2 Carosafe® Dogfish Sharks

221050 Per kit **\$125.25**

8 Plastic Bags (12 \times 15") Carolina's Wetting Solution (16 oz)

Teacher's Manual with Reproducible Student Sheets

Preserved Organisms



221042 Cladograms and Evolution Kit

Cladograms and Evolution 11

In this classroom kit, students use 2 lines of evidence to model evolutionary relationships. First, students examine the external anatomy of 5 preserved specimens, note external morphological similarities between the animals, then create a cladogram based on anatomical similarities. Next, students compare the amino acid sequence of the cytochrome c protein of each specimen to this amino acid sequence in humans. Students then construct a second cladogram based on these molecular similarities. Using information from both exercises, they then create a revised cladogram that considers both morphological characteristics and genetic information. Kit is designed for a class of 32 students working in groups of 4 and includes 2 of each preserved specimen (grasshopper, crayfish, perch, frog, and rat), comprehensive teacher's manual with reproducible student guide, and FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221042 Per kit \$84.00

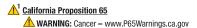


221040 Studying Classification with Cladograms Kit

Studying Classification with Cladograms Kit A Featuring Carolina's Perfect Solution® specimens

Grades 9–12. For a class of 32 working in groups of 4. Students explore animal diversity and learn to classify different animals using a cladogram. The kit includes a classroom set each of preserved crayfish, grasshoppers, perch, frogs, and rats. Students observe and record similarities among the organisms then create a cladogram predicting their phylogenetic order based on external-morphological traits. Student groups then dissect each organism, observe internal anatomy, and share their findings with the class. A detailed teacher's manual containing background information, pre-lab practice problems, extension activities, dissection guides for each organism, and reproducible student sheets is also provided.

221040 Per kit \$170.00



Zoology Survey Sets

Our survey sets include organisms frequently used to meet biology laboratory requirements. They are designed to help students gain a better understanding of animal diversity, structure, and function through dissection and careful observation.



221200 Basic Zoology Survey Set 1

Basic Zoology Survey Sets A

For individual student use or for classroom demonstration. The Basic Zoology Survey Set 1 contains 8 animal specimens, packed and shipped in a single container. A detailed dissection guide containing dissection instructions for each specimen and labeled diagrams showing internal and external anatomy is also included. Basic Zoology Survey **Set 2** contains the same specimens as Set 1, but with the addition of hydra and honey bee

Sycon Sponge Earthworm (9 to 12") Crayfish (3 to 4") Hybrid Bass (5 to 7") Starfish (31/2 to 5") Freshwater Mussel (3 to 4") Lubber Grasshopper (giant) Frog (21/2 to 3")

221200 Set 1 Each \$22,20 10+ Sets Each \$21.45 **221210** Set 2 Each \$24.20 10+ Sets Each \$23,45



Dissection Kits

221210 Basic Zoology Survey Set 2



221240 Vertebrate Survey Set

221252 Basic Animal Survey Set

Vertebrate Survey Set ▲

Specimens can be used as teacher demonstration models or can be dissected by students working in groups at separate stations. The Vertebrate Survey Set includes 8 representative specimens designed to help students gain a better understanding of the diversity of vertebrate organisms through dissection and careful observation. The teacher's manual contains extension activities and a reproducible blackline master student guide. The student guide contains background information, dissection guides for each of the animals, and reflection questions.

Amphioxus (adult) Lamprey (22"+) Dogfish (22 to 27") Frog (4 to 5") Turtle (4 to 6") Pigeon **221240** Per set \$87.00

Perch (5 to 7") White Rat (7 to 9")

Basic Animal Survey Set A

For students working in groups at separate stations. The Basic Animal Survey Set contains 10 each of 8 different animal specimens and allows students to gain a better understanding of the animal kingdom through careful observation and dissection. A set of 10 detailed dissection guides containing dissection instructions for each specimen and labeled diagrams showing internal and external anatomy is also included.

10 Sycon Sponges 10 Grasshoppers (large) 10 Freshwater Mussels (3 to 4") 10 Crayfish (3 to 4") 10 Earthworms (7 to 9") 10 Frogs (21/2 to 3") 10 Starfish (31/2 to 5") 10 Perch (5 to 7") 10 Dissection Guides

221252 Per set \$156.00



221262 Animal Classroom Survey Set

Animal Classroom Survey Set A

Use this survey set to explore the anatomy of 11 different specimens representing 7 different animal phyla: Porifera, Cnidaria, Mollusca, Annelida, Arthropoda, Echinodermata, and Chordata. Set includes 10 of each specimen, allowing students to work individually or in small groups as they learn the anatomy of each specimen. Visit Carolina.com for a complete list of set specimens. Does not include dissection instructions.

221262 Per set \$220.50

Preserved Organisms



221272 Advanced Animal Classroom Survey Set

Advanced Animal Classroom Survey Set Advanced Animal Classroom Set Advanced Anim

This advanced classroom survey set allows students to study the anatomy of 21 different specimens representing 7 different animal phyla: Porifera, Cnidaria, Mollusca, Annelida, Arthropoda, Echinodermata, and Chordata. Ten of each of the 21 specimens are included. Visit Carolina.com for a complete list of set specimens. Does not include dissection instructions.

221272 Per set \$472.50



226000 Echinoderm Collection

Echinoderm Collection A

The specimens in the Echinoderm Collection can be used as teacher demonstration models or can be dissected by students working in groups at separate stations. Five Echinoderm specimens from 4 different Echinoderm classes are provided in individual containers for observation and dissection. Students compare symmetry, locomotion, and feeding styles as well as structures dealing with the digestive, reproductive, and water vascular systems. Includes teacher's manual and student guide containing reproducible blackline masters, background information, dissection guides for each of the 5 animals, and reflection questions.

Starfish Sea Urchin Brittle Star Sand Dollar Sea Cucumber

226000 Per set \$29.95



226555 Mixed Fish Set

Mixed Fish Set A3

Contains 9 specimens representing 3 major fish groups: the jawless fish, cartilaginous fish, and bony fish. Students study the external and internal anatomy of specimens from each of the 3 major fish groups to gain a better understanding of fish taxonomy. Students compare and contrast unique internal characteristics and anatomical structures such as skeletal composition, scales and fins, as well as respiratory and feeding structures. The teacher's manual contains extension activities and a reproducible blackline master student guide. The student guide contains background information, dissection guides for each of the fish specimens, and reflection questions. Visit Carolina.com for a complete list of set specimens. Note: Substitutions may be made based on availability.

Lamprey Ratfish Sea Robin Menhaden Dogfish Stingray Skate Perch Croaker

MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

226555 Per set \$92.50

229935

Preserved Organisms Teacher Resources

Carolina® Dissection Mat and Flip Chart Series

Carolina® Dissection Mat Series

You asked and we delivered!

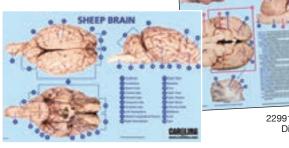
During the many dissection workshops we perform around the country, one product teachers requested most frequently was a simple labeled, user-friendly resource to guide students during dissection. The Carolina® Dissection Mat Series was created to do just that!

Each 11 × 17", double-sided dissection mat is specially designed with clear, concise, step-by-step dissection instructions. Detailed color photographs of the internal and external anatomy of the specimen are labeled and defined, allowing students to connect form and function. These vinyl mats resist spills and wipe clean easily—the perfect resource for your next dissection activity.

229900	Earthworm Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229905	Cat Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229907	Muscles of the Cat Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229910	Sheep Brain Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229920	Frog Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229925	Starfish Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229930	Eye Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229935	Pig Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229940	Kidney Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229945	Grasshopper Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229950	Heart Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229955	Squid Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229960	Perch Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229965	Dogfish Shark Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229970	Rat Dissection Mat	Each	\$8.50	10+ Each	\$7.50
229980	Crayfish Dissection Mat	Each	\$8.50	10+ Each	\$7.50







229910 Carolina Sheep Brain Dissection Mat (in use)

Carolina® Dissection Flip Chart Series

Carolina® Dissection Flip Charts were designed to guide multiple students or groups through a comprehensive dissection exercise. The flip chart binder opens easily to form a sturdy stand-alone easel. The flip chart pages provide simple instructions to guide dissection and aid in anatomical study of the specimen. Each page can be viewed from both sides of the easel, allowing groups to easily share this resource. Detailed color photographs are clearly labeled to help students examine and identify internal and external structures while working with specimens. The 81/2 × 11" pages are made from easy-to-clean, spill-resistant, durable, reusable vinyl.

229975 229990 Rat Dissection Flip Chart Frog Dissection Flip Chart Each \$47.00 Each \$47.00 229985 Pig Dissection Flip Chart \$47.00 Shark Dissection Flip Chart \$47.00





Teacher Resources

Dissection Manuals

CARQUINA

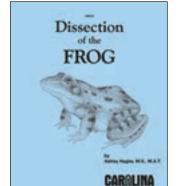
Pig

Dissection of the FETAL PIG

Dissection of the Fetal Pig

Roger E. Phillips Jr. 2006 (2nd ed). 46 pages. Accurate, highly detailed, airbrushed illustrations, each carefully labeled, display the important structures of the fetal pig. Chapters conclude with questions and suggestions for further investigation. Laminated, soft cover.

455793 Each \$19.00



Frog

Dissection of the Frog

Preserved Organisms

Grade 10 and up. Ashley Hagler, MS, MAT. 2009. 34 pages. Reproducible, highly detailed illustrations—each carefully labeled—emphasize the essential structures of the frog. Chapters conclude with questions and suggestions for further investigation. Laminated, soft cover.

455915 Each \$18.00

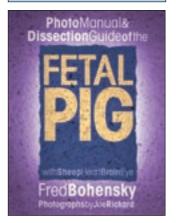


Photo Manual and Dissection Guide of the Fetal Pig

Fred Bohensky. 2002 (2nd ed). 136 pages. A presentation of full-page photographs reveals the various structures as they appear to the student during dissection. Self-quiz for students at the end of each unit. Spiral binding; soft cover.

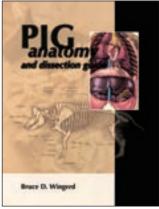
455790 Each \$24.00



Photo Manual and Dissection Guide of the Frog

Fred Bohensky. 2002 (2nd ed). 96 pages. Full-page black-and-white photographs, carefully labeled, show the various structures. Instructions and self-quiz allow students to work on their own. Lay-flat spiral binding; soft cover.

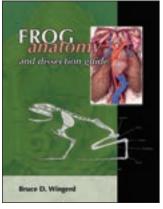
454909 Each \$24.00



Pig Anatomy and Dissection Guide

Grades 8–12. Bruce D. Wingerd. 2006. 156 pages. This guide provides step-by-step instructions for beginning students of dissection, enabling them to learn anatomy and develop dissection skills at the same time. The author compares pig and human structures, providing a complete lesson of quadruped vs. biped anatomy. Review questions (with answers) are provided. Soft cover.

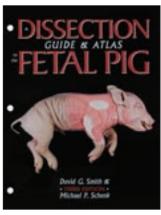
455782 Each **\$49.00**



Frog Anatomy and Dissection Guide

Bruce D. Wingerd. 2009. 62 pages. This clear, step-by-step guide to frog anatomy and dissection helps make learning meaningful and effective. Comparisons of frog and human anatomies often occur during study, so they appear in italics in the text. Boldface type emphasizes the terms of frog anatomy upon first use. Going beyond the visual investigation of charts, models, lists of terms, and lectures, dissection engages the student to use the additional sense of touch to examine real structures. Soft cover.

455795 Each \$49.00

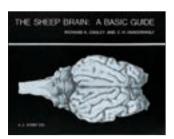


A Dissection Guide and Atlas to the Fetal Pig

Grade 8-College. David G. Smith and Michael P. Schenk. 2011 (3rd ed). 144 pages. Carefully worded directions and full-color photographs ensure a superior dissection for study. Each chapter includes a list of learning objectives and review activities that provide instant reinforcement. Loose leaf pages are punched for a 3-ring binder (not included). Soft cover.

455785 Each \$49.00

Brain



The Sheep Brain: A Basic Guide

Richard K. Cooley and C. H. Vanderwolf. 2004. 34 pages. Basic introduction to the structure and function of the nervous system. With excellent black-and-white photographs. Soft cover.

456130 Each \$31.00

Cat

Dissection of the CAT

Dissection of the Cat

Steven W. Binkley. 2006 (2nd ed). 53 pages. Accurate, highly detailed, airbrushed illustrations, each carefully labeled, emphasize the essential structures of the cat. Each chapter concludes with questions and suggestions for further investigation. Soft cover.

455573 Each \$19.00

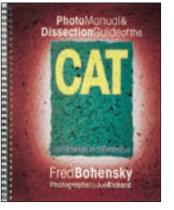
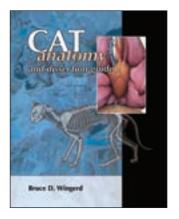


Photo Manual and Dissection Guide of the Cat

Fred Bohensky. 2002 (2nd ed). 167 pages. Full-page photographs reveal the various structures as they appear to the student during dissection. Also includes the sheep heart, brain, and eye. Self-quiz for students at the end of each unit. Spiral binding; soft cover.

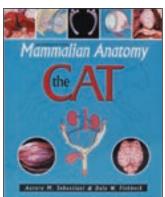
455572 Each \$24.00



Cat Anatomy and Dissection Guide

Grades 8–12. Bruce D. Wingerd. 2006. 176 pages. This guide provides step-by-step instructions for beginning students of dissection, enabling them to learn anatomy and develop dissection skills at the same time. The author compares cat and human structures, providing a complete lesson of quadruped vs. biped anatomy. Review questions (with answers) are provided. Soft cover.

455575 Each \$49.00

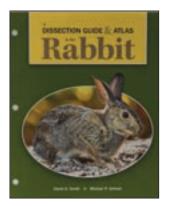


Mammalian Anatomy: The Cat

Grade 10–College. Aurora M. Sebastiani and Dale W. Fishbeck. 2005 (2nd ed). 192 pages. All major systems are covered in depth, with detailed dissection instructions for attaining superior results. Pages are punched for a 3-ring binder (not included). Soft cover

455570 Each \$58.00

Rabbit



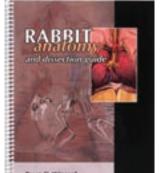
493903 Each \$41

Dissection Guide and Atlas to the Rabbit

Teacher Resources

Grade 8–College. David G. Smith and Michael P. Schenk. 2019. 122 pages. Complete with accurately labeled, full-color photographs and detailed illustrations. This comprehensive manual provides clear instructions on the dissection of the rabbit while also giving your students insight into the physiology of the specimen and how it compares to humans and other mammals. Important terms are boldfaced and defined in the glossary. Pages are punched for 3-ring binder (not included). Soft cover.

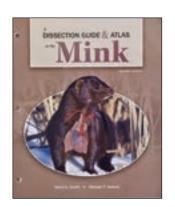
455503 Each \$41.00



Rabbit Anatomy and Dissection Guide

Grade 9–College. Bruce D. Wingerd. 2007. 102 pages. This guide includes step-by-step dissection instructions and detailed black-and-white illustrations of rabbit anatomy. Descriptions of the anatomical structures, physiology, and the structural relationships of the rabbit to humans are also provided. Spiral binding; soft cover.

455502 Each \$49.00

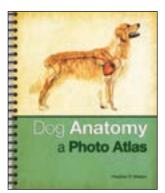


Mink

A Dissection Guide and Atlas to the Mink

Grade 8–College. David G. Smith and Michael P. Schenk. 2020 (2nd ed). 136 pages. A student-friendly dissection manual for the mink. Clearly worded directions for dissection and observation combined with accurately labeled full-color photographs and line drawings ensure a superior dissection for study. Pages are punched for 3-ring binder (not included). Soft cover.

455504 Each \$49.00



Dog

Dog Anatomy: A Photo Atlas

Heather P. Walker. 2011. 203 pages. Combining superb illustrations and photos with clear descriptions, Walker defines the standard for dog anatomy atlases. Although published for veterinary technicians—specifically students with a focus on canine training—this authoritative, concise, and visually appealing atlas is a tremendous supplement to any dog anatomy textbook or course. The full-color *Dog Anatomy:* A *Photo Atlas* is organized by region: cells,

bones, muscles, nerves, and organ systems. Each chapter contains the following:

• Histological images • Diagrams • Illustrations • Photographs and radiographs Labeling, crossword puzzles, and multiple-choice exercises are included for review, reinforcing chapter material. With hundreds of dog images, this unique atlas helps students grasp and retain content understanding. Soft cover.

455794 Each \$92.00

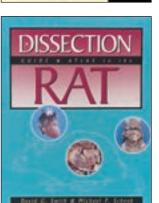
Teacher Resources Rat

Bruce D, Wingered

Rat Anatomy and Dissection Guide

Grades 8–12. Bruce D. Wingerd. 2008. 104 pages. Rat anatomy and dissection are presented in a clear step-by-step manner for a meaningful, effective learning experience. Includes italicized comparisons to human anatomy. Soft cover.

455439 Each \$49.00



A Dissection Guide and Atlas to the Rat

Grade 8–College. David G. Smith and Michael P. Schenk. 2001. 128 pages. Carefully worded directions and full-color photographs ensure a superior dissection for study. Each chapter includes a list of learning objectives and review activities that provide instant reinforcement. Also includes sections on the sheep heart and sheep eye. Pages are punched for a 3-ring binder (not included). Soft cover.

455443 Each \$49.00

Dogfish Shark

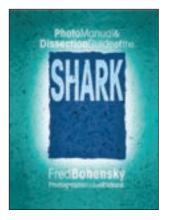
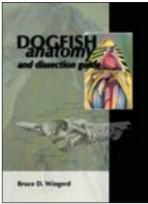


Photo Manual and Dissection Guide of the Shark

Fred Bohensky. 2002 (2nd ed). 128 pages. Presents full-page photographs, carefully selected and labeled, along with definitions and clear directions for the student. A self-quiz is included with each unit. Spiral binding; soft cover.

454667 Each \$24.00



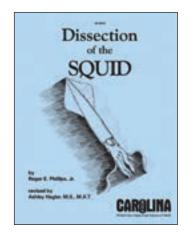
Dogfish Anatomy and Dissection Guide

Grades 8–12. Bruce D. Wingerd. 2007. Presents the gross anatomy of the spiny dogfish in a logical, understandable sequence of dissection instructions and pictures. The author supplements dissection procedures with descriptions of basic physiology, morphological adaptations, and the structural relationships of the dogfish to other vertebrates. Soft cover.

454659 Each \$49.00

Preserved Organisms

Squid



Dissection of the Squid

Grade 10 and up. Roger E. Phillips Jr. 1998. 26 pages. A basic dissection guide to the external and internal structures of the squid. Included are 18 reproducible, full-page, black-and-white line illustrations, background information, glossary, text references, and websites. Soft cover.

454390 Each \$15.00

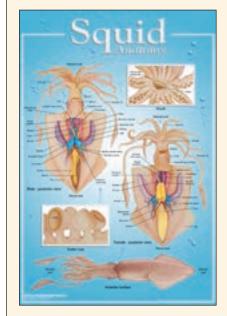
General



Student Dissection Manual

2006 (2nd ed). 20 pages. Manual for the Basic Animal Dissection Kit (item #221020). Covers basic dissection of the starfish, earthworm, crayfish, grasshopper, and frog. Contains labeled drawings of each animal. Soft cover.

451845 Each \$8.50



Poster

Squid Anatomy

 $24\times36".$ Illustrates the internal anatomy of a male and female squid. Includes close-up views of the mouth and sucker cups.

573998 Each **\$18.50**

Dissection Software

Digital Dissections

Carolina and VictoryXR™ have teamed up to bring you interactive, web-based dissection alternatives for your classroom. From their computer, students enter a virtual science lab for an innovative dissection experience guided by Wendy Martin, a national award-winning science teacher. As students progress through the dissections, they:

- Utilize virtual dissection tools and locate important structures
- Answer assessment questions to check for understanding
- Learn the structural anatomy and corresponding functions
- Can pause, rewind, or repeat scenes to maximize their comprehension (user-paced)

Using Carolina preserved specimens, each dissection was recreated in great detail. Students cover each step of the dissection procedures as if they were dissecting actual specimens. So instructors can feel good about using digital dissection in their classroom! In **Mammalian Organs**, students learn the anatomy of 4 popular mammalian organs—brain, eye, heart, and kidney—in 4 separate, engaging experiences. **Invertebrates** contains 2 dissections, squid and starfish.

Requirements: Internet connection; optimized for desktop computers, laptops, and Chromebook® computers. Chromebook® users should see Carolina.com for more information; preferred browser is Google Chrome™. Licensing: License duration is 12 months from date of purchase. These are digital products located on CarolinaScienceOnline.com. Visit Carolina.com for more licensing and activation details.

0 1		
Mammalian Organs Individual License	Each	\$8.25
Mammalian Organs Classroom License	Each	\$174.00
Mammalian Organs Site License	Each	\$512.00
Invertebrates Individual License	Each	\$6.10
Invertebrates Classroom License	Each	\$132.00
Invertebrates Site License	Each	\$380.00
Dogfish Shark Individual License	Each	\$6.10
Dogfish Shark Classroom License	Each	\$132.00
Dogfish Shark Site License	Each	\$380.00
Fetal Pig Individual License	Each	\$6.10
Fetal Pig Classroom License	Each	\$132.00
Fetal Pig Site License	Each	\$380.00
Cat Individual License	Each	\$6.10
Cat Classroom License	Each	\$132.00
Cat Site License	Each	\$380.00
Frog Individual License	Each	\$6.10
Frog Classroom License	Each	\$132.00
Frog Site License	Each	\$380.00
	Mammalian Organs Classroom License Mammalian Organs Site License Invertebrates Individual License Invertebrates Classroom License Invertebrates Site License Dogfish Shark Individual License Dogfish Shark Classroom License Dogfish Shark Site License Fetal Pig Individual License Fetal Pig Classroom License Fetal Pig Site License Cat Individual License Cat Classroom License Cat Classroom License Cat Site License Frog Individual License Frog Classroom License	Mammalian Organs Classroom LicenseEachMammalian Organs Site LicenseEachInvertebrates Individual LicenseEachInvertebrates Classroom LicenseEachInvertebrates Site LicenseEachDogfish Shark Individual LicenseEachDogfish Shark Site LicenseEachPetal Pig Individual LicenseEachFetal Pig Classroom LicenseEachFetal Pig Site LicenseEachCat Individual LicenseEachCat Classroom LicenseEachCat Site LicenseEachCat Site LicenseEachFrog Individual LicenseEachFrog Individual LicenseEachFrog Classroom LicenseEachFrog Classroom LicenseEach



Teacher Resources

399600 Mammalian Organs Digital Dissection Software (in use)



399265 Pig Virtual Reality Dissection Software (in use)

Computer system requirements—Processor: Intel® i5-4590/AMD Ryzen® 5 1500X or greater; graphics card: NVIDIA® GTX 1060/AMD® Radeon RX 480 or greater; USB ports: 3x USB 3.0 ports plus 1x USB 2.0 port; video output: compatible HDMI® 1.3 video output; memory: 8 GB+ RAM.

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

Virtual Reality Dissections

Give your students a realistic dissection experience through the power of virtual reality. These true-to-life practices thoroughly cover each step of the procedures, as if students were dissecting an actual specimen in the classroom. A digitized version of a licensed science teacher appears as a hologram, guiding users and posing questions along the way to check for understanding. Pacing is user-controlled to ensure maximum understanding. The dissections were recreated in exquisite detail using original and lifelike physical models, so you get a comparable alternative to a classroom dissection. Teachers can feel good about substituting VR for the real thing because the procedures and content are similar to those in Carolina's own handson dissection kits, and the entire program adheres to the Next Generation Science Standards* (NGSS).

Schools benefit from providing a hands-on alternative for students who want to opt out of dissection. VR dissection also can be used as a supplemental learning platform. No setup is required. Just put on a VR headset, load the program, and you are ready to learn—anytime and anywhere. Use the software with a VR-ready computer or VR headset (Oculus Rift®, HTC Vive®, or Windows® Mixed Reality) operating with Windows® 10. Each software license is a 1-year subscription for up to 10 devices. The **Invertebrates Dissection Software License** explores invertebrate anatomy by examining the squid and starfish. The **Organ Dissection Software License** explores mammalian organ system anatomy by examining the brain, eye, heart, and kidney. The **Dissection Procedure Bundle** includes a 1-year software license for the pig, cat, dogfish, invertebrates, and mammalian organ dissections.

399265	Pig Dissection Software License	Each	\$205.00
399270	Cat Dissection Software License	Each	\$205.00
399260	Dogfish Dissection Software License	Each	\$205.00
399255	Invertebrates Dissection Software License	Each	\$205.00
399275	Organ Dissection Software License	Each	\$205.00
399250	Dissection Procedure Bundle	Each	\$895.00

Teacher Resources

Preserved Organisms

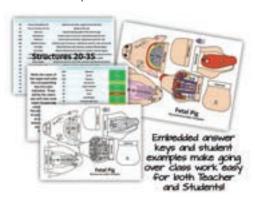
Scienstructable 3D Dissection Models from Getting Nerdy®

Scienstructable 3D Paper Dissection Models

Teachers agree—these products are excellent for in-class and remote learning!

You'll love the eco-friendly Scienstructable 3D Dissection Model® digital materials from Getting Nerdy®. Students print, color, cut out, and assemble hands-on paper models while learning about the structures and functions of the external and internal anatomy of the specimens. Use these activities as dissection-free explorations, pre-dissection tools, and summative assessments for comparative anatomy. Each digital purchase of a single model provides a downloadable, editable PowerPoint® presentation with bell work activities, instructions, notes, and an embedded answer key, along with non-editable PDF handouts of guided readings about the specimen and its anatomy, graphic organizers, dissection templates in black line and in color, extension questions, and the answer key—all easily accessed at CarolinaScienceOnline.com. Bundles include multiple models. Each license is for one teacher. Visit Carolina.com for individual descriptions.

399400	Sponge Dissection Model	Each	\$12.49
399405	Earthworm Dissection Model	Each	\$16.97
399410	Clam Dissection Model	Each	\$16.97
399415	Squid Dissection Model	Each	\$20.97
399420	Starfish Dissection Model	Each	\$16.97
399430	Crayfish Dissection Model	Each	\$20.97
399435	Grasshopper Dissection Model	Each	\$22.97
399440	Perch Dissection Model	Each	\$22.97
399445	Shark Dissection Model	Each	\$26.49
399450	Frog Dissection Model	Each	\$26.49
399455	Snake Dissection Model	Each	\$22.97
399460	Bird Dissection Model	Each	\$33.49
399465	Rat Dissection Model	Each	\$26.49
399470	Fetal Pig Dissection Model	Each	\$28.49
399475	Cat Dissection Model	Each	\$33.49
399480	Eye Dissection Model	Each	\$16.97
399490	Invertebrates Dissection Bundle	Each	\$111.97
399491	Aquatic Animals Dissection Bundle	Each	\$194.97
399492	Vertebrates Dissection Bundle	Each	\$193.97
399493	Vertebrates and Invertebrates		
	Dissection Bundle	Each	\$277.97





From 399470 Fetal Pig Dissection Model (in use)



From 399420 Starfish Dissection Model (in use)



From 399450 Frog Dissection Model (in use)



From 399475 Cat Dissection Model (in use)



From 399440 Perch Dissection Model (in use)

Scienstructable 3D Dissection Models with Vinyl Manipulative and Digital Classroom Sets

Scienstructable 3D Dissection Model® materials by Getting Nerdy® are a perfect way to get EVERY student engaged in dissection. With these classroom sets you get the digital resources for the paper version of the specified model with supporting content, plus a larger-than-life, full-color vinyl model with assembly instructions. Students assemble the paper model that can be used as a dissection-free exploration or as a pre-dissection or summative assess-

ment tool, while the large, colorful vinyl model is displayed as a demonstration specimen or manipulative that mirrors the digital student version. The digital resources, accessed at CarolinaScienceOnline.com, provide an editable PowerPoint® presentation about the specimen with bell work activities, instructions, notes, and embedded answer keys; and non-editable PDF handouts including a guided reading about the function and location of each structure within the organism, differentiated graphic organizers, student dissection templates in black line and color, and extension questions. Each license for the digital resources is for one teacher. Visit Carolina.com for individual descriptions.

399406	Earthworm Classroom Set	Each	\$85.00
399451	Frog Classroom Set	Each	\$114.00
399471	Fetal Pig Classroom Set	Each	\$170.00
399476	Cat Classroom Set	Each	\$210.00
399481	Eye Classroom Set	Each	\$85.00



From 399471 Scienstructable 3D Dissection Model Fetal Pig Classroom Set (left) and from 399406 Scienstructable 3D Dissection Model Earthworm Classroom Set (above), both in use

Dissection Solutions

Preserved OrganismsDissection Solutions

You asked and we listened.

Every year we get numerous requests for extra preservation fluid for preserved specimens. Now you can purchase these ready-to-use fluids in convenient volumes

Pail-packed specimens in 220115A Carolina's Perfect Solution



For Carolina's Perfect Solution® Specimens



220118A Carolina's
Perfect Solution,
1 gal (left) and
220115A Carolina's
Perfect Solution,
5 gal (right)

For Formalin Specimens



853343 Carosafe, 20 L (left) and 853341 Carosafe, 4 L (right)

Carolina's Perfect Solution®

Ready-to-use holding solution for your Carolina's Perfect Solution® specimens. Cannot be used to fix specimens.

220118A 1 gal Each **\$32.00 220115A** 5 gal Each **\$95.00**

Carosafe®

Formaldehyde-free holding solution; cannot be used to fix specimens.

853341 4 L Each **\$48.00 853343** 20 L Each **\$162.00**

Attention, Veterinary and Medical Schools!

Do you need embalming fluid to preserve your own specimens or cadavers? Contact Candace Berkeley (candace.berkeley@carolina.com, 336.538.6314) for more details and bulk pricing.



868693 Blue Latex Injection Medium, 4 L (left) and 868703 Red Latex Injection Medium, 4 L (right)

Latex Injection Medium

In ammonia solution. For best results, use with item #220114 Carolina's Perfect Solution® Embalming Fluid (no phenol).

868693 Blue 4 L **\$115.50 868703** Red 4 L **\$115.50**



220120A Carolina's Wetting Solution, 16 oz (right) and 220121A Carolina's Wetting Solution, 1 gal (left)

Carolina's Wetting Solution

Carolina's Wetting Solution is an excellent complement to use with any of our extensive selection of Carolina's Perfect Solution® and Carosafe® preserved specimens. This superb wetting agent with mold inhibitor can be applied to any surface after the dissection has begun. Carolina's Wetting Solution helps maintain moisture, reduce dehydration, and keep tissue pliable and easy to work with—especially when dissecting specimens over several days or an extended period of time.

220120A 16 oz Each **\$12.00 220121A** 1 gal Each **\$57.00**

Dissecting Instruments & Supplies

Preserved Organisms

Dissection Instruments from Carolina

Instrumental to Your Success

Knowledge of anatomy and physiology is fundamental to many of today's (and tomorrow's) medical and technical careers. One of the best ways to help students gain this understanding is through handson lab dissections.

That's why Carolina offers a full range of dependable dissecting instruments and kits, appropriate for all levels of education—junior and senior high school, college, and graduate school. We also have products to fit any budget, from economically priced instruments to those that are top of the line.

Should you want a dissecting set not shown in this catalog or on our website, contact our Quotations Department (800.334.5551, quotations@carolina.com); we can help you create a customized set.





Designed for beginning courses in middle or high school biology. This set has all the instruments needed for a class of 40 students working in pairs. The instruments are stored in a Gratnells® tray with a 6-compartment insert and snap-on lid.

20 Dissecting Scissors, Stainless Steel

20 Dissecting Forceps, Nickel

20 Dissecting Needles, Plastic, Straight

20 Dissecting Needles, Plastic, Curved

20 Replaceable-Blade Scalpels

100 Replacement Blades, No. 22

20 Transparent 6" Vinyl Rulers Dissecting "T" Pins, No. 28, Box of 400

Gratnells® 20 Droppers, Glass

Gratnells® Tray, Blue, Small, with Snap-On Lid

Gratnells® Tray Insert, 6-Compartment

621097 Per set \$203.45



Why Shop Carolina.com?

Find everything from our print catalogs and more

- Expanded product information, additional photo views, and zoom-in feature
- Web exclusive items
- Order history and shipment tracking at your fingertips
- Free teacher resources, such as classroom activities and projects



Beginner Set

- Most complete set for beginning biology
- Priced right for the budget conscious



Student Dissecting Set I

In molded plastic case. Designed for beginning biology courses. Good student-grade instruments.

Scissors, Dissecting, 41/2"
Forceps, Dissecting, 41/2"
Surgeon's Scalpel with Replaceable Blade No. 22
Plastic-Handle Teasing Needle, Straight
Plastic-Handle Teasing Needle, Curved
Dropping Pipet
Transparent Vinyl Ruler, 6"
6 Dissecting "T" Pins

621096 Each **\$15.15** 12+ Each **\$14.35**

Intermediate Set

- Most complete set for advanced biology
- · High-quality instruments



Intermediate Dissecting Set I

In molded plastic case. Contains in 1 set all the instruments you need for advanced biology courses.

Scissors, Surgical, 41/2"
Forceps, Fine Points, 41/2"
Surgeon's Scalpel with Blade No. 22
Plastic-Handle Teasing Needle, Straight
Plastic-Handle Teasing Needle, Curved
Mall Probe and Seeker, 6"
6 Dissecting "T" Pins
Transparent Vinyl Ruler
Dropping Pipet

621136 Each **\$21.55** 12+ Each **\$20.30**

Instructor Set

- Top-quality, stainless-steel instruments
- Includes case



Deluxe Instructor's Dissecting Set

Contains quality stainless-steel instruments in an attractive zippered case.

Fine Scissors, Straight, 4½"
Surgical Scissors, Straight, 4½"
Sirgical Scissors, Straight, 4½"
Fine Forceps, Straight, 4½"
Fine Forceps, Curved, 4½"
Mosquito Forceps, Curved, Box Lock, 5"
Surgeon's Handle No. 4
1-Piece Scalpel, 1½" Blade
2 Plastic-Handle Teasing Needles, Straight
Mall Probe and Seeker
Extra Scalpel Blades (1 each No. 21, 22, and 23)

621425 Each **\$34.25** 12+ Each **\$32.25**

Advanced Sets

- Top quality
- Teacher-selected instruments
- Most complete sets for anatomy



Ö

Advanced Anatomy Dissecting Set

For more advanced work in zoology and comparative anatomy. In Leatherette Dissecting Case (item #621030).

Scissors, Fine Point, 41/2"
Scissors, Surgical, 51/2"
Forceps, Curved, Fine Point, 41/2"
Forceps, Cartilage, 5"
Triple Hooks and Chains
Surgeon's Scalpel with Replaceable Blade No. 22
Scalpel, 11/2" Blade
Cartilage Knife
Teasing Needle, Straight
Teasing Needle, Angular
6 Dissecting "T" Pins
White Vinyl Ruler
Dropping Pipet

621290 Each \$55.80 12+ Each \$52.20



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Dissecting Instruments & Supplies

Preserved Organisms



621340 Microdissecting Set



621485 Advanced Anatomy Dissecting Set



621251 Comparative Anatomy Dissecting Set

Microdissecting Set

Features stainless-steel instruments in Leatherette Dissecting Case (item #621030).

Scissors, Microdissecting, Iris, $4^1/2^{"}$ Scissors, Microdissecting, Iris, $4^3/4^{"}$

Forceps, Fine Points, 4"

Forceps, Watchmaker's, Finest Points, 41/4"

Forceps, Watchmaker's, Curved, Finest Points, $4^{1/2}$ " Scalpel, Microdissecting, 18×3 -mm Blade

Scalpel, Microdissecting, 30×3 -mm Blade

Dissecting Needle, Straight Dissecting Needle, Curved

Dissecting Needle, Full-Spear Point

Dissecting Needle, Half-Spear Point

6 Dissecting "T" Pins Transparent Vinyl Ruler, 6"

621340 Each \$120.90 12+ Each \$115.80

Advanced Anatomy Dissecting Set

Designed for advanced zoology or comparative anatomy. Contains quality stainless-steel instruments in an attractive zippered case.

Scissors, Straight, Fine Points, $4^1/2^{"}$ Scissors, Mayo, Straight, $5^1/2^{"}$

Scissors, Straight, Sharp/Blunt, 41/2"

Forceps, Straight, Fine Points, $4^1/2^{"}$ Forceps, Curved, Fine Points, $4^1/2^{"}$

Tissue Forceps, Straight, 12 Teeth, 4" Mosquito Forceps, Curved, 5"

Bone Forceps, Straight Spring, 51/4"

Scalpel Handle, No. 4

4 Blades, No. 22 4 Blades, No. 25

Dissecting Needle, Straight

Dissecting Needle, Curved

Mall Probe and Seeker, 6'

Double-End Probe. 6"

6 Dissecting "T" Pins

Transparent Vinyl Ruler, 6" **621485** Each **\$114.55** 12+ Each **\$109.55**

Comparative Anatomy Dissecting Set

In molded plastic case.

Scissors, First Quality, 41/2"

Scissors, Fine Dissection, 41/2"

Forceps, Fine Points, 41/2" Forceps, Medium Points, 41/2"

Surgeon's Scalpel with Replaceable Blade No. 22

2 Teasing Needles, Straight 6 Dissecting "T" Pins White Vinyl Ruler, 6"

Dropping Pipet **\$29.65** 12+ Each **\$27.95**



Dissecting Set Cases



621000 Molded Plastic Dissecting Case

Molded Plastic Dissecting Case

One-piece construction with compartments for 6 or more instruments.

621000 Each **\$5.05** 12+ Each **\$4.80**



621056 Deluxe Zippered Dissecting Case

Deluxe Zippered Dissecting Case

Constructed of durable plastic with velvet-like lining and designed with a zipper for secure closure.

621056 Each **\$14.40** 12+ Each **\$13.90**



621030 Leatherette Dissecting Case

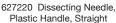
Leatherette Dissecting Case

Constructed of durable plastic with loops for holding instruments and snap-button fasteners for secure closure. Double-size case is for 12 instruments.

621030 Each **\$13.30** 12+ Each **\$13.00**

Dissecting Instruments & Supplies







629004 Aluminum Dissecting Pan with Vinyl Dissecting Pad



625330 Rochester Pean Hemostatic Forceps, Stainless Steel

Custom-Made Dissecting Sets Design Your Own Dissecting Set!

Carolina offers a full line of quality dissecting instruments. Let us help you build the perfect set for your classroom using the following best-selling items or any other instruments in this catalog. Whatever you choose, our instruments are teachertested and proven to provide your students with quality at an affordable price. Contact our Quotations Department (phone 800.334.5551, fax 336.538.6330, or email quotations@carolina.com) for special pricing on large orders.





621000 Molded Plastic Dissecting Case



624000 Economy Dissecting Forceps, Stainless Steel



625920 Disposable Scalpel, Non-Sterile



626524 Economy Scalpel Handle No. 4



627400 Mall Probe and Seeker, All Steel



621775 Dissecting Scissors, Stainless Steel

Dissecting Instruments & Supplies Individual Instruments

Preserved Organisms

Dissecting Scissors



621775 Dissecting Scissors, Stainless Steel

Dissecting Scissors, Stainless Steel

Excellent-quality $4^1/_2$ " scissors with closed shank, sharp/sharp points, and straight blades.

621775 Each **\$7.40** 12+ Each **\$7.10**



621810 Fine Dissection Scissors, Stainless Steel

Fine Dissection Scissors, Stainless Steel

Designed for careful dissection of delicate tissues. Overall length, $4^{1}/_{2}^{"}$, with very fine straight blades.

621810 Each \$7.10 12+ Each \$6.70





621690 Dissecting Scissors, Nickel

Dissecting Scissors, Nickel

Student-quality scissors with extra-large finger loops, sharp/sharp points, and straight blades. Overall length, $4^{1}/2^{11}$.

621690 Each \$3.00 12+ Each \$2.80



623530 Iridectomy Microdissecting Scissors, Stainless Steel

Iridectomy Microdissecting Scissors, Stainless Steel

Spring action, $5^3/4^{"}$ overall length and $^1/2^{"}$ blades, with needle-sharp points. For delicate tissue dissection.

623530 Each \$40.80

Dissection Scissors, Stainless Steel

Fine points, angular. Overall length, 4¹/₂". **621850** Each **\$7.10** 12+ Each **\$6.80**



621760 Dissecting Scissors, Stainless Steel

Dissecting Scissors, Stainless Steel

Student-quality 4¹/₂" scissors with open shank. Straight, stainless-steel blades.

621760 Each \$6.55 12+ Each \$6.30



621910 Mayo Dissecting Scissors, Stainless Steel

Mayo Dissecting Scissors, Stainless Steel

Strong, semi-blunt 51/2" operating scissors designed to withstand much use. Straight, stainless-steel blades.

621910 Each **\$10.60** 12+ Each **\$10.20**



623555 Iris Microdissecting Scissors, Stainless Steel

Iris Microdissecting Scissors, Stainless Steel

Overall length is $4^{3}/_{4}$ ", with $^{1}/_{2}$ " blade. For delicate dissection.

623555 Each \$28.30

Surgical Scissors

Keep your scissors sharp



Scissor Sharpener

Made in USA. Designed to take the mystery out of sharpening scissors. About 2 or 3 passes of the tungsten carbide sharpener should be sufficient to return most scissors to "new" sharpness. Instructions included.

627702 Each **\$17.60**

Dissecting Instruments & Supplies



622002 Surgical Scissors, Stainless Steel, Blunt/Blunt, $5^1/2^{"}$

622505 Surgical Scissors, Stainless Steel, Sharp/Sharp, 4¹/₂"

Surgical Scissors, Stainless Steel

Excellent-quality scissors with choice of *blunt/blunt*, *sharp/blunt*, or *sharp/sharp* points. Available with straight blades and in 2 sizes, $4^1/2^{"}$ or $5^1/2^{"}$.

622002	Blunt/Blunt, 51/2", Straight	Each	\$6.95	12+ Each	\$6.50
622225	Sharp/Blunt, 41/2", Straight	Each	\$9.85	12+ Each	\$9.40
622230	Sharp/Blunt, 51/2", Straight	Each	\$8.20	12+ Each	\$7.95
622505	Sharp/Sharp, 41/2", Straight	Each	\$6.95	12+ Each	\$6.75
622535	Sharp/Sharp, 51/2", Straight	Each	\$6.95	12+ Each	\$6.75

Go to Carolina.com for additional dissecting instruments.

High-Quality SS Instruments



622265 Surgical Scissors, Sharp/Blunt, Straight, 5"



622606 Surgical Scissors, Sharp/Sharp, Straight, 5"



623535 Microscopic Scissors, Straight, 41/2"



624026 Forceps, Fine Points, Straight, $4^{1}\!/_{2}"$



624086 Forceps, Blunt Points, Straight, 41/2"



626766 Scalpel Handle No. 4 with No. 22 Blade

Stainless-Steel Dissecting Instruments

Manufactured in Solingen, Germany, to strict quality standards using only the highest grades of stainless steel. The following is a selection of our most popular instruments.

622265	Surgical Scissors, Sharp/Blunt, Straight, 5"	Each	\$70.35	624026	Forceps, Fine Points, Straight, 4 ¹ / ₂ "	Each	\$17.35
622606	Surgical Scissors, Sharp/Sharp, Straight, 5"	Each	\$72.20	624086	Forceps, Blunt Points, Straight, 41/2"	Each	\$14.10
623535	Microscopic Scissors, Straight, 41/2"	Each	\$50.55	626766	Scalpel Handle No. 4 with No. 22 Blade	Each	\$19.10

Dissecting Instruments & Supplies

Forceps



Dissecting Forceps, Fine Points, Stainless Steel

Quality 41/2" dissecting forceps. Available with *straight* or *curved* ends.

624024	Straight	Each	\$2.95
		12+ Each	\$2.85
624034	Curved	Each	\$4.55
		12+ Each	\$4.35

Economy Dissecting Forceps, Plastic

Straight, 5" forceps with pointed tips and wide handle. **623990** Each **\$1.75** 12+ Each **\$1.65**

Economy Dissecting Forceps, Stainless Steel

Straight, $4^{1}/_{2}$ " forceps with pointed tips and serrated handle.

624000 Each \$2.25 12+ Each \$2.15

Thumb Forceps, Stainless Steel

Serrated tips and handles. Available with broad points and 4 sizes. Straight.

624504	41/2"	Each	\$3.65	12+ Each	\$3.40
624514	5"	Each	\$5.55	12+ Each	\$5.36
624524	51/2"	Each	\$6.10	12+ Each	\$5.80
624534	6"	Each	\$8.35	12+ Each	\$8.05

Utility Forceps, Stainless Steel

Fine, serrated points, 6", curved.

624540 Each \$4.70 12+ Each \$4.50

Microdissection Forceps

Precision Watchmaker's Forceps, Stainless Steel

Made in Switzerland. Excellent-quality, 41/41 forceps forged from the best grades of metals and machined to a smooth satin finish. Extensive hand operations are used in shaping, adjusting, and finishing the points to a needle-like sharpness. Straight.

624790	Fine Point	Each	\$44.20
624791	Extra-Fine Point	Each	\$51.95



624084 Dissecting Forceps, Medium Points, Stainless Steel

Dissecting Forceps, Medium Points, Stainless Steel

Quality 41/2" dissecting forceps. Available with *straight* or *curved* ends.

624084	Straight	Each	\$3.35
624094	Curved	12+ Each Each	\$3.05 \$4.40
		12+ Each	\$4.20



624342 Specimen Forceps, Stainless Steel, 12"

Specimen Forceps, Stainless Steel

Extra-long forceps for removing specimens from containers. Forceps have serrated tips and handles. Available in 3 sizes. Straight.

624322	8"	Each	\$11.75
		12+ Each	\$11.25
624335	10"	Each	\$13.90
		12+ Each	\$13.35
624342	12"	Each	\$15.60
		12+ Each	\$15.00



Preserved Organisms



624595 Fine Tissue Forceps, Stainless Steel

Fine Tissue Forceps, Stainless Steel

Extra-fine points for precision work. Available with 1 \times 2 teeth and *straight* or *curved* ends. Size, 4".

624590	Straight	Each 12+ Each	\$12.75 \$12.60
624595	Curved	Each 12+ Each	\$13.90 \$13.35



624601 Tissue Forceps, Stainless Steel

Tissue Forceps, Stainless Steel

Equipped with specialized teeth, designed for the grasping of tissues during dissection. Available in 2 sizes with 1×2 teeth or 2×3 teeth. Straight.

624601	1×2 Teeth,	5"
	Each	\$6.25
	12+ Each	\$5.95
624604	1×2 Teeth,	51/2"
	Each	\$6.90
	12+ Each	\$6.65
624610	2×3 Teeth,	
	Each	\$7.70
	12+ Each	\$7.40



624790 Precision Watchmaker's Forceps, Stainless Steel



624734 Microdissection Forceps, Stainless Steel

Microdissection Forceps, Stainless Steel

Very fine points for precision work. Available with *ribbed* or *smooth* handle, *fine* or *extra-fine* points, and *straight* or *curved* end.

624614	Ribbed Handle, Fine Points, 4", Straight	Each	\$4.05	12+ Each	\$3.80
624616	Ribbed Handle, Fine Points, 4", Curved	Each	\$10.15	12+ Each	\$9.85
624684	Ribbed Handle, Extra-Fine Points, 41/4", Straight	Each	\$6.90	12+ Each	\$6.65
624734	Smooth Handle, Extra-Fine Points, 41/4", Straight	Each	\$10.15	12+ Each	\$9.85
624784	Smooth Handle, Extra-Fine Points, 41/8", Straight	Each	\$13.90	12+ Each	\$13.35
624794	Smooth Handle, Extra-Fine Points, 41/2", Curved	Each	\$15.05	12+ Each	\$14.55

Dissecting Instruments & Supplies

Assorted Forceps



625314 Halstead Hemostatic Mosquito Forceps, Stainless Steel

Halstead Hemostatic Mosquito Forceps, Stainless Steel

Forceps are 5" with box-lock joint. With curved ends. 625314 Each \$12.40 12+ Each \$11.85

Rochester Pean Hemostatic Forceps, Stainless Steel

Excellent-quality forceps with box-lock joint. Available with curved or straight ends.

625321	61/4", Curved	Each	\$13.75
		12+ Each	\$13.20
625330	51/2", Straight	Each	\$11.65
		12+ Each	\$11.35

Bone-Cutting Forceps, Stainless

Screw-lock forceps used for skull dissection and cutting small bones. Available in coil spring or straight sprina.

625632	51/2", Coil Spring	Each	\$37.45
625652	43/4", Straight Spring	Each	\$28.30
625654	51/4". Straight Spring	Each	\$33.70



625652 Bone-Cutting Forceps, Stainless Steel



Liston Bone-Cutting Forceps, **Stainless Steel**

These 71/2" heavy-duty, box-lock forceps are for cutting large bones.

625604 Each \$52.15

Scalpels



626510 Surgeon's Scalpel Handle No. 4, Chrome

Surgeon's Scalpel Handles

Excellent-quality. German-made handles available in chrome or stainless steel and in 2 sizes, Scalpel Handle No. 3 accommodates blades No. 10, 11, 12, and 15. Scalpel Handle No. 4 accepts blades No. 20, 21, 22, 23, 24, and 25.

626500	Handle No. 3, Chrome	Each	\$13.20	12+ Each	\$12.70
626504	Handle No. 3, Stainless	Each	\$14.75	12+ Each	\$14.00
626510	Handle No. 4, Chrome	Each	\$13.20	12+ Each	\$12.70
626514	Handle No. 4, Stainless	Each	\$20.80	12+ Each	\$19.90



Durable and economical

No. 22 stainless-steel blade permanently mounted on a No. 4 plastic handle. Non-sterile. 625920 Each \$2.20



625910 Disposable Scalpel

Disposable Scalpel

Has a non-sterile, stainless-steel blade permanently mounted on a No. 3 plastic handle. Available with either a No. 10 or a No. 11 blade.

625910 With No. 10 Blade Each \$2.20 625911 With No. 11 Blade Each \$2.40



626001 Utility Scalpel, Carbon Steel

Utility Scalpel, Carbon Steel

Black enamel finish on handle. Total length, 6"; blade length, 11/2".

626001 Each \$4.05 12+ Each \$3.95



626520 Economy Scalpel Handle No. 3

Economy Scalpel Handles

Stainless-steel handles with satin finish. Available in 2 sizes. Scalpel **Handle No. 3** accepts blades No. 10, 11, 12, and 15. Scalpel **Handle No. 4** accepts blades No. 20, 21, 22, 23, 24, and 25.

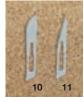
accepts blades No. 20, 21, 22, 25, 24, and 25.				
626520	Handle No. 3	Each	\$6.35	
		12+ Each	\$6.05	
626524	Handle No. 4	Each	\$6.35	
		12+ Each	\$6.25	

Carolina's economy scalpel handles and blades offer both value and quality

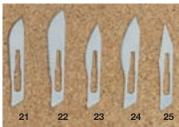
Economy Scalpel Blades Individually wrapped for safety in the classroom

Good-quality, individually wrapped carbon-steel blades. Available in sizes to fit No. 3 and No. 4 surgeon's handles. Packaged in boxes of 100.

626630	Blade No. 10 (handle #3)	Box of 100	\$41.70
626631	Blade No. 11 (handle #3)	Box of 100	\$41.70
626635	Blade No. 15 (handle #3)	Box of 100	\$41.70
626640	Blade No. 20 (handle #4)	Box of 100	\$41.70
626641	Blade No. 21 (handle #4)	Box of 100	\$41.70
626642	Blade No. 22 (handle #4)	Box of 100	\$41.70
626643	Blade No. 23 (handle #4)	Box of 100	\$41.70
626644	Blade No. 24 (handle #4)	Box of 100	\$41.70
626645	Blade No. 25 (handle #4)	Box of 100	\$41.70









626008 Economy Screw-Lock Scalpel Handle, Stainless Steel

Economy Screw-Lock Scalpel Handle, Stainless Steel

Screw lock holds blade securely, yet allows for safe and easy blade changes. Uses blades No. $20\ to\ 25.$

626008 Each \$4.85 12+ Each \$4.55



One-piece, nickel-plated scalpel with polished carbon-steel blade. Total length, 6"; blade length, $1^1/2"$.

626031 Each \$5.25 12+ Each \$4.95



626011 Screw-Lock Scalpel, Nickel

Screw-Lock Scalpel, Nickel

Similar to item #626008. Supplied with No. 22 blade. Handle will accommodate blades No. 20 to 25.

626011 Each \$6.40 12+ Each \$6.00



626164 Dissecting Scalpel, Stainless Steel

Dissecting Scalpel, Stainless Steel

One-piece scalpel with frosted, 4-mm-thick handle and $1^{1}/_{2}$ " polished blade.

626164 Each \$5.95 12+ Each \$5.65



626012 Surgeon's Scalpel, Chrome

Surgeon's Scalpel, Chrome

Quality, German-made handle supplied with No. 22 blade. Handle will accommodate blades No. 20 to 25.

626012 Each \$10.15 12+ Each \$9.85



626400 Cartilage Knife, Nickel

Cartilage Knife, Nickel

Heavy, serrated 6¹/₄" handle with 1³/₄" blade. Equipped with scraper on handle end. **626400** Each **\$6.80** 12+ Each **\$6.50**

Scalpel Blades



Economy Scalpel Blades

Economy Scalpel Blades Individually wrapped for safety in the classroom

Good-quality, individually wrapped carbon-steel blades. Available in sizes to fit No. 3 and No. 4 surgeon's handles. Packaged in boxes of 100.

626630	Blade No. 10 (handle #3)	Box of 100	\$41.70
626631	Blade No. 11 (handle #3)	Box of 100	\$41.70
626635	Blade No. 15 (handle #3)	Box of 100	\$41.70
626640	Blade No. 20 (handle #4)	Box of 100	\$41.70
626641	Blade No. 21 (handle #4)	Box of 100	\$41.70
626642	Blade No. 22 (handle #4)	Box of 100	\$41.70
626643	Blade No. 23 (handle #4)	Box of 100	\$41.70
626644	Blade No. 24 (handle #4)	Box of 100	\$41.70
626645	Blade No. 25 (handle #4)	Box of 100	\$41.70

Sterile, Stainless-Steel Scalpel Blades

Made in Germany, these high-quality stainless-steel blades are individually wrapped and are sterile. Blade No. 10 fits scalpel handle No. 3; blades No. 21 and 22 fit scalpel handle No. 4. Available in packs of 10.

626610 Blade No. 10 (handle #3)

Per pack **\$9.70** 10+ Packs Each **\$9.20**

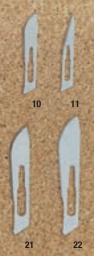
626621 Blade No. 21 (handle #4)

Per pack **\$9.70** 10+ Packs Each **\$9.20**

626622 Blade No. 22 (handle #4)

Per pack \$9.70 10+ Packs Each \$9.20

Dissecting Instruments & Supplies





Non-Sterile, Carbon-Steel Scalpel Blades

Made in Germany, these high-quality carbon-steel blades are individually wrapped. Blades No. 10 and 11 fit scalpel handle No. 3; blades No. 20 to 24 fit scalpel handle No. 4. Available in packs of 4.

626590	Blade No. 10 (hand	lle #3)	
	Per pack \$3.95	25+ Packs Each	\$3.85
626591	Blade No. 11 (hand	lle #3)	
	Per pack \$3.95	25+ Packs Each	\$3.85
626594	Blade No. 20 (hand	lle #4)	
	Per pack \$3.95	25+ Packs Each	\$3.85
626595	Blade No. 21 (hand	lle #4)	
	Per pack \$3.40	25+ Packs Each	\$3.30
626596	Blade No. 22 (hand	lle #4)	
	Per pack \$3.40	25+ Packs Each	\$3.30
626598	Blade No. 24 (hand	lle #4)	
	Per pack \$3.35	25+ Packs Each	\$3.25



626650 Safety Blade Remover

Safety Blade Remover

Designed for safe and easy removal and disposal of scalpel blades from metal surgeon's scalpel handles. Just insert scalpel blade, push button, and pull out the handle. When full, dispose of the entire unit.

626650 Each **\$9.75**

Visit our online catalog at Carolina.com for our complete selection of scalpel blades.



Blades & Saws



626931 Carbon-Steel Razor Blades

Razor Blades

Single-edged blades in packages of 100.

 626931
 Carbon Steel
 Per pack
 \$13.85

 626941
 Stainless Steel
 Per pack
 \$37.50



626980 Charriere Bone Saw, Chrome

Charriere Bone Saw, Chrome

Overall length, 11¹/₂"; cutting edge, 8". **626980** Each **\$43.20**



626985 Satterlee Bone Saw, Chrome

Satterlee Bone Saw, Chrome

Overall length, 11"; cutting edge, 71/2".

626985 Each \$19.55

Dissecting Instruments & Supplies

Dissecting Needles



627201 Teasing Needles, Wooden Handles

Teasing Needle, Wooden Handle

Overall length, $5^{3}/_{4}$ ". Available with *straight* or *curved* points. Pack of 12.

627201	Straight	Each	\$5.30
627203	Curved	12+ Each Each	\$5.10 \$5.05
		12+ Each	\$4.85

Needle Holder, Nickel

Equipped with screw cap for holding and changing needle. Needle holder measures $3^3/8$ " and comes with a straight-point needle.

627250 Each **\$4.75** 12+ Each **\$4.55**



627220 Dissecting Needle, Plastic Handle

Dissecting Needle, Plastic Handle

Stainless-steel needles mounted in plastic handles. Available with *straight* or *curved* points.

627220	Straight	Each	\$1.95
627222	Curved	12+ Each Each	\$1.90 \$1.95
		12+ Each	\$1.90



627235 Dissecting Needle, Stainless Steel

Dissecting Needle, Stainless Steel

One-piece, all stainless steel. Available with *straight* or *full-spear* points.

627231	Straight	Each	\$4.20
627235	Full Spear	12+ Each Each	\$4.00 \$5.70
027200	i dii opcai	12+ Each	\$5.50

Visit our online catalog at Carolina.com for more needles.

627250 Needle Holder, Nickel

Probes

Mall Probe and Seeker, All Steel

Angular semi-blunt tip. Overall length, 6": 6-mm-diam handle.

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627400	Each	\$3.45
	12⊥ Fach	\$3 35

Huber Mall Probe

Double-ended probe and seeker. One end designed with an angular semi-blunt point and the other end with a straight, tapered probe. Overall length, 6".

627405 Each **\$5.80** 12+ Each **\$5.60**

Double-End Probe and Seeker, Stainless Steel

One curved, sharp point and 1 straight, sharp point. Overall length, 6".

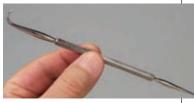
627420 Each **\$5.80** 12+ Each **\$5.60**



627400 Mall Probe and Seeker, All Steel



627405 Huber Mall Probe



627420 Double-End Probe and Seeker, Stainless Steel

Visit our online catalog at Carolina.com for more probes.

Dissecting SuppliesDissecting Pins



629130 Handi-Pins

Handi-Pins

One-piece dissecting pins of plated steel with "T" heads. Easy to place and remove. Ideal for dissection work or skeleton preparation, or as utility pin.

629130 1³/₄" (400/box) Each **\$24.10 629132** 2" (350/box) Each **\$23.30**

Nickel-Plated Dissecting Pins

With uniformly smooth needle points and accurately formed heads. Used to pin specimens. In ½-lb box. Size, 2", about 900/box.

629122 Per box \$29.95

Pans & Pads

Dissecting Instruments & Supplies



V

Aluminum Dissecting Pan with Vinyl Dissecting Pad A

- Aluminum tray—washable, long-lasting, and rustproof
- Versatile tray size—perfect for specimens up to fetal pig size
- Removable vinyl pad-odorless, washable, and durable
- Pad is also resealable—eliminates heating and remelting wax, plus no more cleaning wax from pins after use

Size, $13^{1}/_{8} \times 9^{3}/_{8} \times 2^{1}/_{4}$ " D.

629004 Each \$25.20 12+ Each \$23.80

Customer Review

"This item is very useful for the laboratory because it looks nice and is sturdy."

University Biology Lab Manager



629002 Aluminum Dissecting Pan with Wax

Aluminum Dissecting Pan

This aluminum pan will not rust, crack, break, or leak—it lasts indefinitely. Each pan measures $13^{1/8} \times 9^{3/8} \times 2^{1/4}$ " D and is available with or without pinning wax. Pans with wax can be reheated without damage to restore smooth surface to the wax.

629000 Pan without Wax Each \$21.45 12+ Each \$20.75 ↑3 629002 Pan with Wax Each \$31.60 12+ Each \$30.80



629010 Aluminum Dissecting Pan

Aluminum Dissecting Pan

Without wax. Polished aluminum with rolled edges and rounded corners. Rustproof and corrosion-resistant. Size, about $7^{1}/_{2} \times 11^{1}/_{4} \times 1^{1}/_{2}$ ".

629010 Each \$12.05 12+ Each \$11.85



629011 Standard Aluminum Pan with Pad

Standard Aluminum Pan with Pad 11

Standard aluminum pan, $7^1/2 \times 11^1/4 \times 1^1/2^{"}$, with a vinyl dissecting pad. For replacement pads, order item #629012. For optional lid, order item #629014.

629011 Each \$16.60 12+ Each \$16.10

FREE Teacher Resources at Carolina.com

Download valuable classroom materials at no cost 24/7

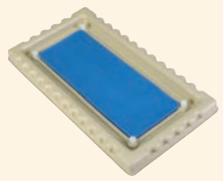
- FREE supplements to your lesson plans
- FREE class activities and projects
- FREE digital games and videos
- FREE organism care guides, safety information, (M)SDS, and more





Dissecting Instruments & Supplies

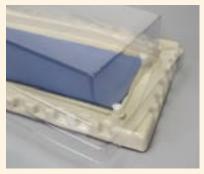
Dissecting Boards/Trays



629068 Large Animal Dissection Tray







629069 Tray Cover

Large Animal Dissection Tray

- · Lightweight and durable
- · Washable, rustproof tray
- · Resealable pad easily removes for washing

Designed for large animals such as sharks, cats, and rabbits. The tray is molded of heavy-gauge, high-density polyethylene for strength and rigidity. It is unbreakable, lightweight, chemical resistant, and has a skid-resistant bottom. The 16 \times 30" tray includes a 10 \times 23" **Dissecto Flex-Pad**® as a dissecting surface—no wax, no mess. Tray stacks easily for storage. Optional plastic Tray Cover fits firmly over tray to prevent moisture loss between dissection periods.

629068 **Dissection Tray** Each \$95.30 12+ Each \$93.05 629068A Replacement Dissecto Flex-Pad Each \$50.85 12+ Each \$49.85 629069 Tray Cover Each \$37.70 12+ Each \$36.90



Preserved Organisms



629100 Dissecting Pan Wax

Dissecting Pan Wax 113

Black wax, especially formulated for use in dissecting pans. With directions. 629100 Per lb \$10.65 6+ lb Each \$10.25



629014 Standard Dissecting Pan Cover

Dissecting Pan Cover

These clear covers prevent excessive moisture loss. The Standard Cover fits $7^{1}\!/_{\!2}\times$ $11^{3}/_{4}$ " pans, including items #629010 and #629011 pans. The **Deluxe Cover** fits 9 \times $12^{3}/_{4}$ " pans, including items #629000, #629002, and #629004 pans.

Standard Cover Each \$6.30 12+ Each \$6.00 629008 Deluxe Cover Each **\$8.05** 12+ Each



629006 Deluxe Vinyl Dissecting Pad (pan not included)

Long-lasting, washable, odorless, vinyl pads replace wax in dissecting pans. Pads reseal themselves-eliminates heating and remelting of wax to restore smooth surface. And they remove easily for cleaning. The first 2 sizes are ready-to-use; the large bulk sheet can be easily cut with scissors to fit irregular-sized pans.

629006 Deluxe, $11^{3}/_{4} \times 8"$ (fits item #629004) Each \$10.85 12+ Each \$10.35

629012 Standard, $10^3/8 \times 6^1/2$ " (fits items #629010 and 629011)

\$9.60 12+ Each Fach \$9.25 Bulk Sheet, 241/2 × 171

629018 Each **\$46.60** 12+ Each \$44.35



Biological Displays

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Biosmount™
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Biosmount™ Preparations

Biosmount™ preparations are preserved animal and plant specimens firmly secured to plastic plates and mounted in clear acrylic containers. They include collections, phylum mounts, and labeled dissections of whole specimens and organs. (Occasionally, specimens may vary because of seasonal availability.) They are excellent reference aids for students performing dissection and are also ideal for classroom demonstrations. **Note:** *To make our products safe, all specimens are initially preserved in formaldehyde solution. The Biosmounts are then drained and refilled with a non-formaldehyde solution.*

Mammals



264722 Cat Anatomy

Cat Anatomy

BiosmountTM preparation. The specimen is dissected to show major organs and blood vessels in the thoracic and abdominal cavities. The arteries are injected red and the veins blue. Labeled. Size, $5^3/_4 \times 16^1/_4$ ".

264722 Each \$922.00



Pig Embryo, Injected

Biosmount™ preparation. The arteries are injected red and the veins blue. Dissected and labeled. Size, 5 × 10¹/₂".

265220 Each \$588.00



264550 Rat, Injected

Rat, Injected

Biosmount preparation. Dissection and double injection of the vascular system. Labeled. Size, $5\times 10^1/_2$ ".

264550 Each \$566.00



Biosmount Preparations

265248 Mammal Heart, Bisected

Mammal Heart, Bisected

Biosmount™ preparation. Mid-sagittal dissection separates the heart into 2 halves. Shows 4 chambers, valves, papillary muscles, interventricular septum, aorta, etc. Labeled. Size, $5 \times 10^{1/2}$ ".

265248 Each \$499.00

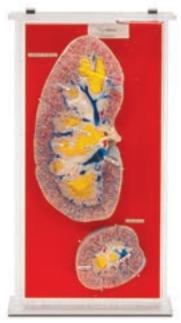
265180 Cow Eye

Cow Eye

Biosmount™ preparation. Median section showing choroid, sclera, cornea, iris, lens and blind spot, anterior chamber, and vitreous body. Labeled. Size, 3×5 ".

265180 Each \$269.00

Biological Displays



265254 Pig Kidney, Injected

Pig Kidney, Injected

265254 Each \$310.00

Biosmount™ preparation. Injected with 3 colors of latex. One sagittal and one transverse section. Labeled. Size, $5 \times 10^{1/2}$ ".

Reptiles

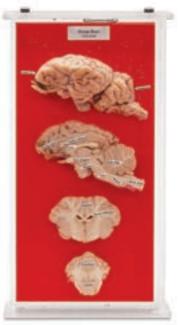


263786 Turtle, Injected

Turtle, Injected

Biosmount™ preparation. Doubly injected specimen dissected to show organs and blood vessels. Labeled. Size, $5 \times 10^{1/2}$ ".

263786 Each \$388.00



265310 Sheep Brain

Sheep Brain

Biosmount™ preparation. Dissected with external and internal views exposed. Two median sagittal sections and 2 transverse sections. Labeled. Size, $5 \times 10^{1/2}$ ".

265310 Each \$352.00



263780 Snake, Injected

Snake, Injected

Biosmount™ preparation. Double-injected and dissected. Major anatomical characteristics are labeled. Size, $5 \times 10^{1/2}$ ".

263780 Each \$450.00

Biological Displays

Amphibian

Arthropod



262178 Crayfish Appendages



Injected

Bullfrog, Injected

Biosmount™ preparation. Dissection of doubleinjected giant bullfrog. Labeled. Size, $7 \times 12^{1/2}$ ".

263600 Each \$441.00

Crayfish Appendages

Biosmount™ preparation. One crayfish has all appendages from 1 side removed and mounted to the side. Labeled. Size, $5 \times 10^{1/2}$ ".

262178 Each \$420.00

Biosmount Preparations Echinoderms



261540 Echinoderm Collection

Echinoderm Collection

Biosmount™ preparation. Seven representative organisms mounted together. Labeled. Size, $5 \times 10^{1/2}$ ".

Brittle Star (Ophiura) Sea Biscuit (Clypeaster) Sea Cucumber (Cucumaria) Sea Urchin Test (Arbacia)

Sand Dollar (Echinarachnius) Sea Urchin (Strongylocentrotus) Starfish (Asterias)

261540 Each \$366.00

Fish



263420 Fish, Injected

Fish, Injected

Biosmount™ preparation. Dissected hybrid bass, injected to show the circulatory system. Labeled, with illustrated key. Size, 11×6 ".

263420 Each \$330.00



Dogfish, Injected

Biosmount™ preparation. Dissection of doubly injected dogfish shows internal organs and blood vessels. (Most of the liver has been removed.) Labeled. Size, $5^{5/8} \times 16^{1/4}$ ".

263182 Each \$462.00

263182 Dogfish, Injected

Biosmount Preparations Mollusks



261952 Freshwater Mussel

Freshwater Mussel

Biosmount[™] preparation. Explore the anatomy of the freshwater mussel with this unique display. One half of the bivalve's shell has been removed to reveal the latex-injected heart and the labeled internal anatomy. Size, 5×5 ".

261952 Each \$328.00

Biological Displays



261771 Mollusk Collection

Biosmount[™] preparation. Ten representative specimens mounted together and labeled. Size, $5 \times 10^{1/2}$ ".

Garden Slug (Limax) Chiton (Katharina) Limpet (Acmaea) Horn Snail (Cerithium) Garden Snail (Helix)

Saltwater Mussel (Mytilus) Razor Clam (Ensis) Scallop (Pecten) Squid (Loligo) Octopus (Octopus)

261771 Each \$425.00

Mollusk Collection



262033D

Squid

Biosmount™ preparation. The circulatory system is latex injected. Labeled. Includes a line drawing of the squid's anatomy, plus a separate teacher's answer key. Size, $5 \times 10^{1/2}$ ".

262033D Each \$380.00

Annelids

261679 Annelid Collection

Earthworms

Annelid Collection

Biosmount™ preparation. Six representative specimens mounted together. Labeled. Size, 31/2 × 10".

Earthworm (Lumbricus) Leech (Haemopis) Scaleworm (Lepidonotus) Tubeworm (Chaetopterus) Plumeworm (sabellid) Sea Mouse (Aphrodita)

261679 Each \$273.00



261683D Farthworms

Parasites



261418 Roundworms

Roundworms

Biosmount™ preparation. Includes entire worm. Male and female dissected to show internal organs. Labeled. Size, $5 \times 10^{1/2}$ ".

261418 Each \$441.00



261401 Platyhelminthes Collection

Platyhelminthes Collection

Biosmount™ preparation. Five representative specimens mounted together. Labeled. Size, 3×10 ".

Freshwater Planarian (Dugesia) Sheep Liver Fluke (Fasciola) 261401 Each \$238.00

Dog Tapeworm (Taenia) White Planarian (Phagocata) Intestinal Fluke (Heterophyes)

er's answer key. Size, 3×10 ". 261683D Each \$299.00

the earthworm's anatomy, plus a separate teach-

Plastomounts

POM1018 Animal

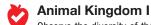
Kingdom I

Biological DisplaysPlastomounts

- An excellent alternative tool to teach dissection
- A great model for students learning to dissect
- · An attention-grabbing permanent display for your lab

Plastomounts are specimens embedded in clear, durable, polyester resin so students can study them from any angle. They are attractive teaching aids for the classroom, lab, and museum, and will last for years.





Observe the diversity of the animal kingdom with this collection of 12 representative specimens professionally embedded in clear acrylic. Perfect for close examination and hands-on teaching, the set includes: turtle, leech, tiger barb fish, frog, paramecium, sea anemone, cuttlefish, scorpion, mouse, tapeworm, roundworm, and *Zosterops* (bird). Set includes a color key identifying the specimens and comes in a durable $13^3/_5 \times 10^1/_5 \times 1^3/_5$ " storage case.

POM1018 Per set \$295.00



Animal Kingdom II

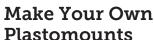
Observe the diversity of the animal kingdom with this collection of 20 specimens professionally embedded in clear acrylic. These specimens are perfect for up-close examination and hands-on teaching. Set represents 8 phyla and includes: leech, cuttlefish, spider, centipede, crab, swordtail fish, frog, turtle, *Lonchura* (bird), white mouse, longhorned beetle, cricket, cockroach, wasp, lychee stink bug, cicada, mantis, butterfly, dragonfly, and stick insect. Set comes in a durable $18^{1}/_{10} \times 13^{1}/_{5} \times 2^{1}/_{3}$ " storage case and includes a cladogram that also serves as a key to identify each specimen.

POM1019 Per set \$469.00

Marine Animal Kingdom

Demonstrate the diversity of marine animals. This set of 8 specimens professionally embedded in clear acrylic includes: pagurid ([hermit crab in shell] *Coenobita rugosus*), spiral shell *(Gyrineum natator)*, lobster *(Linuparus trigonus)*, starfish *(Asterias rollestoni)*, cuttlefish *(Euprymna berryi)*, fiddler crab *(Uca arcuata)*, sea anemone (Actiniaria), and clam *(Ruditapes variegatus)*. These specimens are perfect for up-close examination and hands-on teaching. Set comes in a $12^3/_5 \times 9^1/_{10} \times 1^4/_5$ " case with an identification key of the specimens.

POM1017 Per set \$145.00













Caroplastic Embedding Set ▲

Caroplastic is a clear polyester resin that will harden after catalyst is added. It is the medium of choice for embedding transparent and opaque specimens. Set includes 9 lb (about 1 gal) Caroplastic and 30 mL catalyst, plus it comes with our manual, Embedding in Caroplastic. **Note:** Sold only to schools and businesses. Shipped FedEx® Ground only.

PA3012 Each \$252.00

Plastomounts



Introduce your students to some fascinating insects with this collection. It includes 16 representatives from the following 12 orders: Araneae, Blattaria, Coleoptera, Diptera, Hemiptera, Homoptera, Hymenoptera, Lepidoptera, Mantodea, Odonata, Orthoptera, and Phasmida. Features 14 individually embedded specimens and 2 life cycle mounts. Includes a key to identify each numbered specimen and an attractive carrying case (18 \times 13 \times 3").

POM2680 Per set \$272.00



Beneficial Insects

With this collection, students can learn to identify insects that are beneficial to our natural ecosystem. The 10 specimens in the collection are individually embedded in plastic blocks. Includes silkworm, dragonfly, dung beetle, praying mantis, honey bee, ladybug, diving beetle, tiger beetle, giant hornet, and heath tiger beetle. If a listed specimen is unavailable, a substitute will be provided. Includes an attractive storage case $(13 \times 9 \times 2)$.

POM2691 Each \$146.00



Biological Displays



Insect Collection Set 2

Features representative specimens from 10 orders: Orthoptera (cricket), Odonata (dragonfly), Hymenoptera (honey bee), Coleoptera (beetle), Diptera (fly), Homoptera (cicada), Hemiptera (shield bug), Lepidoptera (butterfly), Blattaria (cockroach), and Mantodea (praying mantis). If a listed specimen is unavailable, a substitute will be provided. Includes an attractive storage case $(13 \times 9 \times 2)$.

POM2683 Per set \$172.00



Harmful Insects

This collection helps your students learn to identify 10 insects that have a harmful impact on human life. The collection's 10 specimens are individually embedded in plastic blocks. Includes cockroach, weevil, grasshopper, antler horned beetle, longhorned beetle, stag beetle, mole cricket, flower beetle, onion fly, and shield beetle. If a listed specimen is unavailable, a substitute will be provided. Includes an attractive storage case $(13 \times 9 \times 2)$.

POM2693 Each \$146.00



Arthropod Collection

Explore the diversity of the phylum Arthropoda using this unique set. Perfect for hands-on examination, the collection represents the Arachnida, Malacostraca, and Insecta classes and includes 30 specimens: spider, scorpion, Chinese shrimp, crab, monarch butterfly, silkworm, dragonfly, onion fly, giant hornet wasp, paper wasp, honey bee, ant, grasshopper, mole cricket, cricket, cockroach, shield bug, cicada, rhinoceros beetle, dung beetle, bamboo weevil, gray weevil, lady bug, great diving beetle, chafer beetle, long-horned beetle, antler-horned beetle, wood tiger beetle, green tiger beetle, and stag beetle. Specimens are embedded in durable clear resin. Comes with attractive carrying case (16¹/2 × 13 × 3").

POM1020 Per set \$476.00



POM3430 Carolina Frog Development Set

Carolina® Frog Development Set

Seven high-quality embedded specimens featuring various stages of frog development: frog eggs, a tadpole, a tadpole with hind legs, a tadpole that has developed hind legs and forelegs, a tadpole with a shrunken tail, a froglet, and an adult frog. Includes an information card with full-color images and comprehensive details on developmental stages. FREE 1-year access to digital resources included.

POM3430 Per set \$91.00



POM3432 Carolina Butterfly Life Cycle Set

Carolina® Butterfly Life Cycle Set

Four beautifully embedded specimens showing the metamorphosis of the butterfly: eggs, larva, pupa, and adult. Includes an information card with full-color images and comprehensive details on each developmental stage. FREE 1-year access to digital resources included.

P0M3432 Per set \$91.00



POM3434 Carolina Honey Bee Life Cycle Set

Carolina® Honey Bee Life Cycle Set

This set of 5 Plastomounts highlight the complete life cycle of the honey bee. Students get a close-up look at the eggs, larva, and pupa stages. The adult stages shown include the worker bee, drone bee, and queen bee, which are mounted side-by-side for comparison. Set also includes mounts showing examples of a honeycomb, a drone cell, a queen cell, beeswax, honey, and pollen. Includes an information card with full-color images and details on each stage of honey bee development. FREE 1-year access to digital resources included.

POM3434 Per set \$91.00



POM3436 Carolina Silkworm Life Cycle Set

Carolina® Silkworm Life Cycle Set

Explore Plastomounts showing the different developmental stages of the silkworm: eggs, a larva, a pupa with a cocoon, and an adult silkworm. Also includes a fifth mount featuring a sample of silk produced by the silkworm. Includes an information card with full-color images and FREE 1-year access to digital resources.

POM3436 Per set \$91.00



POM3438 Carolina Dragonfly Life Cycle Set

Carolina® Dragonfly Life Cycle Set

Explore dragonfly development with 4 embedded specimens: eggs, a nymph in phase 1, a nymph in phase 2, and an adult dragonfly. Includes an information card complete with full-color images and details about the dragonfly's life cycle. FREE 1-year access to digital resources included.

POM3438 Per set \$91.00

Plastomounts

Fish Dissection

POM3142 Fish Dissection

Fish Dissection

This fish dissection display lets your students examine the internal organs of a fish without actually dissecting one. Each Plastomount specimen is double injected and expertly dissected to show internal organs on 1 side. A key is included to identify each numbered structure. The dissected fish display measures $8^{1/4} \times 4^{1/4}$ ".

POM3142 Each \$147.00



Tarantula

Large spider that has acquired an unwarranted reputation for a deadly bite. This mount also makes a unique paperweight or gift. Size, $5^{1/4} \times 3^{1/2}$ ".

POM1705 Each \$62.00

POM1705 Tarantula

Biological Displays



POM5180 Pigeon Dissection

Pigeon Dissection

Dissected to show internal organs. Arteries are injected with red latex and veins with blue. Includes an instructional illustration. A key is included to identify each numbered structure. Size, $4 \times 9 \times 2$ ".

POM5180 Each \$268.00



POM8500 Comparative Brains

Comparative Brains

Fish, amphibian, reptile, bird, and mammal brains mounted together. With instructional illustration. Size, 6×3 ".

POM8500 Each \$151.00



POM8505 Comparative Hearts

Comparative Hearts

Fish, amphibian, reptile, bird, and mammal hearts mounted together. With instructional illustration. Size, 6×3 ".

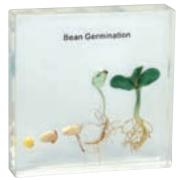
POM8505 Each \$151.00

Bean Germination

The 5 stages of bean growth are mounted together to show development from seed to seedlings with secondary roots and leaves. Includes an instructional illustration. Size, $3^3/_4$ \times $3^3/_4$ ".

POM17563 Each \$58.00

POM17563 Bean Germination



Corn Germination

Early monocot development from seed to young plant with secondary roots and leaves. Includes an instructional illustration. Size, $3^1/_2 \times 3^1/_2$ ".

POM17564 Each \$58.00



POM17564 Corn Germination

Biorama Preparations

Biological Displays Biorama[™] Preparations

Biorama[™] preparations are natural specimens mounted dry in glass-covered display cases. They are excellent for demonstrating animal and plant classifications, life cycles, and ecological relationships.





Biorama™ preparation. This unique set clearly shows the diversity of the plant kingdom. Forty-six specimens mounted in 12 displays include lichens, algae, fungi, liverworts, mosses, pteridophytes, gymnosperms, monocot angiosperms, dicot angiosperms, seed types, leaf venations, and parasitic plants. Each 6 × 5", glass-fronted display is fully labeled.

267709 Per set \$417.00



Animal Kingdom Survey Set

Biorama™ preparation. This is an excellent set for introducing students to the exciting world of animals. Forty-four representative specimens covering the sponges, cnidarians, mollusks, annelids, echinoderms, myriapods, arachnids, insects, and crustaceans are mounted in twelve 6 × 5", glass-fronted Riker displays. Each is fully labeled. Specimens may vary from those shown based on availability.

261112 Per set \$417.00



267800 Invasive Species Survey Set

Invasive Species Survey Set

Biorama $^{\text{TM}}$ preparation. Invasive species are organisms found outside their native range. When these foreign species are introduced into new ecosystems, the results can be dramatic as they displace native species and cause problems to which the native system cannot adapt. This set of 12 displays features 16 species. Eleven mounts show specimens typically regarded as US invaders: dead-man's fingers algae, water lettuce, blue periwinkle vine, English ivy, kudzu, Bradford pear, Chinese tallow tree, salt cedar, common periwinkle snail, zebra mussel; an additional mount shows 4 insects: Japanese beetle, kudzu bug, red imported fire ant, German cockroach. The last display features 2 species exported from the US and now considered invasive in other nations: red-eared slider turtle, Colorado potato beetle. Each $5 \times 6^{\text{H}}$ display is labeled with common names, scientific names, country of origin, approximate dates of introduction, and the problems each species is causing. Packaged in 1 convenient set. Species may vary due to availability.

267800 Per set \$370.00

Biorama Preparations Plants

Soil Horizons

Biorama™ preparation. Students easily observe soil horizons with this instructive display. The mount shows the clear physical distinctions, such as color and particle size, between soil layers. The following soil horizons are shown: organic (0), topsoil (A), eluviation (E), subsoil (B), regolith (C), and bedrock (R). A stem of grass and a small mushroom are shown on the soil surface, allowing students to observe how roots and mycelium travel through the soil layers. A key

with a short description of each horizon is mounted on the display. Mounted in a 16×12 " display case.

267810 Each \$215.00

Leaves and Seeds Survey Set

BioramaTM preparation.
Learn to identify the leaves and seeds of 16 common trees using this set of 16 individual mounts. A leaf and a seed from a single tree are packaged together in a 5 × 7" display case. Each case is labeled with the scientific and common name of the tree and features additional ecological information about the tree. Visit Carolina.com for a complete list of

268850 Per set \$104.00





223500 Leaf Identification Kit

Biological Displays



268846 Monocot and Dicot Comparison

Monocot and Dicot Comparison

Biorama $^{\text{TM}}$ preparation. Using this botanical mount, students visually learn and explore the differences between monocots and dicots based on leaf structures, embryos, stems, pollen grains, and flowers. Each of these defining characteristics is represented and includes a brief explanation for both types of plant. Mounted in a 16×12 " Riker mount.

268846 Each \$93.00



Leaf Shapes and Arrangements

Biorama[™] preparation. Use this botanical mount to explore the shapes of simple and compound leaves while also examining the 3 types of leaf arrangements. Simple leaves with the following shapes are mounted first: linear, elliptic, fan, cordate, needle, lanceolate, rhomboid, scaled, deltoid, and oblong. Compound leaves with trifoliate, palmate, pinnate, and bipinnate shapes are mounted next. The last samples on the mount illustrate the 3 common leaf arrangements: alternate (1 leaf per node), opposite (2 leaves per node), and whorled (3 or more leaves per node). With this introductory mount, students easily learn how

to classify leaves—a significant step in plant identification. Mounted in a 14 \times 21 $\!^{\rm II}$ Riker mount.

268842 Each \$145.00

Leaf Identification Kit

Grades 3–12. Students learn to key out, identify, and classify leaves by shape, size, veins, margins, and position on twigs. Contains 39 tree leaves (3 each of 13 species), leaf identification key, 61-page *Tree Finder* book, and teacher's guide with hands-on activities.

223500 Per kit \$72.00



Biological Displays

Leaf Venation

Biorama™ preparation. Compare the 4 leaf venation types by examining a real specimen of each. This mount features 4 leaves, each showing one of the 4 different types of leaf venation: dichotomous, pinnate, palmate, or parallel. Mounted and labeled in a 6¹/2 × 8¹/2" Riker mount.

268841 Each \$50.00



268841 Leaf Venation



268848 Seed Fruits Set

Seed Fruits Set

Biorama™ preparation. Explore the diversity of fruit types. Included are 19 species covering 11 fruit and seed structures: nut (acorn, pecan, cocklebur), samara (maple, ash, elm), achene (sunflower), silicle (shepherd's purse), drupe (gum), berry (pokeweed), legume (rattlebox, mimosa), capsule (trumpet vine, sweet gum), caryopsis (wheat, foxtail), hesperidium (orange x.s.), and aggregate (sycamore, osage orange x.s.) are all represented in this comprehensive collection. Mounted dry in a 20 × 14" display case.

268848 Each \$209.00

Biorama Preparations



267777 Algae Collection

Algae Collection

Biorama $^{\text{TM}}$ preparation. The diversity of algae is presented with these 5 specimens. Examples of red algae (Rhodophyta), brown algae (Phaeophyta), and 3 different green algae (Chlorophyta) are included. All specimens have been freeze-dried to preserve their form and give years of service. Each specimen is labeled and all come housed in an $8\times6''$ display case.

267777 Each \$71.00



Pine Life Cycle

Biorama $^{\text{TM}}$ preparation. Enhance the study of gymnosperms with this beautiful presentation of the life cycle of *Pinus*. Included are a pollen-bearing male cone, first-year female cone, mature female cone, seed, seedling, and needle. All come housed in a 6 \times 8" display case.

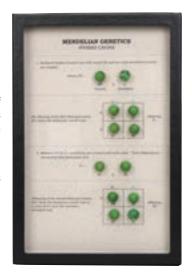
268146 Each \$79.00

268146 Pine Life Cycle

Mendelian Genetics Monohybrid Cross

Biorama[™] preparation. Demonstrate Gregor Mendel's classic genetic experiment using this informative display of his pea plant crosses. The display investigates phenotypes of pea shape, crossing 2 homozygous parents and yielding the F₁ and F₂ generations. Students visualize separation of alleles and make the distinction between dominant and recessive traits. Features solid-colored marbles representing the dominant allele and semi-transparent marbles representing the recessive allele. Genetic crossing is labeled and represented in an 8 × 12" glass-fronted display.

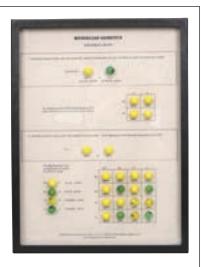
264400 Each \$62.00



Mendelian Genetics Dihybrid Cross

Biorama[™] preparation. This simple, effective display demonstrates Mendel's laws-the law of segregation and the law of independent assortment-using pea shape and color. A homozygous dominant parent is crossed with a homozygous recessive parent, yielding the F1 generation. The F₁ generation offspring are crossed, showing the 4 combinations of traits in the classic 9:3:3:1 ratio. Features solid-colored marbles representing dominant alleles and semi-transparent marbles representing recessive alleles. Genetic crossing is labeled and represented in a 12 × 16" glassfronted display.

264402 Each \$82.00



Biorama Preparations

Animals



261225 Sponge Collection

Sponge Collection

Biorama™ preparation. Teach the diversity of phylum Porifera with our large exhibit. Specimens typically include the freshwater sponge (Spongilla), the simple crown sponge (Grantia), the commercial silk sponge (Spongia) and sea wool sponge (Hippospongia), a finger sponge (Isodictya), a tube sponge (Callyspongia), and an impressive glass sponge (Venus's flower basket, Euplectella). Fully labeled in a 12 × 16" display case. Specimens may vary from those listed based upon seasonal availability.

261225 Each \$160.00



262350 Insect Metamorphosis Set

Insect Metamorphosis Set

Biorama™ preparation. An excellent mount for students to learn about the characteristics of insect metamorphosis. Gradual metamorphosis is demonstrated by the grasshopper, incomplete metamorphosis by the cicada, and complete metamorphosis by the butterfly. All 3 types of insect growth and development are clearly shown in this 12 × 8" display. Riker mount.

262350 Each \$92.00

Larval Insect Comparison

Biorama™ preparation. Compare the larval stages of 10 insect orders with this visual, engaging mount. It includes Odonata (dragonfly), Lepidoptera (butterfly or moth), Trichoptera (caddisfly), Hymenoptera (wasp or bee), Orthoptera (grasshopper), Hemiptera (true bug), Homoptera (cicada), Diptera (fly), Coleoptera (beetle), and Mantodea (mantis). Perfect for entomology, zoology, ecology, environmental science, and basic biology courses. Mounted and labeled in a 6 × 8" display case.

262352 Each \$68.00



262352 Larval Insect Comparison

Biological Displays



262424 Major Insect Orders

Major Insect Orders

Biorama $^{\text{\tiny{M}}}$ preparation. Examine and compare specimens from the most diverse group of animals on our planet—the insects. This display features a preserved and mounted representative from each of the 9 major insect orders: Orthoptera, Hymenoptera, Ephemerida, Diptera, Lepidoptera, Coleoptera, Hemiptera, Odonata, and Isoptera. Mounted and labeled in an 8 \times 12" Riker mount.

262424 Each \$72.00

Beetles Collection

Biorama™ preparation. With more than 350,000 described species worldwide, beetles are one of the largest groups of organisms on Earth. Use this collection of 20 specimens to introduce your students to the variety of beetles found in the US. Species include an array of scarab, carrion, click, ground, soldier, ladybird, longhorn, flower, and other species. Each specimen is identified by its common name and genus. In an 8 × 12" Riker mount.

262428 Each \$72.00



262428 Beetles Collection

Aquatic Insects

Biorama™ preparation. Immerse yourself in the world of aquatic insects without having to get your toes wet. This mount features the following 10 common insect stages found in freshwater systems: a damselfly naiad, dragonfly naiad, caddisfly larva, mosquito larva, phantom gnat larva, as well as an adult water strider, adult backswimmer, adult water boatman, adult water scavenger beetle, and an adult crawling water beetle. Mounted and labeled in a 6 × 8" display case.

262426 Each \$69.00





262426 Aquatic Insects

Biological Displays

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262326 Biotic Indicators of Water Quality Set

Biotic Indicators of Water Quality Set

Biorama $^{\text{\tiny{TM}}}$ preparation. This collection of 14 organisms is an excellent tool for assessing the water quality of freshwater systems and a helpful guide for your water quality studies. The organisms are divided into 3 groups: those that are very sensitive, somewhat sensitive, and tolerant of pollution and turbidity. A mayfly nymph, stonefly nymph, and caddisfly larva serve as examples of very sensitive organisms; water quality must be good to support these organisms. A dragonfly nymph, backswimmer, water scavenger beetle, water strider, clam, grass shrimp, and crayfish are displayed as somewhat sensitive organisms; water must be healthy to support these organisms, but they can tolerate moderate levels of pollution and turbidity. The lunged snail, glassworm, mosquito larva and pupa, and leech represent organisms tolerant of pollution and turbidity. Fully labeled and mounted in a 12 × 8" Riker mount.

262326 Each \$120.00



264500 North American Egg Collection

North American Egg Collection

Biorama™ preparation. Enhance your ornithological studies with this beautiful mount. Thirty-six hand-painted replicas of various North American bird eggs are displayed and labeled in a 12 × 16" glass-fronted display. Each replica is accurate in size, shape, and color. Visit Carolina.com for a complete list of the replicas included.

264500 Each \$529.00

Biorama Preparations

Ö

Forensic Insects

Biorama[™] preparation. Certain insects offer a lot of clues for forensic scientists trying to determine the time of death. This hands-on exhibit features several of these insects and presents students with a visual understanding of just how insect life cycles serve as biological timers. The display shows the life stages of the blowfly using examples of eggs, larva, pupa, and adult with a description of the timing for each stage. The rove or hister beetle is similarly featured with examples of the egg, larva, and adult stages.



Other general indicators included are the dermestid beetle and the clothes moth larva. All specimens, stored in vials, are fully labeled and housed in a 6 \times 8" display case that brings crime scene science to the classroom.

267895 Each \$80.00

Visit Carolina.com to view our complete collection of entomology products.



654230 Adjustable Insect Mounting Board



Sea Turtle Egg Display

Biorama™ preparation. Perfect for environmental and conservation courses, this mount displays half-replicas of 5 different eggs from hawksbill, ridley, loggerhead, green, and leatherback sea turtles. Each egg replica is true to size and accurate in shape and color, labeled with the common and scientific name, and displayed with a small image of the sea turtle. Housed in an 8 × 12" glass-fronted case.

264510 Each \$96.00

Biorama Preparations/Plastinated Specimens

Biological Displays



261786 Seashell Assortment

Seashell Assortment

One gallon of assorted small and medium-sized shells for teaching the use of dichotomous keys, for studying diversity, or for general classroom use. These "hands-on" specimens are dried.

261786 Per set \$43.40

Ocean in a Box

This set of 20 ocean specimens includes the following: algae; barnacle shell; finger sponge; commercial sponge (usually a silk sponge); sea bean; bivalve shells (clam, scallop, and turkey wing); gastropod shells (olive, *Turritella*, cowrie, and turbo); limpet shell; a center-cut spiral shell to show development; tusk shells; starfish; sand dollar; stony coral; soft

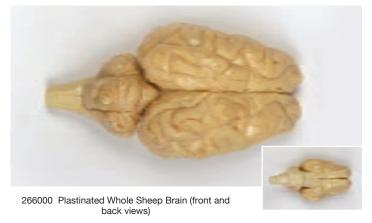


coral; and a sea horse. These "hands-on" specimens are dried. Each is housed in a reusable $4\times6"$ bag with a descriptive card giving the name of the organism and a brief, simple description with interesting facts. Set includes a labeled $7\times10\times4"$ box for convenient storage.

261102 Per set \$59.00

Plastinated Specimens

Plastination gives these specimens durability, allowing them to be handled regularly without the risk of damage. Use them as supplements to actual hands-on dissection labs, to prepare students for what they will see during the dissection, and/or for assessment once the dissection is complete. Plastinated specimens require no special storage. However, they should be handled with care and covered when not in use to reduce dust accumulation.



Plastinated Whole Sheep Brain

Explore the external anatomy of the mammalian brain using this nondissected, plastinated real sheep brain. Examine the anatomical structure of the cerebrum, cerebellum, and spinal cord. Pituitary gland and optic chiasma are not shown. Approximate length, $3^{1}/2^{\circ}$.

266000 Each \$445.00

266010 Plastinated Dissected Pig Heart (front and back views)

Plastinated Dissected Pig Heart

Plastinated Cats

Use these skillfully dissected, double-injected plastinated real cats over and over again in your anatomy lab. Their ventral anatomy has been expertly dissected, revealing the anatomy of the neck, thoracic organs, abdominal organs, along with some musculature of the upper forelimbs and upper hindlimbs.

Plastinated cats are initially preserved, double injected (red arteries, blue veins), and then plastinated. Plastination (silicone rubber) may appear as white flakes or crystals in the fur. Specimens require no special storage. However, to reduce dust accumulation, we recommend covering them when not in use. Approximate length, 14 to 18".

266100 Male Specimen Each **\$1,658.00 266102** Female Specimen Each **\$1,658.00**

266010 Each **\$514.00**

size of each cross section, $4^{1/2} \times 3^{"}$.



Plastinated real pig heart sectioned longitudinally to reveal all 4 chambers of the typi-

cal mammalian heart. Explore the heart's valves, musculature, and other important anatomical structures. Right and left halves of the heart are connected. Approximate

266100 Plastinated Male Cat



Skeletons

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246123 Articulated Dog Skeleton

Animal Skeletons

Dog

Articulated Dog Skeleton

Natural bone. From medium, select specimen. Fully articulated. Mounted on base. With removable Plexiglas® cover ($16^{1}/_{2} \times 13 \times 7^{"}$ H). With illustrated key.

246123 Each \$698.00

New! Dog Skeleton Plastisol poly Premium dog s

Plastisol polymer.

Premium dog skeletal system model on base with no cover. Skull and articulated caudal vertebrae (tail) are removable. Mandible is articulated. Illustrated guide including skeletal anatomy and details of the skull is affixed to the sturdy plastic base.

Model size (without base), 12"

H × 20¹/z² L × 5" W; base size,

1" H × 14¹/4" L × 9" W.

246125 Each \$150.00

Cat



245890 Articulated Cat Skeleton

245861 Disarticulated Cat Skeleton



245850 Disarticulated Cat Skeleton

Articulated Cat Skeleton

Natural bone. From large, select specimen. Fully articulated. The jaw is hinged to permit close examination of the dentition. Mounted on base. With removable Plexiglas® cover ($18 \times 5^{1}/_{2} \times 11^{1}/_{2}$ " H) and illustrated key.

245890 Each \$636.00

Disarticulated Cat Skeleton

Natural bone. The skeleton is unmounted in a black plastic storage case with hinged lid and snap fastener. With illustrated key.

245861 Each \$284.00

Disarticulated Cat Skeleton

Natural bone. Unmounted in storage container. With illustrated key.

245850 Each \$270.00

New! Cat Skeleton

<code>Plastisol polymer. Skeletal system model of a domestic shorthair cat on base with no cover. Skull and articulated caudal vertebrae (tail) are removable. Mandible is articulated. Illustrated guide featuring skeleton, skull, and lateral view of the cat is affixed to the sturdy plastic base. Model size (without base), $8^{1}/4^{\circ}$ H \times $18^{1}/4^{\circ}$ L \times 4° W; base size, 1° H \times $14^{1}/4^{\circ}$ L \times 9° W.</code>

245892 Each \$150.00



Animal Horse

Skeletons



246306 Disarticulated Hind Limb

Horse Forelimb and Hind Limb Skeletons

Natural bone. Study adult equine forelimb and hind limb skeletal anatomy in detail with these natural bones. They are ideal for agricultural and veterinary courses and comparative anatomy labs. Articulated limbs are affixed to a square wooden base $(11^1/4 \times 11^1/4^{"})$ with a steel support rod. The hoof capsule is displayed separately on the base and can be removed for close-up examination. Size, around $13 \times 51^{"}/2"$. Disarticulated limbs are loose and also include the hoof capsule.

246300 Articulated Forelimb

Each **\$2,220.00**

246302 Articulated Hind Limb

Each **\$2,220.00**

246304 Disarticulated Forelimb Each \$990.00

246306 Disarticulated Hind Limb

Each **\$990.00**



246300 Articulated Horse Forelimb

Rodent



245740 Articulated Rat Skeleton

Articulated Rat Skeleton

Natural bone. Articulated and mounted on base. With removable Plexiglas® cover ($12^{1}/_{4} \times 4^{1}/_{2} \times 3^{1}/_{2}$ " H) and illustrated key.

245740 Each \$355.00

Bat Skeleton

Natural bone. One of our most attractive and unusual preparations, this skeleton has been meticulously cleaned. The wings are spread and the lower jaw has been opened to reveal the stiletto-like teeth. In glass-topped display box. With illustrated key. Size, $12\times 8".$

245640 Each \$304.00



245640 Bat Skeleton

Chicken



Articulated Chicken Skeleton

Natural bone. Large, with eye rings and hyoid bones. Fully articulated and mounted on base. With removable Plexiglas® cover ($12 \times 8 \times 15$ " H).

245220 Each \$550.00

Articulated Pigeon Skeleton

Natural bone. Large. Complete with eye rings and hyoid bones. Articulated and mounted on base. With removable Plexiglas® cover (8 \times 8 \times 8 $^1/_2$ " H). With illustrated key.

245130 Each \$400.00

245130 Articulated Pigeon Skeleton

Pigeon



Skeletons Animal

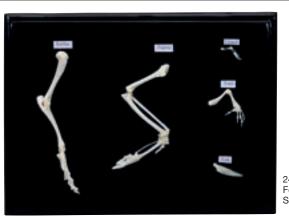
Snake



Snake Skeleton

Natural bone. Fully articulated and mounted on base. With removable Plexiglas® cover $(14 \times 4^{1}/_{4} \times 2^{1}/_{4}" \text{ H}).$

244420 Each \$315.00



242343 Forelimb Set



242345 Hind Limb Set

Forelimb and Hind Limb Sets

Natural bone. The forelimb or hind limb of a rabbit, a pigeon, a lizard, a toad, and a pectoral or caudal fin of a fish. All are securely mounted on a dark wooden base. With removable Plexiglas® cover (8 \times 11 \times 2" H).

242343 Forelimb Set Each \$160.00 242345 Hind Limb Set Each \$160.00



Turtle



Articulated Turtle Skeleton

Natural bone. Fully articulated and mounted on base. With removable Plexiglas® cover $(8^{1}/_{2} \times 3^{1}/_{2} \times 6^{"} \text{ H}).$

244131 Each \$255.00

Fish



243400 Fish Skeleton

Fish Skeleton

Natural bone. Fully articulated and mounted on Plexiglas® plate in sturdy, doubleview display case. With illustrated key. Size, $9^{1/2} \times 5^{3/4}$ ".

243400 Each \$285.00

Dogfish Skeleton

Natural bone. Squalus. Complete. Mounted on transparent Plexiglas® plate with preservative. With illustrated key. Size, $5 \times 10^{1/2}$ ".

243110 Each \$475.00



243110 Dogfish Skeleton

Chimpanzee



246592 Bone Clones Adult Male Chimpanzee Skull

Bone Clones® Adult Male Chimpanzee Skull

Pan troglodytes. This reproduction has outstanding detail. The dentition, including the canines, is complete, and the occlusal surfaces of the premolars and molars are well defined. The skull has been expertly prepared so that the foramina, fossa, and other openings that carry nerves and blood vessels are easily identified. The mandible is loose. With illustrated key.

246592 Each \$369.00

Anthropology

Skeletons

Anthropology Skeletons



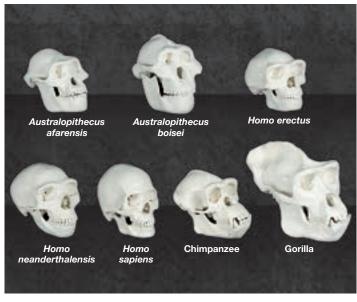
281016 Anthropology Cranium Set

Anthropology Cranium Set

Hydrostone. Consists of 5 expertly cast replicas of craniums from well-known early hominid-type species. Includes a 15-page booklet about the hominids.

Australopithecus afarensis Cranium Australopithecus africanus Cranium Homo habilis Cranium Homo erectus Cranium Homo neanderthalensis Cranium

281016 Per set \$821.80

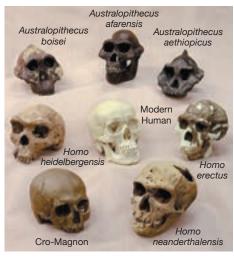


281002 Bone-Colored Hominid and Great Ape Set

Bone-Colored Hominid and Great Ape Set

Resin. These high-quality skulls show details not usually found in reduced-scale reproductions. The ½-scale replicas are hand cast in durable resin and are available in bonelike color that dramatically increases the amazing detail.

281002 Per set \$798.95



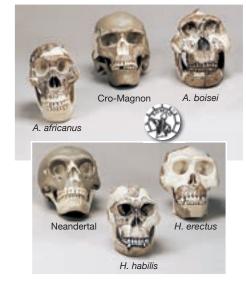
280985 Bone Clones Hominid Study Set

Bone Clones® Hominid Study Set

Plastic. Set includes 1 each of the following 8 hominid replicas.

Australopithecus afarensis Skull Australopithecus aethiopicus Cranium Australopithecus boisei Cranium Homo erectus Skull Homo heidelbergensis Cranium Homo neanderthalensis Skull Cro-Magnon Cranium Modern Human Skull

280985 Per set \$2,935.95



281013 Somso Early Man 6-Skull Set

Somso® Early Man 6-Skull Set

Plastic. Great durability and outstanding as teaching aids, the Somso® brand is widely used throughout the world. This set is comprised of 6 skulls of early man.

A. africanus Skull Australopithecus. STS-5 Cro-Magnon Skull Homo sapiens sapiens. Neandertal Skull Homo neanderthalensis. A. boisei Skull H. habilis Skull Homo. OH 24. H. erectus Skull (1.8 MYA) Homo. A detailed reconstruction of a H. erectus skull.

Australopithecus. **281013** Per set **\$3,099.20**



280996 Early Man and Primate Skull Comparison Set

Early Man and Primate Skull Comparison Set

Plastic. This set consists of 7 detailed, accurate, and life-size reconstructions of 5 hominids and 2 great apes. Includes 6 skulls and 1 cranium. The set is ideal for use with our Bone-Colored Hominid and Great Ape Set (item #281002) of reduced-size skulls.

Australopithecus afarensis Skull Australopithecus boisei Cranium Homo erectus Skull Homo neanderthalensis Skull Chimpanzee Skull Gorilla Skull Modern Human Skull

280996 Per set \$2,650.95

Skeletons Human Skeletons

When you buy human skeletons from Carolina, you get:

- Carolina's excellent customer support
- Prompt delivery
- Replacement parts available by special order
- Anatomically accurate and life-size skeletons (unless otherwise noted)
- . Models that can be easily cleaned with soap and water

Basic Rod-Supported Skeletons



3B[®] Human Rod-Supported Skeleton

- Excellent quality model for studying the human skeleton
- Valuable skeleton for anatomy and physical education classes
- · Many classroom uses

Plastic. You get a lot for your money with this first-quality rod-supported classroom skeleton. Articulated to show normal posture, it features removable extremities and a detachable skull with a cut calvarium. This human skeleton model has 32 teeth with a spring-held lower jaw. It's mounted using a metal rod extending from the sacrum and includes a plastic dust cover, a Human Anatomy Manual, and a base on 4 casters.

246875 Each \$550.00



246772 Altay Human Skeleton

Altay® Human Skeleton Bones on a budget

- Good-quality skeleton at an affordable price
- · Valuable model for anatomy class

Plastic. If you have a limited budget, this life-size classroom skeleton gives you a lot for your money. Made of bonelike plastic material and articulated to show normal posture, its extremities are removable for individual study. The skull has 32 teeth and a springheld jaw. Mounted with a metal rod extending from the sacrum, this human skeleton model comes with an identification key and a Human Anatomy Manual. A base and casters are included.

246772 Each \$517.50



246869 Somso Human Rod-Supported Female Skeleton

Somso® Human Rod-Supported Skeletons

Top-quality display skeleton

- The best-quality skeleton available for serious lab or classroom study
- · Telescoping rod to adjust display height
- Valuable model for anatomy and physical education classes

Plastic. Step up to medical quality with this superior, rod-supported classroom skeleton. Articulated to show normal posture, the skeleton is mounted upright on an adjustable metal rod that extends from the sacrum. For viewing convenience, you can adjust the display height of the skeleton using a telescoping rod that locks into position. The 3-part skull has 32 teeth, a cut calvarium, and a removable, spring-held mandible. Students can remove the upper and lower extremities and 1 hand and foot for closer examination. This top-quality medical human skeleton includes a Human Anatomy Manual and comes on a stand with casters.

246867 Male Skeleton Each **\$2,366.00 246869** Female Skeleton Each **\$2,392.00**

Skeletons

Basic Hang-Up Skeletons



246813 Somso Articulated Human Female Skeleton

Somso® Articulated Human Skeletons

Plastic. First quality. Hang-up type with hook. Correctly articulated to show normal posture. The skull has 32 teeth, the calvarium is cut, and the mandible is spring held. The skeleton has a flexible vertebral column. The arms and legs can be removed for individual study. Includes metal stand on rollers and Human Anatomy Manual.

 246813
 Female Skeleton
 Each
 \$2,926.35

 246814
 Male Skeleton
 Each
 \$2,876.50



246770 Altay Hang-Up Human Skeleton

Altay® Hang-Up Human Skeleton

Plastic. This replica of a life-size human skeleton shows all parts in detail. The main joints are articulated; the upper and lower limbs are easily removable. The skull, cranium, jaw, arms, and legs are also detachable. Includes the Human Anatomy Manual and comes on a stand with casters.

246770 Each \$656.15





3B[®] Articulated Human Skeleton

Hang tough

- Excellent quality hang-up skeleton with stand
- . Multiple ways to use in the classroom
- · Valuable model for anatomy class

Plastic. Easy to move wherever you want it, this first-quality classroom skeleton has a hook for hanging it on a stand. The skeleton is correctly articulated to show normal posture, and students can remove the extremities for individual study. The skull has 32 teeth, the calvarium is cut, and the jaw is spring held. Teeth are individually cast and set into position, making them extremely lifelike. This articulated human skeleton model includes a plastic dust cover and a Human Anatomy Manual. It comes complete with a hang-up stand and casters.

246809 Each \$730.00

Skeletons

Flexible Skeletons



246877A 3B Human Physiology Skeleton

3B® Human Physiology Skeleton

- A must-have model for studying the range of skeletal movement
- Special articulations for increased range of motion
- Excellent for studying the physiology and pathology of the skeleton

Plastic. How do you show students what happens when bones are moved—or even dislocated? It's easy with this human physiology classroom skeleton. The skeleton is articulated to show normal posture, but it can be flexed to show a variety of other postures and features including:

- Skull movement and the rotation of the first 2 vertebrae
- A specially designed neck and spinal column that demonstrate increased range of movement involving extraordinary joint dislocation
- Special shoulder blade and hip attachments with greater range of movement to demonstrate internal and external rotation of arms and legs
- One hand and 1 foot articulated with an elastic filament for increased joint movement
- Special articulations of the sacrum and coccygeal joint, and the sacrum and pelvis, allowing indepth study of these important areas of concern
- A detachable skull with a cut calvarium, 32 teeth, and a spring-held lower jaw

The human skeleton model comes with a plastic dust cover, a *Human Anatomy Manual*, and a stand for hanging.

246877A Each \$1,675.00

Human Muscular Skeletons



246882A Somso Human Muscular Skeleton

3B® Human Flexible Skeleton

Plastic. Articulated to show normal posture. A unique preparation that can be flexed to achieve a variety of postures. Skull movements and rotation of the first 2 vertebrae are also possible. The thorax can be manipulated to simulate the mechanics of breathing. Extremities are removable. Detachable skull has calvarium cut and contains 32 teeth; lower jaw is spring held. Includes plastic dust cover and Human Anatomy Manual. Skeleton is mounted by means of a metal rod extending from the sacrum to a guadropod base.

246877

3B Human Flexible

Skeleton

246877 Each \$1,040.00



Detail showing flexibility of 246877 3B Human Flexible Skeleton

Somso® Human Muscular Skeleton

Plastic. Medical quality. Correctly articulated to show normal posture. The shoulder, elbow, knee, and pelvic joints can be either flexed or rotated to approximate limb movements. The right side is painted to show muscle origins in red and insertions in blue; the left side is number coded. The skeleton is mounted upright by means of a metal rod extending from the sacrum to a base with casters. The skull is removable. With Human Anatomy Manual and identification key.

246882A Each \$4,335.00



The craftsmanship required to produce models as superb in quality as Somso® models requires that each one be, essentially, made to order. If the model in question is not in stock at the time you place your order, please allow up to 16 weeks' manufacturing time until delivery.

Human Skeletons



246885 Altay Human Muscular Hang-Up Skeleton

Altay® Human Muscular Skeleton

Plastic. Get a good-quality skeleton at a good price. This replica of a life-size human skeleton shows all parts in detail. The main joints are articulated; the upper and lower limbs are easily removable. Detachable parts include the skull, cranium, jaw, arms, and legs. On the left side of the skeleton, the points of origin (red) and the points of insertion (blue) of the muscles are shown. Includes your choice of rod and base or hang-up stand and the Human Anatomy Manual.

246885 Hang-Up Skeleton

Each **\$882.50**

246887 Rod-Supported Skeleton

Each **\$844.45**





3B[®] Human Muscular Skeleton Muscled up

- Quality tool for studying the skeleton with muscle origins and insertions
- Number coded and painted on 1 side
- Valuable model for anatomy and physical education classes

Plastic, painted. Demonstrate how bones and muscles interact with this first-quality human muscular class-room skeleton. This human skeleton model is correctly articulated to show normal posture, and its extremities are removable. The skeleton is number coded and painted on 1 side to show muscle origins in red and insertions in blue. The skull has 32 teeth, a spring-held jaw, and a cut calvarium. The model includes a rod and base, plastic dust cover, Human Anatomy Manual, and key.

246891 Each \$1,205.00



3B[®] Human Muscular and Ligamentous Skeleton

- Excellent product to study the skeleton with muscle origins and ligaments
- Includes flexible artificial ligaments and disc herniation
- Valuable model for anatomy and physical education classes

Plastic. With this first-quality human muscular classroom skeleton, you can show students the amazing process by which bones, muscles, and ligaments work together to move the human body. The model has removable extremities and is articulated to show normal posture. Special features include:

- A right side with flexible artificial ligaments at the shoulder, pelvis, and knee joints
- · Illustrated muscle origins and insertions
- A simulated spinal cord, complete with nerve branches and a dorsal herniation of the intervertebral disc between the 3rd and 4th lumbar vertebrae
- A detachable skull with a cut calvarium, spring-held lower jaw, and 32 teeth

This highly useful teaching tool is number coded and mounted with a metal rod extending from the sacrum to a base with casters. Includes plastic dust cover, *Human Anatomy Manual*, and identification key.

246896 Each \$1,570.00

Skeletons Human

Disarticulated Skeletons



569417 Carolina Disarticulated Human Skeleton

New! Carolina® Disarticulated Human Skeleton 11

Plastic. This full-sized replica of a human disarticulated skeleton is made of highquality, durable plastic. It features a 3-part skull with calvarium cut out and springheld jaw. The sternum and cartilage are cast as one piece. Vertebral column bones and intervertebral discs are strung separately in anatomical order on nylon filament. The bones of one hand and one foot are fully articulated, while the other hand and foot remain disarticulated. Includes a poster of the skeletal system. Skeleton Storage Case (item #249890A) is available separately.

569417 Each \$463.50



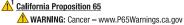
246765 Altay Disarticulated Human Skeleton

Altay® Disarticulated Human Skeleton

Plastic. Good quality. Specimen features a 3-piece skull (calvarium cut) with a spring-held jaw. One hand and 1 foot are disarticulated. The other hand and foot are articulated with wire. The sternum is cast in 1 piece and is complete with ribs. All other bones are loose. With Human Anatomy Manual. Skeleton Storage Case (item #249890A) is available separately.

246765 Each \$537.85







246777 3B Disarticulated Human Skeleton with Storage Case

Ö

3B[®] Disarticulated Human Skeleton Better-quality bones

- · Valuable for studying each human bone in detail
- · Excellent hands-on model
- . Multiple ways to use this skeleton in the classroom

Plastic. It's easier to study the details of just about anything when it's in pieces. This better-quality classroom skeleton comes with a 3-piece skull (calvarium cut) and a spring-held jaw. The bones of the vertebral column are strung in anatomical order on nylon filament. The bones of 1 hand and 1 foot remain loose for close study, while the other hand and foot are articulated with wire. The sternum is cast in 1 piece, complete with ribs. All other bones are loose. This human skeleton model features simulated intervertebral discs. A Human Anatomy Manual is included. The skeleton is available with or without a black plastic Skeleton Storage Case (item #249890A) with handle, hinged lid, and snap fastener.

 246775
 Skeleton Only
 Each
 \$675.00

 246777
 Skeleton with Storage Case
 Each
 \$754.00



246784 Somso Disarticulated Human Skeleton, Number Coded

Somso® Disarticulated Human Skeleton

- Superior quality designed for an in-depth examination of each human bone
- Excellent hands-on model for serious study
- · Available with or without number coding

Plastic. Studying this medical-quality human skeleton model is virtually identical to studying an actual human skeleton. The model includes a 3-piece skull with a cut calvarium and a spring-held, removable mandible. One hand and foot are articulated, while the other hand and foot are completely disarticulated. The sternum is cast in 1 piece. All other bones are loose. This superior classroom skeleton comes with a *Human Anatomy Manual.* Order Skeleton Storage Case (item #249890A) separately for items #246784 and #246786.

 246784
 Skeleton Only, Number Coded
 Each
 \$1,898.00

 246786
 Skeleton Only, Not Coded
 Each
 \$1,748.00

 246787
 Skeleton with Storage Case, Not Coded
 Each
 \$1,758.00

Human Skeletons



246782 3B Disarticulated Human Muscular Skeleton

3B® Disarticulated Human Muscular Skeleton Put some muscle into your study

Plastic. Exactly how do muscles interact with bone? Demonstrate their relationship with this better-quality model of the human muscular skeleton. Half of the skeleton, including the skull, is painted and labeled to illustrate muscle origins and insertions. The 3-piece skull has the calvarium cut and features a spring-held jaw and complete dentition. The vertebral column and intervertebral discs are strung in anatomical order on nylon filament. One foot and hand are articulated and number coded. The other hand and foot are disarticulated and painted to show muscle origins and insertions. Cast in 1 piece, the sternum includes the ribs. All other bones are loose. This classroom skeleton comes with an identification manual and a sturdy black plastic Skeleton Storage Case (item #249890A).

246782 Each \$1,150.65



246728 Altay Disarticulated Human Half Skeleton

Altay® Disarticulated Human Half Skeleton

Plastic. Use this economy disarticulated model of the human half skeleton to explain the intricacies of the human skeletal system and reinforce topics such as form and function. Bones from 1 side of the body are included, along with a 3-piece skull with removable skullcap and mandible. The sternum is cast in 1 piece and includes ribs from 1 side of the body. Separate bones of the hand and foot are articulated on wire for easy identification. The hyoid bone and loose bones of 1 upper extremity, 1 lower extremity, and the vertebral column (with intervertebral discs) are included. Skeleton Storage Case (item #249890A) is available separately.

246728 Each \$389.45



246727 3B Disarticulated Human Half Skeleton with Storage Case

3B® Disarticulated Human Half Skeleton

Plastic. Your students can study every human bone in greater detail with this better-quality disarticulated model of a human half skeleton. Bones from 1 side of the skeleton are included, as well as a 3-piece skull with a cut calvarium and a spring-held jaw. One hand and foot are strung on nylon filament. The sternum and ribs are cast in 1 piece. All other bones are loose, including the bones of the vertebral column. This human skeleton for the classroom comes with a *Human Anatomy Manual*. Available with or without a black plastic Skeleton Storage Case (item #249890A) that features a handle and hinged lid with snap fastener.

 246725
 Skeleton Only
 Each
 \$559.95

 246727
 Skeleton with Storage Case
 Each
 \$608.50



Skeleton Storage Case

Made of black plastic and designed for our items #246725, #246727, #246765, #246775, #246777, #246782, #246784, #246786, and #246787 skeletons. Excellent for storing other laboratory materials. Has carrying handle and hinged lid with a snap fastener. Size, 23" L \times 16" W \times 10" H.

249890A Each \$181.60

Skeletons Human

Miniature Skeletons



569412 Carolina Desktop Miniature Skeleton

Carolina® Desktop Miniature Skeleton

Plastic. Give students a close-up view of the bones of the human body. This miniature skeleton stands approximately 85 cm tall and includes a removable skull cap and hinged jaw. There is articulation in the joints. The axial skeleton is in blue, the appendicular skeleton in white, to more easily distinguish the different bones. Comes with Human Anatomy Manual. Rodmounted on a blue base.

569412 Each \$82.50



566001 Miniature Skeleton

Miniature Skeleton

Plastic. Provide a hands-on learning experience about the skeletal system with this 41-piece skeleton. Half of the skeleton includes painted-on origin and insertion points to show the interactions between muscles and bones within the body. Joints are articulated to show movement as well. Includes display stand and guide with skeleton facts. Size, 91/2" H when assembled; perfect for a single student or a small group. /!\ WARN-ING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

566001 Each \$28.35



246925 Altay Miniature Skeleton

Altay® Miniature Skeleton

Plastic. One-half life-size model of the human skeleton is well proportioned and highly detailed. Ankle, knee, hip, wrist, elbow, and shoulder joints are moveable. Hangs on a durable metal stand that is included. Size (without stand), $85 \times 21 \times 11$ cm.

246925 Each \$272.15

Skulls



247121 3B Human Fetal Skull

3B® Human Fetal Skull

Plastic. Easily study the characteristics of prenatal skull development. The life-like fetal skull replica was cast from a natural specimen during the 30th week of pregnancy. The fontanelle, bony plates, and future locations of the sutures are shown. Includes $Human\ Anatomy\ Manual$. Size, $14.0\times8.9\times8.9\ cm$.

247121 Each \$88.50



Altay® Fetal Skull

Plastic. Life-size representation of a human fetal skull at week 30 of development. Movable spring-held jaw. Rod-mounted on a durable polymer base. Skull detaches from stand for examination. Size (without stand), $11 \times 11 \times 20$ cm.

247122 Each \$66.00

Human Skeletons



246981 3B Human Skull

3B® Human Skull Outstanding value!

Plastic. Bones available with or without number coding. Full dentition, spring-held lower jaw, and calvarium cut. With *Human Anatomy Manual*.

246981 Skull Each **\$177.00 246995** Skull, Number Coded Each **\$215.00**





246952 Somso Human Male Skull

Somso® Human Male & Female Skulls

Plastic. Medical quality. Bones available with or without number coding. A 3-part skull with full dentition, spring-held lower jaw, and a cut calvarium. With Human Anatomy Manual.

Each \$408.20

246952	Male Skull	Each	\$379.45
246953	Male Skull,		
	Number Coded	Each	\$452.50
246955	Female Skull	Each	\$353.45
246956	Female Skull.		

Number Coded



Altay® Human Skull

Plastic. With all structures accurately shown, this is a detailed reproduction of an adult human skull. The calvarium is removable to show internal structures. The mandible is articulated and removable. All joints, sutures, fissures, foramina, and processes are reproduced with utmost accuracy. Includes a key to identify each numbered structure. With Human Anatomy Manual.

246950 Each \$145.30



(top to bottom) 246999, 246998, 246997 Bone Clones Human Skull Series

Bone Clones® Human Skull Series

Plastic. Excellent skull series for comparative study. Each skull shows original sutures and details. Comes with Human Anatomy Manual.

 246997
 European Skull
 Each
 \$348.75

 246998
 Asian Skull
 Each
 \$348.75

 246999
 African Skull
 Each
 \$348.75



246985 Human Skull

Human Skull

Plastic. At last, an inexpensive skull for those on a limited budget. Strong enough to withstand the rigors of daily classroom handling. All the major bones are represented, as well as a full complement of 32 teeth. An important feature of this skull is that on the lower jaw, the left canine tooth, the right central incisor, and the 18th mandibular molar are removable for close study of the roots. The calvarium is cut and is removable (fastens with clips), so the interior detail of the cranium can be examined. The lower jaw is spring held to demonstrate the movement of the jaw. Includes Human Anatomy Manual.

246985 Each **\$88.55**

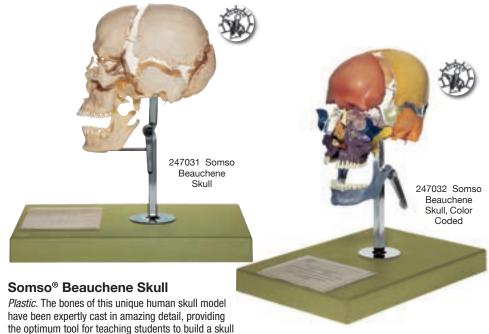
Skeletons Human



Carolina® Human Skull with Cervical Spine

Plastic. Approximately life size. This model enables students to visualize the skull and facial bones, plus the atlas, axis, and cervical spine. A spring attaches the jaw to the skull, so jaw movement can be demonstrated. The calvarium is removable and the basilar artery is visible at the base of the skull, as are the spinal cord and nerve branches. Dissects into 3 pieces and is mounted on a blue base. Includes laminated key. Size, $27 \times 17 \times 11.5$ cm.

569401 Each \$146.05



and identify its parts. A specially molded, clear endoform allows for the "exploded" arrangement of the bones of the skull, which students can remove and attach in their correct position. In fact, students can quickly and safely remove any bone for individual study. The endoform, in effect, becomes the structure upon which students can "assemble a skull."

The Beauchene skull model is mounted on a chrome upright attached to a green base. Tilt the skull and lock it into place for viewing the ventral aspect of the facial bones. The model includes an identification booklet.

247031 Skull Each **\$2,102.05 247032** Skull, Color Coded Each **\$2,295.70**



247005 Somso Human Demonstration Skull, Color Coded

Somso® Human Demonstration Skull

Plastic. Talk about going to pieces. That's exactly what this incredible human skull model does. The entire skull is dissectible into 14 parts. Students can reassemble the skull with the help of the identification key and snap pins. A top-quality scientific human skull that's also a great teaching tool.

247004 Skull Each **\$846.35 247005** Skull, Color Coded Each **\$995.00**



247007 3B Beauchene Human Skull, Color Coded

3B® Beauchene Human Skull

Plastic. Teach the complex anatomy of the human skull using this life-size, natural cast of a Beauchene human skull. Students disassemble this "exploded" model into 22 bones for individual study, then reassemble the parts using inconspicuous, stable connectors attached at simplified sutures. Includes an identification manual with assembly instructions. Size, $21 \times 13 \times 15$ cm.

247006 Skull Each **\$691.45 247007** Skull, Color Coded Each **\$757.80**

Human Skeletons







Somso® Transparent Storage Case

Transparent storage case for unmounted bones of Beauchene skulls. Individual compartments make sorting easy. Great for keeping loose bones safe and conveniently displayed. Size, $11^4/_5 \times 16^1/_2 \times 4^3/_4$ "; wt, 5.3 lb.

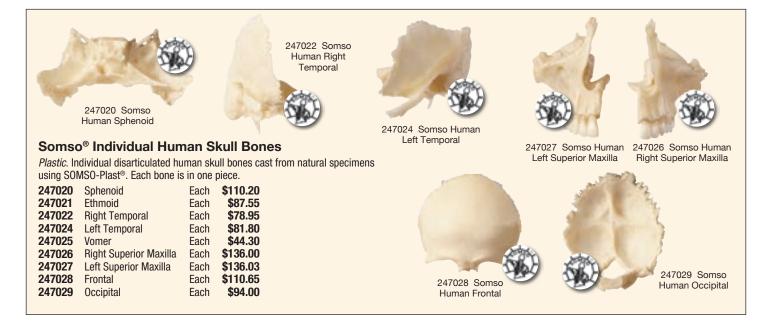
247050 Each \$496.70

Somso® Disarticulated Human Skull Head of the class

- Superior quality tool for teaching human skull structures
- · Hands-on replica that makes bone identification easy
- Multiple uses in the classroom

Plastic. This top-quality human skull model for the classroom makes it easy for students to get their hands and heads into learning the inner workings of the skull. Expertly produced bones provide a complete and accurate look, while an easy-to-use guide simplifies bone identification. This superior human skull model comes with a black plastic storage case with a convenient handle.

246987B Each \$1,189.34



Skeletons Human



Carolina® Human Skull

Plastic. This life-sized, unmounted model is color-coded to simplify identification of the bones of the skull. Separates into 3 pieces, and the jaw and skullcap are removable. Comes with a key that identifies 23 labeled bones and structures.

569400 Each \$321.85



247001 Altay Three-Part Colored Skull



Altay® Three-Part Colored Skull

Plastic. With the skull depicted in different colors, this life-size model is a useful tool for studying the correct position and the relationship of all structures. Remove the skullcap to see internal details; you can also remove the articulated mandible. All joints, sutures, fissures, foramina, and processes are represented with utmost accuracy. Includes Human Anatomy Manual.

247001 Each \$329.60



Skull Storage Case

Black corrugated plastic. Designed for both our articulated and disarticulated human skulls. A simple storage case for small laboratory items. With carrying handle. Size, $10^{1}/4^{\circ}$ L \times $7^{1}/4^{\circ}$ W \times $8^{1}/4^{\circ}$ H.

249893 Each \$78.10



Skeleton Accessories



705697 Skeleton Cabinet, Hanging Model (in use)

Skeleton Cabinets

Constructed of solid oak and oak veneer, these cabinets are finished with a clear, chemical-resistant UV finish that shows off the beautiful wood. The cabinets are available in 2 models. The **Rolling Model** is designed for a skeleton on a rolling stand, and the **Hanging Model** is designed with a retractable glide for hanging skeletons. Both cabinets are equipped with a lockable, wood-framed glass door and 1 adjustable shelf for extra storage above (Rolling Model) or below (Hanging Model) the skeleton. Dimensions: 24" W \times 22" D \times 84" H; shipping wt, 200 lb. Shipped from factory; allow 6 to 8 weeks for delivery.

705695 Rolling Model Each **\$1,536.00 705697** Hanging Model Each **\$1,661.00**

Skeleton Dust Cover A

Heavy, durable vinyl cover perfect for protecting your skeleton from dust and airborne grime. Includes a transparent window and side zipper opening. Fits any life-size articulated skeleton, both rod-supported and hanging. Dimensions, $69^{1}/2 \times 29^{\circ}$.

249892W Each \$49.55

Skeleton Storage Case

Made of black plastic and designed for our items #246725, #246727, #246765, #246775, #246777, #246782, #246784, #246786, and #246787 skeletons. Excellent for

storing other laboratory materials. Has carrying handle and hinged lid with a snap fastener. Size, 23" L \times 16" W \times 10" H.

249890A Each \$181.60



249892W Skeleton Dust Cover



705695 Skeleton Cabinet, Rolling Model (in use)

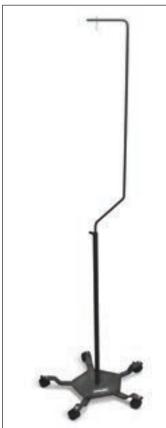
Human Skeletons



Heavy-Duty Rod-Supported Skeleton Stand

Heavy-duty skeleton stand for rod-supported skeletons. Features a cast iron base, 5 casters, 2 wheel locks, and a durable metal pole with an inner diameter of 12.5 mm; wt, 30 lb.

249842 Each \$231.20





249844 Carolina Universal Skeleton Stand (left); detail of rod support (above) and detail of hanging apparatus (below)

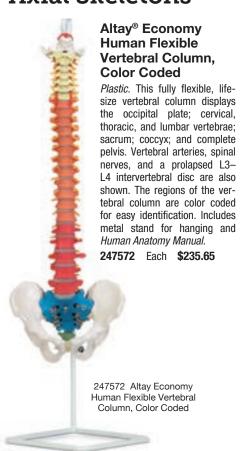


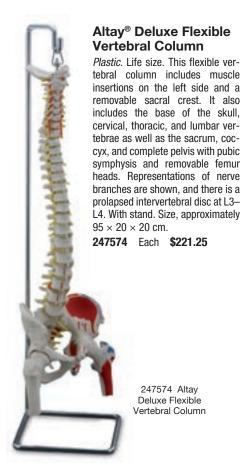
Carolina® Universal Skeleton Stand

Our heavy-duty Carolina® Universal Skeleton Stand comes with everything you need to display both rod-supported and hang-up human skeletons. Features a 2-piece metal rod and a durable, low-profile metal base with 5 casters (2 that lock) for stability and ease of movement. Appropriate for any life-size human skeleton! Height, 203.2 cm; wt, 14 lb.

249844 Each \$226.75

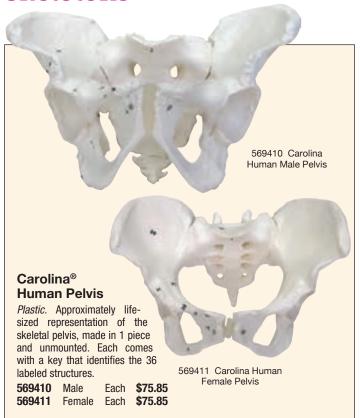
Axial Skeletons







Skeletons Human





3B® Human Pelvis

Plastic. Articulated. Complete with 4th and 5th lumbar vertebrae, sacrum, and coccyx. Unmounted. With Human Anatomy Manual.

247755 Male Each \$118.00 **247765** Female Each \$118.00



566737 Altay Pelvis with Lower Lumbar and Femur Heads

Altay® Pelvis with Lower Lumbar and Femur Heads

Plastic. This life-size replica consists of the pelvic bones with femur heads, sacrum, coccyx, and lower lumbar vertebrae with intervertebral discs. Unmounted. Size, $32 \times 29 \times 17$ cm.

566737 Each \$70.05



3B® Human Sacrum and Coccyx

3B® Scientific. Explore the structure of the human sacrum and coccyx with this life-size, completely assembled model. Size, $20 \times 15 \times 15$ cm; wt, 0.2 kg.

247770 Each \$62.50



247536 3B Human Vertebra Set

3B® Human Vertebra Set

Plastic. Five vertebrae—atlas, axis, cervical, thoracic, and lumbar. Strung on nylon filament. Includes Human Anatomy Manual.

247536 Per set \$88.50

Human

Appendicular Skeletons



247706 3B Human Arm and Hand

3B® Human Arm and Hand

Plastic. Articulated. With scapula and clavicle. Unmounted. Includes *Human Anatomy Manual.*

247706 Each \$185.00



247710 Altay Human Arm Skeleton with Scapula and Clavicle

Altay® Human Arm Skeleton with Scapula and Clavicle

Plastic. Life-size replica of an adult human skeletal arm with flexible wrist and elbow joints. Scapula and clavicle are included. Natural bone color; structures are not numbered. Size, $72 \times 17 \times 14$ cm.

247710 Each \$127.30



Skeletons

247705 Altay Bones of the Hand and Forearm

Altay® Bones of the Hand and Forearm

Plastic. Life-size representation of a human forearm and hand with flexible wrist joint. Natural bone color; structures are not numbered. Size, $42 \times 11 \times 4$ cm.

247705 Each \$84.65



247931 3B Human Leg and Foot

3B® Human Leg and Foot

Plastic. Articulated with wire. Complete with removable half pelvis. Knee and foot joints can be separated for individual study. Unmounted. Includes Human Anatomy Manual.

247931 Each \$225.00



247930 Altay Human Skeleton of Lower Limb with Half Pelvis

Altay® Human Skeleton of Lower Limb with Half Pelvis

Plastic. Life-size replica of an adult human skeletal leg with the hip joint and $^{1}/_{2}$ the pelvis. Natural bone color; structures are not numbered. Size, $54 \times 20 \times 14$ cm.

247930 Each \$120.75

Visit Carolina.com to view even more appendicular skeleton models.

Carolina® Human **Skeletal Hand** Plastic. Approximately life size. This model represents the right hand. The bones of the fingers, hand, and wrist are wired to allow for some movement of the joints, and the distal ends of the ulna and radius are included. One piece, on a blue base. Includes laminated key. Size $11.5 \times 11.5 \times 23$ cm. 569415 Each **\$92.50**

569415 Carolina Human Skeletal Hand

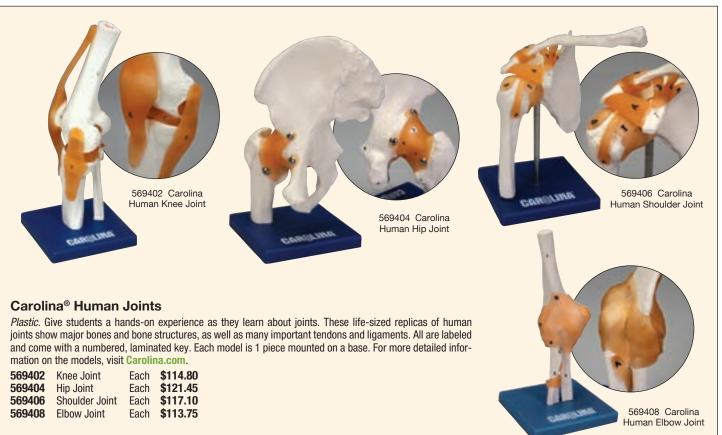


Carolina® Human Skeletal Foot

Plastic. Approximately life size. This is a model of the right foot. Bones of the toes, foot, and ankle are represented as are the distal ends of the tibia and fibula. Wired joints allow some movement. One piece, on a blue base. Includes laminated key. Size, $21.5 \times 11.5 \times 18$ cm.

569416 Each \$92.50

Skeletons Human



Visit Carolina.com to view Carolina's entire selection of skeletal products.



566737 Altay Human Pelvis with Lower Lumbar and Femur Heads



566730 Altay Human Foot Bones



566738 Altay Human Ribs of One Side, Skeleton, Set of 12

Skeletons Human

Altay® Human Functional Joints Plastic. Explore the anatomical structure and function of human joints using these life-size, economical models. The bones and ligaments of each joint can be manipulated to show common movements. Each is mounted on a base and comes with the Human Anatomy Manual. Each \$120.30 247704 Shoulder Joint 247932 \$117.95 Knee Joint Each **247940** Hip Joint Each **\$126.75** 247704 Altay Human Shoulder Joint 247932 Altay Human 247940 Altay Human Knee Joint

Somso® Human Functional **Joints**

Hip Joint

Plastic. These life-size, medical-quality models make learning the anatomy of human joints effortless. Each is expertly manufactured and can be manipulated to demonstrate the joint's complete range of motion. The simulated ligaments are made of a durable, flexible plastic that allows users to demonstrate life-like movements, such as rotation, abduction, adduction, extension, and flexion. All models are mounted on a green base but can be removed for hands-on use. An illustrated booklet and special silicon oil for reconditioning the simulated ligaments are included. For more detailed information on each model, visit Carolina.com.

Shoulder Joint 247709

Each \$452.50

247713 Elbow Joint

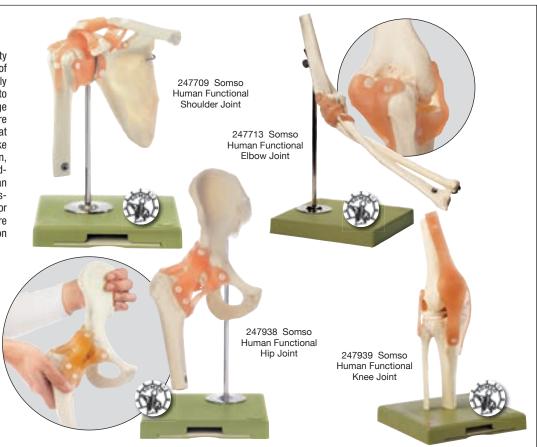
Each \$330.80

247938 Hip Joint

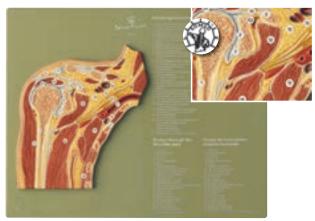
Each \$379.45 247939

Knee Joint

Each \$390.50



Skeletons Human

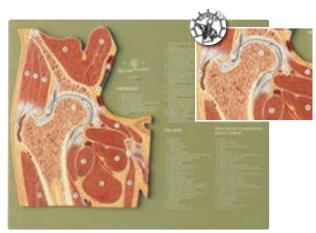


566708 Somso Human Shoulder Cross Section

Somso® Human Shoulder Cross Section

Life size. Frontal section of shoulder joint. Shows muscles, ligaments, and bones. Mounted on green base; key printed on base. Removable, transparent cover included. Size, $32 \times 26 \times 4$ cm.

566708 Each \$379.45



566710 Somso Human Hip Cross Section

Somso® Human Hip Cross Section

Life size. Frontal section of hip joint. Shows muscles, ligaments, and bones. Mounted on green base; key printed on base. Removable, transparent cover included. Size, $32 \times 26 \times 4$ cm.

566710 Each \$375.02



566709 Somso Human Elbow Cross Section

Somso® Human Elbow Cross Section

Life size. Sagittal section of elbow joint. Shows muscles, ligaments, and bones. Mounted on green base; key printed on base. Removable, transparent cover included. Size, $32 \times 26 \times 4$ cm.

566709 Each \$339.65



566711 Somso Human Knee Cross Section

Somso® Human Knee Cross Section

Life size. Sagittal section of knee joint. Shows muscles, ligaments, and bones. Mounted on green base; key printed on base. Removable, transparent cover included. Size, $32 \times 26 \times 4$ cm.

566711 Each \$331.10



No BONES About It!



566737 Altay Pelvis with Lower Lumbar and Femur Heads



566707 Altay Human Hand Bones

We can special order exactly what you need for your classroom.

Human Skeletons



247680 Altay Miniature Functional Joints Set



Plastic. One-half life-size set provides functional representations of human knee, hip, elbow, and shoulder joints with ligaments. Each model demonstrates normal movement and is mounted on a durable polymer base. Size each (approximate), $12 \times 12 \times 15$ cm.

247680 Per set \$164.00



247682 Miniature Muscled Joint Set

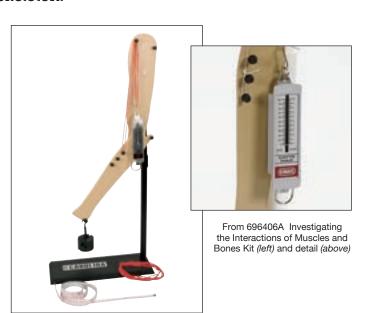
Miniature Muscled Joint Set

Plastic. One-half life-size set of 4 models on 1 base. Explore the form of the human shoulder, hip, elbow, and knee joints using these economical models. Bones, muscles, ligaments, and tendons significant to the joint are depicted. Each model conveniently detaches from the base for hands-on study. Includes a full-color illustrated key card that also detaches from the base. Base size, $10^5/_8 \times 6^{1/4}$ ".

247682 Per set \$161.85

A Bone to Pick

Help students understand the importance of bones, muscles, and joints—along with tendons, ligaments, and cartilage—through hands-on manipulatives and kits. Reach over to page 332 for the Investigating the Interactions of Muscles and Bones Kit and page 444 for the 3B® Human Flexible Skeleton.





Models

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Cellular



569698 Carolina Model Cleaning Concentrated Solution

Carolina® Model Cleaning Solution

Use to take the years of dirt and grime off of your anatomical models. Can be used to clean plastic models and skeletons without damaging the paint or finish. Available as a **Concentrated Solution** (in a 25-mL bottle) or as a ready-to-use **Spray** (in a 32-oz spray bottle). Safe for all surfaces. Phosphate free. Use with a soft cloth.

569698 Concentrated Solution

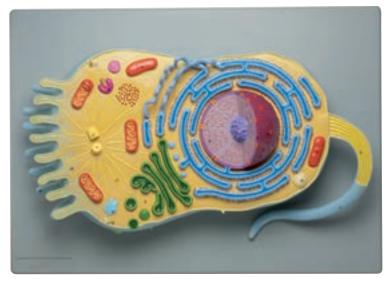
Each **\$7.35**

569699 Spray

Each **\$11.95**

Anatomical Models Set the Standard

Carolina leads the industry in sales and selection of models. We carry brands that represent the top of their respective lines, and we choose products using the education and experience of our technical staff. You will find models appropriate for use in middle schools, high schools, colleges, medical schools, and museums.



566766 Altay Eukaryotic Cell

Altay® Eukaryotic Cell

Enlarged about $13,000\times$. A very useful tool to study the cytology of a eukaryotic cell. The typical structures are reproduced with great detail and accuracy, and include microvilli, flagellum, mitochondria, nucleus, and rough and smooth endoplasmic reticula. With numbered key. One piece; on base. Size, $55 \times 38 \times 15$ cm.

566766 Each \$253.95

3B® Plant Cell

Enlarged model of a typical plant cell as viewed under an electron microscope. Important organelles are shown in raised relief and vibrantly colored. On removable base. Size, $20 \times 14 \times 32$ cm.

563947 Each \$525.50



563947 3B Plant Cell



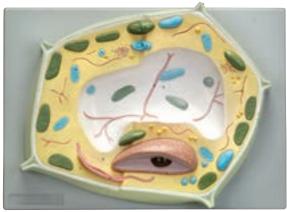
563957 3B Animal Cell

3B® Animal Cell

Structure of the typical animal cell as viewed by an electron microscope. Important organelles are shown in raised relief. On removable base. Size, $21 \times 11 \times 31$ cm.

563957 Each \$536.55

Cellular Models



563946 Altay Plant Cell

Altay® Plant Cell

About 20,000 \times life size. Shows structure of a typical plant cell. Mounted on a sturdy polymer base. Includes numbered key. Size (without base), $34 \times 29 \times 6$ cm.

563946 Each \$186.05



563962 Somso Animal Cell

Somso® Animal Cell

Greatly enlarged. More detail than in Somso® Animal Cell (item #563961). Size, 39 \times 26 \times 52 cm H. On stand with green base.

563962 Each \$1,438.20



563955 Staco Animal Cell

568048 Staco Plant Cell

Staco® Animal Cell

Made of translucent, fiberglass-reinforced plastic that will not chip, crack, peel, or fade. Accurately depicts 21 organelles and cell inclusions in 10 different colors, including the endoplasmic reticulum, mitochondria, ribosomes, Golgi apparatus, centrioles, nucleus, and nucleolus. All structures viewable in true 3-dimensional perspective. Size, $42 \times 27 \times 21.5$ cm. Base and key card are included.

563955 Each \$842.25

Staco® Plant Cell

Contains 25 molded organelles including nucleic membranes, double-spiral chromosomes, endoplasmic reticulum, cross-sectioned chloroplast with grana and grana discs, large central vacuole, mitochondria, and ribosomes. Cell wall is clearly divided into middle lamella, primary wall, 3 secondary walls, warted tertiary wall, and plasma membrane. Model is made of transparent fiberglass-reinforced plastic for long life and durability; will not chip, crack, peel, or fade. Size, $40.5\times29\times20$ cm. Key card included.

568048 Each \$1,043.25



563961 Somso Animal Cell

Somso® Animal Cell

Greatly enlarged. Size, 18 \times 18 \times 37 cm H. On stand with green base.

563961 Each \$597.45

We offer models for every need and budget. Browse the full selection at Carolina.com.

Models Cellular



561624 Somso Animal Mitosis Set

Somso® Animal Mitosis Set

Greatly enlarged. Eight models: prophase (1, 2, 3), metaphase (4), anaphase (5, 6, 7), and telophase (8). On individual stands, each with green base.

561624 Per set **\$1,106.35**



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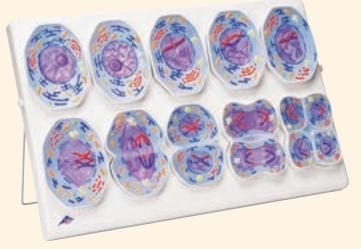


561612 3B Animal Cell Mitosis Set

3B® Animal Cell Mitosis Set

Enlarged 10,000 \times . This innovative set of 9 individual magnetic models represents the following phases of mitosis: interphase, prophase, early prometaphase, late prometaphase, metaphase, early anaphase, late anaphase, telophase, and cytokinesis. Set comes with a durable display base. Base size, 40×60 cm.

561612 Per set **\$725.00**



561613 3B Animal Cell Meiosis Set

3B® Animal Cell Meiosis Set

Enlarged 10,000×. Set of 10 individual models depicts the common phases of meiotic division. All models are magnetic and the set comes with a convenient, durable display base. Base size, 40×60 cm.

561613 Per set **\$742.00**

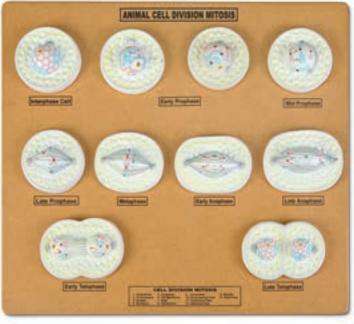
Cellular Models



Altay® Animal Cell Mitosis Set

Enlarged 10,000×. Set of 9 models showing cellular characteristics during prophase, anaphase, metaphase, and telophase. Each model is numbered to indicate the correct sequence of events. Mounted on individual bases. Each is $20\times15\times6$ cm. Includes key.

561614 Per set \$451.45



561611 Eisco Animal Cell Mitosis Set

Eisco® Animal Cell Mitosis Set

Shows 10 phases of animal mitosis cell division, with each cell cut laterally to show cell interior. Phases represented: interphase, early prophase, mid-prophase, late prophase, metaphase, early anaphase, late anaphase, early telophase, and late telophase. Students can follow chromosomal movement through each phase of cell division. Labeled for easy reference. Mounted on board. Base size, $51 \times 46 \times 5$ cm.

561611 Per set \$181.60



561618 Altay Animal Cell Meiosis Set

Altay® Animal Cell Meiosis Set

Enlarged 10,000×. Set of 12 models showing cellular changes during various stages of meiosis. Models are individually numbered to indicate the correct sequence of events. Mounted on individual bases. Each is $20 \times 15 \times 6$ cm. Includes key.

561618 Per set \$506.40



561615 Eisco Animal Cell Meiosis Set

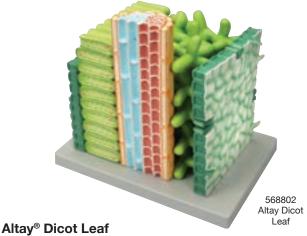
Eisco® Animal Cell Meiosis Set

Shows 12 phases of animal meiosis cell division, with each phase cut laterally to show cell interior. Phases represented: prophase 1, which includes leptotene, zygotene, pachytene, diplotene, and diakinesis; metaphase 1; anaphase 1; telophase 1; prophase 2; metaphase 2; anaphase 2; and telophase 2. Students can follow chromosomal movement throughout the phases of cell division. Labeled for easy reference. Mounted on board. Base size, $51\times46\times5$ cm.

561615 Per set \$181.60

Models Plants

Plants



 $600\times$ life size. Shown in cross and longitudinal sections. Cellular and subcellular structures are represented in great detail. Mounted on a durable polymer base. Includes numbered key. Size, $33\times23\times29$ cm.

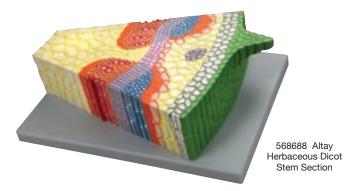
568802 Each \$321.45



Altay® Monocot Leaf Section

 $300\times$ life size. This model shows a monocot leaf in cross and longitudinal sections. Xylem, phloem, and mesophyll are shown in detail. With key. Mounted on a durable polymer base. Size, $45\times23\times7$ cm.

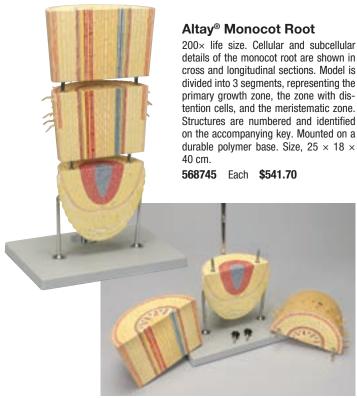
568803 Each \$292.25



Altay® Herbaceous Dicot Stem Section

 $300\times$ life size. The block model shows a herbaceous dicot stem in cross and longitudinal sections; significant elements of the tegumental and cortical zones are clearly depicted. The central vascular cylinder, including xylem and phloem, is shown in detail. With key. Mounted on a durable polymer base. Size, $42\times29\times9$ cm.

568688 Each \$458.60



568745 Altay Monocot Root (dissected and assembled views)



Denoyer-Geppert Giant Dicot Flower ▲¹

Representing a greatly enlarged idealized complete flower, this non-breakable vinyl plastic model teaches the reproductive function of flowers, angio-sperm pollination, and fertilization. It incorporates all 4 floral series: the sterile calyx (sepals) and corolla (petals); the fertile androecium (stamens) and gynoecium (pistil). Three petals, 4 sepals, and 4 stamens are detachable. Two anthers are sectioned open to expose pollen grains. The ovary is dissected to reveal the 7-celled female gametophyte. Size, $17 \times 14 \times 10^{\circ}$ ($43 \times 36 \times 25$ cm).

568822 Each \$807.30

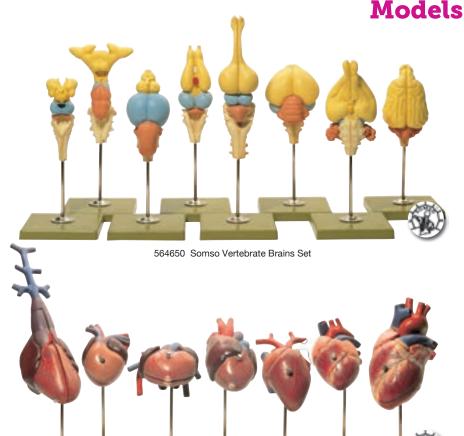
Animals

Animals

Somso® Vertebrate Brains Set

Set includes 8 individual, enlarged brain models. Each is color coded to denote homologous structures between species. Includes a lamprey, dogfish, trout, frog, alligator, dove, rabbit, and dog brain. Each on stand with green base.

564650 Per set \$1.410.55



564655 Somso Vertebrate Hearts Set

Set includes 7 individual heart models that are life size or slightly enlarged. Each is dissectible into 2 parts, showing detailed internal anatomy and blood flow direction. Includes a fish, frog, tortoise, crocodile, bird, dog, and human heart. Each on stand with green base.

Somso® Vertebrate Hearts Set

564655 Per set **\$3,457.35**



Somso® Starfish

Asterias. Greatly enlarged. This handcrafted, museum-quality model depicts starfish anatomy in utmost detail. Three arms are shown in longitudinal section, each in varying stages of dissection to show all significant structures. A fourth arm is shown in cross section, while the fifth remains intact. The digestive, nervous, and water vascular systems are depicted in intricate detail, and external structures are easily identified. Significant structures are numbered and a key is included. This model is on a stand with green base but can be removed for more thorough study. Size, $53 \times 35 \times 31$ cm.

564305 Each \$1,991.35



564125 Altay Hydra

Altay® Hydra

Greatly enlarged. A series of 4 one-piece models. Longitudinal and cross-sectional views show significant anatomical features, including the ectoderm, mesoglea, coelenteron, egg cells, buds, and mouth opening. Cross-sectional block (250× life size) shows nematocysts, sensory and epithelial cells, interstitial structures, and the nerve plexus. Anatomy of a cnidoblast (armed and triggered) is shown separately. Includes a printed key that references all 26 anatomical structures. Mounted on a durable base. Size (without base), $58\times14\times59~\rm cm$.

564125 Each \$410.15



Altay® Fish

Life size. A longitudinal dissection of a bony fish in 5 parts provides excellent views of internal and external anatomy. Removable components are secured in position with magnets. Includes numbered key with 24 identified structures. Mounted on a base. Size (without base), $45 \times 21 \times 7$ cm.

564758 Each \$205.85

Models Animals



565240 Altay Male and Female Rat

Altay® Male and Female Rat

Life size. Adult rat with interchangeable male and female reproductive systems is mounted in supine position; removable from base for examination. Organs are detachable in 4 pieces. Includes numbered key. Size (without base), $12 \times 21 \times 4$ cm.

565240 Each \$96.35



566776 Altay Fetal Pig Dissection

Altay® Fetal Pig Dissection

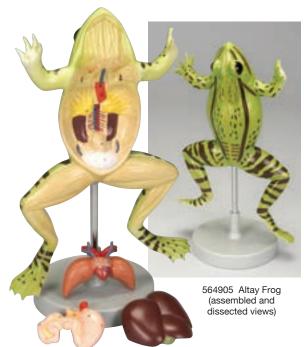
Life size. This 10-part model allows students to visualize the typical structures of a fetal pig. Removable parts include the ventral portion of the lungs, a 2-part heart, stomach, liver, intestines, and the ventral portion of a kidney. Skin from the abdomen is also removable to more easily observe umbilical vascularization. Includes numbered key. Mounted on a durable polymer base. Size (with base), $39.5 \times 53.5 \times 18$ cm.



Somso® Domestic Cat

Life size. This durable and realistic model, made of SOMSO-Plast®, depicts 2 different views of cat anatomy. The right side of the body is transparent for visualizing the skeleton, while the left side of the body depicts the muscular system, along with a lung, heart, liver, stomach, and intestinal tract. Dissectible into 9 parts. Model is on a base that can be pulled apart for more detailed study. Size, $22 \times 56 \times 45$ cm.

565231 Each \$6,945.60



Altay® Frog

About $2^1/_{2\times}$ life size. Sectioned ventrally with 3 removable parts. Magnets secure the pieces—no troublesome pins or hooks. The thoracic and abdominal structures are shown with exceptional clarity and detail. Mounted on a stand that is removable for easier examination. Includes numbered key. Size (without stand), $35 \times 24 \times 5$ cm.

564905 Each \$195.30



566774 Altay Hen

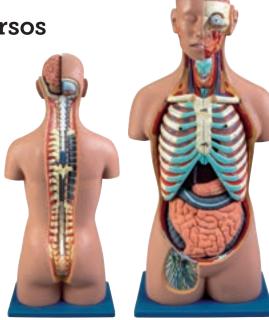
Altay® Hen

Life size. This 8-part model depicts hen anatomy in great detail. Its right side shows external morphology while the left, longitudinally sectioned, reveals inner structures such as muscles, heart, liver, intestines, stomach, lungs, reproductive system, and an egg. Numbered key included. Mounted on a base. Size (with base), $39.5 \times 26 \times 46.7$ cm.

566774 Each \$328.05

Human

Torsos

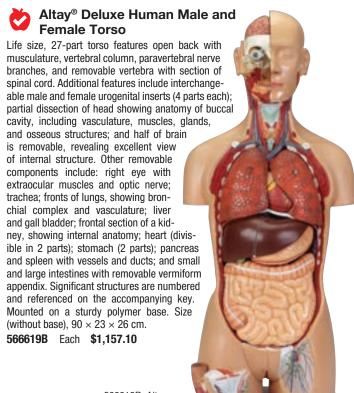


569520 Carolina Human Sexless Torso with Open Back

Carolina® Human Sexless Torso with Open Back

Life size. Study multiple body systems in one full-sized anatomical model. Students can see the proximity of anatomical structures and view the body as a whole; the 18 removable pieces allow more detailed observation of the internal structures of organs such as the heart and stomach. With numbered key. Mounted on blue base. Size. 33" H \times 14¹/₂" W \times 9" L.

569520 Each \$835.85



566619B Altay Deluxe Human Male and Female Torso



569522 Carolina Human Dual Sex Torso with Open Back

Carolina® Human Dual Sex Torso with Open Back

Life size. With this model students can study multiple body systems and see the proximity of anatomical structures. The 22 removable pieces allow more detailed observation of internal structures of organs such as the heart and stomach. Male and female pelvic inserts are bisected to simplify study of internal and external reproductive structures. With numbered key. Mounted on blue base. Size, 33" $H \times 14^{1/2}$ " W \times 9" L.

569522 Each \$1.058.80

Somso® Human Male and Female Torso

Life size. Dissectible into 20 parts. This museum-quality model features interchangeable female (2-part) and male (4-part) genitalia. The removable female thoracic wall depicts the external breast on the left and the mammary glands and musculature on the right. Half of the head is dissected to reveal the brain and skull. The eye, including the optic nerve and muscles, can also be removed. Other removable structures include the 2-part heart; half of each lung; liver; 2-part stomach; intestines with duodenum and pancreas; appendix; right kidney; and the pelvic vessels, including the lower aorta and vena cava. Open dissection of the neck and thigh also reveals significant structures. Mounted on green base. Size, $40 \times 26 \times 92$ cm. 566530 Each \$6,969.95 566530 Somso

Female Torso

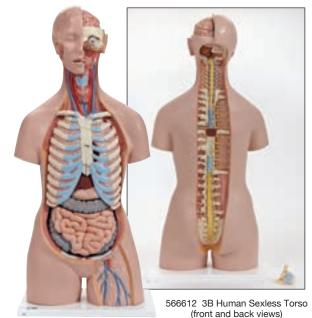








566609 Altay Human Sexless Torso (dissected and with details)



3B® Human Sexless Torso

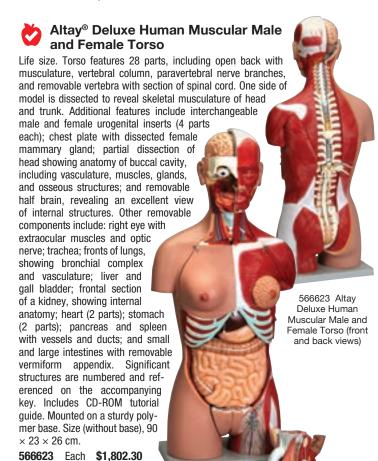
Life size. Nineteen parts are removable from the basic torso. The head is detachable. A full dissection of the spinal cord shows the spinal nerves and their relationship to the vertebrae as well as portions of the sympathetic trunk. The 7th thoracic vertebra is removable. The rib cage with the frontal portion of each lung (2 parts) and the heart (2 parts) are the dissectible portions of the thorax. The organs of the abdominal cavity are removable in 8 parts. Size, $38 \times 25 \times 87$ cm. On base.

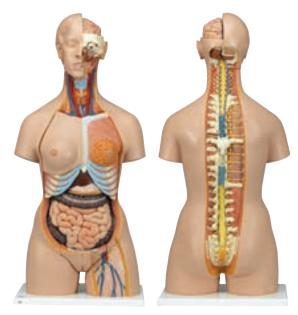
566612 Each \$1.990.00

Altay® Human Sexless Torso

Life size. Dissectible into 16 parts. Open dissections of neck and thigh reveal significant anatomical features. Removable structures include half brain (sectioned longitudinally); eyeball; both lungs; 2-part heart; half of 1 kidney (sectioned along frontal plane); other kidney along with urethra and urinary bladder; descending thoracic aorta and esophagus; stomach; pancreas and duodenum; liver; and small and large intestines (1 piece) with removable cecum. Mounted on reinforced polymer base. Size, $90 \times 33 \times 23$ cm. Includes numbered key and CD-ROM guide.

566609 Each \$750.85



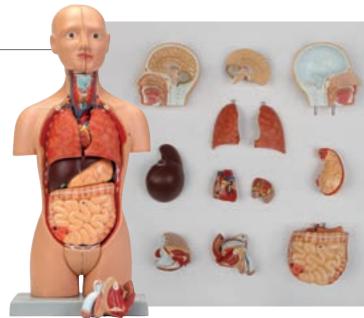


566618 3B Human Male and Female Torso (front and back views)

3B® Human Male and Female Torso

Life size. Dissectible into 28 parts. With detached head and interchangeable genital organs: male (4 parts) and female (2 parts plus a 3-month embryo). The eye with the optic nerve and a half brain (4 parts) are removable. The chest plate (female) shows the breast on the right and a dissection of the mammary glands on the left. Lungs (frontal portions), heart (2 parts), liver, stomach (2 parts), large and small intestine (4 parts), and 1 kidney (frontal portion) can be removed. The back is dissected to show the spinal cord and its relationship to the brain and the vertebrae. The 7th thoracic vertebra can be removed. Size, $38\times25\times87$ cm H. On base.

566618 Each \$2,390.00

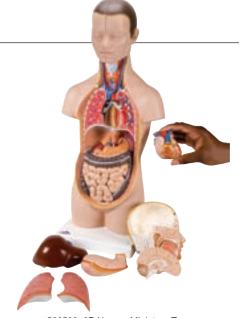


566523 Altay Human Dual Sex Miniature Torso (views of front and removable parts)

Altay® Human Dual Sex Miniature Torso

About $^{1}/_{2}\times$ life size. Similar to our item #566527 Altay® Human Miniature Torso, except this model includes interchangeable male and female reproductive organs (2 parts each). With key. Mounted on a durable polymer base. Size, $20\times15\times45$ cm.

566523 Each \$312.50

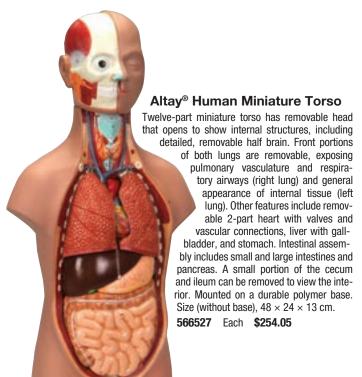


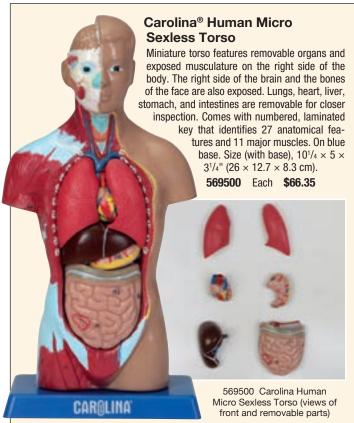
566528 3B Human Miniature Torso

3B® Human Miniature Torso

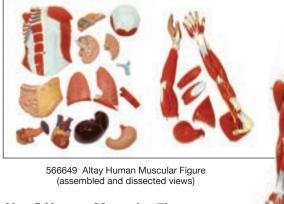
About $^{1}/_{2}\times$ life size. With detachable head. The head separates sagittally into 2 parts and the left half of the brain is removable. The heart (2 parts), lungs (2 parts), liver, stomach, intestines, and appendix are removable.

566528 Each \$330.80





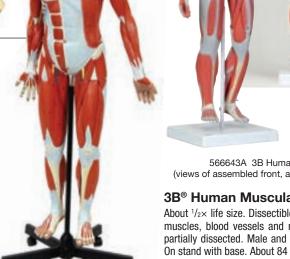
Muscular Figures



Altay® Human Muscular Figure

This 32-part model includes a removable 6-part muscular arm and an 8-part muscular leg. The skullcap is removable to reveal a bisected brain; the brain is cut along the longitudinal fissure and shows internal structures as well as vasculature. The lungs are bisected and removable to show the bronchial tree and vascular system. The 2-part heart is removable and represents the atria, ventricles, valves, and sections of the heart wall. The liver with gallbladder, 2-part stomach, duodenum with pancreas and spleen, and large intestine are also removable. Anatomical structures are numbered and referenced on the accompanying key card. Rodmounted on base with casters. Model size, 140 cm tall; total size, $150 \times 50 \times 40$ cm.

566649 Each \$7,899.90



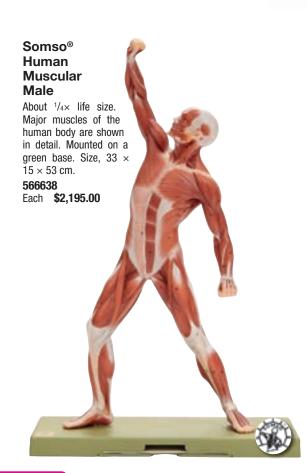


566643A 3B Human Muscular Male and Female (views of assembled front, assembled back, and removable parts)

3B® Human Muscular Male and Female

About 1/2× life size. Dissectible into 33 parts. Shows superficial and deep muscles, blood vessels and nerves, and internal organs, which can be partially dissected. Male and female genital organs are interchangeable. On stand with base. About 84 cm tall.

566643A Each \$5,293.90





Muscular Figure

About 1/3× life size. Superficial musculature of the human form is accurately depicted in lifelike colors on this miniature 2-part model. The chest plate is removable to reveal internal organs. Includes a key identifying over 125 labeled structures. Mounted on a durable base. Size, $25 \times 18 \times 57$ cm.

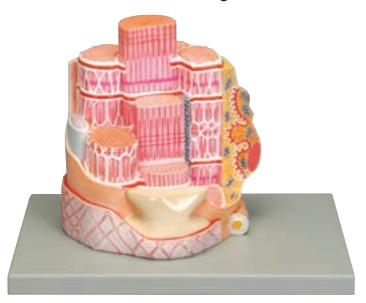
566641 Each \$1,005.00

Muscular Figure

About 1/4× life size. Compact, highly detailed human figure gives excellent overview of superficial musculature. All muscles are positioned and sized to correct scale. Mounted on a durable polymer base. Includes numbered key with 51 identified structures. Size, 25 \times 18×40 cm.

566644 Each \$178.30

Musculoskeletal System

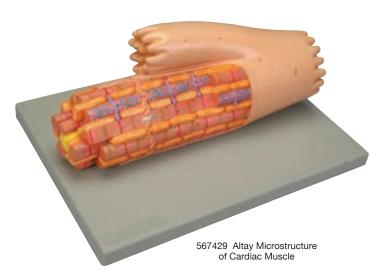


567425 Altay Skeletal Muscle Fiber

Altay® Skeletal Muscle Fiber

 $10,000 \times$ life size. Microstructure of a skeletal muscle fiber is represented in great detail; includes the neuromuscular junction, sarcoplasmic reticulum, T tubules, and myofibrils. Mounted on reinforced polymer base. Size, $25 \times 23 \times 23$ cm.

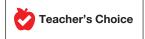
567425 Each \$321.25

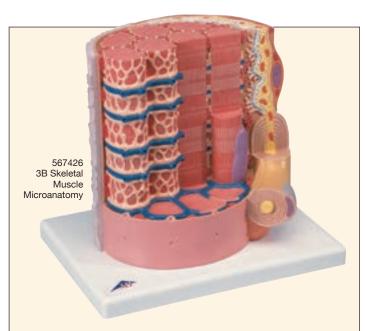


Altay® Microstructure of Cardiac Muscle

Block model shows a greatly enlarged cardiac muscle fiber with significant anatomical features, including the sarcolemma, nucleus, mitochondria, transverse tubules, intercalated discs, and myofilaments. Includes numbered key. Mounted on a durable polymer base. Size, $39 \times 11 \times 14$ cm.

567429 Each \$252.95

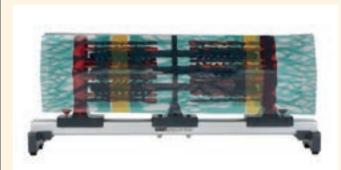


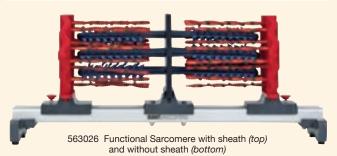


3B[®] Skeletal Muscle Microanatomy

About 10,000× life size. Model shows a section of skeletal muscle fiber and its association with the neuromuscular end plate. Mounted on a base.

567426 Each **\$454.70**

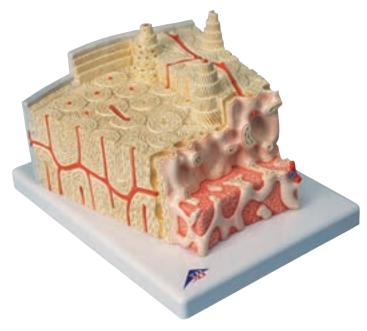




🄰 Functional Sarcomere 🕰

This innovative model illustrates the sliding filament theory of skeletal muscle contraction in a dramatic and understandable manner. Includes a complete sarcomere with the configuration and function of thin filaments (actin, troponin, and tropomyosin) and thick filaments (myosin). The M-line and Z-line are readily identifiable. Model parts interact to show that individual myofilaments neither change shape nor shorten during muscle contraction, but instead slide past each other to shorten the sarcomere itself. Includes a transparent sheath representing the sarcoplasmic reticulum and a detailed user manual. Size, $56 \times 15 \times 20$ cm.

563026 Each \$1,490.40



567377 3B Bone Microanatomy

3B® Bone Microanatomy

About 80× life size. Section of lamellar bone is shown in cross and longitudinal sections through all layers including bone marrow. Haversian canals, endosteum, cortical substance, and osteocytes are readily visible. Mounted on a base.

567377 Each \$245.00



567375 Somso Human Bone

Somso® Human Bone

Greatly enlarged. Cross and longitudinal sections of the compact portion of a long bone. Size, $39\times26\times28$ cm H. On green base.

567375 Each \$986.85



247822 Altay Human Bone Structures

Altay® Human Bone Structures

<code>Plastic.</code> Students can learn the major structures of human bone with this quality model. It shows the femur's external and internal structures, including the periosteum, blood vessels, spongy bone, compact bone, and Haversian system. Mounted on a base; size, 20×15 ". Includes a key to identify each numbered structure.

247822 Each \$237.20

If you don't see the model you are looking for, let us know. We can special order it for you!

Contact Customer Service at 800.334.5551 for assistance.



Mammal Muscle Types, sec. from 312064 Human Muscle Tissues Set

See our selection of bone and muscle microscope slides on pages 535-539.

Arm & Leg



Somso® Human Arm and **Shoulder Girdle**

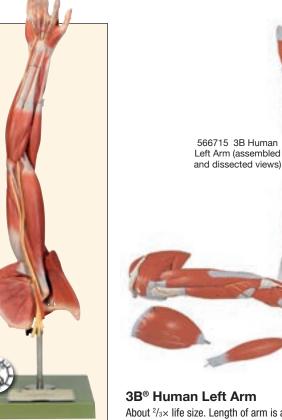
Reach for perfection

- · Most lifelike representation of the human arm and shoulder available
- · Correct anatomical model shows muscles, nerves, and vessels in exceptional detail
- · Top-quality materials for durability and long life

Life size. This human classroom model is so realistic that it may startle you when you open the package. Excellent for teaching the relationship between different aspects of the arm, this Somso® model has a removable top layer of muscles so students can easily view blood vessels and nerves.

This human model of the arm and shoulder girdle can be rotated, is dissectible into 6 parts, and comes on a stand with green base. Size, $39\times26\times105$ cm H.

566716 Each \$2,995.00



About ²/₃× life size. Length of arm is about 58 cm. On stand.

566715 Each \$875.00





566713 Altay Human Muscular Arm (partially dissected)

Altay® Human Muscular Arm

Life size. Dissectible into 7 parts. Muscles of the shoulder, arm, and hand are shown in great detail along with significant nerves and blood vessels. Size, 74 \times 18 \times 11 cm.

566713 Each \$477.85



566717A 3B Human Left Leg (assembled and dissected views)

3B® Human Left Leg

About 2/3× life size. Dissectible into 9 parts. Length of leg is about 75 cm. On stand.

566717A Each \$1,225.00



566784 3B Human Limb Set

3B® Human Limb Set

Set includes one 3B® Human Left Arm (item #566715) and one 3B® Human Left Leg (item #566717A). Both models are about 2/3× life size, and both feature superficial and deeper muscles as well as tendons, vessels, nerves, and bones. Arm model is made up of 6 parts; size, $23^3/_5 \times 7^1/_{10} \times 7^1/_{10}$ ". Leg model is dissectible into 9 parts; size, $30^{3}/_{10} \times 10^{1}/_{5} \times 10^{1}/_{5}$ ". Both models are numbered for easy identification of parts, and each comes on a stand.

566784 Per set \$2,000.00



566717B Altay Human Muscular Leg

Altay® Human Muscular Leg

Life size. Dissectible into 13 parts. Includes musculature, nerves, blood vessels, and connective tissues of the hip, leg, and foot along with a portion of the pelvis. Size, $108 \times 22 \times 21$ cm.

566717B Each \$971.10



Altay® Deluxe Human Muscular Leg

Life size in 23 parts. Muscles, vessels, and nerves of the human leg are accurately rendered. Model disassembles completely for access to the maximum number of anatomical structures. Mounted on a durable polymer base that is removable for examination. Includes numbered key with 58 identified structures. Size, $94 \times 17 \times 10^{-5}$ 17 cm.

566717C Each \$1,078.95

Lymphatic System



566842 Somso Human Lymphatic System

Somso® Human Lymphatic System

²/₃× life size. Relief model depicting lymphatic vessels, ducts, and lymph nodes with numbered key. On green base. Size, $84 \times 54 \times 12$ cm.

566842 Each \$2,499.00

Somso® Human Leg and **Portion of Pelvis**

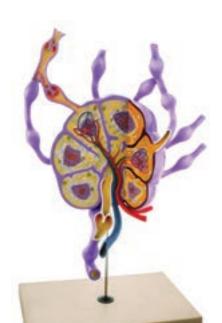
Step up to quality and realism

- Most lifelike representation of human leg available
- · Anatomical model shows muscles, nerves, and vessels in exceptional detail
- Top-quality materials for long life and durability

Life size. Students can study the anatomy of the human leg in detail with this high-quality Somso® human model. It features surface muscles that students can remove to study the underlying blood vessels and nerves.

This human classroom model of the leg and partial pelvis is dissectible into 10 parts, is rotatable, and comes on a stand with green base. Size, $39 \times 26 \times 108$ cm H.

566717 Each \$3,198.00



566844 Eisco Human Lymph Node

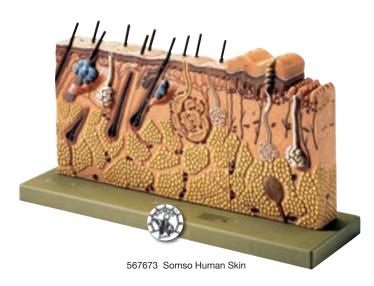
New! Eisco® Human Lymph Node

Greatly enlarged. Shows incoming lymph vessel, germinal center, sinus, outgoing lymph vessel, capsule, trabecula, incoming blood supply artery, and vein for outgoing blood. Identification key card included. Mounted on base. Size, $61 \times 38 \times 24$ cm.

566844 Each \$298.55

Human

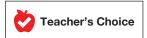
Integumentary System



Somso® Human Skin

About 70× life size. Representative sections from scalp, axilla, and sole of foot. Size, 47 \times 15 \times 25 cm H. On green base.

567673 Each \$1,094.00





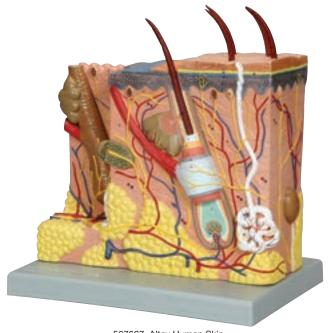
567669 Altay Microstructure of Skin

Altay® Microstructure of Skin

Enlarged 70×. Relief model compares skin of palm (hairless) with that of the scalp. Sebaceous and sweat glands, hair follicles, and sensory structures are shown in elegant detail. Includes key card. Mounted on a durable polymer base. Size, $53\times38\times6$ cm.

567669 Each \$156.90

Models



567667 Altay Human Skin

Altay® Human Skin

Greatly enlarged. Block model shows features of epidermal, dermal, and subcutaneous tissues in detail. Sensory and vascular structures, sweat and sebaceous glands, and hair follicles (with and without piloerector muscles) are well represented. Front of hair follicle removes to show internal details. Mounted on a sturdy polymer base. Includes numbered key. Size (without base), 24 × 25 × 11 cm.

567667 Each \$273.20



567671 Somso Human Skin Section

Somso® Human Skin Section

About $70 \times$ life size. A 1-piece section through the human scalp shows various tissue components, along with excellent detailing of hairs, sebaceous and sweat glands, and sensory receptors. Mounted on a sturdy green base. Size, $21 \times 20 \times 11$ cm.

567671 Each \$785.51



Head & Neck



Altay® Human Head and Neck

About life size. An excellent representation of muscular and vascular structures in the head and neck with 76 numbered features. Includes identification key. Mounted on a durable polymer base. Size (without base), $45 \times 37 \times 22$ cm.

566661 Each \$379.80



567660 Nasal Swab Training Model

Nasal Swab Training Model

Give students the opportunity to practice nasal swab techniques on this 12" hard plastic model. It can be used to demonstrate proper technique for collecting naso-pharyngeal samples. Swabs can be inserted into the nose or mouth and viewed from the side to determine appropriate depth and to confirm correct placement for collecting samples. Comes with digital manual that includes labeled, relevant anatomical structures. Dimensions, $10 \times 8 \times 12$ " H; mounted on plastic base.

567660 Each \$152.30



566650A 3B Human **Head Section**



About life size. Relief model of human head in median section shows all relevant structures of the oronasal and buccal cavities, cervical spine, and brain. Mounted on a base. Size, 26 \times 33 \times 5 cm.

566650A Each \$223.90



566666 Altay Anatomy of the Human Neck

Altay® Anatomy of the Human Neck

Life size. Ventral dissection of the human neck shows excellent views of the muscles, vascular structures, nerves, and glands. Printed key identifies 47 anatomical features. Mounted on a durable polymer base. Size (without base), $23 \times 14 \times 32$ cm.

566666 Each \$191.75

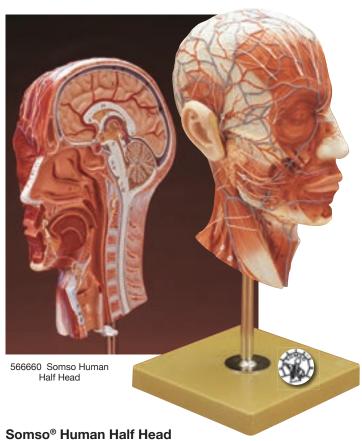


566648 Altay Frontal and Median Human Head Sections

Altay® Frontal and Median Human **Head Sections**

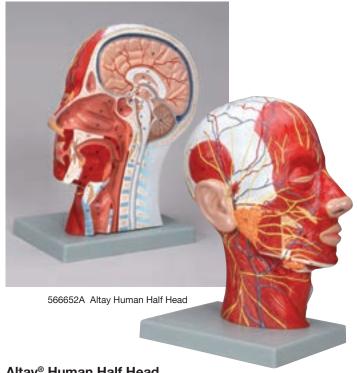
Life size. Anatomical structures of the head and neck are shown in frontal and medial perspective. Printed key is included. Mounted on a durable polymer base. Size, $53 \times 38 \times 6$ cm.

566648 Each \$231.40



Life size. Median section shows anatomy of central nervous system, mouth, nasopharynx, and vertebral column. Right side is dissected to reveal musculature, blood vessels, and nerves. Size, $18 \times 22 \times 41$ cm H. On stand with green base.

566660 Each \$1,285.00



Altay® Human Half Head

Life size. The human head is sectioned sagittally through the midline to expose the inner structures of the brain, pharynx and upper respiratory tract, and the cervical vertebrae. The opposite surface is a superficial dissection showing the facial muscles, superficial vessels and nerves of the face and scalp, and the parotid and submandibular glands. Includes a printed key. Mounted on a durable polymer base. Size (without base), $20 \times 15 \times 29$ cm.

566652A Each \$307.15

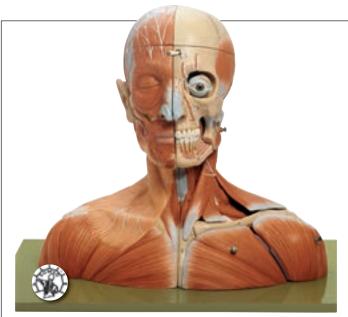


566653 Altay Human Head Section with Cranial Nerves

Altay® Human Head Section with Cranial Nerves

About $2^1/2 \times$ life size. Cranial nerve pathways are featured in excellent detail. The muscular and vascular features of the neck and mandibular region are also well represented. Sagittal dissection shows nasal and oral cavities, including tongue and uvula, frontal and ethmoid sinuses, cervical vertebrae, and salivary glands. Removable eye with extrinsic muscles, nerves, and lacrimal gland. Includes numbered key. Size, $39 \times 42 \times 14$ cm.

566653 Each **\$515.80**



Somso® Human Head and Neck

Life size. Dissectible into 19 parts. This unsurpassed model depicts the musculature of the bust and skeletal structure of the cranium on the external surface. It can be separated medially to reveal the detailed internal anatomy of the head and neck, including the brain, spinal cord, and upper respiratory tract. The 2-part cranium, 8-part brain with arteries, and eye with muscles and optic nerve can be removed. Many muscles of the neck and shoulder can be removed, including the sternocleidomastoid, trapezius, pectoralis major, and the deltoid muscle. Significant structures are numbered and a key is included. Mounted on a green base. Size with base, $48\times37\times30$ cm.

566690 Each \$5,997.00

Nervous System



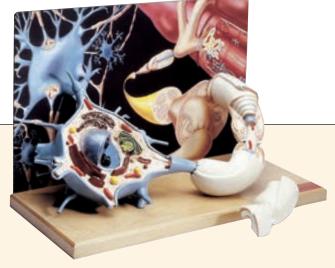
Somso® Human Neuron
Schematic representation of the nerve cell and axon with medullary sheath and Schwann's sheath. On green base. Size, 28 × 14 × 40 cm.

567419 Each \$540.80



Schematic representation of nerve cell and axon with medullary sheath and Schwann's sheath. Dissectible into 3 parts. On molded base. Size, $53\times17\times22$ cm.

567420 Each \$831.90



Denoyer-Geppert 3-D Human Motor Neuron ▲¹

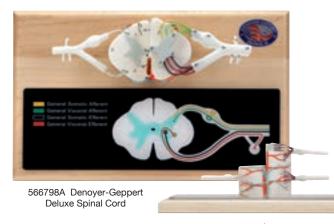
More than 2,500× life size. This unique diorama model incorporates a detailed reproduction of a motor nerve cell with a color backdrop showing a network of associated neurons. Convergence of multiple axons to form a motor nerve fiber and its termination at the neuromuscular junction of a skeletal muscle, complete with synaptic vesicles carrying neurotransmitters, are also presented clearly and dramatically. Well-represented cellular organelles, branching dendrites, communicating synapses, and a myelin-wrapped axon with node of Ranvier are among the highlights of this model. A section of the axon lifts off to show the layers of the myelin sheath, the neurolemma, and the Schwann cell that formed them. Mounted on a hardwood base. Size, $43\times20\times28$ cm. Includes illustrated key with 54 identified features.

567423 Each \$1,029.80

Somso® Human Spinal Cord Set

Portion of spinal cord showing spinal nerves is about $5 \times$ life size. Cross section is about $10 \times$ life size. On green base with transparent cover. Size, $22 \times 9 \times 22$ cm.

566798 Each \$453.60



Denoyer-Geppert Deluxe Spinal Cord A

Scaled to $6\times$ life size, this vinyl plastic model replicates a segment of the upper thoracic spinal cord. Sectioned both longitudinally and in cross section, a portion of the white matter of the right half has been cut away to expose the anterior and posterior nerve roots which have been color-coded as follows: general visceral afferent (sensory)—green; general somatic afferent (sensory)—yellow; general visceral efferent (motor)—red; general somatic efferent (motor)—black. A color-keyed circuitry schematic is mounted along with the model on the hardwood base. Size, 12 \times 8 \times 5" (30 \times 20 \times 13 cm).

566798A Each \$482.00

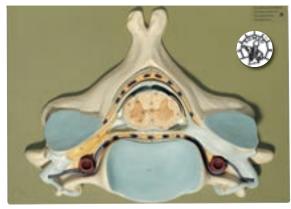


567412 Somso Nerve Ending and Synapse

Somso® Nerve Ending and Synapse

This unique model shows axon terminal with synapse and postsynaptic membrane structure with receptive sites. Neurotubules, neurotransmitter vesicles, and the mechanism of delivery of neurotransmitter across the synapse are clearly shown. The 1-piece model can be removed from its molded base for closer examination. Size, $21 \times 22 \times 22$ cm.



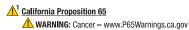


566797 Somso Human Spinal Cord Section

Somso® Human Spinal Cord Section

About $7 \times$ life size. Cross section showing spinal nerves, spinal ganglion, and blood vessels of the 5th cervical vertebra. On green base. Size, $40 \times 10 \times 28$ cm.

566797 Each \$561.70



Brain





566791 Somso Human Brain

Somso® Human Brain

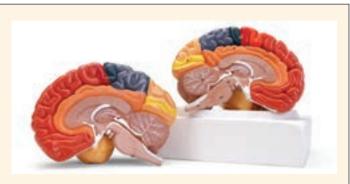
Life size. Dissectible into 2 parts (median section). Has natural coloration. Size, 16 \times 17 \times 15 cm H. On molded base.

566791 Each \$470.30





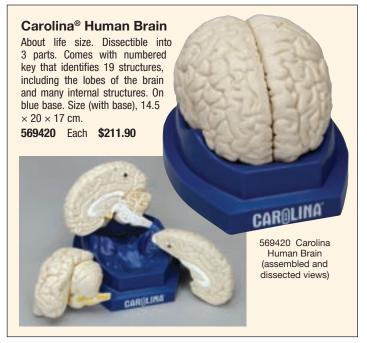




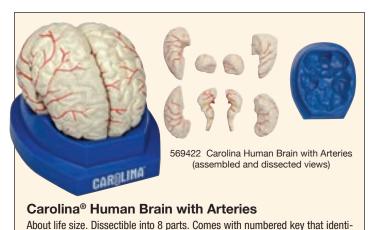
Altay® Human Regional Brain

Life size. Two-part brain is color-coded to identify primary functional areas within the cerebral cortex. Origins of cranial nerves are prominently identified. Stands upright in contoured storage cradle. Includes numbered key. Size (without base), $16 \times 13 \times 12$ cm.

566790C Each \$253.15







fies 32 structures, including the main arteries, lobes of the brain, and many internal structures. On blue base. Size (with base), $14.5 \times 20 \times 17$ cm.

Cortical Functional

Centers (partially dissected)

566781 Denoyer-Geppert Giant Functional Brain (assembled and dissected views)

Somso® Human Brain with Cortical Functional **Centers**

Left cerebral hemisphere is color coded and marked with the official numbers of Brodmann's cytoarchitectural map of the human cerebral cortex. Primary and secondary motor and sensory cortical fields; areas associated with speech. audition, and vision; and structures of the limbic system are

highlighted with brilliant colors. Entire model rests in lifelike position in base of skull mounted on green stand. Size, $23 \times 15 \times 18$ cm.

566793D Each \$1,564.85

Life size. Dissectible into 15 parts. 566793D Somso Human Brain with

Denoyer-Geppert Giant Functional Brain 🗥

Twice life size. Depicting the brain of a right-handed person, contrasting colors and hand-lettered captions locate and identify motor and sensory functional centers; focus on the intellectual role of the dominant left brain and the creative role of the right; and call attention to the emotional, sexual, memory, and learning functions of the limbic system. Sensory regions highlighted include the separate reception and interpretive centers of the visual, acoustic, touch, taste, and olfactory senses, plus sensory centers of the somatosensory cortex receptive to more than 20 specific body regions. Among the motor centers presented are 19 body regions controlled by the motor cortex, the premotor area, and the Broca's area concerned with motor speech. More than 120 hand-numbered features are identified in the accompanying key. Divisible into 4 parts, the Giant Functional Brain rests upright in a molded plastic receptacle. Size, $9 \times 8 \times 12^{\circ}$ (23 × 20 × 30 cm).

566781 Each \$719.30



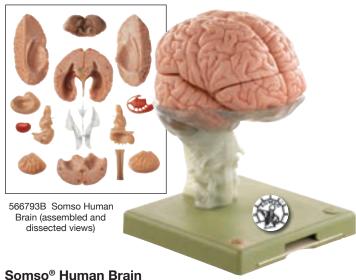
569422 Each \$267.50



Somso® Human Dura Mater

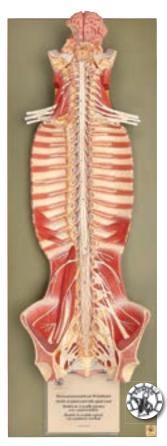
Life size. Dissectible into 2 parts. Shows the dura in proportion to the sinus dura mater, the 12 pairs of cranial nerves, and arteries at the base of the brain. Size, $18\times21\times23$ cm. On green base.

566785 Each \$840.00



Life size. Dissectible into 15 parts. Brain ventricles and the complete brain stem are visible during dissection. Transparent cast of the base of the skull supports the entire structure in natural position. On stand with green base. Size, $23 \times 15 \times 18$ cm.

566793B Each **\$1,465.85**



566801 Somso Human Nervous System

Somso® Human Nervous System

Life size. Brain, brain stem, spinal cord, and spinal nerves are shown in position in vertebral column. The sympathetic trunk is shown on left side. On green base. Size, $32 \times 19 \times 90$ cm.

566801 Each \$2,450.00



566801A 3B Human Nervous System

3B® Human Nervous System

Schematic representation of the central and peripheral nervous systems. On base. Size, $33 \times 83 \times 6$ cm.

566801A Each \$625.00



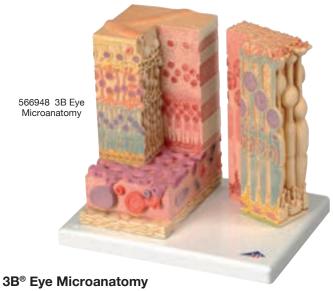
566804 Altay Human Nervous System

Altay® Human Nervous System

About $^{1}/_{2}\times$ life size. Relief model shows main elements of the central and peripheral nervous system; a representation of the skeleton is included for reference. Mounted on a durable polymer base. Includes numbered key. Size, $90\times32\times11$ cm.

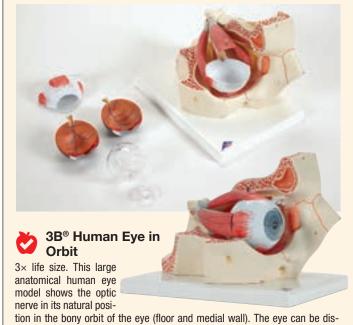
566804 Each \$498.75

Sensory Organs



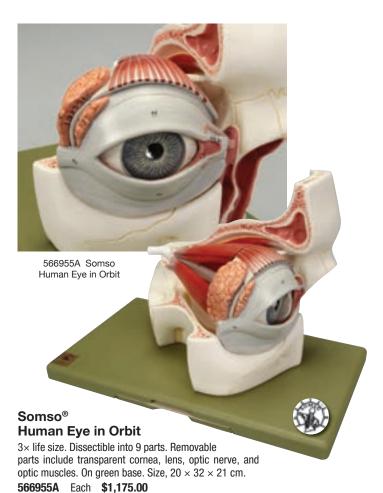
Two highly magnified views of the human retina, including the choroid and sclera. The left, layered block model shows the retina's complete structure, including the vascular layer and parts of the sclera. The right block model is a sectional enlargement of the left model, focusing on photoreceptor structure and pigmented layer cells. Size, $25 \times 23 \times 18.5$ cm.

566948 Each \$531.05



tion in the bony orbit of the eye (floor and medial wall). The eye can be dissected into 7 pieces. Removable parts include the 2-part sclera with cornea and eye muscle attachments, 2-part choroid with iris and retina, lens, and the vitreous humor.

566954 Each \$523.05





566953 Altay Human Eye in Orbit

Altay® Human Eye in Orbit

About $5\times$ life size. This 10-part model provides an accurate representation of the bony orbit (medial portion) with removable, dissectible eye. External features include lacrimal gland and removable extraocular muscles. Exceptional attention is given to innervation. The eye interior shows vascularization of the retina, vitreous humor, lens, and iris, plus dissection of the optic nerve. Size (without base), $38\times26\times30$ cm.

566953 Each \$560.45





Somso® Human Eye

About $4\times$ life size. Dissectible into 6 parts: sclerotic membrane (2 parts), choroid membrane (2 parts), lens, and vitreous humor. On stand with green base. Size, $12\times12\times18$ cm.

566943A Each \$422.00





Carolina® Human Eye

5× life size. The eye is bisected to show internal structure. Model separates into 6 pieces; the lens, iris, aqueous humor, and cornea are removable for closer inspection. Eye structures and musculature are labeled, with key included. On blue base. Size (with base), 21 × 14 × 12 cm.

569435 Each \$146.80



569435 Carolina Human Eye (assembled and dissected views)



Denoyer-Geppert Giant Five-Part Eyeball A

 $6 \times$ life size. This giant model overshadows ordinary eye models, which range from 3 to $5 \times$ life size. Featured on the exterior of the eyeball is the cornea through which the iris and pupil are visible, the large lacrimal (tear) gland, attachments for all 6 muscles which move the eyeball, the optic nerve, and surrounding blood vessels.

To study interior features, the eyeball divides into hemispheres. The iris/cornea unit can be removed, as can the functional lucite lens which magnifies and forms inverted images.

You can sight through the transparent vitreous body.

Removing the vitreous body exposes the choroid coat and retina complete with the blind spot and the yellow spot containing the fovea. Rods, cones, and other retinal microstructures are detailed in a highly magnified diagrammatic cross section.

The accompanying key defines 42 hand-coded features of the eye. Mounted on a hand-rubbed hardwood base. Size, $6 \times 6 \times 6$ " (15 × 15 × 15 cm).

566949 Each \$445.05

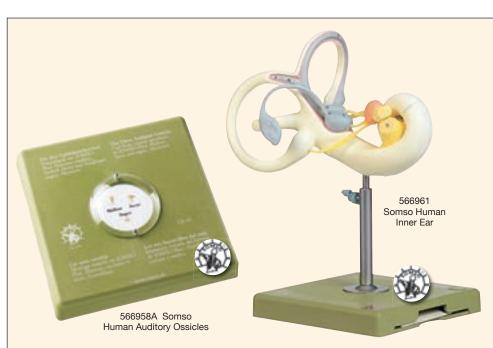


566946 Human Eye

Human Eye

This oversized model has a cutaway portion to show the choroid and sclera. Cornea and lens are removable. Ciliary muscle, retina, optic disk, and optic nerve are well represented. Includes full-color, illustrated key. Approximate size (without base), $9.5 \times 12.5 \times 10$ cm.

566946 Each \$102.95



Somso® Human Auditory Ossicles

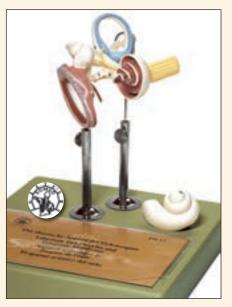
Life-size malleus, incus, and stapes are cast from natural specimens; absolutely lifelike with the finest detail. Mounted under clear, protective cover on a green base plate. Size, $3 \times 12 \times 12$ cm.

566958A Each \$149.30

Somso® Human Inner Ear

About 18× life size. The superior semicircular canal and auricle are opened to show the saccule and utricle. Includes a median section of the cochlea. Size, $24 \times 18 \times 33$ cm. On stand with green base.

566961 Each \$804.30

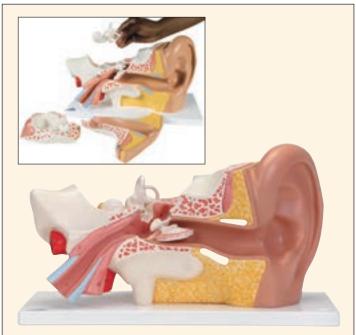


566960 Somso Human Inner Ear

Somso® Human Inner Ear

About 4× life size. Includes cochlea (dissectible into 3 parts), ear bones, and tympanic membrane. Size, $18\times18\times20$ cm H. On stand with green base.

566960 Each **\$655.50**

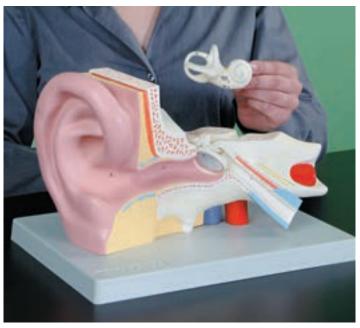


566966 3B Human Ear, 4-Part Model (assembled and dissected views)

3B® Human Ear

About $3\times$ life size. Dissectible into 4 or 6 parts. Shows external ear canal with removable tympanum, middle ear with auditory ossicles, and dissectible cochlea. Mounted on a base. Size, $34\times16\times19$ cm.

566966 4-Part Model Each **\$233.45 566967** 6-Part Model Each **\$284.00**



566965 Altay Human Ear

Altay® Human Ear

About $3\times$ life size. Pinna, external ear canal, tympanum, auditory ossicles, Eustachian tube, vestibular apparatus, and cochlea are shown in exquisite detail along with neural, osseous, and vascular structures. The middle and inner ear components are removable for individual examination. Mounted on a durable polymer base. Numbered key is included. Size (without base), $32\times19\times13$ cm.

566965 Each \$165.60



566963B Somso Human Ear

Somso® Human Ear

About $3\times$ life size. Shows pinna with auditory canal, tympanic membrane, Eustachian tube, middle ear ossicles, bony labyrinth, and cochlea. Tympanic membrane and middle and inner ear structures can be removed for individual examination. On green base. Size, $21\times32\times19$ cm.

566963B Each \$574.00



Carolina® Human Ear

About $1^1/_2 \times$ life size. This 1-piece model is enlarged to show greater detail in internal structures. Comes with numbered key that identifies 21 external and internal structures; major vasculature is included as well. On blue base. Size (with base), $16.5 \times 13 \times 13$ cm.

569430 Each \$126.05

Respiratory System



566915B Altay Human Respiratory System

Altay® Human Respiratory System

Two-part model shows respiratory airway structures from the nasopharynx to the terminal bronchioles of the right lung. Surface view of left lung shows superior and inferior lobes. Highly magnified representation of pulmonary alveoli shows association with terminal bronchioles and capillary bed. Structures are numbered and referenced on the accompanying key. Plaque mounted. Size, 53×38 cm.

566915B Each \$249.40

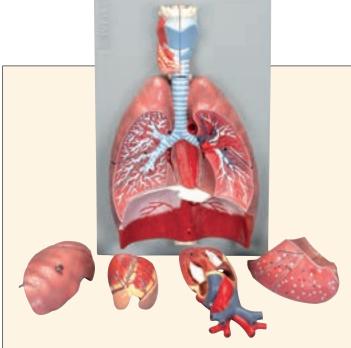
Human Lung

Realistic depiction of human lung with open dissection to show internal routing of pulmonary arteries, veins, and airways. Pleura and lymph nodes are well represented. Measures $23 \times 13.5 \times 13.5$ cm; on stand with base. Includes full-color, illustrated key.

566917 Each \$111.15

566917 Human Lung





Altay[®] Human Respiratory System

Life size. Dissectible into 7 parts. Heart (2 parts), larynx (2 parts), and lungs are shown with great attention to detail. A portion of the diaphragm is included. Mounted on a base. Size (without base), $36 \times 20 \times 12$ cm.

566915C Each \$470.70

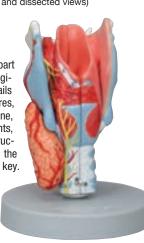


566913 Altay Human Larynx (assembled and dissected views)

Altay® Human Larynx

2× life size. This 5-part model is sectioned longitudinally to reveal details of internal structures, including the hyoid bone, cartilages, ligaments, muscles, vascular structures, nerves, and the thyroid gland. With key. Rod-mounted on a durable stand. Size, 18 × 11 × 8 cm.

566913 Each **\$242.15**





566916 Somso Human Thoracic Organs

Somso® Human Thoracic Organs

About 3 /₄× life size. Dissectible into 7 parts. Shows lungs, heart, larynx (each of which is dissectible into 2 parts), and diaphragm. On green base. Size, $28 \times 12 \times 39$ cm.

566916 Each \$1,625.00





Somso® Human Larynx, Trachea, and Bronchi

Slightly enlarged. Dissectible into 2 parts. Thyroid gland and muscles, trachea with bronchial tree, and individual segment bronchi are shown. Size, $20\times18\times39$ cm H. On stand with green base.

566914 Each \$1,036.65

Circulatory System



566835 Altay Human Blood Cell Types

Altay® Human Blood Cell Types

Plaque mount shows erythrocytes, platelets, and 5 types of leukocytes with their characteristic nuclei. Structures are numbered and referenced on the accompanying key. Size, 54×38 cm.

566835 Each \$248.80

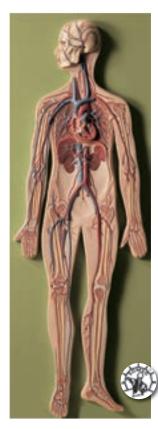


567477 Altay Microstructure of Artery and Vein

Altay® Microstructure of Artery and Vein

Greatly enlarged block model shows anatomical details of artery and vein. Serial sectioning exposes sequential muscular and membranous layers and illustrates the differences between arterial and venous wall thickness. Included is a cut section of vein with venous valves. Mounted on a durable polymer base. Includes numbered key. Size (without base), $25 \times 10 \times 23$ cm.

567477 Each \$417.30



566840 Somso Human Circulatory System

Somso® Human Circulatory System

 $^{1/2}\times$ life size. Top-quality relief model depicting arteries, veins, and major organs involved in circulation. Includes a numbered key. Mounted on green base. Size, $32\times91\times7$ cm.

566840 Each \$1,261.20



566839 3B Human Circulatory System

3B® Human Circulatory System

About $^{1}\!/_{2}\times$ life size. Schematic presentation of the circulatory system. Mounted on base. Size, 33 \times 81 \times 6 cm.

566839 Each \$490.00



566841A Altay Human Circulatory System

Altay® Human Circulatory System

About $^{1/2}\times$ life size. This generalized representation of the human circulatory system includes a 2-part heart, lungs, liver, spleen, kidneys, and circuitry of the pulmonary and systemic circulatory pathways. With key. Mounted on a durable polymer base. Size, $32\times90\times12$ cm.

566841A Each \$330.25



566903A Altay Human Heart

Altay® Human Heart

Life size. Dissectible into 2 parts. Clearly shows internal and external anatomy including valves, cardiac chambers, and pulmonary and systemic vascular structures. All significant features are numbered; key included. Mounted on stand. Size (without stand), $14 \times 10 \times 9$ cm.

566903A Each **\$86.40**



566803B Somso Human Heart

🦐 Somso® Human Heart

Slightly enlarged. Section through ventricles and auricles shows cardiac valves. Dissectible into 2 halves. Size, $27 \times 12 \times 14$ cm. On stand with green base.

566803B Each \$665.00



566812 Somso Human Heart

Somso® Human Heart

About 1½× life size. Dissectible into 4 parts. Size, 18 \times 19 \times 32 cm. On stand with green base.

566812 Each \$1,290.00

Denoyer-Geppert The Heart of America™ ▲¹

Three hinged access portals swing open with the flip of your finger to reveal the faithful detailing of the interior of the heart chambers.

Mitral and tricuspid valves with flexible chordae tendineae enhance understand-

ing of valve action in controlling the directional flow of blood.

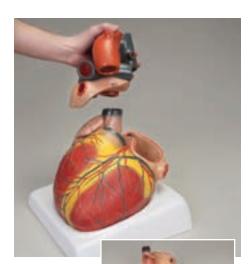
Portions of the trachea and esophagus are included to demonstrate their relationship to the major vessels.

No less than 63 cardiac structures, permanently number coded by hand, are identified in the key. (Our previous model had only 45.)

Each Heart of America™ is 100% handcrafted in the United States from a custom-formulated vinyl plastic compound which is virtually unbreakable. Metal hinges for the access portals are bonded into the model. No screws to become stripped or work loose with usage!

Hand painted in 10 vibrant colors and mounted on a genuine hardwood pedestal. Size, $7 \times 7 \times 15$ " ($18 \times 18 \times 38$ cm).

566810 Each \$605.45

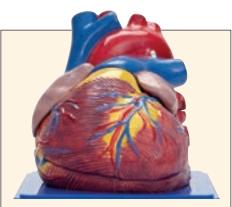


566813 Altay Giant Heart, 4 Parts

Altay[®] Giant Heart, 4 Parts

 $3\times$ life size. Dissectible into 4 parts. Examine external anatomy of the heart, compare internal morphology of the left and right ventricles, and explore cardiac vascular structures using this oversized model. Sectioned anteriorly through the ventricles and auricles, cardiac valves and other structures are clearly identifiable. Includes a removable right atrium. Significant structures are numbered; key included. On molded base. Size, $24\times25\times28$ cm.

566813 Each \$366.10





569440 Carolina Human Heart (assembled and dissected views)

Carolina® Human Heart

 $2\times$ life size. This 3-piece model is enlarged for enhanced detail of internal and external structures. Comes with numbered key that identifies 30 structures, including the coronary arteries and veins. The anterior portions of the ventricles and the atria are removable. On blue base. Size (with base), $15.75\times19\times17.5~\mathrm{cm}$.

569440 Each \$238.55

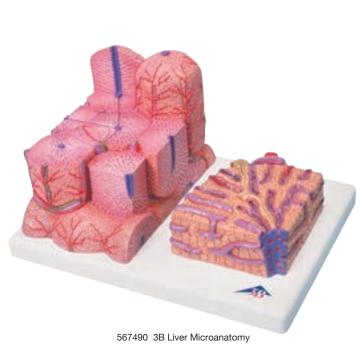
Digestive System



566745 Altay Human Comparative Digestive Tissue

Altay® Human Comparative Digestive Tissue

Greatly enlarged. This model offers students a close-up view of tissues within the digestive system. The microanatomy of tissues from the esophagus, stomach, and small and large intestines can be visualized in the 8-part model. Also shows mucous tissue, vessels, and secretory glands. Mounted on a base. Size (with base), $40 \times 26 \times 35$ cm. **566745** Each **\$445.85**



3B® Liver Microanatomy

Greatly enlarged. Two highly magnified views of a section of liver tissue are presented. One part shows functional and structural features of a section containing portions of several liver lobules. The other part of the model shows a single section of liver lobule at extremely high magnification. Mounted on a base. Size, $26 \times 15 \times 18.5$ cm.

567490 Each \$478.00

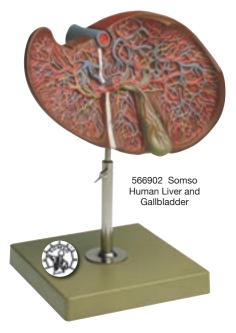


567460 3B Microanatomy of the Digestive System

3B® Microanatomy of the Digestive System

Greatly enlarged. Fine tissue structure of esophagus, stomach, small intestine, and large intestine are shown in open histological section. Mounted on a base. Size, 26 \times 29 \times 18.5 cm.

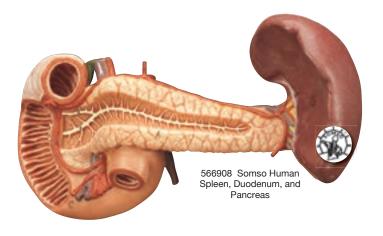
567460 Each \$482.00



Somso® Human Liver and Gallbladder

About $1^1/_2\times$ life size. Open dissection reveals hepatic vessels and bile duct system. Size, $19\times26\times29$ cm H. On stand with base.

566902 Each \$595.00



Somso® Human Spleen, Duodenum, and Pancreas

Life size. Shows pancreatic duct, blood vessels, and partially opened duodenum. Size, $12\times22\times23$ cm H. On stand with base.

566908 Each \$455.00



Somso® Human Stomach

Life size. Dissectible into 2 parts. Shows longitudinal and circular muscle layers, arteries and nerves, peritoneum, and stomach wall in section. Size, $19\times18\times34$ cm H.

566896 Each \$698.00



566906 Somso Human Digestive Tract

Somso® Human Digestive Tract

Life size. Dissectible into 3 pieces. Stomach can be opened. Size, $32 \times 12 \times 91$ cm. On green base.

566906 Each \$1,240.00



Altay® Human Digestive System

About life size. Shows entire digestive tract from mouth to rectum including the liver and pancreas. Features include open dissection of stomach and interior views of small and large intestines. All structures are numbered and referenced on the accompanying key. Size (with base), 92×32 cm. Includes a separate head section showing musculature involved in mastication and salivary glands. Size, 15×20 cm.

566895B Each **\$423.30**

Urinary System

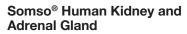
Ö

Altay® Deluxe Kidney and Adrenal Gland

About $4\times$ life size. A median section provides a detailed internal view of the human kidney and adrenal gland, including vascular, filtration, and urinary collection structures. The model mounts on a pole stand for display and is removable for examination. Includes numbered key. Size, 28 \times 17 \times 8 cm.

566921B Each \$238.05





Life size. Right kidney is dissectible into 2 halves by a median section. Size, $12\times12\times26$ cm H. On stand with green base.

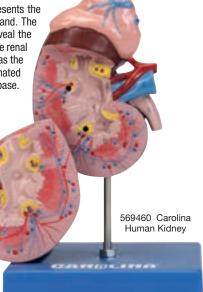
566918 Each \$345.00

566918 Somso Human Kidney and Adrenal Gland

Carolina® Human Kidney

Life size. This 2-piece model represents the right human kidney and adrenal gland. The anterior portion is removable to reveal the internal structures of the kidney. The renal artery and vein are shown, as well as the proximal end of the ureter. Laminated key included. Mounted on blue base. Size, 19.5 × 11.5 × 11.5 cm.

569460 Each \$216.20





566923A Altay Human Kidney, Nephron, and Renal Corpuscle



Altay® Human Kidney, Nephron, and Renal Corpuscle

Greatly enlarged. Plaque-mounted series of 3 models, including a $2^{1/2} \times$ life-size dissection of the kidney and adrenal gland; schematic enlargement showing anatomical details of an individual nephron; and a renal corpuscle with Bowman's capsule, glomerulus, and juxtaglomerular apparatus. Size (overall), $69 \times 29 \times 10$ cm.

566923A Each **\$458.60**



566922 Somso Human Kidney, Nephron, and Glomerulus Set

Somso® Human Kidney, Nephron, and Glomerulus Set

Shows sectioned kidney (3× life size), 2 nephrons (120× life size), and glomerulus (700× life size). On green base. Size, $65 \times 9 \times 30$ cm.

566922 Each \$960.00

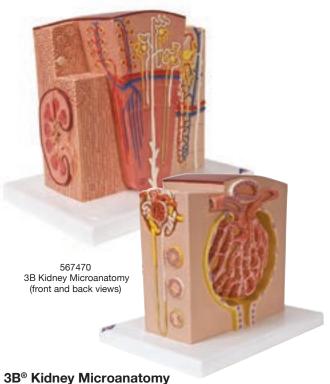


567798 Somso Human Nephron

Somso® Human Nephron

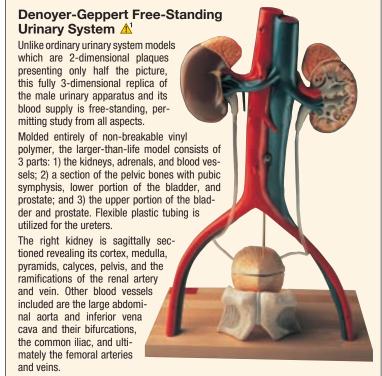
About 120× life size. Two nephrons with collecting tubules and blood vessels. On green base. Size, $26\times3\times32$ cm.

567798 Each \$271.18



Greatly enlarged. Block model shows morphological and functional microstructures of the kidney in 6 different zones: longitudinal section of kidney; section through renal cortex and medulla; section of kidney with representations of 3 nephrons; nephron with short loop of Henle and vascular supply; opened renal corpuscle; and nephron with opened renal corpuscle and transverse sections of the proximal and distal convoluted tubules. Mounted on a base. Size, $25.5 \times 19 \times 23.5$ cm.

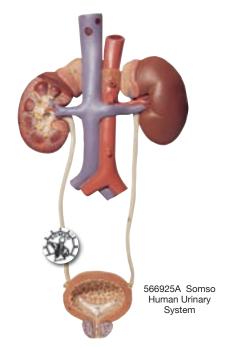
567470 Each **\$482.00**



Opening the bladder exposes the folded mucosa of its interior, the orifices of the ureters, the trigone, prostatic portion of the urethra, seminal vesicles, ejaculatory ducts, and vas deferens.

Fifty hand-numbered features are identified in the accompanying key. Size, 12 \times 19 \times 8" (30 \times 48 \times 20 cm).

566929 Each **\$708.95**



Somso® Human Urinary System

Life size. Shows major components of the urinary system: kidney, renal artery, vein, ureter, bladder, and urethra. On green base. Size, $28\times10\times40$ cm.

566925A Each \$564.20



3B[®] Human Male and Female Urinary System

Life size. Dissectible into 6 parts. Male and female organs are interchangeable. Size, $31 \times 41 \times 15$ cm.

566927 Each \$810.00



566927A Altay Human Male and Female Urogenital Systems

Altay® Human Male and Female Urogenital Systems

About $^3/_4\times$ life size. This 3-part plaque mount features detailed sagittal sections of male and female pelvises, highlighting major urogenital structures of each. In addition, a generalized urinary system is shown, including renal artery and vein, kidneys (right side showing interior anatomy), ureters, and urinary bladder with urethra. Mounted on a durable polymer base. Overall size, $53\times38\times3$ cm.

566927A Each **\$232.35**

Check out our urinalysis kits on page 336.

Endocrine System



Altay® Human Endocrine Organs

About life size. This plaque mount features individual representations of pituitary, adrenal, thyroid, and parathyroid glands, plus a testis and a dissected ovary with fallopian tubes and associated structures. With key. Size, 53×38 cm.

566933 Each \$288.45

566934 Somso Human Female Ovary

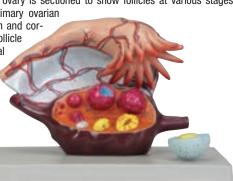
Reproductive System

Altay® Human Ovary

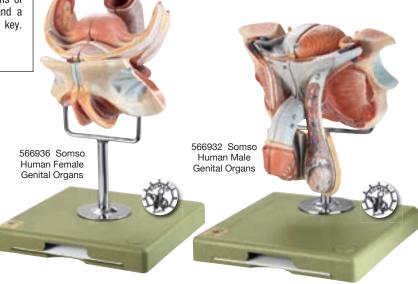
About $5 \times$ life size. An ovary with removable fallopian tubule shows vascular and suspensory structures. The ovary is sectioned to show follicles at various stages

of maturation, from the primary ovarian follicle to the corpus luteum and corpus albicans. A primary follicle is cross-sectioned to reveal details of the oocyte and zona pellucida. Mounted on a durable polymer base. Includes numbered key. Size, 33 × 23 × 21 cm.

566934A Each **\$161.20**



566934A Altay Human Ovary



Somso® Human Female Ovary

About 10× life size. Presentation of the follicle in different maturation phases, the corpus rubrum, corpus luteum, and corpus albicans. In 1 piece on green base. Size, $28\times40\times8$ cm.

566934 Each \$776.65

Somso® Human Female Genital Organs

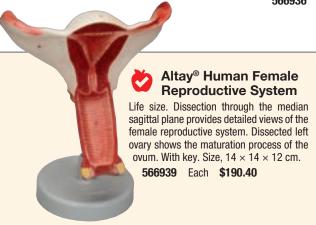
Life size. Ventral and dorsal views of internal genital organs partly shown in median section. Dissectible into 4 parts. Size, $18 \times 19 \times 26$ cm H. On stand with green base.

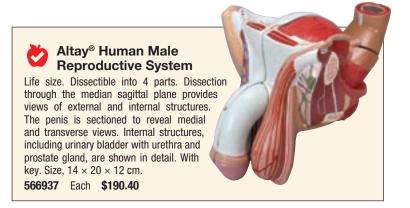
566936 Each \$1,263.50

Somso® Human Male Genital Organs

Life size. Fine detail of penis, prostate, bladder, testes, spermatic cord, urethra, and scrotum. Dissectible into 5 parts. Size, $18\times20\times21$ cm H. On stand with green

566932 Each \$1,717.00

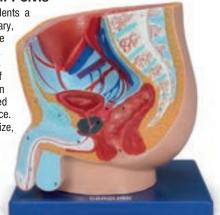




Carolina® Male Half Pelvis

About life size. Gives students a detailed view of male urinary, digestive, and reproductive structures. Represents a variety of tissue types, as well as a cross section of the lower vertebral column and spinal cord. Laminated key included. One piece. Mounted on blue base. Size, $28 \times 26.5 \times 19.5$ cm.

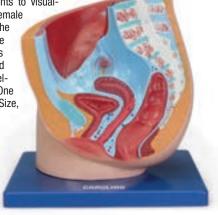
569471 Each \$227.55



Carolina® Female Half Pelvis

About life size. Allows students to visualize a cross section of a female pelvis. Cross sections of the bladder, uterus, and colon are also represented, as well as the structure of the spine and spinal cord present in the pelvis. Laminated key included. One piece. Mounted on blue base. Size, $28 \times 26.5 \times 19.5$ cm.

569470 Each \$227.55

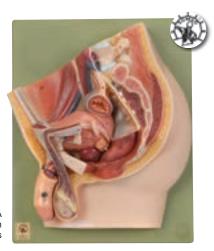


Somso® Human Male Half Pelvis

Life size. Right half of pelvis shows rectum and urinary bladder as well as male reproductive organs. Three parts are removable to expose internal reproductive structures. On base. Size, $33 \times 27 \times 14$ cm.

566725A Each \$1,098.00

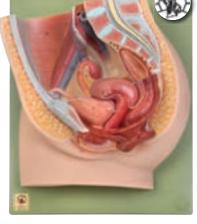
566725A Somso Human Male Half Pelvis



Somso® Human Female Half Pelvis

Life size. Right half of pelvis showing female reproductive organs. Left side of bladder, uterus, rectum, and ovary are removable. On green base. Size, $27 \times 33 \times 12$ cm.

566725 Each \$860.00



566725 Somso Human Female Half Pelvis



566721 Altay Human Male Half Pelvis

Altay® Human Male Half Pelvis

About life size. Separates into 4 parts for maximum exposure of superficial and deep structures. Vascular and urogenital features are especially well represented. Superficial dissection of left side is removable, revealing a sagittal section through the bladder and penis. Left testis opens to show internal anatomy. Mounted on a durable polymer base. Includes numbered key. Size (without base), $25 \times 23 \times 18$ cm.

566721 Each \$284.60



566721A Altay Human Female Half Pelvis

Altay® Human Female Half Pelvis

About life size. Separates into 2 parts, offering an excellent depiction of pelvic musculature with sagittal section through pubic symphysis, colon, urinary bladder, and uterus. Vascular and urogenital structures are well represented. Mounted on a durable polymer base. Includes numbered key. Size (without base), $25 \times 23 \times 21$ cm.

566721A Each \$284.60



563118 Altay Spermatogenesis

Altay® Spermatogenesis

Enlarged about 10,000×. Shows the process of spermatogenesis from spermatid to the mature spermatozoon. With key. Mounted on a durable polymer base. Size, 53 \times 38 \times 5 cm.

563118 Each \$235.65



566941 Altay Human Male Reproductive System Set

Altay® Human Male Reproductive System Set

This set of 4 plaque-mounted models illustrates the interior anatomy of the male reproductive tract. The urinary bladder, prostate gland, and penis are sectioned longitudinally to reveal the internal features. The testis is shown in 3 perspectives: in situ within a life-sized scrotum; as a life-sized longitudinal dissection; and as a $2\times$ life-sized dissection with the epididymis, seminiferous tubules, tunica albuginea, and other significant structures. With key. Size (each), $50\times26\times8$ cm.

566941 Each \$220.10





563122 Somso Human Development Set (left) and detail (above)

Somso® Human Development Set

Thirteen models show development from fertilization to 1-month embryo. Each is on a green base.

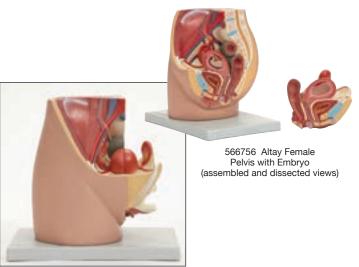
563122 Per set \$1,701.00

3B® Stages of Fertilization

Enlarged to show detail. Maturation of the ovum, ovulation, fertilization, and development of the embryonic mass to the point of uterine implantation are shown. Mounted on a base.

563119 Each \$530.00







Life size. Dissectible into 3 parts. Model gives an internal view through the median sagittal section of the pelvis. It shows the internal organs of the female urinary and reproductive systems with an 8-week embryo in utero. On base. Size, 25 \times 18 \times 27 cm.

566756 Each \$324.25



563129 Altay Human Fetal Development Set

Altay® Human Fetal Development Set

Life size. This set of 9 models illustrates in utero human fetal development from the 4th week to the 6th month, including 2 positions of twins at the 5th month. Anatomical structures of the uterus and fetus are well represented and identified on an accompanying key. Each model is mounted on an individual stand that can be removed for easy viewing. Size (range), $12 \times 10 \times 13 \text{ cm}$ to $12 \times 24 \times 25 \text{ cm}$.

563129 Per set \$846.70





Somso® Human Fetal Circulation

Life size. Model of a female fetus (before birth) with umbilical cord and placenta. Separates into 2 parts. The thoracic and abdominal cavities are exposed, and the venous and arterial ducts are shown. Mounted on base. Size, $48\times30\times14$ cm.

563150 Each \$1,513.50



563121 Altay Human Fetal Development

Altay® Human Fetal Development

About life size. A 5-part, plaque-mounted model shows development of a human fetus from ovulation through fertilization and uterine implantation. Fetal development is shown in utero at 4, 8, and 12 weeks and at full term. Includes numbered key. Mounted on a durable polymer base. Overall size, $52 \times 37 \times 5$ cm.

563121 Each \$248.25

563150 Somso Human Fetal Circulation

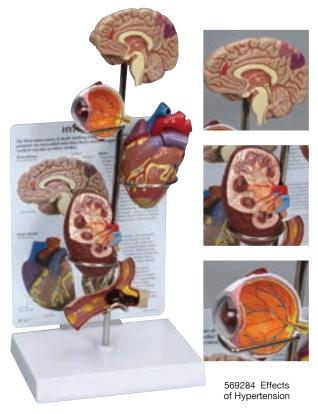
Pathology



Effects of Type 2 Diabetes

Miniature models show the effects of Type 2 diabetes. Models of the brain, eye, kidney, heart, pancreas, neuron, and foot, as well as an enlarged model of an artery are included. Each model illustrates the consequences of Type 2 diabetes—stroke due to infarction in the brain; ocular pathologies such as retinal edema in the eye; atherosclerosis of the arteries; nephrosclerosis of the kidney; heart attack due to myocardial infarction; insulin resistance; neuropathy; and foot ulcerations. Includes a full-color, double-sided, illustrated education card with information about Type 2 diabetes and the pathologies shown. All models rest on a single stand with base. Size (without base), $9\times 6^{1/_4}\times 12^{1/_2}$ ".

569280 Each \$219.10



Effects of Hypertension

Five models on 1 base depicting the harmful effects of hypertension. Miniature models of the brain, eye, 2-part heart, and kidney, as well as a magnified cross section of an artery are included. Consequences of hypertension are depicted on each model and include causes of stroke, heart attack, congestive heart failure, ocular disorders, atherosclerosis, and nephrosclerosis. Includes a double-sided, illustrated card with information about the pathologies caused by hypertension. Size (without base), $6^{1}/_{2} \times 5 \times 12^{1}/_{2}$ ".

569284 Each \$171.80



566599 Human Brain in Skull with Pathologies

Human Brain in Skull with Pathologies ▲

Life size. Features a normal brain half as well as an abnormal half with pathologies that is dissectible into 4 parts. Both halves fit inside a partial skull and show: alcoholism, Alzheimer's, aneurysm, depression-related tumor, seizure-related tumor, migraine, multiple sclerosis, Parkinson's disease, stroke, and subdural hematoma. Also includes removable circle of Willis with an aneurysm. With key. Size (no base), $5\times 6^{3}/4\times 5^{\circ}$.

566599 Each \$165.15



Human Vertebrae Pathology Set

Plastic. Four life-size segments of the vertebral column showing normal anatomy and 3 common pathologies due to degeneration: bulging herniated disc, bone and disc degeneration, and advanced osteoporosis with bone compression and bone spurs. Each segment is removable from the base for hands-on study. Includes a full-color, illustrated key card. Base size, $10^5/8 \times 6^1/4$ ".

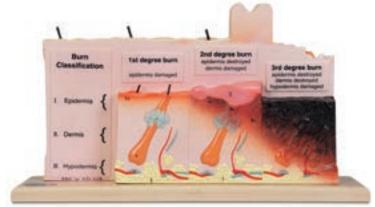
569200 Per set \$225.70







569250 Human Skin Cancer Disk Set



567666 Denoyer-Geppert Human Skin with Burn Pathologies



Human Skin Cancer Disk Set

Learn to identify 5 types of precancerous and cancerous skin lesions using this compact disk set. Dysplastic nevus, actinic keratosis, malignant melanoma, squamous cell carcinoma, and basal cell carcinoma are each depicted on a hinged disk that slides out of sturdy, circular casing. A full-size, enlarged view of the lesion is shown, each with a textured surface to further demonstrate the condition. The reverse side of the disk contains additional information about the lesion. Disks cannot be removed from the casing. Size, $1^5/8 \times 4^{\circ}$ diam.

569250 Each \$79.25

566746 Altay Pathology of the Thyroid

Altay® Pathology of the Thyroid

Features 2 thyroid models divided 4 ways. The first thyroid illustrates Graves' autoimmune disease. The other model shows thyroid adenoma and carcinoma as compared to the normal right side of the thyroid. On stand with base. Size, $33\times23\times25$ cm.

566746 Each **\$75.65**

Denoyer-Geppert Human Skin with Burn Pathologies A

About $75\times$ life size. Full relief model shows human skin sections from 3 regions: palm or sole (totally hairless); axilla (sparse hair); and scalp (dense hair). All strata of epidermis, dermis, and hypodermis with glands characteristic of each region (eccrine sweat glands, sebaceous glands, and apocrine glands) are present. Also represented are blood vessels, hair follicles with hair shafts, nerve fibers, and sensory receptors. Key identifies 46 features. Reverse side illustrates tissue damage associated with first-, second-, and third-degree burns. Measures $16\times3\times10$ "; mounted on an attractive hardwood base.

567666 Each \$771.05

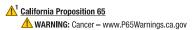


566761 Altay Pathology of the Ear

Altay® Pathology of the Ear

 1^{1} /₂× life size. Shows the most common pathologies affecting the outer, middle, and inner ear. At the level of the eustachian tube you can see mucus and secretory *otitis media;* cholesteatoma and eczema are also represented. Includes a comparison of 3 different eardrums: the first one is healthy, the second one exhibits a perforation, and the third one shows the *bullous myringitis*. One piece; on base. Size, $20 \times 15 \times 10$ cm.

566761 Each \$140.30

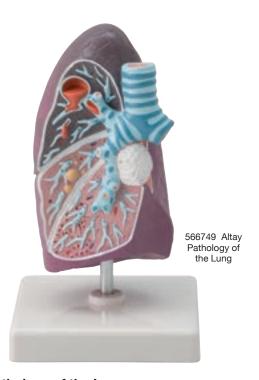




Clear Human Jaw Pathology

Life size. Clear model of the human jaw shows the arrangement and common pathologies of teeth. One side of the model shows healthy dentition and occlusion. The other side depicts common pathologies such as impaction, resorption, abscesses, cavities, and much more. A tooth implant, root canal, and crown are also shown. The mandible and maxilla are hinged, allowing for easy examination. Includes a full-color, double-sided, illustrated key card. Size, $2^4/_5 \times 2^1/_2 \times 2^1/_2$ ".

569302 Each \$190.40



Altay® Pathology of the Lung

 2 /_{3×} life size. This 1-part model illustrates some of the pathologies of the pulmonary system caused by microbial infections including lung abscess, pneumonia, and tuberculosis. The surface of the model is black to show the visible effect of smoking. A cancerous tumor is also shown with detail. All pathologies are shown separately in the model with a realistic representation of their morphology. On stand with base. Size, $11 \times 11 \times 11$ cm.

566749 Each **\$58.15**

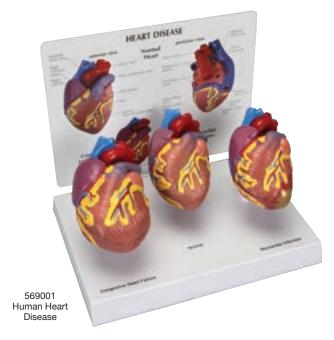


569300 Human Teeth Pathology

Human Teeth Pathology

Greatly enlarged, double-sided model of 4 human teeth shows basic anatomy, common pathologies, and frequently used treatments. One side of the model has cross sections of teeth depicting cavities, gingivitis, periodontitis, and more. A completed root canal and filling are also shown. The opposite side allows for the comparison of teeth within a healthy gum with those in a gum suffering from the effects of gingivitis and periodontitis. Includes a full-color, double-sided, illustrated key card. Mounted on a base. Size (without base), $5^{1/2} \times 2 \times 3^{1/2}$ ".

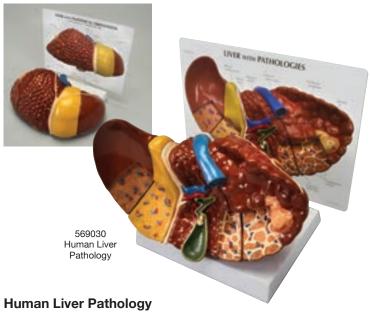
569300 Each \$124.40



Human Heart Disease

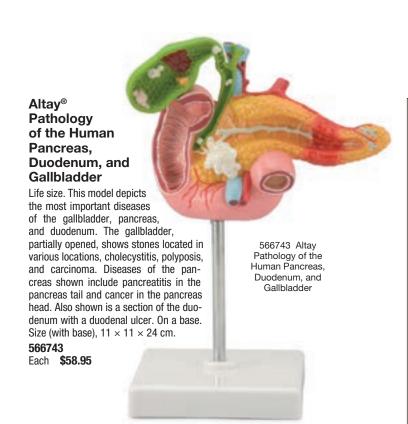
Three $^{1}/_{2}\times$ life-size models allow students to compare the anatomy of a healthy heart with hearts affected by congestive heart failure and myocardial infarction. The model showing congestive heart failure depicts the enlargement of the heart and thickening of the myocardium. The thin, discolored, infarcted area and an apex thrombus are shown as effects of myocardial infarction. Each model separates into 2 parts, allowing examination of external and internal characteristics. Includes a full-color, double-sided, illustrated key card. All 3 models are mounted on 1 base. Approximate sizes (without base), $4\times 2^{1}/_{4}\times 1^{3}/_{4}$ ".

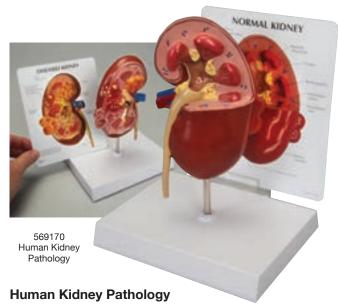
569001 Each \$164.00



Life size. Use this economical model to study basic anatomy and common pathologies of the human liver and gallbladder. Biliary obstruction, nodular cirrhosis, gallstones, and a tumor are shown. Significant structures are also represented, including the common bile duct, falciform ligament, portal triads, and more. Model can be detached from the base. Includes a full-color, illustrated, double-sided key card that shows anatomical orientation and pathologies. Model size, $8\times 4^1/2\times 5^1/2^n$; base size, $6^1/2\times 5^n$.

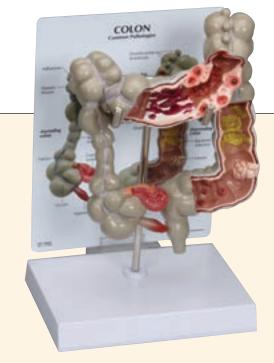
569030 Each \$111.15





This oversized, double-sided model depicts both normal and diseased anatomy of the human kidney. Half of 1 side is cutaway to reveal the form of a healthy kidney. The other side is completely sectioned to show different pathologies of a diseased kidney. Infection, scarring, atrophy, kidney stones, a tumor, polycystic disease, and the effects of hypertension are represented. Model can be detached from the base. Includes a full-color, illustrated, double-sided key card that shows a normal and diseased kidney. Model size, $3^3/_4 \times 2^1/_2 \times 6^1/_2$ "; base size, $6^1/_2 \times 5^{\circ}$.

569170 Each \$103.50



Human Colon Pathology

About $^{1}/_{2}\times$ life size. Model shows common pathologies of the human colon. Cross sections of the transverse, descending, and sigmoid colons show ulcerative colitis, diverticulitis, bacterial infection, cancer, and polyps. Appendicitis, Crohn's disease, spastic colon (irritable bowel), adhesions, and diverticulosis are also depicted. Includes a full-color, illustrated key card. Mounted on a base. Size (without base), $6\times 2^{1}/_{2}\times 7^{3}/_{4}$ ".

569034 Each \$106.80



Human Breast with Irregular Masses

Lifelike breast model with embedded irregular masses that can be felt during hands-on examination. A fibrocystic mass, tumor, and plugged lactiferous duct are all present in the durable, realistic material. Includes a full-color, double-sided, illustrated key card with instructions and information. Illustrations on the base show common inspection patterns used during breast self-examinations. Model size, $8^3/_4 \times 6^1/_4 \times 3^*$; base size, $8^7/_8 \times 6^1/_4^*$.

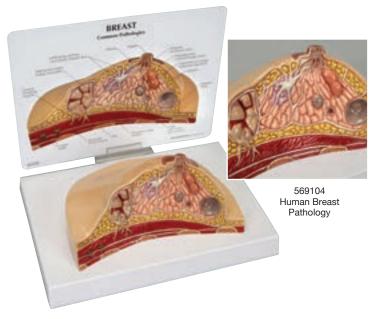
569105 Each \$140.65



Human Uterus and Ovary Pathology

Life size. Economy model of the human uterus and ovaries depicts common abnormalities. Shows an ovary and the uterus in cross section, and portrays carcinoma, endometriosis, polyps, salpingitis, adenomyosis, fibroid tumors, adhesions, and ovarian cysts. Includes a full-color, illustrated key card identifying anatomical and pathological structures. Model size, $8^3/_4 \times 6^1/_4 \times 2^1/_2$ "; base size, $8^7/_8 \times 6^1/_4$ ".

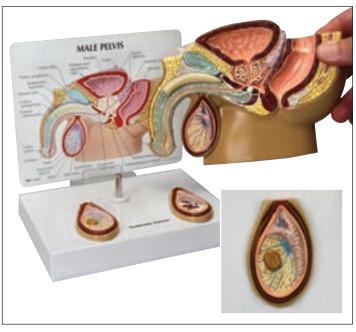
569100 Each \$111.15



Human Breast Pathology

Life size. Cross-sectional model of the human breast depicts basic anatomy and common pathologies. The model shows fibroadenoma, adenocarcinoma, infiltrating scirrhus carcinoma, and cysts. Normal anatomical structures such as adipose tissue, lymph nodes, muscles, and ligaments are also labeled. Includes a full-color, illustrated key card. Model size, $6^1/2 \times 4^1/2 \times 3^{"}$; base size, $8^3/8 \times 6^1/4^{"}$.

569104 Each \$95.80



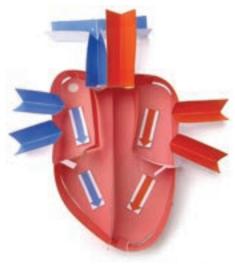
569120 Male Pelvis with Testicular Pathology

Male Pelvis with Testicular Pathology

Reduced size. Sagittal section of the male pelvis shows basic anatomical structures and a healthy testicle. Two additional relief models of testes, attached to the base of the model, indicate the 2 most common types of testicular tumors, seminoma and teratocarcinoma. Includes a full-color, double-sided, illustrated key card identifying significant structures of the pelvis and progressing testicular cancer stages. Model size, $7^1/4 \times 1 \times 4^3/4^n$; base size, $6^1/2 \times 5^n$.

569120 Each \$113.40

Human Models



From 569653 Origami Organelles 3-D Human Heart Paper Model Kit

Origami Organelles™ 3-D Paper Model Kits

These economical model-making kits allow students to develop and use models to represent structures, systems, and processes. They also provide explanations, help students make predictions, or allow students to investigate possible solutions. Working with the ready-to-use materials, students assemble a three-dimensional paper model to represent a structure or an entire system as an aid to developing questions and explanations. Each kit includes enough materials for students, working cooperatively, to assemble up to 5 paper models; a teacher resource guide; and a carrying case. Visit Carolina.com for individual kit descriptions.

569653	Human Heart Kit	Each	\$34.95
569654	Immune System Kit	Each	\$34.95
569657	Digestive System Kit	Each	\$34.95
569658	Human Brain Kit	Each	\$34.95
569659	Human Ear Kit	Each	\$34.95
569660	Liver and Spleen Kit	Each	\$34.95
569661	Lungs Kit	Each	\$34.95
569662	Skin Kit	Each	\$34.95
569663	Blood Kit	Each	\$34.95
569664	Human Eye Kit	Each	\$34.95



From 569654 Origami Organelles 3-D Immune System Paper Model Kit

Teacher Resources



576721 The Heart Anatomical Post-it Chart

Anatomical Post-it® Charts

 $11\times17^{\circ}$. These charts are great classroom resources for teaching human physiology. They feature detailed color drawings of anatomical structures that help students visualize anatomy and physiological processes. Charts are printed on heavy stock paper with Post-it adhesive backing for easy placement and removal.

576721	The Heart	Each	\$19.15
576723	Muscular System	Each	\$19.15
576726	Nervous System	Each	\$19.15
576727	Integumentary System	Each	\$19.15
576728	Respiratory System	Each	\$19.15
576731	Digestive System	Each	\$19.15



576718 Thin Man

Thin Man 1

63" high. Four transparent Mylar® overlays dissect body parts and organs in their progressive depth layers. More than 200 anatomical parts are named, indexed, and keyed. Life-size drawing of a fully detailed skeleton, complete with nervous system, appears on the back side of the panel. Mounted on durable, warp-proof material and hung from aluminum frame.

576718 Each **\$595.00**



See-Through Sally™ Human Anatomy Chart Set 🖧

Grades 7–12. See-Through Sally™ is a set of 12 spiral-bound anatomy charts, each representing a different area of the body, mounted on a rigid metal frame and floor stand. The set is arranged according to both how the body presents its anatomy as if you were removing 1 layer at a time and how systems and organs are sequentially taught in some human anatomy and physiology classes. The first 6 pages are full-system views; pages 7 through 12 are transparent overlays of internal organs and body systems. Chart dimensions, 22" W \times 36" H; stand height, 66" H.

576720 Per set **\$472.00**

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Slide Preparation



Carolina® Microscope Slides

- Top quality
- Affordable
- Backed by expert technical support

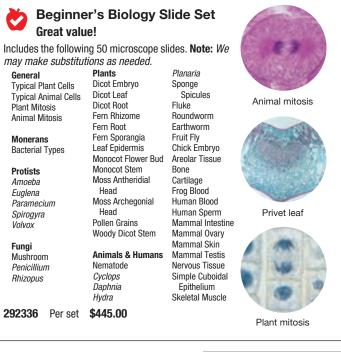
Carolina—An Experienced Leader in Prepared Slides

For nearly 80 years our mission has been to provide educators with top-quality microscope slides for botany, zoology, histology, embryology, parasitology, genetics, and pathology. To fulfill that mission, we depend on our experienced, professional staff's commitment to find new and innovative ways to meet your classroom needs at an affordable cost. The result is an extensive collection of prepared slides for educators at all levels of instruction, backed by our expert technical support.



Introductory Slides & Sets

Image	Item No.	Name and Description	Each	12+ Each
Intr	oduo	ctory		
ə	291406	Letter "e" Used to teach inversion, w.m.	\$4.95	\$4.70
×	291418	Colored Threads Teaches microscope focusing, w.m.	\$6.55	\$6.30
	291442	Cork Shows general cell structure, 20 μm	\$5.45	\$5.20
	294800	Prokaryotic and Eukaryotic Cells <i>Nostoc</i> (w.m.) and <i>Amphiuma</i> liver (sec.) mounted together for comparison	\$10.10	\$9.85
	301699	Typical Animal and Plant Cells Section of <i>Amphiuma</i> liver and lilac leaf mounted together for comparison, sec., Q	\$11.35	\$11.10
the	291412	Newspaper Print w.m.	\$5.25	\$5.00
BX	291532	Human Straight and Curly Hair Mounted together, w.m.	\$5.95	\$5.70
4	291538	Hair Comparison Human, sheep, and cat, w.m.	\$7.20	\$6.95



Key to Stains: Q, Quadruple.



Introductory Slides & Sets

Microscopic Inquiry Set

Introduce students to the basic concepts of microscopy, the structures common in various prokarvotic and eukaryotic organisms, and scientific inquiry. Performing the set's activities, students first observe slides showing examples of bacteria, protist, plant, and animal cells. Next, they create diagrams and write detailed descriptions of what they observed. Finally, students conduct



a simulated forensic investigation that combines their microscopy, observation, and scientific-inquiry skills. Includes slides and a detailed teacher's manual with blackline masters for reproducible student guides.

Amoeba Corn Stem Bacillus Bacteria Cyanobacteria Cardiac Muscle Eualena Cheek Cell

4 Slides Each of 2 "Mystery" Specimens 8 Slides of Another "Mystery" Specimen

Privet Leaf

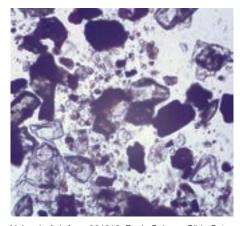
291063 Per set \$153.00

Microscope Slides

Cells, Units of Life Slide and Poster Set

Students easily compare animal and plant cells, single-celled organisms, and specialized cells using this set of 10 slides and helpful poster. They can explore the cell membrane, cytoplasm, and nucleus within a typical animal cell and look at the structure of typical plant cells, identifying the cell wall, chloroplasts, and vacuoles. Students can also observe examples of specialized cells, including blood, skin, and nerve cells. The 23 × 35" poster provides full-color labeled images and descriptive insight into cellular structure.

292101 Per set \$96.50



Volcanic Ash from 291018 Basic Science Slide Set

Basic Science Slide Set

Six slides selected to introduce students to microscopy. Includes letter "e," cork, salt crystals, dust, volcanic ash, and insect. With study guide.

291018 Per set \$33.00



Hydra, w.m. from 292130 Basic Biology Slide Set

Basic Biology Slide Set

Twelve slides selected for introductory studies of biology. All 5 kingdoms of life are represented.

Amoeba Bacteria Blood **Bread Mold**

Buttercup Root Hvdra Corn Stem Paramecium Earthworm Privet Leaf Eualena Spiroavra

292130 Per set \$93.00



291114 Hair Comparison Set

Hair Comparison Set

Fifteen slides representing rat, bat, cat, dog. goat, pig, cow, horse, opossum, muskrat, rabbit, and sheep hair. Human gray, straight, and curly hair are also included.

291114 Per set \$83.50

Biology Slide

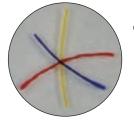
A set of 25 slides for general study. Contains examples from the protist, animal, and plant kingdoms, as well as plant and animal histology. Suitable for use in high school and introductory college classes.

292136

Per set \$237.00



Daphnia, w.m., from 292136 Biology Slide Set



Colored Threads, w.m. (left) and Salt Crystals, w.m. (right) from 291030 Beginner's Slide Set



Beginner's Slide Set

Twelve slides selected for a student's first lessons with a microscope. Includes a study quide with activities that help students learn to position objects for viewing, to adjust focus, and how to care for a microscope and slide. Contains letter "e," newspaper print, colored threads, cork, dust, cotton fibers, nylon fibers, cornstarch, salt crystals, wool fibers, silk fibers, and volcanic ash.

291030 Per set \$69.00

Volvox, w.m. from 291090 Life in a Pond Set

Life in a Pond Set

Eight slides of typical pond organisms give a condensed view of the multitude of life that can be found in ponds. Includes 1 or more examples of blue-green algae, green algae, protozoans, plants, and animals.

291090 Per set \$54.25



Zoea of Crab, w.m. from 291096 Life in the Sea Slide Set

Life in the Sea Slide Set

Ten slides showing examples of organisms commonly found in the sea, including starfish, algae, fish scales, and more.

291096 Per set \$72.00



Drosophila, w.m. from 291078 Around the Yard Slide Set

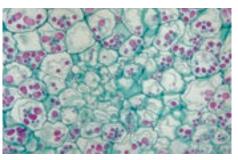
Around the Yard Slide Set

Twelve slides of common things that may be seen around the yard, including dirt, grass, insects, and more. **291078** Per set **\$72.00**

Burger and Fries Set

A microscopic look at America's favorite "fast food." Contains slides demonstrating the source material for the burger, lettuce, tomato, pickle, bun, and french fries. Includes a brief study guide that discusses the biology of this common meal.

291066 Per set \$40.00



Potato Tuber, sec. from 291066 Burger and Fries Set

Microslide® Lessons

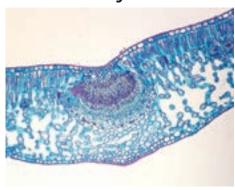
More titles available at Carolina.com

A Microslide® is a strip of 8 related 35-mm images as photographed through a microscope, with important features highlighted. Each lesson includes 1 Microslide® strip and an explanatory manual about the topic. The needed Microslide® Viewer (item #489700) is sold separately. Price listed is for a single Microslide® strip/lesson. Visit Carolina.com to learn more about each lesson and for boxed sets of 10, 15, and 30 identical lessons.

Item		
No.	Lesson Title	Each
489730A	Cell Structure	\$13.20
489732A	Cells of Your Body	\$13.20
489734A	Cells of Plants	\$13.20
489735A	The Five Kingdoms of Life	\$13.20
489736A	Animal Mitosis	\$13.20
489737A	Plant Mitosis	\$13.20
489738A	Meiosis	\$13.20
489740A	The Virus	\$13.20
489760A	Chromosomes & Genes in Action	\$13.20
489770A	Ecology Under the Microscope	\$13.20
489800A	Protozoa	\$13.20
489870A	Photosynthesis	\$13.20
489876A	Harmful Bacteria	\$13.20
489912A	Rocks & Rock-Forming Minerals	\$13.20



Introductory Slides & Sets



Privet Leaf, c.s. from 292106 Animal and Plant Cells Slide Set



Animal and Plant Cells Slide Set

Two slides demonstrating the cell membrane of an animal cell and the cell wall of a plant cell.

292106 Per set \$14.20



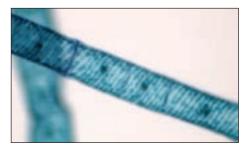
292104 Discovering Animal Cells Self-Study Unit



Discovering Animal Cells Self-Study Unit

Set includes slides of the 2 most commonly studied examples of animal cells (human cheek cells and *Amphiuma* liver). Also includes a self-study card for each slide featuring a labeled photograph and background information.

292104 Each \$13.50



Spirogyra, w.m. from 292148 Common Microorganisms Slide Set

Common Microorganisms Slide Set

Includes 20 slides selected to introduce students to the great diversity of microscopic organisms in our world. Includes examples from 4 kingdoms: monerans (bacteria and blue-green algae), protists (protozoa and algae), fungi (molds and lichen), and animals.

292148 Per set \$136.00

×

Typical Animal and Plant Cells Slide Set

Five slides demonstrating the basic similarities and differences between animal and plant cells. Includes human cheek cells, *Amphiuma* liver, cork, onion bulb epidermis, and privet leaf. The **Student Set** includes 5 slides and a teacher's manual with reproducible student guide. The **Classroom Set** contains 8 each of the 5 slides plus teacher's manual with repro-

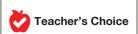
ducible student guide. Both sets include FREE 1-year access to digital resources that support 3-dimensional instruction.

 292112
 Student Set
 Each
 \$28.85

 292111
 Classroom Set
 Each
 \$222.00



292112 Typical Animal and Plant Cells Student Slide Set



Microscope Slides

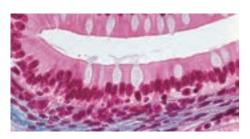


292102 Discovering Plant Cells Self-Study Unit

Discovering Plant Cells Self-Study Unit

Set includes slides of the 2 most commonly studied examples of plant cells (onion bulb epidermis and privet leaf). Also includes a self-study card for each slide featuring a labeled photograph and background information.

292102 Each **\$13.15**



Amphibian Simple Columnar Epithelium, sec. from 311956 Beginner's Animal Tissue Slide Set



Beginner's Animal Tissue Slide Set

These 15 microscope slides have been selected for middle school students and above. They introduce the student to basic animal tissues and help with the identification and understanding of these cell associations. Includes study guide.

311956 Per set \$115.00



319328 Typical Animal and Plant Cells Kit

Typical Animal and Plant Cells Kit ▲

This kit demonstrates the typical similarities and differences between animal and plant cells. Students prepare slides of their own cheek cells and an onion bulb epidermis. With instructions. **Note:** Store onion bulblets in a cool, dry place with good ventilation, away from sunlight. Best if used within 2–3 months of receipt.

319328 Per kit \$57.50



311968 Beginner's Human Tissue Slide Set

Beginner's Human Tissue Slide Set

The 15 prepared slides in this set give students in middle school and above a basic introduction to the study of human microscopic anatomy. Included are representatives of connective tissues; muscle and bone; blood and the circulatory system; and nervous, digestive, and respiratory systems.

311968 Per set \$155.00

Microscope Slides Viruses/Prokaryotes Slides & Sets Viruses/Prokaryotes Slides & Sets





Slide shows 3 typical bacterial forms in separate smears. Unit includes a self-study card and labeled photograph with descriptive text.

294060 Each \$13.50



292708 Bacteriology Survey Slide Set 1

Bacteriology Survey Slide Sets

These sets are selected to fit several levels of instruction. **Set 1** (6 slides) is suitable for junior high/middle school and high school courses for a basic introduction to bacteria. **Set 2** (12 slides) and **Set 3** (25 slides) are suitable for greater depth of study in high school courses or as reference sets in college courses. Each set demonstrates basic morphology and includes examples of pathogenic bacteria. Each set includes teacher's manual.

292708 Set 1 Each \$44.00 292709 Set 2 Each \$79.50 292710 Set 3 Each \$200.00



Bacterial Flagella – Polar Amphitrichous, w.m. from 292702 Bacterial Structures Slide Set

Bacterial Structures Slide Set

Six slides demonstrating typical bacterial types, flagella, spores, capsules, fat bodies, and bacterial chains.

292702 Per set \$52.25



Bacillus anthracis, w.m. from 292716 Bacterial Pathogens Slide Set

Bacterial Pathogens Slide Set

This reference set of 12 slides demonstrates the bacterial pathogens responsible for many diseases of animals. See Carolina.com for a complete list. Includes a study guide. An excellent resource for instruction at the college level.

292716 Per set \$110.00



292916 Bacteria and Fungi Slide Set

Bacteria and Fungi Slide Set

Nine slides demonstrating bacteria and fungi, organisms that were once believed to be closely related but are now classified in separate kingdoms. Bacteria slides include bacteria types, bacterial flagella, and nitrogen-fixing bacteria. Fungi slides include *Rhizopus*, lichen, cup fungus, yeast, mushroom, and wheat rust.

292916 Per set \$78.75



Gram Staining Readi-Stain® BioKit® A

For a class of 30. Students perform a Gram stain on prepared bacterial slides, make the slides permanent, and observe them. Each slide has a mixture of bacterial forms (coccus, bacillus, and spirillum). Some are Gram positive, others are Gram negative.

319570 Per kit \$99.50



292696 Monera Kingdom Slide Set

Monera Kingdom Slide Set

Five slides of bacteria and blue-green algae to demonstrate typical characteristics of this prokaryotic group.

292696 Per set \$40.25



700380 Carolina BioKits: Wright Readi-Stain

Carolina BioKits®: Wright Readi-Stain® ⚠²

For a class of 30 students to stain blood smears and observe white blood cells. No blood required.

Kit includes:

- 30 Unstained Human Blood Smears
- 2 Bottles Wright Stain
- 2 Bottles Wright Buffer
- 15 Blood Smear Cards
- 2 Human Blood Smear Slides (stained with Wright stain) Teacher's Manual and Reproducible Student Guide

700380 Per kit \$78.25



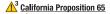
700388 Wright Stain Solution Kit

Wright Stain Solution Kit A2

For staining white blood cells for observational differentiation. Includes 30 mL of Wright stain, 60 mL of buffer solution, and instructions.

700388 Per kit \$19.25







Viruses/Prokaryotes Slides & Sets

		•		
Image	Item No.	Name and Description	Each	12+ Each
Viru	ses			
ineraes:	293866	Tobacco Mosaic Virus Leaf showing diseased tissue, 12 μm	\$7.55	\$7.30
Prok	ary	otes		
Bacteria	al Types	6		
1	293946	Bacteria Types, Mixed Smear Bacillus, coccus, spirillum, CF	\$7.35	\$7.10
	293952	Bacteria Types, Separate Smears Bacillus, coccus, spirillum, CF	\$8.50	\$8.25
AV.	293964	Bacteria Types, Separate Smears Bacillus, coccus, spirillum, Gr	\$9.65	\$9.40
27	3	Bacillus		
	293970	Typical, B. megatherium, w.m., CF	\$5.90	\$5.65
	293976	Gram-Positive, B. megatherium, w.m., Gr	\$5.90	\$5.65
	293982	Gram-Negative, Agrobacterium, w.m., Gr	\$5.75	\$5.50
	293988	$\begin{array}{l} \textbf{Gram-Negative and Gram-Positive Mix},\\ \text{w.m., Gr} \end{array}$	\$6.65	\$6.40
	A	Coccus		
	294006	Typical, M. luteus, w.m., CF	\$5.80	\$5.55
	294012	Gram-Positive, M. luteus, w.m., Gr	\$5.90	\$5.65
	294018	Gram-Negative, Neisseria, w.m., Gr	\$5.85	\$5.60
	294024	$\label{eq:Gram-Negative and Gram-Positive Mix} \begin{tabular}{ll} Gram-Positive Mix, \\ w.m., Gr \end{tabular}$	\$6.95	\$6.70
"."		Spirillum		
	294048	Typical, R. rubrum, w.m., CF	\$5.90	\$5.65
	294054	Gram-Negative , <i>R. rubrum</i> , w.m., Gr	\$5.80	\$5.55
Bacteria	al Struc	tures		
The said	294186	Bacterial Capsules Flavobacterium capsulatum, w.m.	\$10.40	\$10.15
~	294198	Bacterial Flagella, Polar Amphitrichous <i>Spirillum volutans</i> , w.m.	\$14.85	\$14.45
A F	294204	Bacterial Flagella, Peritrichous <i>Proteus vulgaris</i> , w.m.	\$14.10	\$13.70
4-6	294228	Bacterial Spores Large species, w.m.	\$8.85	\$8.60

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
Individ	ual Bac			
7.	294372	Yogurt Smear from active culture, shows <i>L. bulgaris</i> and <i>S. lactis</i> , w.m.	\$5.85	
R	294444	Bacillus anthracis Causes anthrax, spore-forming bacilli in chains, w.m.	\$10.75	\$10.50
177	294474	Bacillus subtilis Hay-infusion organism, bacilli, w.m.	\$5.85	\$5.60
	294486	Borrelia burgdorferi Causes Lyme disease, spirochete, w.m.	\$16.00	\$15.75
30	294498	Clostridium botulinum Causes botulism or food poisoning, spore-forming bacilli, w.m.	\$6.90	\$6.65
	294510	Clostridium tetani Causes tetanus or lockjaw, spore-forming bacilli, w.m.	\$9.05	\$8.80
- 4 8	294522	Corynebacterium diphtheriae Causes diphtheria, bacilli, w.m.	\$7.65	
. 3	294546	Escherichia coli Normally present in intestinal flora, very small bacilli, w.m.	\$6.25	\$6.00
a 1	294550	Helicobacter pylori Causes ulcers and gastric inflammation in humans, spirilla, w.m.	\$13.70	\$13.30
3	294552	Haemophilus influenzae Causes bacterial meningitis, bacilli, w.m.	\$9.30	
1, 54	294564	Klebsiella pneumoniae Causes pneumonia, bacilli, w.m.	\$6.25	\$6.00
7	294570	Lactobacillus acidophilus Used to prepare acidophilus milk, bacilli, w.m.	\$5.90	\$5.65
9	301976	Legume Nodule Root nodule of leguminous plant with nitrogen-fixing bacteria, c.s., 12 μm	\$6.25	\$6.00
疆	294600	Mycobacterium tuberculosis Causes human tuberculosis, rods, w.m.,	\$9.75	\$9.50
	294606	Neisseria gonorrhoeae Causes gonorrhea, diplococci, w.m.	\$6.85	\$6.60
1	294630	Pseudomonas aeruginosa Found in open wounds, known as "blue pus organism," bacilli, w.m.	\$6.20	\$5.95
4 4	294678	Salmonella typhi Causes typhoid fever, bacilli, w.m.	\$7.15	
2	294684	Salmonella typhimurium Causes food poisoning in humans, bacilli, w.m.	\$8.85	\$8.60
	294696	Shigella dysenteriae Causes dysentery, bacilli, w.m.	\$7.40	

Key to Stains: CF, Carbol Fuchsin; **Gr**, Gram.

See more individual bacteria slides on the next page.

		_		
Image	Item No.	Name and Description	Each	12+ Each
Individ	ual Bac	teria (continued)		
Ti	294708	Spirillum volutans Large spirilla, w.m.	\$5.80	\$5.55
	294726	Staphylococcus aureus Causes boils, abscesses, suppuration in wounds, etc., cocci, w.m.	\$5.95	\$5.70
£	294732	Staphylococcus epidermidis Pathogenic on vertebrate skin and mucous membranes, cocci, w.m.	\$6.35	
對	294738	Streptococcus Shows typical chains of cocci, w.m.	\$6.25	\$6.00
-1400	294756	Streptococcus pneumoniae Causes pneumonia, cocci, w.m.	\$6.65	\$6.40
N.	294762	Streptococcus pyogenes Causes various human infections, cocci, w.m.	\$5.90	\$5.65
A P	294774	Treponema Spirochete similar to the syphilis pathogen, w.m.	\$11.45	\$11.20



319900 Carolina Introduction to Microscopy Mat

Carolina® Introduction to Microscopy Mat

This double-sided, durable vinyl mat can effectively introduce your students to microscopy and slide-making techniques. A basic compound microscope is shown on the front; parts are labeled and functions are defined. Clear, concise instructions inform students how to properly focus and magnify specimens. The back features microscope care information and tips, along with the formula for calculating total magnification. Generalized instructions step students through making a dry mount, a wet mount, and using a simple stain; images of each type of slide are shown. Use the mat year after year—it resists spills and wipes clean easily. Size, 11×17 ".

319900 Each \$8.50 10+ Each \$7.50

510

Viruses/Prokaryotes Slides & Sets

		20, 1 101tal y 0 teo 0 til				
Image	Item No.	Name and Description	Each	12+ Each		
Special Preparations						
4	294306	Acid-Fast Stained Bacteria Mycobacterium sp., w.m.	\$7.10	\$6.85		
	294336	Bacteria and Blood Mixed smear of a bacillus and human blood cells, w.m.	\$9.65	\$9.40		
	294348	Bacteria, Yeast, and Blood Mixed smear of a bacillus, yeast, and human blood cells, w.m.	\$12.55	\$12.30		
, a	294354	Oral Smear Lining of human cheek, shows epithelial cells and bacteria, w.m.	\$5.90	\$5.65		
	294800	Prokaryotic and Eukaryotic Cells <i>Nostoc</i> (w.m.) and <i>Amphiuma</i> liver (sec.) mounted together for comparison	\$10.10	\$9.85		
Individ	ual Cya	nobacteria				
15	294906	Mixed Blue-Green Algae Common forms of cyanobacteria for demonstration, w.m.	\$7.25	\$7.00		
www,	294924	Anabaena Filaments with heterocysts and akinetes (spores), w.m.	\$5.85	\$5.60		
	294954	Gloeocapsa Gelatinous sheaths surrounding cells and colonies, w.m.	\$5.85	\$5.60		
2/2	294996	Nostoc Shows filaments with heterocysts, w.m.	\$5.45	\$5.20		
-)	295002	Oscillatoria Large filament, clearly shows separation discs, w.m.	\$5.90	\$5.65		

Cells - The Basic Units of Life Was 1 to Colf And the second of the se

Cells Poster

 23×35 ". Brighten up your classroom with this great student reference tool! Detailed, full-color images clearly illustrate and explain cells, the basic units of life. This poster depicts the basic animal and plant cell along with single-celled organisms and specialized cells. Animal and plant cell organelles are labeled, and their functions are also defined. Laminated.

571204 Each **\$22.25**

571204 Cells Poster



Protozoa Slides & Sets

Protozoa Slides & Sets



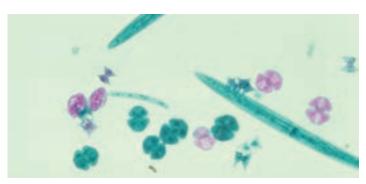
Leishmania donovani, smear from 293696 Pathogenic Protozoa Slide Set

Pathogenic Protozoa Slide Set

A selection of pathogenic forms commonly observed in man and domestic animals in 12 slides. Suitable for Advanced Placement® high school and college studies, the set includes *Entamoeba*, *Giardia*, *Plasmodium*, and other pathogenic protozoa.

293696 Per set \$166.00

Advanced Placement® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, this product.



Mixed Desmids, w.m. from 292422 Beginner's Algae Slide Set

Beginner's Algae Slide Set

Seven slides of common freshwater algae. Includes 1 or more examples of bluegreen algae, diatoms, desmids, filamentous green algae, and motile green algae.

292422 Per set \$41.50



Basic Slide-Making Set

Includes 72 blank microscope slides, 100 coverslips, slide labels, and 7.5 mL mountant.

319734

Per set **\$19.55**

Microscope Slides



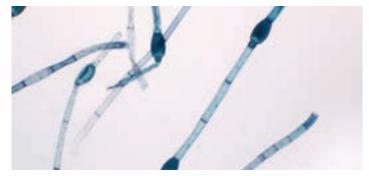
293484 Protozoan Slide Set

Pr

Protozoan Slide Set

Twelve slides selected to familiarize the student with common protozoa. Includes study guide.

293484 Per set \$85.00



Oedogonium, w.m. from 292806 Common Algae Slide Set

Common Algae Slide Set

Sixteen slides selected to demonstrate the diversity of organisms from various taxonomic groups commonly called algae. Includes single-celled, colonial, and multicellular forms. Blue-green, golden, green, brown, and red algae are represented.

292806 Per set \$123.00

Algae in Water Supplies Slide Set

A reference set of 25 slides demonstrating various types of algae commonly found in surface-water reservoirs. Includes examples of taste- and odor-causing algae, filter-clogging algae, polluted-water algae, clean-water algae, plankton and surface algae, and algae that attach to reservoir walls.

292824 Per set \$158.00



292824 Algae in Water Supplies Slide Set

Protozoa Slides & Sets

Microscope Slides



293490 Protozoan Slide Set

Protozoan Slide Set

Twelve slides introduce the student to a variety of protozoans. Suitable for junior high/middle school, high school, and above. Includes study sheet.

293490 Per set \$121.00

512

Image	Item No.	Name and Description	Each	12+ Each		
Prot	Protists					
Mixed	295276	Mixed Protozoans Common forms, w.m.	\$9.75	\$9.50		
Dinofla	gellates 295306	Dinoflagellates Flagellates that generally have an outer shell composed of plates, w.m.	\$5.60	\$5.35		
MA	295312	Ceratium Armored elongated flagellate with horns (arms) and a transverse groove, w.m.	\$6.40	\$6.15		
Sarcodi	nes (rh	izopods)				
大声	295384	Amoeba proteus Typical specimens in a variety of shapes, w.m.	\$7.90	\$7.65		
4.	295444	Entamoeba coli Cysts Nonpathogenic species, occurs in the human large intestine, smear	\$11.00	\$10.75		
	295450	Entamoeba coli Trophozoites Nonpathogenic species, occurs in the human large intestine, smear	\$11.10	\$10.85		
	295468	Entamoeba histolytica Cysts Pathogenic species that causes amoebic dysentery, smear	\$13.90	\$13.65		
	295474	Entamoeba histolytica Trophozoites Pathogenic species that causes amoebic dysentery, smear	\$13.25	\$12.90		
7	295486	Mixed Amoebic Infection Mixed forms such as Entamoeba coli, E. histolytica, and Giardia lamblia, smear	\$13.80	\$13.40		
Euglen	oids					
	295666	Euglena Stained to show general structures, w.m.	\$5.70	\$5.45		



Paramecium, w.m. from 292154 General Microbiology Slide Set

General Microbiology Slide Set

Twenty slides present an overview of microbiology. Includes examples from 3 kingdoms: monerans (bacteria and blue-green algae), fungi (molds, yeast, and mushroom), and protists (protozoa and algae). Also includes an 8-page study guide.

292154 Per set **\$156.50**

Image	Item No.	Name and Description	Each	12+ Each
Zoomas	stigotes			
	295756	Giardia lamblia Cysts Causes giardiasis, common human parasite, smear	\$13.10	\$12.85
	295762	Giardia lamblia Trophozoites Causes giardiasis, common human parasite, smear	\$12.90	\$12.45
"is	295768	Leishmania donovani Causes kala-azar (an often fatal disease), cultured form, smear	\$12.75	\$12.40
	295780	Termite Flagellates Several genera of large flagellates found in the termite gut, w.m.	\$10.50	\$10.25
	295788	Trichomonas vaginalis Parasitic protozoan that causes trichomoniasis (sex. transmitted infection), smear	\$13.10	\$12.70
	295798	Trypanosoma cruzi Parasitic protozoan that causes Chagas disease, blood smear	\$13.60	\$13.15
1	295799	Trypanosoma Species <i>T. brucei</i> subspecies isolated from culture, pathogenic protozoan, w.m.	\$13.40	\$12.90
	295810	Trypanosoma gambiense Parasitic protozoan that causes West African sleeping sickness, blood smear	\$19.60	\$19.20
Diatom	s			
	295936	Mixed Diatoms Various freshwater forms, w.m.	\$5.85	\$5.60
200	295948	Marine Diatoms Various forms, w.m.	\$5.70	\$5.45
1	295966	Freshwater and Marine Diatoms Various mixed forms, w.m.	\$6.15	\$5.90

Protozoa Slides & Sets

lmage	Item No.	Name and Description	Each	12+ Each
Red Ale	тае			
; • 4	296290	Polysiphonia Combination Cystocarps, antheridia, and tetraspores, w.m.	\$16.70	\$16.20
	296296	Porphyra Portion of delicate, silk-like thallus, w.m.	\$6.95	\$6.70
Green .	Algae			
N. N.	296356	Mixed Desmids Both filamentous and solitary forms, w.m.	\$5.95	\$5.70
M	296368	Mixed Green Algae Common forms, w.m.	\$7.85	\$7.60
D	296374	Chara Stonewort, shows sex organs, w.m.	\$7.90	\$7.65
	296386	Chlamydomonas Commonly studied flagellate, w.m.	\$5.95	\$5.70
	296398	Chlamydomonas Commonly studied flagellate, stained to show flagella, w.m.	\$6.50	\$6.25
	296404	Chlorella Non-motile unicellular alga, w.m.	\$6.25	\$6.00
	296476	Hydrodictyon Water net, multinucleate cells that form nets, w.m.	\$6.50	\$6.25
21	296500	Oedogonium Macrandrous Filaments with oogonia and antheridia, w.m.	\$8.35	\$8.10
or Mile	296518	Pandorina Globular colonies of 8, 16, or 32 cells, each cell has 2 flagella, w.m.	\$5.85	\$5.60
250	296542	Scenedesmus Colonies of 4, 8, or 16 cells lined up side by side, w.m.	\$5.85	
	296548	Spirogyra Multiple chloroplasts form, vegetative filaments show cytoplasmic details, w.m.	\$5.95	\$5.70
1	296554	Spirogyra Single chloroplast form, vegetative filaments show cytoplasmic details, w.m.	\$5.80	\$5.55
1)	296560	Spirogyra Scalariform Conjugation Shows vegetative filaments and zygotes, w.m.	\$8.25	\$8.00
. 1 .	296566	Spirogyra Scalariform Conjugation Shows all stages, w.m.	\$12.85	\$12.50
13	296578	Spirogyra Lateral Conjugation Conjugation of adjacent cells in the same filament, w.m.	\$9.35	\$9.10
	296608	Ulva Marine alga, portion of 2-layered thallus,	\$6.50	\$6.25

Microscope Slides

		•				
lmage	Item No.	Name and Description	Each	12+ Each		
Green A	Algae (co	ontinued)				
් ලූග	296620	Volvox, Asexual Stages Colonial flagellate with daughter colonies (asexual stages), w.m.	\$7.75	\$7.50		
	296626	Volvox, Sexual Stages Colonial flagellate with zygotes (sexual stages), w.m.	\$7.30	\$7.05		
	296632	Volvox Colonial flagellate, stained to show flagella, w.m.	\$9.20	\$8.95		
Radiola	rians					
0000	296840	Radiolaria Siliceous shells of various species, w.m.	\$5.95	\$5.70		
Forami	niferan	s				
	296870	Foraminifera Calcareous shells of 1 or more globigerinids, w.m.	\$6.65	\$6.40		
Ciliates						
•	296896	Balantidium coli Cysts Stained to show cilia, nucleus, cyst wall, and contractile vacuoles, smear	\$12.10	\$11.85		
•	296902	Balantidium coli Trophozoites Stained to show cilia, nucleus, cyst wall, and contractile vacuoles, smear	\$12.00	\$11.75		
17	296914	Paramecium Commonly studied ciliate, w.m.	\$5.25	\$5.00		
,	296962	Paramecium caudatum Common ciliate with massive macronucleus and 1 micronucleus, w.m.	\$5.45	\$5.20		
000	297022	Stentor Trumpet-shaped ciliate, w.m.	\$10.25	\$10.00		
2	297040	Vorticella Ciliate with elongated, band-shaped macronucleus, w.m.	\$7.80	\$7.55		
Apicom	plexan	s (sporozoans)				
00 eg	297190	Plasmodium falciparum Causes malignant tertian malaria in humans, in human blood, smear	\$15.40	\$15.15		
Myxom	ycetes ((slime molds)				
	297340	Physarum Plasmodium thin sec.	\$7.55	\$7.30		
Oomyc	etes (wa	iter molds)				
美工	297508	Saprolegnia Shows oogonia, antheridia, and zoosporangia, w.m.	\$7.75	\$7.50		
Thin section	Thin sections: Cut at approximately 2 µm (micrometers) as compared to 5 to 10 µm for					

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

w.m.

Microscope Slides Fungi Slides & Sets



Discovering Mold Types Self-Study Unit

A slide shows conidia of *Aspergillus* and *Penicillium* and sporangia of *Rhizopus*. Includes a self-study card for each organism featuring a labeled photograph and descriptive text.

297674 Each \$14.95



292595 Bacteria, Fungi, and Plants Slide Set

Bacteria, Fungi, and Plants Slide Set

Introduce students to a microscopic exploration of bacteria, fungi, and plants with this expertly prepared set of 24 slides and highly detailed color manual. Students can study life in the 3 kingdoms—exploring concepts of life cycles, metabolism, reproduction, photosynthesis, and more! The manual features labeled color images and illustrations outlining a variety of cells, tissues, and structures. This slide set is a fantastic teaching tool for reinforcing concepts addressed in the manual.

Set includes:

Bacteria Types
Ocillatoria
Rhizopus
Penicillium
Aspergillus
Coprinus Mushroom
Mixed Diatoms
Spirogyra Conjugation
Marchantia Archegoniophore
Marchantia Fern Archegonia
Fern Artheridia

Dicot Leaf Epidermis
Corn Leaf
Smilax Root Monocot
Typical Dicot Root
Corn Stem
Sunflower Stem
Monocot Flower Bud
Mixed Pollen Grains
Pine Older Stem
Pine Young Ovate Cone
Pine Staminate Cone
Equisetum Mature Strobilus

292595 Per set \$174.00



292428 Beginner's Fungi Slide Set

Beginner's Fungi Slide Set

Twelve slides of common saprophytic fungi. Includes examples of phycomycetes (algal-like fungi), ascomycetes (sac fungi), and basidiomycetes (club fungi) that perform the important ecological function of decomposition.

292428 Per set \$76.00



Dictydium from 292922 Slime Molds Slide Set

Slime Molds Slide Set

Includes 5 slides demonstrating the slime mold. Once thought to be closely related to the true fungi, slime molds are now usually classified as protists.

292922 Per set \$36.00



292916 Bacteria and Fungi Slide Set

Lichen Thallus, sec. from 292916 Bacteria and Fungi Slide Set



Bacteria and Fungi Slide

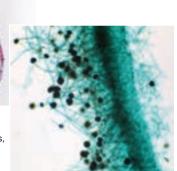
Nine slides demonstrating bacteria and fungi, organisms that were once believed to be closely related but are now classified in separate kingdoms. Bacteria slides include bacteria types, bacterial flagella, and nitrogen-fixing bacteria. Fungi slides include *Rhizopus*, lichen, cup fungus, yeast, mushroom, and wheat rust.

292916 Per set \$78.75



292588 Botany Study Set

Moss Archegonial Head, I.s. (above) and Aspergillus Conidiophores, w.m. (right) from 292588 Botany Study Set



Botany Study Set

This slide set is designed to fit various levels of instruction. It covers the 4 kingdoms (monerans, protists, fungi, and plants) included in the study of botany. Set includes 100 slides. An excellent resource for instruction at the college level.

292588 Per set \$682.00

Fungi Slides & Sets

Image	Item No.	Name and Description	Each	12+ Each
Fun	gi			
Basic Fu		des		
# \	297656	Mold Types Penicillium, Aspergillus, and Rhizopus on the same slide, w.m.	\$12.15	\$11.90
	301952	Endotrophic Mycorrhiza Cross section of an orchid root showing symbiotic fungal hyphae, c.s., 12 µm	\$7.55	\$7.30
	301964	Ectotrophic Mycorrhiza Sections of young roots showing symbiotic fungal hyphae, sec., 12 μm	\$7.35	\$7.10
Chytrid	iomyce	tes		
· 并 · · ·	297406	Allomyces Gametophyte Haploid stage, w.m.	\$7.30	\$7.05
NO.	297412	Allomyces Sporophyte Diploid stage, w.m.	\$7.50	\$7.25
Zygomy	cetes			
	297770	Rhizopus Sporangia Sporangiophores and rhizoids of bread mold, w.m.	\$7.15	\$6.90
*	297776	Rhizopus Conjugation Mature zygotes, w.m.	\$7.25	\$7.00
	297782	Rhizopus Combination Sporangia and zygotes on the same slide, w.m.	\$9.25	\$9.00
	297794	Rhizopus Developing Zygospores Zygospores with suspensors, thin sec.	\$9.35	\$9.10
Ascomy	cetes (s	sac fungi)		
	297872	Aspergillus Conidiophores Brown mold, w.m.	\$6.25	\$6.00
1	297884	Aspergillus Cleistothecia Brown mold, sec., 12 μm	\$6.25	\$6.00
A. A.	297968	Penicillium Blue mold, mycelium and conidiophores with conidia, w.m.	\$7.15	\$6.90
	297974	$ \begin{array}{l} \textbf{Penicillium} \\ \textbf{Blue mold, mycelium and conidiophores on citrus fruit, sec., } 10–12~\mu m \end{array} $	\$6.95	\$6.70
DESTRUCTION OF THE PERSON OF T	297980	Cup Fungus Apothecium Peziza or related form showing asci containing ascospores, sec., 12 µm	\$6.85	\$6.60
,a.	297992	Saccharomyces Budding Cells Yeast asexual reproduction, w.m.	\$5.60	\$5.35
2	298010	Budding Yeast Mixed species, yeast asexual reproduction, w.m.	\$6.75	\$6.50
80	298022	Sordaria fimicola Shows perithecia with spores on agar, not intended for spore counts, l.s., 12 μm	\$6.70	\$6.45

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
Basidio	mycete	s (club fungi)		
	298176	Coprinus Mushroom Pileus and gills showing basidia and spores, c.s., 12 μm	\$7.30	\$7.05
Mo	298188	Coprinus Mushroom Shows pileus and basidia, l.s., 10 μm	\$8.20	\$7.95
Δ_{i}	298212	Lycoperdon Puffball Section of fruit body showing enclosed basidial layers, sec., 12 μm	\$6.60	
1	298224	Puccinia graminis Uredia Wheat rust, shows uredia and uredospore, sec., 12 µm	\$7.95	\$7.70
	298236	Puccinia graminis Aecia Wheat rust on barberry leaf, c.s., 12 μm	\$9.00	
Deutero	mycete	es (imperfect fungi)		
	298412	Candida albicans Shows yeast-like conidia, causes candidiasis or a yeast infection, w.m.	\$8.80	\$8.55
Lichens	5			
	298470	Lichen Teased to show algal cells and fungal hyphae, maceration	\$6.40	\$6.15
A POPULATION OF THE PARTY OF TH	298476	Lichen Thallus Shows algal cells surrounded by fungal hyphae, c.s., 12 µm	\$6.40	\$6.15
11.50	298488	Lichen Ascocarps Shows asci with ascospores, sec., 12 μm	\$7.35	\$7.10

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.



See our selection of living fungi cultures on pages 60–62.

Microscope Slides Plant Slides & Sets

Mixed Pollen Grains, w.m. (left) and Buttercup Root, c.s. (right) from 292416 Beginner's Plant Slide Set

Beginner's Plant Slide Set

Twelve slides selected to give an introductory survey of plant parts and tissues. Includes a study guide to help students learn some of the differences between the 2 major groups of flowering plants and about plant growth and reproduction.

292416 Per set **\$85.00**

Plant Slides & Sets



292102 Discovering Plant Cells Self-Study Unit

Discovering Plant Cells Self-Study Unit

Set includes slides of the 2 most commonly studied examples of plant cells (onion bulb epidermis and privet leaf). Also includes a self-study card for each slide featuring a labeled photograph and background information.

292102 Each \$13.15



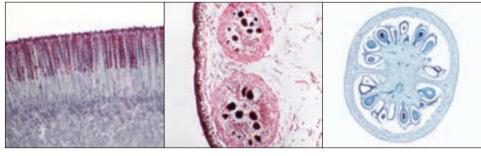
292200 Plant Diversity Student Slide Set for AP Biology

Plant Diversity Slide Set for AP® Biology

This set introduces students to the diversity of plant life through informational text, labeled images, and examination of microscope slides. Students gain an understanding of the evolutionary development of plants and diversity within the plant kingdom through the study of plant life cycles, reproductive structures, and structural adaptations. The **Student Set** includes 9 slides of representative species from different divisions of the plant kingdom, a color image booklet, and a teacher's manual with reproducible student sheets. The **Classroom Set** contains 6 sets of the 9 slides, 6 color image booklets, and a teacher's manual for use in a class of up to 24 students working in groups of 4.

292200 Student Set Each **\$72.00 292201** Classroom Set Each **\$420.00**

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Cup Fungus Apothecium, sec., Fucus Monoecious Conceptacle, sec., and *Lycopersicum*, c.s. from 292588 Botany Study Set

Botany Study Set

This slide set is designed to fit various levels of instruction. It covers the 4 kingdoms (monerans, protists, fungi, and plants) included in the study of botany. Set includes 100 slides. An excellent resource for instruction at the college level.

292588 Per set \$682.00

Plant Anatomy Identification Slide Set

Students become plant detectives while learning about basic plant structure. They study slides of different plant parts (roots, stems, leaves, and flowers) and use the knowledge gained to identify the part represented on a "mystery" slide. These sets are valuable tools to help students improve their observation and problem-solving skills. Each includes teacher's manual. Classroom Set includes 8 Student Sets and access to complementary digital resources on CarolinaScienceOnline.com.

293226 Classroom Set with Digital Resources Each \$310.00 293225 Student Set Each \$41.00



293226 Plant Anatomy Identification Classroom Slide Set

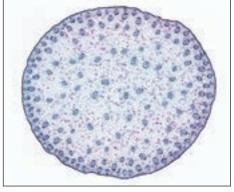


Orchid Aerial Root, w.m. from 293202 Root Slide Set

Root Slide Set

Twelve slides selected to explore the various forms and functions of the root. Root structure is demonstrated in pteridophyte, gymnosperm, and angiosperm plants. Other topics covered by the set include lateral root origin, root hairs, mycorrhizae, mitosis in root tips, and comparison of air, water, and soil roots.

293202 Per set \$94.00

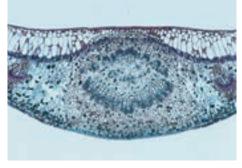


Corn Stem, c.s. from 293208 Stem Slide Set

Stem Slide Set

Five slides showing basic stem structure in flowering plants. Illustrates the differences between monocots and dicots as well as herbaceous and woody stems.

293208 Per set \$40.00



Rubber Tree Leaf, c.s. from 293214 Leaf Slide Set

Leaf Slide Set

Twelve slides showing leaf structure in flowering plants. Illustrates the differences between monocots and dicots as well as hydrophytic, mesophytic, and xerophytic leaves.

293214 Per set \$86.00

Flowers, Fruits, and Seed Slide Set

Twenty-five slides demonstrating the form, structure, and variability in reproductive structures of flowering plants. Includes both cross and longitudinal sections of several floral patterns. Fruit types illustrated are berry, capsule, pepo, and pome. Several types of seed demonstrate embryonic structures. Includes examples of both monocots and dicots. An excellent resource for instruction at the college level.

293220 Per set \$189.00



Shepherd's Purse (Capsella) Mature Embryo, I.s. from 293220 Flowers, Fruits, and Seed Slide Set

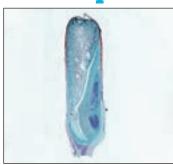


Discovering Onion Mitosis Self-Study Unit

Slide shows all stages of mitosis. Unit includes a self-study card featuring labeled photographs and descriptive text.

302504 Each \$14.95



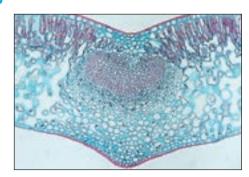


Corn Grain, I.s. from 292458 Beginner's Monocot Slide Set

Beginner's Monocot Slide Set

Six slides demonstrating the basic form and structure of monocot plants. Includes sections of typical root, root tip, stem, leaf, flower, and embryo. With study sheet.

292458 Per set \$41.75



Typical dicot leaf from 292452 Beginner's Dicot Slide Set

Beginner's Dicot Slide Set

Five slides demonstrating the basic form and structure of dicot plants. Includes sections of typical root, stem, leaf, flower, and embryo. With study sheet.

292452 Per set \$35.00

Plant Slides & Sets

Monocot and Dicot Comparison Slide Set with Digital Resources

Includes 12 slides and accompanying digital resources. Slides of roots, stems, leaves, leaf epidermises, flower buds, and seed complement images accessed on CarolinaScienceOnline.com. A great tool for helping students understand the differences and similarities

between these 2 groups of flowering plants.

292610 Per set **\$147.00**





301910 Discovering Monocot and Dicot Roots Self-Study Unit

Discovering Monocot and Dicot Roots Self-Study Unit

Slide shows typical monocot (carrion flower) and dicot (buttercup) roots. Unit includes a self-study card for each featuring labeled photograph and descriptive text.

301910 Each \$14.20

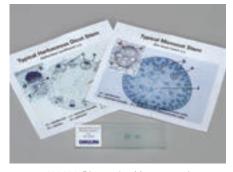


303508 Discovering Monocot and Dicot Leaves Self-Study Unit

Discovering Monocot and Dicot Leaves Self-Study Unit

Slide shows typical monocot (corn) and dicot (privet) leaves. Unit includes a self-study card for each featuring a labeled photograph and descriptive text.

303508 Each \$14.20

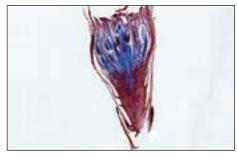


302684 Discovering Monocot and Dicot Stems Self-Study Unit

Discovering Monocot and Dicot Stems Self-Study Unit

Slide shows typical monocot (corn) and dicot (sunflower) stems. Unit includes a self-study card for each featuring a labeled photograph and descriptive text.

302684 Each \$14.20



Moss Antheridial Head, I.s. from 292434 Beginner's Moss Life Cycle Slide Set

Beginner's Moss Life Cycle Slide Set

Four slides demonstrating basic stages in the moss life cycle. Includes slides showing protonema, antheridial head, archegonial head, and sporophyte. With study sheet.

292434 Per set \$29.75



293032 Moss Life Cycle Slide Set

Moss Life Cycle Slide Set

Eleven slides selected to give an in-depth demonstration of the moss life cycle. The form and structure of both gametophyte and sporophyte stages are well represented in this set. With study sheet.

293032 Per set \$89.00



Pine Ovulate Cone, I.s. from 293045 Pine Life Cycle Slide Set

Pine Life Cycle Slide Set

This set of 12 slides demonstrates the vegetative and reproductive organs of pine. Contains examples of root, stem, leaf, staminate cone, ovulate cone, and embryo. Includes study guide.

293045 Per set \$84.00

Plant Slides & Sets



Pteridium Rhizome, c.s. from 292440 Beginner's Fern Life Cycle Slide Set

Beginner's Fern Life Cycle Slide Set

Four slides showing basic stages in the fern life cycle. Includes gametophytes with antheridia and archegonia, young sporophyte, leaflet with indusium, and rhizome. With study sheet.

292440 Per set \$35.50

Image	Item No.	Name and Description	Each	12+ Each				
Plan	Plants							
Basic P	lant Slic	les						
	301699	Typical Animal and Plant Cells Section of <i>Amphiuma</i> liver and lilac leaf mounted together for comparison, sec., Q	\$11.35	\$11.10				
	294800	Prokaryotic and Eukaryotic Cells Nostoc (w.m.) and Amphiuma liver (sec.) mounted together for comparison	\$10.10	\$9.85				
063	302396	Onion Mitosis Most popular mitosis slide, <i>Allium</i> root tips, all mitotic stages, l.s., 10 µm, IH&OG	\$9.05	\$8.80				
	301700	Typical Plant Cells Shows nuclei, cytoplasm, and cell walls without chloroplasts, w.m.	\$6.40	\$6.15				
	301706	Typical Plant Cells Lilac leaf, shows nuclei, cytoplasm, cell walls, and chloroplasts, thin sec.	\$7.95	\$7.70				
	301730	Cork Cells Stem section, c.s., 12 µm	\$7.15	\$6.90				
	301736	Collenchyma Tissue Water lily leaf petiole, c.s., 12 µm	\$7.15	\$6.90				
	302366	Narcissus Mitochondria Root tip, l.s., 10 μm	\$11.60	\$11.35				

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Key to Stains:

IH&OG, Iron Hematoxylin and Orange G; Q, Quadruple.

Microscope Slides



292111 Typical Animal and Plant Cells Classroom Slide Set

Typical Animal and Plant Cells Slide Set

Five slides demonstrating the basic similarities and differences between animal and plant cells. Includes human cheek cells, *Amphiuma* liver, cork, onion bulb epidermis, and privet leaf. The **Student Set** includes 5 slides and a teacher's manual with reproducible student guide. The **Classroom Set** contains 8 each of the 5 slides plus teacher's manual with reproducible student guide. Both sets include FREE 1-year access to digital resources that support 3-dimensional instruction.

292112 Student Set Each **\$28.85 292111** Classroom Set Each **\$222.00**

Image	Item No.	Name and Description	Each	12+ Each
Liverwo	orts			
V	298698	Marchantia Thallus Shows air chambers, pores, and rhizoids, c.s., 12 µm	\$6.15	\$5.90
Ne	298716	Marchantia Gemma Cup Thallus with attached cupule containing gemmae, 12 μm	\$7.65	\$7.40
2	298722	Marchantia Antheridiophore With antheridial chambers and antheridia, I.s., 12 µm	\$7.45	\$7.20
7	298752	Marchantia Archegoniophore With portion of neck and venter with egg, I.s., 12 µm	\$8.25	\$8.00
	298776	Marchantia Sporophyte Shows spores and elaters, l.s., 12 μm	\$7.40	\$7.15
Mosses				
被	298900	Moss Protonema Polytrichum, early filamentous stage of moss gametophyte, w.m.	\$5.70	\$5.45
delica	299086	Moss Capsule <i>Polytrichum</i> , sporophyte, l.s., 12 μm	\$7.25	\$7.00
0	299098	Moss Capsule Polytrichum, sporophyte, shows columella and spores, median l.s., 12 µm, Q	\$17.45	
1	298986	Moss Antheridia and Archegonia Mnium, mounted together on 1 slide, w.m.	\$18.60	
-	298992	Moss Antheridial Head <i>Polytrichum</i> , shows antheridia, l.s., 12 μm	\$6.55	\$6.30
ing	299016	Moss Antheridial Head Mnium, shows antheridia, l.s., 12 μm	\$6.50	\$6.25
46	299028	Moss Archegonial Head Mnium, with egg, venter, and stalk, l.s., 12 μm	\$10.95	\$10.70

See more plant slides on the next page.

lmage	Item No.	Name and Description	Each	12+ Each
Ferns				
- 44 6	299230	Fern Prothallium Filamentous young gametophyte, w.m.	\$5.55	\$5.30
	299290	Fern Antheridia and Archegonia Mounted together, selected prothallia, w.m.	\$12.55	\$12.15
1	299248	Fern Antheridia Prothallium, w.m.	\$7.55	\$7.30
4	299272	Fern Archegonia Prothallium, w.m.	\$7.90	\$7.65
*	299356	Fern Young Sporophyte Showing root and leaf, on prothallium, w.m.	\$10.10	\$9.85
	299410	Fern Root <i>Pteridium</i> , shows stele surrounded by sclerenchyma, sec., 12 μm	\$7.30	
	299434	Pteridium Rhizome Mesarch dissected stele, c.s., 12 µm	\$6.80	\$6.55
	299500	Fern Sori Showing sporangia and portion of leaf with attached sori, w.m.	\$8.00	\$7.75
	299518	Fern Sporangia, Mature Leaflet, c.s., 12 μm	\$6.75	\$6.50
04	299524	Fern Indusium Leaflet showing indusium with attached stalk and sporangia, 12 μm	\$7.50	\$7.25
Fern All	lies			
(3)	299176	Psilotum Aerial Stem Whisk fern stem, c.s., 12 μm	\$7.20	\$6.95
O.	299182	Psilotum Sporangium Whisk fern, 3-lobed structure with spores, c.s., 12 μm	\$7.50	\$7.25
	299740	Equisetum Mature Strobilus Horsetail fern, shows central axis, sporangiophores, and spores, l.s., 12 μm	\$6.85	\$6.60
	299818	Lycopodium Stem Club moss, c.s., 12 μm	\$6.70	
C S	299836	Lycopodium Strobilus Club moss, shows sporangia and spores, I.s., 12 µm	\$8.05	\$7.80
1	299878	Selaginella Strobilus Shows microspores and megaspores, I.s., 12 µm	\$10.15	\$9.90
	299974	Zamia Young Ovule Shows integument, nucellus, female gametophyte of a cycad, l.s., 12 μm	\$6.55	

Would You Like Slides with That?

No matter how you serve up your instruction, prepared slides can add extra flavor to students' learning experiences. See all of our microscope slides at Carolina.com.

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Image	Item No.	Name and Description	Each	12+ Each
Gymno	sperms	(pines)		
1893	301016	Ginkgo Leaf Maidenhair tree, a living fossil, c.s., 12 μm	\$6.90	
	301226	Pine Root Pinus mature root showing growth rings, c.s., 12 µm	\$6.90	
	301280	Pine Meristematic Stem Young stem with active cambium, c.s., 12 μm	\$7.45	
and a	301298	Pine Older Stem Mature stem showing growth rings, c.s., 12 μm	\$7.20	\$6.95
	301304	Pine Stems Young and older stems mounted on 1 slide, c.s., 12 μm	\$10.20	
40	301376	Pine Two-Needle Leaf Shows vascular tissues, mesophyll, epidermis, and resin canals, c.s., 12 µm	\$7.50	\$7.25
	301448	Pine Mature Pollen Stained to show prothallial cells and tube nucleus, w.m.	\$5.45	\$5.20
* 0	301484	Pine Cones Male and young female cones mounted on 1 slide, I.s., 12 μm	\$9.95	\$9.70
	301430	Pine Young Staminate Cone Shows young cone with sporogenous tissue, I.s., 12 µm	\$7.10	
	301436	Pine Staminate Cone Shows mature pollen, I.s., 12 μm	\$6.45	\$6.20
-	301460	Pine Young Ovulate Cone First summer, shows young ovules, l.s., 12 μm	\$7.30	\$7.05
*	301478	Pine Ovulate Cone Second summer, shows ovuliferous scales and bracts, l.s., 12 μm	\$7.40	\$7.15
00	301520	Pine Ovule Female gametophyte, shows archegonium with egg nucleus, l.s., 12 μm	\$9.65	
0	301616	Pine Mature Embryo Shows embryo embedded in female gametophyte, I.s., 12 µm	\$9.10	

Customer Review

"I ordered cheap mitosis slides from another company and received slides that could be made to do in a pinch, but were difficult for students to use to find all the stages of mitosis. I realized I should have ordered from Carolina as I usually did. I re-ordered from Carolina and received top-quality slides that had been quality-checked by someone who obviously knew what they were doing. I've been using Carolina's slides for years and have learned to go for the quality first. It saves time and money in the end!"

High School Teacher

Plant Slides & Sets

lmana	Item	Name and Description	Feeb	12+ Feeb
Image Angios	No.	Name and Description	Each	Each
Basic Re		AS		
Dasie K	301892	Typical Monocot and Dicot Roots Carrion flower and buttercup mounted together for comparison, c.s., 12 µm	\$9.15	\$8.90
	301898	Dicot and Monocot Roots Buttercup and corn mounted together for comparison, c.s., 12 µm	\$9.25	\$9.00
	302480	Smilax Root Typical monocot root anatomy, c.s., 12 μm	\$7.45	\$7.20
0	301880	Typical Dicot Root <i>Ranunculus</i> (buttercup), c.s., 12 μm	\$6.40	\$6.15
(A	301940	Lateral Root Origin Shows origin of branch root from pericycle, c.s., 12 µm	\$8.80	\$8.55
	301952	Endotrophic Mycorrhiza Cross section of an orchid root showing symbiotic fungal hyphae, c.s., 12 µm	\$7.55	\$7.30
	301964	Ectotrophic Mycorrhiza Sections of young roots showing symbiotic fungal hyphae, sec., 12 μm	\$7.35	\$7.10
	301976	Legume Nodule Root nodule of leguminous plant with nitrogen-fixing bacteria, c.s., 12 μm	\$6.25	\$6.00
	302498	Root Hairs Root tip showing root hairs, w.m.	\$11.85	\$11.60
Monoco	ot Roots	;		
	302480	Smilax Root Typical monocot root anatomy, c.s., 12 μm	\$7.45	\$7.20
Carried States	302300	Corn Prop Root <i>Zea</i> , typical monocot root anatomy, c.s., 12 μm	\$6.15	\$5.90
	302312	Corn Root Tip <i>Zea</i> , shows root cap, meristem, and region of elongation, l.s., thin sec.	\$7.80	\$7.55
	302330	Elodea Root Shows lack of conducting tissues in an aquatic plant, c.s., 12 μm	\$6.75	
	302372	Onion Root Tip Allium, shows general structures, c.s., 10 µm	\$6.95	\$6.70
V	302378	Onion Root Tip Allium, shows general structures, l.s., 10 µm	\$7.40	\$7.15
1	302384	Onion Root Tip Allium, shows general structures with superior fixation, l.s., thin sec.	\$9.00	\$8.75
	302390	Onion Mitosis Allium, root tips showing polar view of mitosis, c.s., 10 µm, IH&OG	\$9.90	\$9.65
000	302396	Onion Mitosis Most popular mitosis slide, <i>Allium</i> root tips, all mitotic stages, I.s., 10 µm, IH&OG	\$9.05	\$8.80
	302408	Onion Mitosis Allium, root tip showing all stages of mitosis, l.s., 10 μ m, Q	\$10.40	\$10.15

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each			
Angios	perms (continued)					
Monoc	Monocot Roots (continued)						
	302414	Onion Mitosis Allium, root tip with superior fixation, all mitotic stages, l.s., thin sec.	\$24.75				
	302432	Onion Mitosis Allium root tip, shows all mitotic stages, squash mount, F	\$15.60				
(0)	302474	Orchid Aerial Root Shows velamen, c.s., 12 μm	\$6.90				
7-1	302366	Narcissus Mitochondria Root tip, I.s., 10 μm	\$11.60	\$11.35			
Dicot R	oots						
0	301880	Typical Dicot Root <i>Ranunculus</i> (buttercup), c.s., 12 μm	\$6.40	\$6.15			
0	302090	Buttercup Mature Root Ranunculus, shows vascular tissues, endodermis, and cortex, c.s., 12 µm	\$7.15	\$6.90			
0	302072	Basswood Root Tilia, shows structure of woody dicot root, c.s., 12 µm	\$6.05				
0	302114	Buttercup Young and Mature Roots <i>Ranunculus</i> , mounted together for comparison, c.s., 12 µm	\$8.90	\$8.65			
*	302126	Carrot Taproot Daucus, shows storage tissues, c.s., 12 μm	\$6.65				
	302150	Sunflower Root <i>Helianthus</i> , c.s., 12 μm	\$7.30	\$7.05			

Key to Stains:

 $\textbf{F}, \, \text{Feulgen}; \, \textbf{IH\&OG}, \, \text{Iron Hematoxylin and Orange G; } \, \textbf{Q}, \, \text{Quadruple}.$

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Discovering Monocot and Dicot Roots Self-Study Unit

Slide shows typical monocot (carrion flower) and dicot (buttercup) roots. Unit includes a self-study card for each featuring labeled photograph and descriptive text.

301910 Each \$14.20



301910 Discovering Monocot and Dicot Roots Self-Study Unit

See more plant slides on the next page.

MIC.	103	cope straes			
Image	Item No.	Name and Description	Each	12+ Each	
Angios	perms (continued)			
Basic Stem Slides					
9 0	302642	Typical Monocot and Dicot Stems Sunflower and corn mounted together for comparison, c.s., 12 µm	\$9.05	\$8.80	
0	303296	Corn Stem <i>Zea</i> , typical monocot stem, c.s., 12 μm	\$7.20	\$6.95	
0	303092	Sunflower Stem <i>Helianthus</i> , typical herbaceous dicot stem, c.s., 12 µm	\$6.85	\$6.60	
• ()	302660	Herbaceous and Woody Dicot Stems Sunflower and basswood mounted together for comparison, c.s.	\$9.55	\$9.30	
	302678	Abscission Layer Stem and attached leaf petiole showing region of separation, l.s., 12 μm	\$6.90		
Monoco	ot Stems	s			
0	303296	Corn Stem <i>Zea</i> , typical monocot stem, c.s., 12 μm	\$7.20	\$6.95	
111 0	303314	Corn Stem <i>Zea</i> , typical monocot stem, c.s and l.s. mounted together, 12 μm	\$9.85	\$9.60	
	303332	Elodea Stem Shows stem of aquatic plant, c.s., 12 μm	\$6.55		
Dicot St	tems				
0	303092	Sunflower Stem <i>Helianthus</i> , typical herbaceous dicot stem, c.s., 12 µm	\$6.85	\$6.60	
0	302870	Buttercup Stem <i>Ranunculus</i> , c.s., 12 μm	\$6.25	\$6.00	
The same of the sa	302780	Alfalfa Stem <i>Medicago</i> , c.s., 12 μm	\$6.55	\$6.30	
0	302822	Basswood Three-Year Stem <i>Tilia</i> , typical woody dicot stem, c.s., 12 μm	\$6.85	\$6.60	
° 0	302840	Basswood Stem Combination <i>Tilia</i> , 1-yr, 2-yr, 3-yr, and older stems on the same slide, c.s., 12 μm	\$12.50	\$12.25	
(A)	302912	Coleus Stem Tip Shows apical meristem, l.s., 12 μm	\$6.70	\$6.45	
1	302918	Coleus Stem Tip Apical meristem with leaf and axillary bud primordia, median l.s., 12 μm	\$10.45	\$10.20	
為終	302978	Elderberry Lenticel Sambucus stem showing cambium, cork, and lenticel, c.s., 12 µm	\$6.15		
0	302984	Geranium Older Stem <i>Pelargonium</i> , shows cork formation, c.s., 12 μm	\$6.70		
	303062	Pumpkin Stem <i>Cucurbita</i> , shows sieve plates, c.s., 12 μm	\$6.60	\$6.35	
-	303068	Pumpkin Stem Cucurbita, shows sieve plates, l.s., 12 μm	\$7.50		

Image	Item No.	Name and Description	Each	12+ Each
Angios	perms (continued)		
Basic L	eaf Slide	es		
	303514	Typical Monocot and Dicot Leaves Corn and privet mounted together for comparison, c.s., 12 µm	\$9.25	\$9.00
/	304054	Corn Leaf <i>Zea</i> , typical monocot leaf, c.s., 12 μm	\$6.15	\$5.90
	303838	Privet Leaf Ligustrum, typical mesophytic dicot leaf, c.s., 12 µm	\$7.40	\$7.15
1)	303520	Dicot Leaf Types Hydrophytic (water lily), mesophytic (privet), xerophytic (rubber tree), c.s.	\$13.35	\$13.10
Leaf Ep	idermis	3		
. =	303668	Monocot and Dicot Leaf Epidermis Mounted together for comparison, w.m.	\$9.50	\$9.25
	303680	Onion Bulb Epidermis Allium, monocot, shows nuclei and cell walls without chloroplasts, w.m.	\$5.95	\$5.70
	303650	Dicot Leaf Epidermis Sedum, dicot, shows stomata with guard cells encircled by subsidiary cells, w.m.	\$7.05	\$6.80
	303662	Monocot Leaf Epidermis Onion (Allium), monocot, shows stomata arranged in rows, w.m.	\$6.95	\$6.70
0.0	303674	Lilium, monocot, w.m.	\$7.50	\$7.25
XXXX	303692	Spiderwort Leaf Epidermis <i>Tradescantia</i> , shows trichomes, w.m.	\$6.60	\$6.35
Monoc	ot Leave	es		
	304054	Corn Leaf <i>Zea</i> , typical monocot leaf, c.s., 12 μm	\$6.15	\$5.90
	304042	Beach Grass Leaf Xerophytic monocot leaf, c.s., 12 μm	\$6.40	
	304072	Elodea Leaf Simple hydrophytic monocot leaf of an aquatic plant, c.s., 12 μm	\$7.15	
	304066	Elodea Leaf Simple hydrophytic monocot leaf of an aquatic plant, w.m.	\$6.25	\$6.00
5	304108	Wheat Leaf Triticum, typical mesophytic monocot leaf, c.s., 12 µm	\$6.70	
000	304114	Yucca Leaf Xerophytic monocot leaf, c.s., 12 μm	\$6.85	

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Plant Slides & Sets

Microscope Slides Item **Image Name and Description** Each Each No. **Angiosperms (continued)** Flowers (continued) 304562 Lily Anther Meiosis \$10.25 \$10.00 Lilium, first meiotic (heterotypic) division, c.s., 12 µm, Q **Lily Anther Meiosis** 304568 \$12.65 \$12.40 Lilium, second meiotic (homotypic) division, c.s., 12 µm, Q **Lilv Anther Pollen Tetrads** 304574 \$8.85 \$8.60 Lilium, 4 haploid daughter cells, c.s., 12 μm, Q 304586 Lily Anther Mature Pollen Grains \$6.50 \$6.25 Lilium, c.s., 12 µm 304616 **Lily Pollen Tubes** \$8.00 \$7.75 Lilium, stigma and style showing pollen tubes, l.s., 10 μm 304622 Lily Ovulary \$6.60 \$6.35 Lilium, general structure, c.s., 12 µm 304652 Lily Ovulary \$14.65 Lilium, first 4-nucleate stage, shows 4 haploid megaspores, c.s., 12-20 µm Lily Ovulary 304688 \$26.30 Lilium, mature female gametophyte with 7-8 nuclei in series of sections, c.s. Fruits & Seeds 304864 Persimmon Endosperm \$10.65 \$10.40 Diospyros, demonstrates plasmodesmata, l.s., 12 μm 304888 **Shepherd's Purse Mature Embryo** \$7.35 \$7.10 Capsella, I.s., 12 µm 304900 **Tomato Fruit** \$6.50 Lycopersicum, young fruit, shows typical berry, c.s., 12 µm 305090 Corn Grain \$8.00 \$7.75 Zea, shows embryo, I.s., 12 μm 305103 Lily Fruit \$6.95 Lilium, shows embryo, c.s., 12 µm 305114 **Wheat Grain** \$7.00 Triticum, shows endosperm, aleurone layer, and grain coat, c.s., 12 µm Woods **Wood Types Comparison** 305600 \$13.05 \$12.80 Pine, oak, and basswood mounted together for comparison, c.s., 15 µm White Pine Wood 305246 \$11.75 \$11.50

Pinus strobus, softwood, cross, radial, and

Quercus alba, ring-porous wood, cross, radial, and tangential sections, 15 µm

Tilia americana, porous wood, cross, radial,

tangential sections, 15 µm

White Oak Wood

American Basswood

and tangential sections, 15 µm

305504

305528

lmage	Item No.	Name and Description	Each	12+ Each
Angios	perms (continued)		
Dicot L	eaves			
=	303520	Dicot Leaf Types Hydrophytic (water lily), mesophytic (privet), xerophytic (rubber tree), c.s.	\$13.35	\$13.10
~	303556	Sun and Shade Leaves Leaves from different light intensities mounted for comparison, c.s., 12 µm	\$9.05	
	303790	Lilac Leaf <i>Syringa</i> , mesophytic leaf, c.s., 12 μm	\$7.35	\$7.10
	303808	Dicot Leaf Paradermal Lilac, shows epidermis, pallisade, and spongy mesophyll, thin sec.	\$9.30	
0	303814	Maple Leaf <i>Acer</i> , mesophytic leaf, c.s., 12 μm	\$6.50	\$6.25
-	303826	Oleander Leaf <i>Nerium</i> , xerophytic, shows sunken stomates, epidermises, cuticle, c.s., 12 μm	\$6.55	\$6.30
	303838	Privet Leaf <i>Ligustrum</i> , typical mesophytic dicot leaf, c.s., 12 µm	\$7.40	\$7.15
	303862	Rubber Tree Leaf <i>Ficus</i> , xerophytic dicot leaf, c.s., 12 μm	\$6.45	
and the second	303886	Venus Flytrap Leaf Dionaea, shows digestive glands of carnivorous plant, c.s., 12 µm	\$6.70	
	303892	Water Lily Leaf Nymphaea, hydrophytic, shows air spaces and stellate sclerids, c.s., 12 μm	\$6.60	
Flowers	;			
	304258	Typical Monocot and Dicot Flower Buds Lily (monocot) and <i>Brassica</i> (dicot) mounted together, c.s., 12 μm	\$9.25	
	304520	Typical Monocot Flower Bud Lily, c.s., 12 μm	\$6.90	\$6.65
	304358	Typical Dicot Flower Bud <i>Brassica</i> , c.s., 12 μm	\$6.70	\$6.45
660	304382	Dandelion Floral Head <i>Taraxacum</i> , shows a composite floral head, l.s., 12 μm	\$8.25	
	304264	Mixed Pollen Grains Various kinds with multiple stains, w.m.	\$6.10	\$5.85
	304276	Pollen Tubes Mixed species, germinating pollen, w.m.	\$10.45	\$10.20
	304270	Germinated Pollen Mature male gametophyte with pollen tube nucleus and 2 sperm nuclei, w.m.	\$8.95	\$8.70
88	304532	Liliy Anther <i>Lilium</i> , general structure, c.s., 12 μm	\$6.60	\$6.35

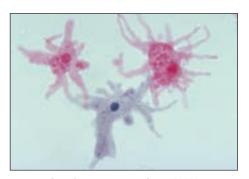
Key to Stains: ${\bf Q}$, Quadruple.

\$14.00 \$13.75

\$10.60

Microscope Slides Animal Slides & Sets

Animal Slides & Sets



Amoeba proteus, w.m. from 293466 Beginner's Zoology Set



Set of 12 slides including *Amoeba, Parame-cium,* hydra, planaria, *Daphnia,* house fly leg, house fly wing, flea, ant, insect cornea, fish scale, and feather. With teacher's manual.

293466 Per set \$75.00

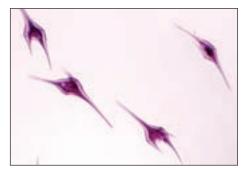


293568 Basic Zoology Survey Slide Set

Basic Zoology Survey Slide Set

This set of 50 slides provides a basic selection for the study of zoology at the junior high/middle school level and above. Includes representatives of the protists through the vertebrates.

293568 Per set \$367.00



Dinoflagellates, w.m. from 293574 Comprehensive Zoology Survey Slide Set

Comprehensive Zoology Survey Slide Set

Includes examples from the protist and animal kingdoms. A comprehensive set of 100 slides, excellent for use in high school and college studies of zoology and biology.

293574 Per set \$790.00



292104 Discovering Animal Cells Self-Study Unit

Discovering Animal Cells Self-Study Unit

Set includes slides of the 2 most commonly studied examples of animal cells (human cheek cells and *Amphiuma* liver). Also includes a self-study card for each slide featuring a labeled photograph and background information.

292104 Each \$13.50



293465 Animal Body Plan Slide Set

Animal Body Plan Slide Set

Explore different animal body plans with this 7-slide set. It includes examples of multicellular, radial, bilateral acoelomate, pseudocoelomate, protostome, and deuterostome body plans.

293465 Per set \$64.00

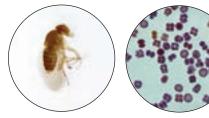


Rhipicephalus, w.m. from 293519 Don't Bug Me Slide Set

Don't Bug Me Slide Set

A set of 6 slides designed to introduce the beginning student to some of the most commonly encountered 6- and 8-legged "bugs." Includes tick, ant, and our choice of other insects and arachnids.

293519 Per set \$46.50

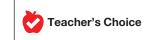


Drosophila, w.m. and Starfish Development, w.m. from 293562 Zoology Slide Set

Zoology Slide Set

A comprehensive set of 25 slides suitable for use in beginning zoology courses.

293562 Per set \$163.00





319900 Carolina Introduction to Microscopy Mat

Carolina® Introduction to Microscopy Mat

This double-sided, durable vinyl mat can effectively introduce your students to microscopy and slide-making techniques. A basic compound microscope is shown on the front; parts are labeled and functions are defined. Clear, concise instructions inform students how to properly focus and magnify specimens. The back features microscope care information and tips, along with the formula for calculating total magnification. Generalized instructions step students through making a dry mount, a wet mount, and using a simple stain; images of each type of slide are shown. Use the mat year after year—it resists spills and wipes clean easily. Size, 11 \times 17".

319900 Each **\$8.50** 10+ Each **\$7.50**

Animal Slides & Sets

General Parasitology Slide Set

A set of 19 microscope slides for parasitology, general zoology, and biology courses. Includes examples of pathogenic protozoa, parasitic worms, and tick and insect vectors of disease.

293708 Per set \$257.00



Tick from 293708 General Parasitology Slide Set



293726 Medical Parasitology Slide Set

Medical Parasitology Slide Set

A comprehensive survey set of 65 microscope slides of human parasites from protozoans to insect vectors. An excellent resource for instruction at the college level.

293726 Per set \$884.00

Microscope Slides



Flea from 293690 Hitchin' a Ride Slide Set

Hitchin' a Ride Slide Set

Parasitology studies the relationships between parasites and their host organisms. A parasite completes at least part of its life cycle on or inside its host, living at the host's expense or harming it in some way. This set of 8 slides contains fairly common parasites, many of which may already be familiar to students. Includes tick, flea, louse, bedbug, fluke, pinworm, hookworm, a segment of tapeworm, and a study guide.

293690 Per set \$86.00

Customer Review

"My microbiology students love these slides. I created a lab exercise to go along with these slides for our parasitology chapter."

University Biology Professor



293521 Let's Eat! Slide Set

Let's Eat! Slide Set

Insect mouth parts come in 2 basic varieties—biting/chewing and piercing/sucking. This slide set uses 6 common insects to illustrate several variations of these 2 basic types. Includes cockroach, honey bee, plantbug, butterfly, house fly, and mosquito. With study guide.

293521 Per set \$42.75



293696 Pathogenic Protozoa Slide Set

Pathogenic Protozoa Slide Set

A selection of pathogenic forms commonly observed in man and domestic animals in 12 slides. Suitable for Advanced Placement® high school and college studies, the set includes *Entamoeba, Giardia, Plasmodium,* and other pathogenic protozoa.

293696 Per set \$166.00



293732 Flatworm and Roundworm Eggs Slide Set

Flatworm and Roundworm Eggs Slide Set

This set of 12 slides includes eggs from most of the important worm parasites encountered in tropical medicine.

293732 Per set **\$123.50**

Animal Slides & Sets

Microscope Stides					
Image	Item No.	Name and Description	Each	12+ Each	
Aniı	mals				
Porifera	ans (spo	onges)			
Calcare	ans				
00	305830	Grantia Scypha, general structure, c.s., 8–10 μ m, H&E	\$7.50	\$7.25	
Charles	305842	$\begin{tabular}{ll} \textbf{Grantia} \\ \textbf{Scypha}, shows incurrent and radial canals, near-median I.s., 8-10 $\mu m, H\&E \end{tabular}$	\$10.10	\$9.85	
0 0	305848	$\label{eq:comparison} \begin{array}{l} \textbf{Grantia} \\ \textit{Scypha}, \text{ c.s. and l.s. mounted together for comparison, 8-10 } \mu\text{m, H\&E} \end{array}$	\$12.00	\$11.75	
	305854	Grantia <i>Scypha</i> , w.m.	\$6.70	\$6.45	
	305860	Grantia Isolated Spicules <i>Scypha</i> , shows spicules, w.m.	\$5.70	\$5.45	
Demos	pongian	ns			
•	305962	Gemmules Spongilla, germinal cells protected to survive adverse conditions, w.m.	\$6.75	\$6.50	
Cnidari	ians				
Hydroz	oans				
	306040	Hydra General structure, w.m.	\$6.65	\$6.40	
0	306046	Hydra General structure, c.s., 8–10 μm, H&E	\$10.15	\$9.90	
t	306064	Hydra Budding Adult Budding asexual reproduction, w.m.	\$7.20	\$6.95	
St	306070	Hydra Plain and Budding Both plain and budding specimens on same slide, w.m.	\$9.40	\$9.15	
į.	306094	Hydra with Ovary Sexual stage of reproduction, w.m.	\$10.25	\$10.00	
0	306100	Hydra Nematocysts Shows specialized cells used for defense and predation, 8–10 µm, H&E	\$10.20	\$9.95	
ģ.	306118	Hydra c.s. and l.s. mounted together for comparison, 8–10 µm, H&E	\$12.75	\$12.30	
1/	306124	Obelia Hydroid colony showing reproductive and vegetative polyps, w.m.	\$14.65	\$14.40	
STATE OF	306148	Physalia Tentacle Portuguese man-of-war showing batteries of nematocysts, c.s., 8–10 μm , M	\$9.55	\$9.30	
Scypho	zoans (j	ellyfish)			
•	306216	Aurelia planula Free-living stage in the development of the jellyfish <i>Aurelia</i> , w.m.	\$11.05	\$10.80	
4	306222	Aurelia scyphistoma Asexual stage that undergoes strobilation, w.m.	\$11.35	\$11.10	

Image	Item No.	Name and Description	Each	12+ Each
Platyhe	lminthe	es		
Turbella	arians (planarians)		
1	306312	Planaria Shows general structures of a simple triploblastic animal, w.m.	\$7.40	\$7.15
-	306318	Planaria Digestive tract completely colored, w.m.	\$7.80	\$7.55
11	306324	Planaria Combination Both plain and injected specimens on 1 slide, w.m.	\$13.95	\$13.70
-	306330	Planaria Shows 3 different regions of the body, c.s., $8-10~\mu m$, H&E		\$12.90
Tremate	odes (fl	ukes)		
GRAD	306376	Clonorchis sinensis General body structures, c.s., 8–10 μm, H&E	\$11.65	\$11.40
9 0	306382	Clonorchis sinensis Eggs Shows general characteristics of fluke ova, w.m.	\$8.10	
	306394	Fasciola hepatica Sheep liver fluke, w.m.	\$16.05	
60	306406	Fasciola hepatica Eggs Sheep liver fluke eggs, w.m.	\$8.80	\$8.55
-	306454	Rediae and Cercariae Life stages of a fluke, w.m.	\$13.35	\$13.00
5	306496	Schistosoma mansoni Female Blood fluke that infects the mesenteric veins of humans, w.m.	\$14.90	\$14.50
0	306502	Schistosoma mansoni Male Blood fluke that infects the mesenteric veins of humans, w.m.	\$16.50	\$16.00
3	306508	Schistosoma mansoni Eggs Blood fluke eggs showing characteristic lateral spine, w.m.	\$11.05	\$10.80
Cestode	es (tape	worms)		
	306610	Tapeworm Proglottids Comparison Mature proglottids of <i>Taenia</i> and <i>Dipylidium</i> mounted together, w.m.	\$13.40	\$13.10
100000	306628	Dipylidium caninum Composite Dog tapeworm, scolex, immature, mature, and gravid proglottids, w.m.	\$24.85	
	306640	Dipylidium caninum Eggs Dog tapeworm eggs, w.m.	\$7.75	\$7.50
ノ	306646	Dipylidium caninum Scolex Dog tapeworm showing scolex with a few proglottids, w.m.	\$13.35	\$13.00
_	306652	Echinococcus granulosus Minute tapeworm of carnivores, w.m.	\$16.60	\$16.15
A 80	306658	Echinococcus granulosus Hydatid Cyst Minute tapeworm of carnivores, sec., 8–10 µm, H&E	\$12.10	\$11.85
800	306670	Echinococcus granulosus Eggs Eggs of a minute tapeworm of carnivores, w.m.	\$8.95	\$8.70

526 CAROLINA®

Animal Slides & Sets

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
		es (continued)		
	es (cont			
8	306724	•	\$9.60	
	306736	Taenia pisiformis, Gravid Proglottids Dog tapeworm, mature proglottids, w.m.	\$9.25	\$9.00
	306742	Taenia pisiformis Eggs Dog tapeworm eggs, w.m.	\$9.60	\$9.35
Rotifers	S			
1	306850	Rotifers Freshwater species, w.m.	\$7.70	\$7.45
Nemato	odes			
<u> </u>	306882	Ancylostoma caninum Female Dog hookworm, w.m.	\$12.40	\$12.15
	306906	Ascaris suum Male Pig roundworm, c.s., 8–10 μ m, H&E	\$10.20	\$9.95
(3)	306912	Ascaris suum Female Pig roundworm, c.s., 8–10 μm, H&E	\$10.70	\$10.45
8 00	306918	Ascaris suum Male and Female Pig roundworms mounted together for comparison, c.s., 8–10 μm, H&E	\$13.90	\$13.40
* .:	306948	Ascaris lumbricoides Eggs Human roundworm eggs, w.m.	\$8.10	\$7.85
	306966	Dirofilaria immitis Dog heartworm, blood smear	\$11.85	\$11.60
_	306972	Enterobius vermicularis Human pinworm, lives in the cecum, appendix, and parts of the intestine, w.m.	\$12.55	\$12.30
0	306978	Enterobius vermicularis Eggs Human pinworm eggs, w.m.	\$8.15	\$7.90
-	306996	Necator americanus Eggs Eggs of hookworm commonly infecting humans, w.m.	\$10.05	
35	307020	Trichinella spiralis Female Parasitic nematode that causes trichinosis, w.m.	\$10.70	\$10.45
-	307032	Trichinella spiralis Encysted Larvae Larvae of parasitic nematode encysted in muscle, causes trichinosis, w.m.	\$11.75	\$11.50
	307044	Trichinella spiralis Encysted Larvae Larvae of parasitic nematode in muscle, causes trichinosis, sec., 8–10 μm, H&E	\$9.35	\$9.10
6	307050	Trichuris trichiura Whipworm, infects the cecum and appendix of humans, w.m.	\$28.85	\$27.75
	307056	Trichuris trichiura Eggs Whipworm eggs, barrel-shaped with a shelled projection at either pole, w.m.	\$8.45	\$8.20

Image	Item No.	Name and Description	Each	12+ Each
Mollusk	ζS			
M	307180	Snail Radula Flat mount showing rows of teeth, w.m.	\$8.45	\$8.20
Annelic	ls			
(co	307246	Earthworm <i>L. terrestris</i> , posterior to clitellum, basic oligochaete slide, c.s., 8–10 µm, H&E	\$7.95	\$7.70
() 6 0	307264	Earthworm Composite Sections through pharynx, intestine, and head region, c.s., $8{-}10~\mu m$, H&E	\$12.90	\$12.65
	307300	Nereis Sandworm, c.s., 7–8 μm, H&E	\$8.45	
Arthrop	ods			
Crustac	eans			
• •	307372	Cyclops Shows general structure of a copepod, w.m.	\$6.35	\$6.10
	307390	Daphnia Shows general structure of a cladoceran, w.m.	\$9.05	\$8.80
* 1	307396	Daphnia and Cyclops Two freshwater crustaceans mounted together for comparison, w.m.	\$8.25	\$8.00
6	307432	Zoea of Crab Developmental stage preceded by nauplius stage, w.m.	\$7.55	\$7.30
Arachn	ids			
E	307506	Amblyomma americanum Lone star tick, vector of spotted fever in Texas and Oklahoma, w.m.	\$13.00	\$12.75
本	307542	Ixodes scapularis Male Deer tick, vector of Lyme disease, w.m.	\$17.15	\$16.80
*	307548	Ixodes scapularis Female Deer tick, vector of Lyme disease, w.m.	\$17.25	\$16.95
0	307558	Dust Mites Examples of the common dust mite <i>Dermatophagoides</i> , w.m.	\$7.20	\$6.95
杰	307566	Rhipicephalus sanguineus Brown dog tick, w.m.	\$10.70	
THE STATE OF	307572	Spider Shows general structures, w.m.	\$5.90	
6 5	307584	Tick and Mite Mounted together on the same slide for comparison, w.m.	\$11.20	
Insects				
11	307662	Antennae Types Clavate, plumose, lamellate, moniliform, setacious, aristate, geniculate, w.m.	\$18.55	\$18.15
9	307710	House Fly Wing Shows wing and reduced secondary wing or haltere, w.m.	\$6.65	\$6.40

 $\textbf{Key to Stains: H\&E}, \ \text{Hematoxylin and Eosin; } \textbf{M}, \ \text{Mallory}.$

See more animal slides on the next page.

Animal Slides & Sets

	Item			12+
Image	No.	Name and Description	Each	Each
_		ontinued)		
Anoplu			67.00	67
*	307876	Pediculus humanus capitis Human head louse, w.m.	\$7.80	\$7.55
Hymen	opterar	ns (bees & wasps)		
Code	307986	Hymenoptera Common ant, shows general structures, w.m.	\$5.80	
- 3	308004	Honey Bee Composite Fore- and hindwings, 3rd leg (pollen basket), stinger (poison sac), w.m.	\$18.55	
-	308030	WOWBug <i>Melittobia digitata</i> , female, w.m.	\$6.70	\$6.45
Diptera	ns (true	e flies)		
M	308088	Culex House mosquito, general structures, w.m.	\$10.70	\$10.45
0-6	308094	Culex Male and Female House mosquito, general structures, mounted together for comparison, w.m.	\$18.10	\$17.70
,+4	308112	Mosquito Life Cycle Shows egg, larva, pupa, and adult, w.m.	\$20.25	
	308118	Drosophila Fruit fly, w.m.	\$5.30	\$5.05
6 6	308124	Drosophila Male and Female Fruit flies mounted together for comparison, w.m.	\$8.30	\$8.05
	308136	Musca domestica Head Housefly head, w.m.	\$6.80	\$6.50
ک	308142	Musca domestica Leg Housefly leg, w.m.	\$5.55	
Siphon	apteran	s (fleas)		
-	308170	Ctenocephalides Cat or dog flea, w.m.	\$7.85	\$7.60
and	308176	Pulex irritans Human flea, w.m.	\$8.55	\$8.30
Echino	derms			
YAY	308212	Starfish Ray (Arm) Shows general structure, c.s., 7 µm, H&E	\$8.50	
RA	308218	Starfish Tube Feet Shows general structure, sec., 7 µm, H&E	\$8.50	
/	308260	Ascidian Swimming tadpole, w.m.	\$9.85	\$9.60
2	308278	Ecteinascidia A tunicate so transparent that the entire anatomy can be seen, w.m.	\$11.60	\$11.35

Image	Item No.	Name and Description	Each	12+ Each
Chorda	tes			
Cephalo	ochorda	ates (Amphioxus)		
_	308316	Amphioxus Immature Adult Lancelet, w.m.	\$19.25	
0	308328	Amphioxus Pharyngeal Region Lancelet, c.s., 8–10 μm, H&E	\$9.00	\$8.75
. 000	308346	Amphioxus Composite Four regions (head, pharyngeal, intestinal, caudal), c.s., 8–10 μm, H&E	\$29.00	
Agnath	ans (jav	vless fish)		
	308418	$\begin{array}{l} \textbf{Ammocoetes Composite} \\ \textbf{Four regions (head, pharyngeal, mid-body,} \\ \textbf{and caudal), c.s., 8-10 } \mu \textbf{m, H\&E} \end{array}$	\$13.45	\$13.00
Amphil	oians			
	308568	Amphiuma Liver Teacher's choice for showing typical animal cell structures, sec., 8–10 μm, H&E	\$6.15	\$5.90
Fish				
	308470	Cycloid Scale w.m.	\$6.25	
	308476	Ctenoid Scale w.m.	\$6.25	
9	308488	Ganoid Scale w.m.	\$6.25	
	308500	Scale Types Placoid, ganoid, cycloid, and ctenoid scales mounted together, w.m.	\$26.15	\$25.65

Key to Stains: H&E, Hematoxylin and Eosin.



See all of our animal microscope slides at Carolina.com.

Embryology Slides & Sets

Embryology Slides & Sets



309306 General Embryology Set

General Embryology Set

A set of 25 slides designed for vertebrate embryology with special emphasis on the chick. Pig slides are included for comparative study, while starfish slides offer a clear general picture of early holoblastic equal cleavage. Frog development slides show holoblastic unequal cleavage, formation of the blastula, gastrula, yolk plug, and neural plate through neural tube stages. The late neural tube stage gives students a clear picture of primary germ layers. Serial sections are boxed separately for easy identification.

309306 Per set \$628.00

Explore all of our chick embryology products starting on page 165.



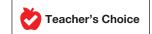


Frog Early Neural Tube, c.s. from 309324 From Egg to Tadpole

From Egg to Tadpole

This set of 6 slides follows the development of the frog from the uncleaved egg through the early tadpole stage.

309324 Per set \$72.00



Microscope Slides



309348 Chick Embryology Set

Chick Embryology Set

A set of 12 slides demonstrating chick development. Includes whole mounts, serial sections, and representative sections of varying ages.

309348 Per set \$440.00

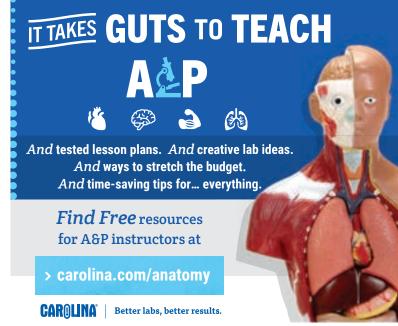
Beginner's Chick Whole Mount Slide Set

Various stages of chick development are represented in this set of 5 slides.

309336 Per set \$77.00

Chick 60- to 70-Hour, w.m. from 309336 Beginner's Chick Whole Mount Slide Set





		• •		
Image	Item No.	Name and Description	Each	12+ Each
Emb	ryol	ogy		
Sea Urc	hin			
w. z	309702	Sea Urchin Development Unfertilized egg through gastrula stage, w.m.	\$11.20	\$10.95
Starfish	L			
46	311126	Starfish Development Shows major developmental stages, w.m.	\$15.75	\$15.40
	311132	Starfish Development Shows major developmental stages, 7 µm, H&E	\$14.45	\$14.20
Frog				
0	311236	Frog Uncleaved Egg Just after fertilization, rep. sag. sec., 8–10 μm, H&E	\$12.20	
	311242	Frog Early Cleavage Four to 16 cells, 8–10 μm, H&E	\$11.75	\$11.50
•	311248	Frog Late Cleavage Thirty-two to 64 cells, 8–10 μm , H&E	\$10.80	\$10.55
	311254	Frog Blastula Blastocoel surrounded by cells, 8–10 $\mu\text{m},\ \text{H\&E}$	\$11.30	\$11.05
0	311266	Frog Early Yolk Plug Gastrulation after formation of ventral lip, rep. sag. sec., 8–10 μ m, H&E	\$11.15	\$10.90
	311272	Frog Late Yolk Plug Yolk plug, blastopore, gastrocoel, ecto- derm, and endoderm, 8–10 µm, H&E	\$12.15	\$11.90
0	311278	Frog Early Neural Groove Medullary plate with early neural folds and groove, c.s., 8–10 µm, H&E	\$15.25	\$15.00
0	311284	Frog Late Neural Groove Pronounced neural folds and grooves, c.s., 8–10 $\mu m, H\&E$		\$17.05
0	311290	Frog Early Neural Tube Neural tube after fusion of neural fold crests, c.s., 8–10 µm, H&E	\$13.00	\$12.75
6	311296	Frog Late Neural Tube Ectoderm separated from tube, splanch- nic, and somatic mesoderm, c.s., H&E	\$13.40	\$13.15
Chick				
	311502	Chick 18-Hour Notochord and primitive streak present, w.m.	\$18.10	\$17.60
	311508	Chick 18-Hour Entire specimen mounted in series, serial c.s.	\$50.40	
	311520	Chick 24-Hour Many primordial structures are present, w.m.	\$22.00	\$21.50

Teacher's Choice

Embryology Slides & Sets

Image	Item No.	Name and Description	Each	12+ Each
Chick (d	continu	ed)		
	311532	Chick 24-Hour Entire specimen mounted in series, serial c.s.	\$54.60	
	311562	Chick 33-Hour Heart, brain, and diminishing primitive streak are present, w.m.	\$21.50	\$21.00
	311574	Chick 33-Hour Entire specimen mounted in series, serial c.s.	\$59.85	
1	311592	Chick 48-Hour Ventral flexion and dextral torsion, w.m.	\$21.75	\$21.25
S. C.	311598	Chick 48-Hour Prominent heart, ventral flexion, and dextral torsion, rep. c.s.	\$20.45	
	311604	Chick 48-Hour Entire specimen mounted in series, serial c.s.	\$67.20	
P	311634	Chick 72-Hour Limb buds and allantois are beginning to form, w.m.	\$24.15	
	311652	Chick 72-Hour Entire specimen mounted in series, serial c.s.	\$77.70	
	311676	Chick 96-Hour Limb buds and allantois are formed, large eye is prominent, w.m.	\$38.30	
	311688	Chick 96-Hour Entire specimen mounted in series, serial c.s.	\$85.00	
99	311700	Chick Composite Representative sections of 33-, 48-, 72-, and 96-hr chicks, rep. sag. sec.	\$30.45	
Pig				
	311834	Pig 8–12 mm Entire specimen mounted in series, serial c.s.	\$217.00	
430	311846	Pig 8–12 mm Prominent brain, eyes, heart, and liver, rep. c.s.	\$28.85	
6606	311852	Pig 8–12 mm Prominent eyes and medial and lateral planes, rep. sag. sec.	\$28.85	

Key to Stains:

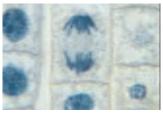
H&E, Hematoxylin and Eosin.

Serial cross sections: Show sequential cross-sectional views of an entire specimen, from head to tail. The sections are mounted in rows in consecutive order on the same slide. Depending on the size of the specimen and the thickness of the section, multiple slides may be needed to contain all sections. Note: Two specimens of the same age (hour) may vary in size. Larger specimens will require more cross-sectional cuts, which may require more microscope slides for mounting all sections. If more than 1 slide is needed to mount all sections, the slide label will be numbered so the sections can be viewed in the proper sequence. The last slide in the sequence will have an "X" beside this number.

Genetics Slides & Sets

Genetics Slides & Sets





Fish (left) and onion (right) mitosis

Fish and Onion Mitosis Slide and Study Guide Set Updated study guide!

Set of 2 slides includes both fish mitosis and onion mitosis. Excellent for comparison of plant and animal mitosis. Includes study guide.

308816 Per set \$29.75



Discovering Onion Mitosis Self-Study Unit

Slide shows all stages of mitosis. Unit includes a self-study card featuring labeled photographs and descriptive text.

302504 Each \$14.95



302504 Discovering Onion Mitosis Self-Study Unit



Ascaris, Fish, and Onion Mitosis Slide and Study Guide Set Updated study guide!

Set of 3 slides includes *Ascaris* mitosis, fish mitosis, and onion mitosis and study guide.

308800 Per set \$50.00

308800 Ascaris, Fish, and Onion Mitosis Slide and Study Guide Set

Ascaris and Onion Mitosis Slide Set

Set of 2 slides includes both *Ascaris* mitosis and onion mitosis. Excellent for comparison of plant and animal mitosis.

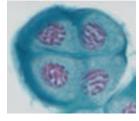
308805 Per set \$28.00

Basic Meiosis Slide Set

Examine meiosis in a lily anther cross section with this 5-slide set. Slides reveal the developmental stages of pollen from sporogenous tissue to pollen tetrads.

308825 Per set \$47.25

Lily Anther, c.s. from 308825 Basic Meiosis Slide Set



Thin sections: Cut at approximately $2 \mu m$ (micrometers) as compared to 5 to 10 μm for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
Gen	etics	6		
Mitosis				
. 63 (302396	Onion Mitosis Most popular mitosis slide, <i>Allium</i> root tips, all mitotic stages, l.s., 10 µm, IH&OG	\$9.05	\$8.80
0000	302414	Onion Mitosis Allium, root tip with superior fixation, all mitotic stages, l.s., thin sec.	\$24.75	
	308922	Ascaris Mitosis All stages of animal mitosis, sec., H	\$17.00	
	308946	Fish Mitosis All stages of mitosis present, 10 $\mu m,H\&E$	\$21.15	
	308952	Fish Blastodisc General structure, mitotic figures may be present, 10 µm, H&E	\$17.00	\$16.50
Meiosis				
30	304562	Lily Anther Meiosis Lilium, first meiotic (heterotypic) division, c.s., 12 µm, Q	\$10.25	\$10.00
	304568	Lily Anther Meiosis Lilium, second meiotic (homotypic) division, c.s., 12 μ m, Q	\$12.65	\$12.40
26	304574	Lily Anther Pollen Tetrads Lilium, 4 haploid daughter cells, c.s., 12 µm, Q	\$8.85	\$8.60
	308940	Grasshopper Testis Shows spermatogenesis, 8–10 μm, H&E	\$12.85	\$12.60
Chromo	osomes			
the same	309066	Drosophila Chromosomes From salivary gland, smear	\$28.60	
克达 ·	309140	Human Female Chromosomes Blood culture, 46 chromosomes, XX, spread	\$36.00	
	309146	Human Male Chromosomes Blood culture, 46 chromosomes, XY, spread	\$36.00	
	309152	Barr Bodies—Female Human cheek cells, smear	\$8.35	\$8.10
Blood				
	309164	Human Female Blood Film Demonstrates drumstick protuberance from WBC nuclei, smear	\$8.35	\$8.10
	309170	Human Male Blood Film Does not show drumstick protuberance from WBC nuclei, smear	\$8.30	\$8.05

Key to Stains:

 ${\bf H},$ Hematoxylin; ${\bf H\&E},$ Hematoxylin and Eosin; ${\bf IH\&OG},$ Iron Hematoxylin and Orange G; ${\bf Q},$ Quadruple.

Mitosis and Meiosis Study Unit

Teaching materials for mitosis, meiosis, cellular division, and genetic inheritance—all in 1 convenient unit. These materials complement a variety of teaching styles with the goal of helping all your students achieve mastery of the topics. A recommended learning-station setup for your classroom is also included.



171170 Mitosis and Meiosis Study Unit

Unit includes:

Set of 6 Microscope Slides (with examples of mitosis and meiosis in plant and animal cells) Mitosis Poster (item #571203) Mitosis and Meiosis Presentation and Image Set

CD-ROM (item #308828) Modeling Mitosis and Meiosis 1-Station Kit Manipulatives (from item #171000)

171170 Each **\$138.00**

Genetics/Pathology Slides & Sets

Mitosis and Meiosis Slide Sets

Thirteen microscope slides selected to guide students through the events of cell division. Mitosis is demonstrated in onion root tip and fish blastodisc. Meiosis is demonstrated in lily anther and ovulary. Includes a study guide. Available with or without a CD-ROM with 43 images made from the slides. An excellent resource for instruction at the college level.

308826 Set without CD-ROM **308827** Set with CD-ROM



308827 Mitosis and Meiosis Slide Set with CD-ROM

Each **\$270.00** Each **\$352.00**

Carolina BioKits®: Onion Mitosis 🔥

Squash Method. Prepare your own slides to observe the different phases of mitosis. This is an updated kit from our popular Carolina BioKits® series, designed for a class of 30. Carolina BioKits®: Onion Mitosis includes everything that you need to prepare onion root tips slides. Students stain the root tips, prepare squashes, and observe mitotic phases. The entire exercise can be completed in 1 lab period. Note: Perishable material; please give use date.

171130 Per kit \$96.00

Onion Bulblets

For growing root tips. With instructions. Pack of 30 bulblets. **Note:** Limited availability from June to September. Perishable material; please give use date. Store in a cool,

dry place with good ventilation, away from sunlight. Best if used within 2–3 months of receipt.

171143 Per pack \$15.70

Preserved Onion Root Tips

For mitotic figures. Sufficient material for a class of 30. **Note:** *Perishable material; please give use date.*

171135 Per vial **\$30.00**

Onion Mitosis Stain Set A

Includes the solutions necessary for killing, holding, and staining root tips, plus instructions. Visit Carolina.com for a complete list of set materials.

171142 Per set **\$60.00**



Human female chromosomes from 308821 Human Sex Indicators Set

Human Sex Indicators Set

Consists of 6 slides selected to teach students the difference in male and female genetic makeup. Includes 1 slide each of female chromosomes, male chromosomes, Barr bodies (female), squamous epithelium (male), blood film (male), and blood film (female).

308821 Per set \$110.00

Pathology Slides & Sets

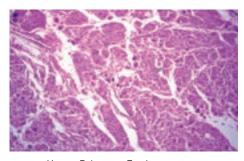


316999 Cardiovascular Diseases Set

Cardiovascular Diseases Set

Eight slides show a variety of pathological conditions affecting the cardiovascular system.

316999 Per set \$89.00

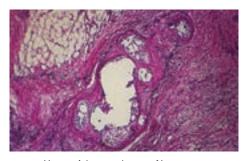


Human Pulmonary Emphysema, sec. from 317010 Human Lung Pathology Set

Human Lung Pathology Set

This special set of 3 slides shows a normal lung, emphysema, and smoker's lung.

317010 Per set \$31.25



Human Adenocarcinoma of Lung, sec. from 316992 Malignant Tissues Set

Malignant Tissues Set

The scope of cellular patterns encountered in a variety of cancerous lesions is shown in 10 slides.

316992 Per set \$106.00



Pathology Slides & Sets

lucana	Catalog	Name and Description	Foot	12+
Image	No.	Name and Description	Each	Each
Path	olog	ЭУ		
	298412	Candida albicans Shows yeast-like conidia, causes candidiasis or a yeast infection, w.m.	\$8.80	\$8.55
	317120	Human Acute Myocardial Infarct Heart sec., 7 μm, H&E	\$8.55	
	317162	Human Atherosclerosis Aorta sec., 7 μm, H&E	\$9.95	
	317338	Human Iron-Deficiency Anemia smear, W	\$12.85	\$12.40
	317374	Human Sickle-Cell Anemia Shows normal and sickle-shaped RBCs, smear, W	\$10.60	\$10.35
	317458	Human Infectious Mononucleosis smear, W	\$21.00	
**************************************	317464	Human Eosinophilia smear, W	\$13.85	
3	317604	Human Anthracosis in Lymph Node Lymph node sec., 7 μm, H&E	\$8.30	
	317696	Human Pulmonary Edema Lung sec., 7 μm, H&E	\$9.55	
T.	317702	Human Lobar Pneumonia Lung sec., 7 μm, H&E	\$9.40	
	317708	Human Bronchopneumonia Lung sec., 7 μm, H&E	\$10.00	\$9.75
德	317710	Human Viral Pneumonia Lung sec., 7 μm, H&E	\$12.40	\$12.10

Key to Stains: H&E, Hematoxylin and Eosin; **W**, Wright.

Human Pathology Survey Set

A comprehensive collection of 50 slides designed to give an overview of the pathological conditions most often encountered in a general course of study. Tissues from many different body systems are represented. An excellent resource for instruction at the college level.

316980

Per set \$506.00

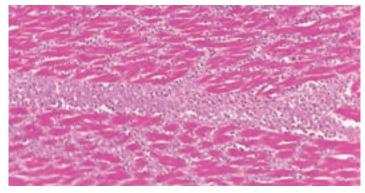


316980 Human Pathology Survey Set



Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
maye	317726	<u> </u>	\$9.70	
	317720	Lung sec., 7 μm, H&E	φ3.70	φ3.43
1/4	317762	Human Bronchogenic Carcinoma Lung sec., 7 μm, H&E	\$10.15	
5	317768	Human Metastatic Melanoma Lung sec., 7 μm, H&E	\$9.70	\$9.45
6	317774	Human Metastatic Carcinoma Lung sec., 7 μm, H&E	\$9.80	\$9.55
7	317780	Human Alveolar Cell Carcinoma Lung sec., 7 μm, H&E	\$9.50	\$9.25
5	317798	Human Adenocarcinoma Lung sec., 7 μm, H&E	\$9.80	\$9.55
Vit.	317804	Human Pulmonary Emphysema Lung sec., 7 μm, H&E	\$9.75	\$9.50
2	317822	Human Anthracosis of Lung Lung sec., 7 µm, H&E	\$11.10	\$10.85
16	318090	Human Metastatic Carcinoma to Liver Liver sec., 7 $\mu m, H\&E$	\$9.45	
	318628	Human Adenocarcinoma of Ovary Ovary sec., 7 μ m, H&E	\$9.70	
	318760	Human Fibroadenoma Breast sec., 7 μm, H&E	\$9.55	
	318766	Human Adenocarcinoma of Breast Breast sec., 7 μ m, H&E	\$9.35	
	319070	Human Melanoma Skin sec., 7 μm, H&E	\$12.55	



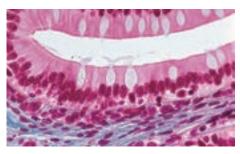
Human Acute Myocardial Infarct, sec. from 316986 Histopathology of Disease Set

Histopathology of Disease Set

Twenty-four slides include normal and diseased tissues of the same organ. Gives a general overview of some disease processes. An excellent resource for instruction at the college level.

316986 Per set \$231.00

Microscope Slides Histology Slides & Sets

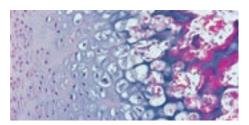


Amphibian Simple Columnar Epithelium, sec. from 311974 Introductory Histology Set

Introductory Histology Set

This set of 25 slides includes representatives of the major tissue types. Ideal for advanced high school courses and beginning college histology courses. Includes study guide.

311974 Per set \$185.00



Hyaline Cartilage, sec. from 311992 Comprehensive Medical Histology Set

Comprehensive Medical Histology Set

Advanced anatomy

Providing a microscopic look at the anatomy of animal cells and tissues, this comprehensive collection helps students learn to identify different organs and tissues. The high-quality set of 100 representative (human or comparable mammalian tissue) slides has been recommended by medical schools for instruction at the college, graduate, and medical school levels. All major organ systems and tissues are represented.

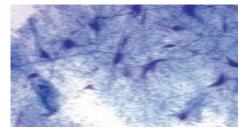
311992 Per set \$874.00



Discovering Human Blood Self-Study Unit

Includes a slide showing a smear of normal human blood stained with Wright stain and a self-study card featuring labeled photographs and background information.

313100 Each \$14.05

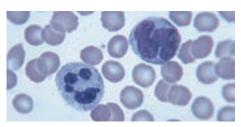


Motor Neuron, smear from 311956 Beginner's Animal Tissue Slide Set

Beginner's Animal Tissue Slide Set

These 15 microscope slides have been selected for middle school students and above. They introduce the student to basic animal tissues and help with the identification and understanding of these cell associations. Includes study guide.

311956 Per set \$115.00



Human Blood, smear from 311960 All About Me Slide Set

All About Me Slide Set

This set of 6 slides gives an introductory view of the human body. Represented are bone, blood, hair, cheek cells, muscle, and skin. Includes study guide.

311960 Per set \$53.00



312041 Close Encounters with Blood Slide Set

Close Encounters with Blood Slide Set

Fascinate your students with this set of 9 slides of human blood, including 1 slide of normal blood and 8 smears of common blood ailments: *Plasmodium falciparum*, infectious mononucleosis, *Trypanosoma cruzi*, chronic granulocytic leukemia, sickle cell anemia, eosinophilia, iron deficiency anemia, and polycythemia. Also includes an informational booklet detailing each blood disease and 15 large mini-posters displaying color photos of each slide's components.

312041 Per set \$117.00

Histology Slides & Sets



311968 Beginner's Human Tissue Slide Set

Beginner's Human Tissue Slide Set

The 15 prepared slides in this set give students in middle school and above a basic introduction to the study of human microscopic anatomy. Included are representatives of connective tissues; muscle and bone; blood and the circulatory system; and nervous, digestive, and respiratory systems.

311968 Per set \$155.00



311998 Basic Medical Histology Set

Basic Medical Histology Set

This basic collection of 50 slides taken from human or comparable mammalian tissues, although less comprehensive than the Comprehensive Medical Histology Set (item #311992), is an excellent resource for instruction at the high school, college, and graduate levels. Most organ systems and tissues are represented.

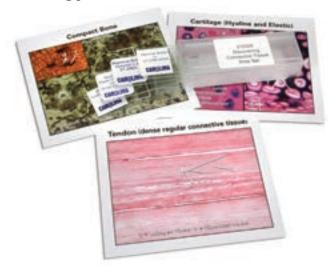
311998 Per set \$456.00

Forensics Body Fluid Slide Set

Enhance students' understanding of basic techniques applied in forensic science with this inquiry-centered activity set. Based on 3 forensic scenarios, students study prepared microscope slides of unknown body fluid samples and compare them to a visual database of known samples in order to identify the evidence found at a crime scene. Then they examine the morphology of spermatozoa and red blood cells in various species, and distinguish gender based on chromosome analysis and the presence of Barr bodies. Contains a set of 11 prepared microscope slides, divided between 3 activity stations, and a teacher's manual with reproducible student sheets.

311962 Per set \$119.00

Histology Slides & Sets



312026 Discovering Connective Tissue Self-Study Unit

Discovering Connective Tissue Self-Study Unit

This set of 4 slides is designed to aid your study of histology. Represented are hyaline cartilage, elastic cartilage, tendon, and compact bone. Set includes a self-study card for cartilage, tendon, and compact bone, each featuring a labeled color photograph with background information.

312026 Per set \$31.00

Basic Connective Tissue Set

The major types of connective tissue are represented in this set of 8 slides.

312028 Per set \$68.50

Human Connective Tissues Set

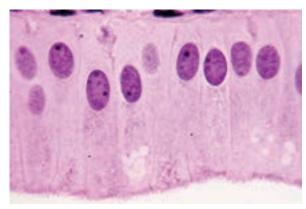
This collection of 11 slides includes slides of mucous tissue, adipose tissue, cartilage types, bone, and tendon.

312040 Per set \$134.00

Epithelium Types Set

Eleven slides are included in this expanded version of Discovering Basic Epithelium Types Self-Study Unit (item #312010).

312016 Per set \$75.50



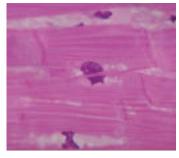
Human Simple Columnar Epithelium, sec. from 312008 Discovering Epithelial Tissues Self-Study Unit

Discovering Epithelial Tissues Self-Study Unit

This set of 11 slides provides a selection of epithelial tissue types suitable for all levels of study. It includes a self-study card for each epithelial type featuring a labeled color photograph and background information.

312008 Each \$94.00

Microscope Slides



Human Cardiac Muscle, sec. from 312142 Basic Tissue Types Bundle

Basic Tissue Types Bundle

For basic study of tissue types. Includes 48 slides in 7 sets.

Basic Epithelium Types Set (item #312010)
Basic Connective Tissue Set (item #312028)
Muscle Types Set (item #312058)
Nerve Tissue Types Set (item #312070)
Blood and Lymph Vessels Set (item #312046)
Gland Types Set (item #312118)
Integument Types Set (item #312088)

312142 Per bundle \$345.00



Mammal Muscle Types, sec. from 312064 Human Muscle Tissues Set

Human Muscle Tissues Set

This collection of 6 slides covers all 3 muscle types.

312064 Per set **\$64.00**

Types of Skin Set

The 8 slides in this set show samples of skin from various regions of the body, including samples of pigmented and nonpigmented skin.

312094 Per set \$66.50



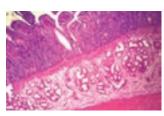
312094 Types of Skin Set

Digestive Tract Set

Tissue samples from all major organs of the digestive tract are included in this set of 8 microscope slides.

312106 Per set **\$67.00**

Mammal Duodenum, sec. from 312106 Digestive Tract Set



Basic Anatomy Atlas and Slide Set Great value!

Set includes 75 slides and A Photographic Atlas for the Anatomy and Physiology Laboratory. Slides are specially selected to complement the atlas and represent all major organ groups. The atlas comes with a 3-ring binder so additional information or notes can be added.

311980 Per set **\$684.00**

311980 Basic Anatomy Atlas and Slide Set



Discovering Tissues Self-Study Units

Tissue Types Bundle

Basic Epithelium Types Set (item #312010)

Ideal for a more comprehensive study of tissue types. Includes 54 slides in 7 sets. An excellent resource for instruction at the college level.

Connective Tissue Types Set (item #312034)
Discovering Muscle Types Self-Study Unit (item #312058)
Nerve Tissue Types Set (item #312070)
Blood and Lymph Vessels Set (item #312046)
Gland Types Set (item #312118)
Integument Types Set (item #312088)

312148 Per bundle \$364.00

Buy the set and save!

Basic Epithelium Types Set

The major types of epithelium are represented in this set of 9 slides.

312010 Per set \$63.00

Connective Tissue Types Set

Twelve slides are included in this expanded version of the Basic Connective Tissue Set (item #312028).

312034 Per set \$91.00

Discovering Muscle Types Self-Study Unit Now with self-study cards!

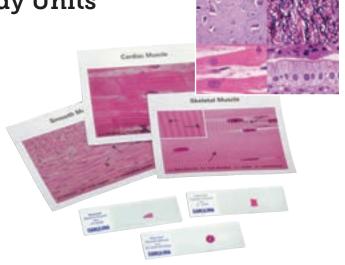
Smooth, skeletal (striated), and cardiac muscles are represented in this set of 3 slides. Includes set of 3 study cards.

312058 Each \$23.20

Nerve Tissue Types Set

These 8 slides are offered for the study of the mammalian nervous system.

312070 Per set \$63.50



312058 Discovering Muscle Types Self-Study Unit

Blood and Lymph Vessels Set

These 6 slides include a blood smear, lymph vessel, and other tissues associated with the circulatory system.

312046 Per set \$43.50

Gland Types Set

Six slides demonstrating unicellular, lymphoid, exocrine, endocrine, and sebaceous glands.

312118 Per set \$43.00

Integument Types Set

These 8 slides include several skin types, mammary gland, and bone.

312088 Per set **\$51.00**

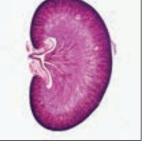
PrimeHisto XE Histology Slide Scanner

Easily digitize your histology slides using the fast, cost-effective PrimeHisto XE. Simply download the software onto your computer, connect the unit, and you are ready to begin. The scanner comes with *HistoView*, an editing software package that allows you to adjust the quality parameters of the image and save it in various formats, such as TIFF and JPEG. Use the simple software interface with PC or Mac® devices; visit Carolina.com for system requirements.

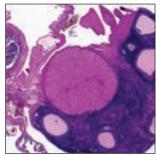
PrimeHisto XE can digitize samples mounted on 75×25 -mm slides with cover slips. Scanning area is 24.3 mm H \times 36.5 mm W with a high dynamic range of 3.8 OD. Resolution is 10,000 dpi, 48 bit, 5 μ m. Digitize your histology samples within seconds for basic high school biology courses all the way up to advanced college histology research.

489780 Each \$757.00





Scans of slides 315776, 316030, and 306906 from 489780 PrimeHisto XE Histology Slide





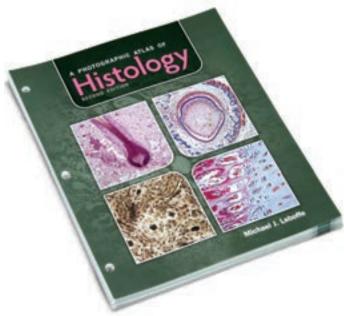
Histology Slides & Sets

Image	Item No.	Name and Description	Each	12+ Each			
Hist	Histology						
Cytolog	ſУ						
	312250	Typical Animal Cell, smear Human cheek cells, shows general features of animal cells	\$6.50	\$6.25			
	294800	Prokaryotic and Eukaryotic Cells <i>Nostoc</i> (w.m.) and <i>Amphiuma</i> liver (sec.) mounted together for comparison	\$10.10	\$9.85			
	301699	Typical Animal and Plant Cells Section of <i>Amphiuma</i> liver and lilac leaf mounted together for comparison, sec., Q	\$11.35	\$11.10			
	308946	Fish Mitosis All stages of mitosis present, 10 μ m, H&E	\$21.15				
	313158	Human Blood Most popular blood slide, smear, W	\$7.30	\$7.05			
	308568	Amphiuma Liver Teacher's choice for showing typical animal cell structures, sec., 8–10 μm, H&E	\$6.15	\$5.90			

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Key to Stains:

CV, Cresyl Violet; H, Hematoxylin; H&E, Hematoxylin and Eosin; M, Mallory; Q, Quadruple; SH, Silver Hematoxylin; W, Wright.



311982 A Photographic Atlas of Histology

A Photographic Atlas of Histology

Michael J. Leboffe. 2014 (2nd ed). 256 pages. This full-color atlas provides more than 550 photomicrographs of human tissues and organs, supplemented with illustrations and diagrams. It is a visual reference designed for undergraduate courses in histology and anatomy. Three-hole drilled and loose leaf.

311982 Each \$66.00

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each					
Epithelial Tissues									
	1	Simple Squamous Epithelium Epithelial tissue consisting of 1 layer of flat cells							
	312324	Amphibian, w.m., H	\$7.75	\$7.50					
	312330	Mammal , kidney, 7 μm, H&E	\$7.25	\$7.00					
	312336	Mammal, mesothelium, w.m., SH	\$12.30	\$11.90					
	312342	Mammal, kidney, thin sec., H&E	\$10.95	\$10.70					
	312360	Human , kidney, 7 μm, H&E	\$10.40	\$10.15					
.000		Simple Cuboidal Epithelium A single layer of cube-shaped cells							
	312366	Mammal , kidney, 7 μm, H&E	\$8.20	\$7.95					
	312372	Human , thyroid, 7 μm, H&E	\$10.40	\$10.15					
3,00,	0000	Simple Columnar Epithelium A single layer of columnar-shaped cells							
	312402	$\textbf{Amphibian}, \text{small intestine}, 7 \mu \text{m}, \text{M}$	\$9.20	\$8.95					
	312420	Mammal, intestine, thin sec., H&E	\$9.65	\$9.40					
	312426	$\label{eq:human} \begin{array}{l} \text{Human, gallbladder or intestine, 7 } \mu\text{m,} \\ \text{H\&E} \end{array}$	\$11.90	\$11.65					
0		Stratified Squamous Epithelium Multiple layers of flat cells							
	312510	Mammal, esophagus, 7 μm, H&E	\$9.25	\$9.00					
	312534	Human , cheek, smear, CV	\$7.80	\$7.55					
	312540	Human , vagina, 7 μm, H&E	\$11.05	\$10.80					
C	312558	Human Stratified Columnar Epithelium Salivary gland, 7 μm, H&E	\$9.70	\$9.45					
	312486	Mammal Pseudostratified Ciliated Columnar Epithelium Trachea, 7 µm, H&E	\$8.50	\$8.25					
恭	312462	Mammal Transitional Epithelium Ureter, 7 μm, H&E	\$6.40	\$6.15					
1	312432	Amphibian Ciliated Epithelium Frog, 7 μm, H&E	\$11.40						
	312438	Human Simple Ciliated Epithelium Fallopian tube, c.s., 7 μm, H&E	\$9.75	\$9.50					

See more histology slides on the next page.

Histology Slides & Sets

		•					
Image	Item No.	Name and Description	Each	12+ Each			
Connective Tissue							
4		Loose Connective Tissue					
	312668	$ \begin{array}{ll} \textbf{Mammal Reticular Tissue}, \ \text{lymph node}, \\ 7 \ \mu\text{m}, \ S \end{array} $	\$10.50	\$10.25			
	312686	Mammal Areolar Tissue , mesothelium spread, V	\$8.95	\$8.70			
	312692	Mammal Adipose Tissue, 10 μm , H&E	\$7.00	\$6.75			
	312728	Human Adipose Tissue , 7 μm, H&E	\$8.75	\$8.50			
		Dense, Irregular Connective Tissue					
	312764	Human Skin , shows elastic fibers, 7 μm , V	\$9.80	\$9.55			
		Dense, Regular Connectiv	ve Tiss	ue			
	312788	Mammal Tendon , l.s., 7 μm, H&E	\$10.80	\$10.55			
	312794	Mammal Tendon, c.s. & l.s., 7 µm, H&E	\$12.70	\$12.30			
	312806	$ \begin{tabular}{ll} \textbf{Mammal Muscle-Tendon Junction}, l.s., \\ 10 \ \mu m, H\&E \end{tabular} $	\$10.10	\$9.85			
	312758	Mammal , nuchal ligament, c.s. & l.s., 7 μm, H&E	\$8.30	\$8.05			
	312570	Mammal Mesenchyme Fetal pig, 7 μm, H&E	\$8.05	\$7.80			
	312656	Mammal Mucous Tissue Shows epithelial and connective tissue, umbilical cord, c.s., H&E	\$7.00				
100		Cartilage					
	312886	Mammal Hyaline , trachea, 7 μm, H&E	\$8.00	\$7.75			
	312910	$ \begin{array}{l} \textbf{Mammal Elastic}, \ \text{epiglottis or ear}, \\ 7 \ \mu m, \ V \end{array} $	\$14.60	\$14.10			
	312922	Mammal Fibrocartilage , 10 μm, H&E	\$11.40	\$11.15			

Key to Stains:

GIdC, Gold Chloride; H, Hematoxylin; H&E, Hematoxylin and Eosin; LFB, Luxol® Fast Blue; MP, Mayer's Paracarmine; 0, Osmium; S, Silver; SH, Silver Hematoxylin; V, Verhoeff; W, Wright.

Thin sections: Cut at approximately 2 μ m (micrometers) as compared to 5 to 10 μ m for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

		Histology Sile	ies o	seis
lmage	Item No.	Name and Description	Each	12+ Each
Connec	tive Tis	sue (continued)		
7.		Compact Bone		
	312952	Mammal , c.s., 10 μm, H&E	\$8.85	\$8.60
	312958	Mammal , I.s., 10 μm, H&E	\$8.00	\$7.75
	312964	Mammal, ground, c.s.	\$14.15	\$13.65
	313012	$\label{eq:mammal} \textbf{Mammal}, \ \text{developing membrane}, \ 7 \ \mu\text{m}, \\ \text{H\&E}$	\$16.90	\$16.65
	312940	Mammal Spongy Bone Shows general structures, 8–10 μm, H&E	\$9.95	
		Blood		
	313128	Frog, smear, H&E	\$5.95	\$5.70
	313134	Bird, smear, H&E	\$5.75	\$5.50
	313152	Human , smear, H&E	\$7.55	\$7.30
	313158	$\label{eq:human Blood} \textbf{Human Blood}, \ \textbf{Most popular blood slide}, \\ \textbf{smear}, \ \textbf{W}$	\$7.30	\$7.05
	313170	Mammal Bone Marrow, 7 µm, H&E	\$7.25	\$7.00
	317374	Human Sickle-Cell Anemia , Shows normal and sickle-shaped RBCs, smear, W	\$10.60	\$10.35
Integur	nentary	System		
	314486	Frog Skin Shows poison glands, 7 μm, H&E	\$7.25	
arth.	314504	Mammal Skin Shows hair follicles, 8 μm, H&E	\$6.90	\$6.65
	314595	Human Skin with Sweat Glands Human axilla skin, 7 μm, H&E	\$8.70	\$8.45
	314612	Human Scalp Shows hair follicles and shafts, 7 μ m, H&E	\$12.60	\$12.10
	314522	Human Nonpigmented Skin 7 μm, H&E	\$8.75	\$8.50
~	314528	Human Heavily Pigmented Skin 7 μ m, H&E	\$8.55	\$8.30
V	314534	Human Pigmented and Nonpigmented Skin Composite Mounted for comparison, 7 µm, H&E	\$15.65	\$15.15
-	314558	Human Plantar Skin Thick skin from bottom of foot, 7 μm, H&E	\$9.70	\$9.45
	314642	Human Lactating Mammary Gland Breast tissue with active gland, 7 μm, H&E	\$14.00	\$13.75
	314636	Human Resting Mammary Gland Breast tissue with inactive gland, 7 μm, H&E	\$9.50	\$9.25

538 CAROLINA®

Histology Slides & Sets

lmage	Item No.	Name and Description	Each	12+ Each
Muscul	ar Syste	em		
p 4 a	313448	Mammal Muscle Types All 3 muscle types (skeletal, smooth, cardiac) on 1 slide, 7 µm, H&E	\$12.15	\$11.90
		Skeletal Muscle Shows striations and arrangement of and fibrils	nuclei, fil	bers,
	313256	Mammal , tongue, 7 μm, H&E	\$7.80	\$7.55
	313316	Human , adult, I.s., 7 μm, H&E	\$9.45	\$9.20
	313322	Human , adult, c.s. & l.s., 7 μm, H&E	\$9.60	
		Smooth Muscle		
	313334	Amphibian, teased isolated fibers, H&E	\$6.90	\$6.65
	313340	Mammal , intestine, c.s., 7 μm, H&E	\$7.30	\$7.05
	313346	Mammal, intestine, c.s. & l.s., 7 µm, H&E	\$7.75	\$7.50
	313358	Human , uterus, 7 μm, H&E	\$9.80	\$9.55
	313364	Human , intestine, l.s., 7 μm, H&E	\$9.75	\$9.50
MI	11/1	Cardiac Muscle		
	313388	Mammal , 7 μm, H&E	\$7.95	\$7.70
	313424	Human, 7 µm, H&E	\$10.60	\$10.35
	313406	Mammal Intercalated Discs, 7 μm , H	\$7.25	\$7.00
Endocr	ine Syst	tem		
	316670	Mammal Hypophysis Pituitary gland, 7 μm, H&E	\$10.40	\$10.15
	316700	Human Thyroid Gland 7 μm, H&E	\$9.25	\$9.00
	316718	Mammal Thyroid and Parathyroid Glands 7 µm, H&E	\$8.15	\$7.90
	316750	Mammal Adrenal Gland 7 μm, H&E	\$9.00	\$8.75

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
Nervou	s Syste	m		
4	313546	$\begin{tabular}{ll} \textbf{Mammal Nerve} \\ \textbf{Shows general structures, c.s., 7 μm, H\&E} \\ \end{tabular}$	\$7.30	
-	313552	Mammal Peripheral Nerve Myelinated, c.s. & l.s., 8 μm, H&E	\$7.25	\$7.00
	313570	Mammal Giant Multipolar Neurons Gray matter of spinal cord, smear, LFB	\$9.40	\$9.15
	313576	Mammal Nerve Fibers Shows nodes of Ranvier, teased isolated fibers, 0	\$15.75	\$15.25
1 %	313594	Human Nerve Shows general structures, c.s. & l.s., 7 µm, H&E	\$15.10	\$14.60
4.	1	Brain		
	313618	Mammal Cerebrum , 10–12 μm, H&E	\$7.65	\$7.40
	313624	Mammal Cerebrum , shows pyramidal neurons, $10-12 \mu m$, S	\$20.50	\$20.25
	313636	Human Cerebral Cortex , 7–8 μm, H&E	\$8.10	\$7.85
	313660	Mammal Cerebellum , 8 μm, H&E	\$7.25	\$7.00
	313666	Mammal Cerebellum, 8 μm , S	\$12.35	\$12.10
		Spinal Cord Shows gray and white matter		
	313708	Mammal , c.s., 8 μm, H&E	\$8.15	\$7.90
	313726	Mammal , shows motor neurons in gray matter, c.s., 8 μ m, S	\$9.15	\$8.90
	313738	Human , c.s., 8 μm, H&E	\$11.80	\$11.55
0	313792	Mammal Spinal Ganglion and Nerve Shows general structures, l.s., 7 μm	\$7.80	\$7.55
A 10 1		Nerve Endings (corpuscle	s)	
	313816	$\label{eq:mammal meissner's Corpuscle} \begin{tabular}{ll} \textbf{Mammal Meissner's Corpuscle}, 7 \ \mu m, \\ \textbf{H\&E} \end{tabular}$	\$8.45	\$8.20
	313870	$ \begin{array}{c} \textbf{Mammal Vater-Pacini Corpuscle}, \ w.m., \\ MP \end{array} $	\$12.55	
	313864	Mammal Motor Nerve Endings and Plates, w.m., GldC	\$28.50	
9 (Sensory Organs		
	313830	Mammal Cochlea , shows inner ear with Corti's organ, I.s., 7 μm , H&E	\$16.80	\$16.30
	313842	$\label{eq:mammal} \begin{tabular}{ll} \textbf{Mammal Eye}, shows general structures, \\ median l.s., 7 \ \mu m, H\&E \end{tabular}$	\$16.15	\$15.65

See more histology slides on the next page.

Microscope Slides

Histology Slides & Sets

Image	Item No.	Name and Description	Each	12+ Each
Circulat	tory Sys	stem		
	313986	Mammal Aorta Shows general structures, c.s., 7 μ m, V	\$8.60	
100	313998	Human Aorta Shows general structures, c.s., 7 μ m, H&E	\$8.30	\$8.05
	314010	Human Aorta Shows general structures, c.s., 7 μ m, V	\$10.25	\$10.00
90	314016	$\begin{array}{l} \textbf{Mammal Artery} \\ \textbf{Shows general structures, c.s., 7 } \mu \textbf{m}, \\ \textbf{H\&E} \end{array}$	\$5.95	
	314046	Human Vena Cava Shows general structures, c.s., 7 μ m, H&E	\$10.25	
9	314082	Mammal Artery and Vein Shows general structures, c.s., 7 μ m, H&E	\$7.25	\$7.00
0,4	314094	Human Artery and Vein Shows general structures, c.s., 7 $\mu m, $ H&E	\$11.50	\$11.25
	314118	Mammal Artery, Vein, and Nerve Shows general structures, c.s., 7 μ m, H&E	\$7.05	\$6.80
Respira	tory Sys	stem		
	315610	$\begin{tabular}{ll} \textbf{Mammal Olfactory Epithelium}\\ \textbf{Shows cells of nasal passage, 7} \ \mu\text{m, H\&E} \end{tabular}$	\$9.00	
	315612	$\begin{array}{l} \textbf{Mammal Trachea} \\ \textbf{Shows hyaline cartilage and pseudostratified epithelium, c.s., 7 } \mu\text{m, H\&E} \end{array}$	\$8.20	\$7.95
	315620	Mammal Larynx Shows general structures, 7 μm, H&E	\$9.40	
O	315648	Mammal Lung Shows general structures, 8 μm, H&E	\$7.55	\$7.30
>	315670	$\begin{array}{l} \textbf{Human Lung} \\ \textbf{Shows general structures of healthy lung,} \\ \textbf{7 } \mu \textbf{m}, \textbf{H\&E} \end{array}$	\$9.95	\$9.70
Lympha	atic Sys	tem		
1	314250	Mammal Lymphatic Vessel Mesentery, shows valve, w.m., MP	\$13.50	
	314256	Mammal Lymph Node 7 μm, H&E	\$7.45	\$7.20
	314298	Human Palatine Tonsil 7 μm, H&E	\$7.80	\$7.55
6.7	314346	Human Spleen 7 μm, H&E	\$9.40	\$9.15
	314382	Human Thymus 7 μm, H&E	\$10.10	\$9.85

Image	Item No.	Name and Description	Each	12+ Each
Digesti	ve Syste	em		
NA	MAYE	Upper GI Tract		
	314758	Mammal Tongue , foliate papillae with taste buds, 7 μ m, H&E	\$7.50	\$7.25
	314788	Human Tongue , filiform papillae, 7 μ m, H&E	\$9.50	
	314986	Mammal Salivary Glands, parotid, sublingual, submandibular, 7 µm, H&E	\$12.00	\$11.75
	314998	Mammal Esophagus , submucosa and muscularis glands, c.s., 7 μm, H&E	\$8.05	\$7.80
	315058	$\label{eq:mammal} \textbf{Mammal Stomach Composite}, \ cardiac, \\ \text{fundic, pyloric, 7 } \mu\text{m, H\&E}$	\$14.35	\$14.10
	315076	Mammal Cardiac Stomach, 7 µm, H&E	\$8.05	\$7.80
	315082	Mammal Fundic Stomach, 7 µm, H&E	\$8.05	\$7.80
	315100	Human Fundic Stomach , 7 μm, H&E	\$8.40	\$8.15
	315112	Mammal Pyloric Stomach, 7 µm, H&E	\$6.60	
) · OU	200.	Lower GI Tract		
	315160	Mammal Duodenum , with Brunner's glands, 7 μm, H&E	\$6.70	\$6.45
	315196	Mammal Jejunum , 7 μm, H&E	\$7.55	
	315226	$\begin{array}{l} \textbf{Mammal Ileum}, \text{ with Peyer's patches,} \\ 7 \mu\text{m}, \text{H\&E} \end{array}$	\$6.85	\$6.60
	315256	Mammal Intestine Composite , duodenum, jejunum, ileum, 7 μm, H&E	\$13.55	\$13.30
	315262	Human Appendix, c.s., 7 μm, H&E	\$10.15	\$9.90
	315274	Mammal Colon , c.s., 7 μm, H&E	\$6.90	\$6.65
		Human Colon , c.s., 7 μm, H&E	\$10.05	
	315316	Human Colon, l.s., 7 μm, H&E	\$10.35	\$10.10
		Accessory Organs		
	315358	Mammal Liver , pig, 7 μm, H&E	\$7.40	\$7.15
	315388	Human Liver , 7 μm, H&E	\$8.55	\$8.30
	315424	Human Gallbladder Body, 7 µm, H&E	\$10.25	\$10.00
	315442	Mammal Pancreas , 7 μm, H&E	\$7.40	\$7.15
	315466	Human Pancreas , 7 μm, H&E	\$9.70	\$9.45
	315478	Human Pancreas, thin sec., H&E	\$10.95	\$10.70

Key to Stains: CF, Carbol Fuchsin; **H**, Hematoxylin; **H&E**, Hematoxylin and Eosin; **MP**, Mayer's Paracarmine; **V**, Verhoeff.

Histology Slides & Sets

lmage	Item No.	Name and Description	Each	12+ Each
Excreto	ry Syste	em		
	315770	Mammal Kidney Shows medulla and cortex, c.s., 7 μm, H&E	\$7.85	\$7.60
9	315776	$\begin{array}{l} \textbf{Mammal Kidney} \\ \textbf{Shows medulla and cortex, sag. sec.,} \\ \textbf{7} \ \mu\text{m, H\&E} \end{array}$	\$7.75	\$7.50
3.3	315788	$\begin{array}{l} \textbf{Mammal Kidney} \\ \textbf{Blood vessels injected to show glomeruli,} \\ \textbf{c.s., 7} \ \mu\text{m, H\&E} \end{array}$	\$15.30	
	315818	Human Kidney Shows general structures, 7 μm, H&E	\$11.70	\$11.45
	315860	Mammal Bladder 7 μm, H&E	\$8.00	\$7.75
	315840	Female Mammal Urethra Shows general structures, c.s., 7 μm, H&E	\$7.30	
+ /*	316559	Human Male Urethra Prostatic urethra, c.s., 7 μm, H&E	\$14.80	
Reprod	uctive S	System—Female		
	Y	Ovary Shows follicles (may or may not have follicles)	Graafian	
	315982	Mammal, thin sec., H&E	\$10.35	\$10.10
	316006	Mammal , 7 μm, H&E	\$7.15	\$6.90
	316024	Human , 7 μm, H&E	\$9.50	\$9.25
	9	Graafian Follicles Shows 1 or more follicles with cumult (germ hill) and ovum	us oophor	us
	316012	Mammal, 7 μm, H&E	\$11.20	\$10.95
	316018	Mammal, thin sec., H&E	\$14.30	\$14.05
	316030	Mammal Corpus Luteum 7 μm, H&E	\$9.00	\$8.75
DI.	316102	Human Fallopian Tube c.s., 7 μm, H&E	\$9.60	\$9.35
000	316150	$\begin{array}{l} \textbf{Mammal Pregnant Uterus} \\ \textbf{Small mammal uterus containing fetus,} \\ \textbf{8}10~\mu\text{m, H\&E} \end{array}$	\$7.90	
	316174	Human Uterus 7 μm, H&E	\$9.55	\$9.30
	316228	Human Vagina 7 μm, H&E	\$8.25	\$8.00
	316240	Human Placenta 7 μm, H&E	\$7.10	\$6.85

Microscope Slides

Image	Item No.	Name and Description	Each	12+ Each
Reprod	uctive S	System—Male		
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Testis		
	316386	Mammal , 7 μm, H&E	\$8.20	\$7.95
	316434	Human , 7 μm, H&E	\$9.65	\$9.40
		Epididymis Shows tubules containing numerous	spermato	zoa
	316464	Mammal , 7 μm, H&E	\$7.00	\$6.75
	316476	Human , 7 μm, H&E	\$8.35	\$8.10
0	316500	Human Ductus Deferens c.s., 7 μm, H&E	\$11.00	\$10.75
	316512	Spermatic Cord 8–10 μm, H&E	\$7.85	
3	316542	Human Prostate Gland, Young From young adult, 7 μm, H&E	\$11.00	\$10.75
	316548	Human Prostate Gland, Old From older adult, 7 μm, H&E	\$11.80	\$11.55
m+ V+	316559	Human Male Urethra Prostatic urethra, c.s., 7 μm, H&E	\$14.80	
0	316566	Human Penis Shows general structures, c.s., 7 μm, H&l	\$20.00	
"	The second	Sperm		
	316572	Frog, smear, CF	\$7.00	\$6.75
	316584	Bull , smear, CF	\$10.85	\$10.60
	316590	Human , smear, H	\$10.75	\$10.50

Thin sections: Cut at approximately $2~\mu m$ (micrometers) as compared to $5~to~10~\mu m$ for standard sections. Thin sections show greater clarity of cells and tissues as well as greater detail of cell components. Because of the short depth of field, students should have no problem focusing on thin-section tissues.

Microscope Slides Slide Preparation

Microscope Slides & Cover Glasses



Carolina® Top-Quality Glass Microscope Slides

- · Superior optical quality
- · Precision-ground edges
- Our most popular microscope slides

Truly at the top of its class, each Carolina® glass slide preparation is precleaned and individually selected for uniform quality. Our slides are made from the finest sheet glass, have precision-ground edges, and are annealed to minimize chipping and breaking.



631920 Standard Microscope Slides

Item No.	Description	Size	Thickness	Slides Per Box	Per Box	20+ Boxes Each
631920	Standard Slides	$25 \times 75 \text{ mm}$	1.1–1.8 mm	36	\$11.10	\$10.60
632010	Standard Slides	$25\times75~\text{mm}$	0.96-1.06 mm	72	\$13.20	\$12.95
632100	Permafrosted-End Slides	$25\times75~\text{mm}$	0.96-1.06 mm	72	\$17.40	\$16.65





632010 Standard Microscope Slides

Student-Grade Microscope Slides

A good quality, economical microscope slide made of clear, noncorrosive glass with ground edges. Size, 3 × 1"; thickness, 1.0 to 1.2 mm. These slides have not been precleaned. Packaged in boxes of 72 slides.

632950 Standard

Per box \$10.80 \$10.55 10+ Boxes Each

632956 Frosted, Single End

Per box \$13.60 10+ Boxes Each \$13.10



632956 Student-Grade Microscope Slides, Single End Frosted



632960 Student-Quality Glass Coverslips

Student-Quality Glass Coverslips

Made of noncorrosive glass in 2 of our most popular sizes. Packaged in boxes of 100.

632960 $18 \times 18 \text{ mm}$

Per box **\$5.45**

632962 22 × 22 mm

Per box \$6.05

Student-Quality Concavity Slides

Made of clear, noncorrosive glass with polished, spherical concavities about 13 mm in diameter and 0.5 mm deep. Available with single or double concavities and in packages of 12.

632970 Single Concavity

632972 Double Concavity

Per pack \$13.75

Per pack \$21.60



632970 Student-Quality Concavity Slide, Single Concavity



Carolina® Concavity (Culture) Slides

Our culture or concavity slides are finely ground and highly polished. They are made of high-quality, noncorrosive glass with precision-ground edges.

Item No.	Size	Thickness	No. Cavities	Cavity (approx.) Diam × Depth	Each	12+ Each
632200	$25.4\times76.2~\text{mm}$	1.2–1.5 mm	1	15 × 0.8 mm	\$2.80	\$2.60
632205	$25.4\times76.2~\text{mm}$	1.2-1.5 mm	2	$15 \times 0.8 \text{ mm}$	\$3.95	\$3.70



Carolina® Cover Glasses

- · Superior glass gives superior clarity
- Storage box protects during field use
- · Preferred by colleges and universities

Customer Review

"This product is high quality, easy to use, and highly versatile for a variety of purposes. Highly recommended."

University Chemistry Lab Manager

Carolina® Assistant-Brand Cover Glasses are cut and selected from the famous Deutsche Spiegelglas micro sheet made in Germany. This is a time-tested, high-quality borosilicate glass of the highest hydrolytic consistency and is well adapted for fluorescent microscopy. The glass sheets are chemically cleaned before cutting. Our cover glasses are packed in tightly closed plastic boxes, which protect them from excessive humidity. Carolina® Cover Glasses are available as circles, rectangles, and squares and in thicknesses of 0.09 to 0.12 mm, 0.13 to 0.17 mm, and 0.18 to 0.25 mm.



Carolina Cover Glasses (circles)

Carolina® Cover Glasses (circles)

Thickness Ranges:

No. 0: 0.09-0.12 mm No. 1: 0.13-0.17 mm No. 2: 0.18-0.25 mm

Item No.	Thickness	Size	Box of 100
633009	0.09-0.12 mm	12 mm (1/2")	\$24.65
633011	0.09-0.12 mm	15 mm (5/8")	\$24.95
633013	0.09-0.12 mm	18 mm (³ / ₄ ")	\$25.90
633015	0.09-0.12 mm	22 mm (⁷ / ₈ ")	\$28.35
633017	0.09-0.12 mm	25 mm (1")	\$35.45
633029	0.13-0.17 mm	12 mm (1/2")	\$22.40
633031	0.13-0.17 mm	15 mm (⁵ / ₈ ")	\$21.55
633033	0.13-0.17 mm	18 mm (³ / ₄ ")	\$23.00
633035	0.13-0.17 mm	22 mm (⁷ / ₈ ")	\$23.75
633037	0.13-0.17 mm	25 mm (1")	\$31.10
633049	0.18-0.25 mm	12 mm (1/2")	\$25.80

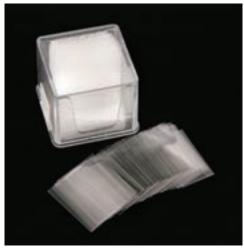


Carolina Cover Glasses (squares)

Carolina® Cover Glasses (squares)

Thickness Ranges:

Thickness	Size	Box of 100
0.09-0.12 mm	15 mm (⁵ / ₈ ")	\$10.75
0.09-0.12 mm	18 mm (³/₄")	\$11.05
0.09-0.12 mm	22 mm (⁷ / ₈ ")	\$14.90
0.09-0.12 mm	25 mm (1")	\$19.10
0.13-0.17 mm	22 mm (⁷ / ₈ ")	\$12.75
0.18-0.25 mm	18 mm (³ / ₄ ")	\$12.05
	0.09–0.12 mm 0.09–0.12 mm 0.09–0.12 mm 0.09–0.12 mm 0.13–0.17 mm	0.09–0.12 mm 15 mm (5/8") 0.09–0.12 mm 18 mm (3/4") 0.09–0.12 mm 22 mm (7/8") 0.09–0.12 mm 25 mm (1") 0.13–0.17 mm 22 mm (7/8")



Carolina Cover Glasses (rectangles)

Carolina® Cover Glasses (rectangles) Thickness Range:

No. 1: 0.13-0.17 mm

Item No.	Thickness	Size	Box of 100
633145	0.13-0.17 mm	22 × 50 mm	\$33.10
633153	0.13-0.17 mm	$24 \times 50 \text{ mm}$	\$35.05

Microscope Slides

Plastic Slides & Coverslips



632920 Disposable Lab Pack

Disposable Lab Pack

Includes 50 plastic microscope slides (3 \times 1"), 50 plastic coverslips (22 \times 22 mm), and lens paper booklet (3 \times 4½"). Ideal for individual student use.

632920 Per pack \$17.35

Deluxe Slide-Making Set

Includes 72 microscope slides, 50 coverslips, slide labels, 7.5 mL mountant, coverslip forceps, dissecting needle, razor blades, and bibulous paper.

319740 Per set **\$34.75**



632850 Plastic Microscope Slides, 3 x 1"

Plastic Microscope Slide, 3 x 1"

Made of unbreakable vinyl with the refractive index of glass. Suitable for wet mounts and temporary preparations. 144 slides per box.

632850 Per box \$17.15

Plastic Concavity (Culture) Slide, 3 × 1"

Made of clear plastic with an 18-mm raised well containing a 3-mm concave depression. Pack of 10 slides.

632935 Per pack **\$4.45**

Slide Preparation



632900 Plastic Coverslips, 22 x 22 mm

Ö

Plastic Coverslips

- . Safer for the classroom
- · Clarity similar to glass

Thickness, 0.17 to 0.25 mm. Made of clear vinyl with the refractive index of glass. Ideal for wet mounts. Available in 2 sizes.

632898 18 × 18 mm Box of 100 **\$5.30 632900** 22 × 22 mm Box of 100 **\$5.45**



632935 Plastic Concavity (Culture) Slide

Lens Paper



Lens Paper Booklets

- . No risk of scratching delicate optics
- Durable binder keeps sheets together
- · Perforated for easy removal

A fine-quality, soft, thin, silky paper for cleaning lenses and optical instruments. Free of hard particles, dirt, and grit. Perforated, in durable binding.

634000 8 × 6" (100 sheets)

Each **\$5.45** 12+ Each **\$5.25**

634005 4 × 6" (50 sheets)

Each \$1.95 12+ Each \$1.85

OpticPad® Lens Tissue

Optical surface cleaning pad. Fine-grade lens tissue premoistened with a nonabrasive, mild solvent that quickly dissolves dusts, oils, and other contaminants. 24 pads per package.

633975 Per pack \$29.00

Lens/Bibulous Paper Combination Booklet

Booklet containing 50 sheets of lens paper and 50 sheets of bibulous paper. Size of sheets, 4×6 ".

634090 Each \$4.85 12+ Each \$4.65

Lens Paper, Unbound

Same fine-quality lens paper as in our booklets. 100 sheets (6 \times 8") per package.

634010 Per pack **\$5.65**

12+ Packs Each **\$5.45**

Bibulous Paper, 4 × 6"

Neutral paper with absorbent, lintless drying surfaces. For drying slides and cover glasses, absorbing stains, and use as tray liners. In booklets of 50 sheets.

634050 Each \$5.00 12+ Each \$4.80

Containers & Cabinets

Carolina® Blue Boxes

Molded of blue high-impact styrene, the Carolina® Blue Box is manufactured to our specifications. Compared to conventional wooden boxes, the Carolina® Blue Box is smaller in size, lighter in weight, and held to closer dimensional tolerances. Both 25 \times 75 mm and 3 \times 1" slides fit the slots and will not slip out once in place. A shoulder on each box excludes dust and identifies the top of the box. Available in 2 sizes: $3^1/4 \times 4^1/4 \times 1^3/16^{\text{II}}$ (for 25 slides) and $3^1/4 \times 2^1/4 \times 1^3/16^{\text{II}}$ (for 12 slides).

634200 For 25 Slides

Each **\$4.30** 12+ Each **\$4.00 634202** For 12 Slides

Each \$3.20 12+ Each \$3.00



(slides not included)

634280 Slide Box (25 Slides) (slides not included)

Slide Box (25 Slides)

For twenty-five 25 \times 75-mm slides. Shoulder cover style. Made of white wood. Top of box, when removed, exposes ends of slides so they may be removed. Size, $6^7/\epsilon^{\text{H}} \text{ L} \times 3^1/\epsilon^{\text{H}} \text{ W} \times 1^1/\epsilon^{\text{H}} \text{ D}$.

634280 Each \$15.60

Slide Preparation



Plastic Slide Boxes

Plastic Slide Boxes

Color-coded for easy identification!

These durable ABS plastic boxes store up to 100 standard slides (1 \times 3" or 25 \times 75 mm) and will not warp. A rust-resistant, nickel-plated clasp and hinge pin secures the lid. The bottom is lined with a cork pad, and the lid has a printed index for quick reference. Designed to stack securely and available in 6 colors. Size, $8^{1}/_{4} \times 7 \times 1^{1}/_{3}$ ".

634230

Wooden Slide Box

634215	White	Each	\$18.50	12+ Each	\$17.50
634216	Red	Each	\$18.50	12+ Each	\$17.50
634217	Yellow	Each	\$18.50	12+ Each	\$17.50
634218	Blue	Each	\$18.50	12+ Each	\$17.50
634219	Green	Each	\$18.50	12+ Each	\$17.50
634220	Grav	Each	\$18.50	12+ Each	\$17.50

Slide Tray

Map form for holding twenty 3×1 " slides. Index on cover. Size, $8 \times 13^{1/2}$ ".

634400 Each \$11.70

Wooden Slide Box

For one hundred 3×1 " (25 × 75-mm) slides. Brass hinges and clasp. Made of wood with light stain finish. Numbered index. Size. $8^{1}/_{2} \times 7^{3}/_{8} \times 1^{5}/_{8}$ ".

634230 Each \$54.00 6+ Each \$52.00

These slide mailers store standard slides (3 \times 1"

For more slide preparation accessories, visit us online at Carolina.com.

634420 Five-Place Polypropylene Slide Mailer

Five-Place Polypropylene Slide Mailer

or 25×75 mm). The inside walls feature slotted channels to keep slides separated and to make removal easier. Mailers close securely to keep slides safe. Side opening.

634420 Pack of 25 \$29.75



632701 Automatic Slide Dispenser

Microscope Slides

Unit System Slide Cabinet

- Wood frame is more durable than plastic for storing microscope slides
- · Sturdy horizontal trays maintain longer-lasting specimens
- · Compact size allows you to save space

Just slip your slide into one of 25 aluminum trays designed to hold five hundred 3 × 1" slides. Each slide is safely stored flat in its own compartment home. The easy-access door disappears into the top of the cabinet. Ideal for all your needs to store microscope slides, and you can easily stack additional units on top. Size, $8^{1}/_{2} \times 12 \times 10^{11}$ H.

634450

Slide Cabinet Each \$880.00 634450A

Replacement Slide Trav \$41.95 Each



634450 Unit System Slide Cabinet



634397 View-Pack Microscope Slide Holders with Ring Binder Set

View-Pack™ Microscope Slide Holders with Ring **Binder Set**

Bel-Art®. Binder comes complete with 10 View-Pack™ holders. Each View-Pack™ holder stores 16 slides in individual pockets with white vinyl back and clear front. Slides cannot fall out because of covering flap in center. Additional View-Pack™ **Holders** are available in a pack of 10. Size, 9×12 ".

634397 Each \$79.65 634398 Additional View-Pack Holders Pack of 10 \$47.10



634410 White Styrene Microscope Slide Trays

White Styrene Microscope Slide Tray

Bel-Art®. For storing twenty 3 × 1" slides in horizontal position. Handy finger cutouts simplify removal of slides. Size, $7^{1}/2 \times 13^{1}/2^{"}$. Packed 6 per box.

634410 Per box **\$74.45**

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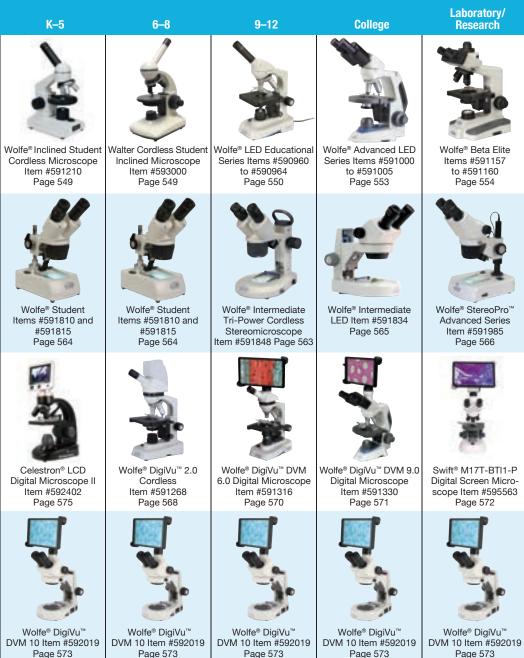
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Compound

Stereomicroscope **Digital Compound**

Carolina Recommended

Use the guide below as a tool to narrow your search by microscope type and grade level. Find more information about these "Teacher's Choice" models on the page numbers provided. If you need additional help making selections, please ask for the Microscopes Department at 800.334.5551. Our staff will happily assist you.



Digital Stereomicroscope

A Guide to Microscopes

Carolina offers a full range of compound microscopes and stereomicroscopes spanning virtually all grade levels and applications. We're sure you'll find the right one for your application. If you're a first-time buyer and a bit overwhelmed by the selection, the guide below can help you focus your search.

There are 2 types of microscopes: compound microscopes and stereomicroscopes.



Choose a compound microscope to:

- View slide-mounted, microsized specimens that are thin enough to allow light to pass through them
- Examine premounted slides and pond water specimens such as algae and protozoans
- Provide high-power magnification (40× to 1,000×), a narrow field of view, and a short working distance



Choose a stereomicroscope to:

- Observe unmounted, macro-sized specimens that are too thick to allow light to pass through them
- View insects, plants, rocks, coins, and more
- Provide low-power magnification (10× to 40×), a wide field of view, and a long working distance

Why buy a digital microscope or camera?

A digital microscope is basically a standard microscope with a digital camera built into the head. It has USB outputs that connect to your computer and comes with scientific software that allows students to capture images, produce video clips, measure specimens, label body parts, and more. You can make a quality microscope digital by adding a specially designed camera that connects to the eyepiece of your microscope. The camera also comes with the scientific software.

Features to consider:

- Image resolution or pixel count—the higher the count, the better the image quality
- Images can be displayed on a computer monitor or projected on a large screen—we recommend a camera or microscope with 1.3 megapixels or higher if using a projector

Most microscopes use one of these types of illumination:

Tungsten

- Yellowish light—can distort the colors of viewed specimens
- Hot light—preferred for illuminating nonliving specimens
- Least expensive to purchase and most common

Fluorescent

- White light—gives specimens a more natural appearance
- Cool light—preferred for illuminating living specimens
- More expensive than tungsten to purchase, but less expensive to operate

Halogen

- Very bright white light—gives specimens a more natural appearance
- Hot, concentrated light—preferred for use with binocular compound microscopes and for illuminating nonliving specimens
- Commonly found in research-level microscopes

LED

- White light—gives specimens a more natural appearance
- Cool light—preferred for illuminating living specimens
- Energy efficient and a popular choice for cordless microscopes

Repair, Parts, and Service

Our commitment to customer satisfaction extends to our complete microscope service facility, providing top-of-the-line repair and reconditioning. We offer expert repair at a reasonable cost, in-stock parts, estimates upon request, and excellent customer support.

• Quantity Discounts

Discounts are available on special quotations. Call our Quotations Department at 800.334.5551, ext 6300, for details.

Special Requests

Our products are backed by a comprehensive inventory of in-stock parts and accessories. We can also custom configure many of our microscopes to suit your needs. When your requirements involve the Wolfe®, Swift®, Motic®, or Leica product lines—microscopes, accessories, repair, or bid requests—please contact us even if you don't find what you need here.



Performance & Reliability

Wolfe® began selling microscopes in 1961 with 12 models. Sixty-one years later, it has become a leader in the educational microscope industry with 41 models to meet the requirements of every educator. Hard-working Wolfe® microscopes for high school and college are backed by a lifetime limited warranty*. Whether you are looking for the latest in digital microscopy, cordless microscopes, or more traditional compound and stereomicroscopes, you can count on Wolfe® for performance and reliability—today and tomorrow.



Carolina—97 Years of Service to Educators

Wolfe® microscopes from Carolina have performance and reliability built in, and are backed by resources honed by decades of experience that include:

- A microscope repair service that primarily services our line of Wolfe® microscopes and includes a comprehensive inventory of in-stock parts and accessories
- A Microscopes Department staff with a total of over 80 years of experience in the optical field that is ready to advise you on service, selection, and purchasing
- A satisfaction guarantee—we will let you try any microscope for 30 days** on approval



Wolfe Microscopes

*All Wolfe® microscopes for high school and college are backed by a limited-lifetime warranty against manufacturer's defects. All Wolfe® microscopes for elementary school have a 5-year warranty against manufacturer's defects. **Note:** Warranties exclude built-in cameras, bulbs, power supplies, rechargers, batteries, fuses, and cords. These items have a 1-year warranty.

**Try any of our microscopes for 30 days! We invite you to order any microscope on approval. If after 30 days you are not totally satisfied, simply return it in original (resalable) condition for credit, refund, or exchange.

Basic Compound

Basic Compound Microscopes



Inclined Student Cordless Microscope Grades 3-6.

A moveable stage allowing hands-off slide adjustment and locked-on stage clips are just a few of the features that make this lightweight, cordless microscope ideal for student use. The TT52 LED Inclined Student Cordless Microscope offers many other advantages:

- Features include inclined, rotatable head with all-glass optics; locked-in 10× widefield pointer eyepiece and triple nosepiece with 4×, 10×, and spring-loaded 40× objectives
- Designed to eliminate slipping or drifting out of focus, the innovative focusing system has no gears to strip or jam; provides smooth stage movement for stability and precise control and large knobs for easy focusing; slip clutch prevents damage by allowing knobs to turn even when stage has reached upper/lower travel stops
- Sturdy, all-metal stand

wolfe

- Wolfe® 5-year limited warranty (excluding bulb, batteries, and adapter/charger)
- Size, 11" H \times 4 $^{1}/_{2}$ " W \times 6" D; wt, about 4 lb

▲ 591210 Model TT52 LED Student Cordless Microscope Each \$189.00 590987 LED Replacement Lamp \$11.95

Wolfe Inclined





This introductory compound microscope—designed for the young biology student—features an allmetal construction for ruggedness and durability, plus coaxial coarse and fine focusing for ease of use and increased accuracy. A built-in slip clutch prevents damage to the microscope and slides. The advanced cordless LED illumination provides a safer, cooler, long-life lighting system that will increase the microscope's placement options in the classroom. Limited lifetime warranty.

- 10× widefield eyepiece with pointer
- 4×, 10×, and 40×R achromatic objectives that are parcentered and parfocalled
- Revolving triple nosepiece with positive click stops
- 31/2" movable stage makes it easy for small hands to adjust specimen
- Fixed condenser and 6-hole rotating disc diaphragm
- LED cordless (rechargeable) illumination
- . Includes 3 rechargeable (NiMH) batteries and a single adapter
- · Comes complete with dust cover and instruction manual
- Size. $10^{1/2}$ " H × 4" W × 6" D: wt. about 4 lb

593000 Each \$175.00

Walter Cordless Student Inclined Microscope



Microscopes Compound Microscopes



Grades 7-12.

Less heat, more value, and long-lasting durability

• Cool, variable-intensity LED illumination eliminates heat buildup that can affect live microorganisms.

· Separate coarse and fine adjustments give faster, more accurate focusing at high magnifications.

• Built-in mechanical stage on some models makes it easy to scan the entire specimen without using fingers to move the slide.

If you're looking for an educational microscope that's well designed, versatile, and durable, Carolina offers you an exceptional value with your choice of one of our quality Wolfe® LED Educational Microscopes.

Exceptional performance—These high school microscopes have LED illumination with rheostat control that radiates little or no heat compared with lower-priced models with tungsten illumination—a very important benefit when you're working with live microorganisms. LED illumination is also whiter and promotes far longer bulb life. The focus mechanism has separate coarse and fine adjustments, incorporating travel stops and a slip clutch to protect slide, objectives, and focus mechanism.

Flexible options—Choose between models with "one-touch" stage clips for ease of use and advanced models with a built-in mechanical stage for smoother slide positioning. A dual viewing model (item #590962) is an excellent choice for adding a second user or an accessory such as a digital camera.

Exceptional value—Get the features you need, including an inclined head, in-base LED illuminator, and iris diaphragm, at affordable prices. Quality DIN** optics include a widefield 10× pointer eyepiece and 40× and 100× objectives that retract to prevent possible slide damage. Locked-on eyepiece and stage clips protect against loss and tampering. Five different configurations are available, and each comes with dust cover, foam case, and Wolfe® lifetime limited warranty (excluding bulb, cord, and fuse). Size, 14" H \times 5" W \times 6¹/₂" D; wt, about 7 lb.



Item No.	Name	Head Type	Objective Lens	Mechanical Stage	Diaphragm	Each
590960	Educational Microscope	Monocular	4×, 10×, 40×R	Optional	Adjustable Iris	\$298.00
590961	Educational Microscope with Mechanical Stage	Monocular	4×, 10×, 40×R	Built-In	Adjustable Iris	\$354.00
590962	Teaching Educational Microscope with Mechanical Stage	90° Dual View	4×, 10×, 40×R	Built-In	Adjustable Iris	\$424.00
590963	Advanced Educational Microscope with Mechanical Stage	Monocular	4×, 10×, 40×R, 100×R	Built-In	Adjustable Iris with Abbe Condenser	\$495.00
590964	Advanced Educational Microscope with Mechanical Stage	Siedentopf Binocular	4×, 10×, 40×R, 100×R	Built-In	Adjustable Iris with Abbe Condenser	\$655.00

^{**}DIN: Deutsche Industrie Normen, an industry standard.

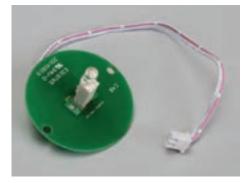
Compound

Microscopes



590962 Wolfe LED Teaching Educational Microscope with Mechanical Stage

590964 Wolfe LED Advanced Educational Microscope with Mechanical Stage



590979 Wolfe LED Educational Series Replacement Lamp

Wolfe® LED Educational Series Replacement Lamp

Replacement lamp assembly fits Wolfe® LED Educational Series microscopes manufactured in 2016 or later.

590979 Each \$15.50





Details from 590963 Wolfe LED Advanced Educational Microscope with Mechanical Stage



HS Series Microscopes ▲³

Grades 7-12.

The Wolfe® HS Series Microscope offers less heat, more value

Get the right features, the right price, and the advantage of LED illumination.

- LED illumination virtually eliminates heat buildup that can affect live microorganisms.
- Separate coarse and fine adjustments give faster, more accurate focusing at higher magnifications.
- Built-in mechanical stage (item #590945) makes it easy to scan the entire specimen without using fingers to move the slide.

If you're looking for an educational microscope that's well designed, versatile, and durable, Carolina offers you an exceptional value with one of our quality Wolfe® HS Series Microscopes.

Cool performance—Rheostat controlled LED illumination radiates little or no heat compared to lower-priced models with tungsten illumination—a very important benefit when you're working with live microorganisms. LED light is also whiter and promotes significantly longer bulb life. The focus mechanism has separate coarse and fine adjustments, incorporating travel stops and a slip clutch to protect slide, objectives, and focus mechanism.

Cool options—Choose between a model with stage clips that is predrilled for an optional add-on mechanical stage (item #590940) and a model with a built-in mechanical stage for smoother slide movement (item #590945).

Cool value—Get the features you need, including an inclined and rotatable head, in-base illuminator, and disc or adjustable iris diaphragm, at an affordable price. Locked-on eyepiece and stage clips protect against loss and tampering. Quality DIN** optics include a widefield $10\times$ pointer eyepiece and $4\times$, $10\times$, and $40\times$ objectives. The $40\times$ retracts to prevent possible slide damage.

Each comes with a dust cover, foam case, and Wolfe® limited lifetime warranty (excluding bulb, cord, and fuse). Size, $14^{\text{H}} \text{ H} \times 5^{\text{H}} \text{ W} \times 6^{\text{1}/2}^{\text{H}} \text{ D}$; wt, about 7 lb.





**DIN: Deutsche Industrie Normen, an industry standard.



590945 Wolfe HS Series Microscope with Mechanical Stage

Compound



Advanced LED Series Microscopes A

Grade 9-College.

Traditional microscopes with modern design and advanced features

A series of microscopes that includes the latest and best features for educational microscopy. Affordably priced, these microscopes are designed for high performance, practicality, and easy operation. Size, 15" H \times 7" W \times 9" D; wt, 10 lb.

High performance

- Widefield WF10× eyepiece on a 360° rotating monocular head
- Siedentopf-design binocular head (item #591004) adds comfort for extended viewing
- Siedentopf-design trinocular head (item #591005) includes a C-mount adapter for adding an optional digital camera, such as a camera in the Motic[®] Moticam series
- Quality DIN** parfocal, parcentric, EA achromatic objectives
- Advanced coaxial coarse- and fine-focusing adjustments with upper-limit stop to prevent damage to slide and objective
- Spiral-mounted 1.25 N.A. Abbe condenser with iris diaphragm

Easy to use

- Reverse-mounted quadruple nosepiece with positive stops for precise magnification changes
- Rounded stage and reverse-mounted objectives for easier slide access and manipulation
- Built-in mechanical stage with low-position coaxial controls gives students precise control over slide movements—excellent for slide scanning at higher magnifications

Practical value

- · Integrated handle and cord wrap encourage proper handling and provide neat, easy storage
- · Variable-intensity, energy-efficient, cool LED lighting for extended viewing of live specimens
- LED lamps last longer than any others—up to 50,000 hr!

Great warranty

· Lifetime limited warranty



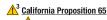


Teacher's Choice



Item No.	Head Type	Objectives	Each
591000	Monocular	$4\times$, $10\times$, spring-loaded $40\times$	\$529.00
591002	Monocular	4×, 10×, spring-loaded 40×, spring-loaded oil-immersion 100×	\$609.00
591004	Siedentopf Binocular	4×, 10×, spring-loaded 40×, spring-loaded oil-immersion 100×	\$819.00
591005	Siedentopf Trinocular	$4\times,10\times,\text{spring-loaded}40\times,\text{spring-loaded}$ oil-immersion $100\times$	\$965.00

^{**}DIN: Deutsche Industrie Normen, an industry standard.



Wolfe® Beta Elite Microscopes

Specifically designed for advanced school studies



Beta Elite Microscopes A

Advanced High School and College.

Innovative and unique features include:

- 3-W LED variable intensity illuminator provides 20,000 hr of heatless light per bulb—perfect for viewing living specimens
- The Elite model's compact rackless stage design without prominent gear rack enhances user safety in educational environments and provides convenient X/Y positioning
- Features semi-plan objectives for a flatter field of view compared to standard achromatic objectives

If you're looking for a high-quality microscope at a lower, more affordable price, look at Wolfe® Beta Elite Microscopes. These educational microscopes are ideal for routine laboratory, industrial, and educational purposes. They offer fatigue-free operation, with a low-position, coaxial coarse- and fine-focusing drive, and built-in hand rest. The Elite model includes many features found on research-quality microscopes—at a price for educators.

- Abbe condenser with iris diaphragm provides better contrast and image resolution with infinite degrees of control
- Quality DIN** optics include: 10× widefield eyepiece(s); semi-plan $4\times$, $10\times$, $40\times$, and oil-immersion $100\times$ objectives
- \bullet The $40\times$ and $100\times$ objectives are spring-loaded and retract to protect the prepared slide from damage
- \bullet Oversized 140 \times 140-mm integral mechanical stage with low-position coaxial controls
- · Graduated, oversized knobs on coaxial coarse- and fine-focus adjustments
- Filter holder on rack-and-pinion movement
- · Large, extremely stable, Euro-style base and stand
- The trinocular model (item #591160) includes a C-mount adapter to allow easy top mounting of digital cameras such as Motic® Moticams
- Wolfe® lifetime limited warranty (excluding bulb, cord, and fuse)
- \bullet Size, 15" H \times $7^{1}/_{4}$ W \times 9" D; wt, about 14 $^{3}/_{4}$ lb

 591157
 Beta Elite Monocular
 Each
 \$669.00

 591158
 Beta Elite Binocular
 Each
 \$899.00

 591160
 Beta Elite Trinocular
 Each
 \$1,149.00

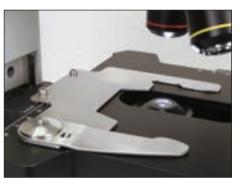
LED Replacement Lamp

LED replacement lamp assembly for Wolfe $^{\! @}$ Beta Elite microscopes manufactured in 2016 or later.

591141 Each **\$17.95**



591141 LED Replacement Lamp





Details from 591157 Wolfe Beta Elite Monocular Microscope





^{**}DIN: Deutsche Industrie Normen, an industry standard.

Compound Microscopes



Details from 591160 Wolfe Beta Elite Trinocular Microscope (Moticam not included)



🕥 Beta Research Microscopes 🕰

Advanced High School and College.

The demands placed on any routine microscope for daily work require careful focus on every microscope detail. The Wolfe® Beta Research Microscope series features a powerful adjustable light source to meet both delicate and detailed lighting requirements for all sample types, while the fully featured LED Koehler illumination helps in highlighting even the weakest stained specimens. Both models feature improved CCIS® plan EC achromat objectives, which provide optimal image contrast through newly designed multi-layer lens coatings. Included eyepieces are N-WF10x/20 mm with a high eyepoint for eyeglass wearers.

 30° inclined binocular or trinocular head with 360° swiveling eyepiece tubes for comfortable viewing while seated

- Interpupillary distance adjustment between 48–75 mm
- Widefield eyepieces N-WF10×/20 mm with diopter adjustment on both eyepieces
- Reversed quintuple nosepiece with click stops for precise magnification changes
- CCIS® plan EC achromatic objectives: spring, $4\times/.10$, $10\times/.25$, $40\times/.65$; spring/oil, $100\times/1.25$
- Coaxial coarse- and fine-focusing system with 2-micron minimum increment with tension adjustment
- · Vertical travel range, 20 mm
- Large, 175×140 -mm mechanical stage with low-position coaxial controls; travel range, 76×50 mm; sample holder can hold up to 2 slides
- .90/1.25 N.A. Abbe condenser with iris diaphragm and slider slot is focusable and can be centered
- . LED Koehler illumination is 3 W with intensity control
- 100- to 240-V universal power supply, CE/CSA compliant
- Wolfe® lifetime limited warranty (excluding bulb, cord, and fuse)
- Size, $15^{1/2}$ " H × $7^{3/4}$ " W × $10^{3/4}$ " D; wt, about $15\frac{1}{2}$ lb

Choose from a binocular or trinocular head. The trinocular head design is perfect for adding digital microscopy cameras, like those in the Moticam Series (items #591438, #591431, #591432, and #591433). Order the optional C-mount adapter (item #591170) for connecting C-mount style cameras. Both models include immersion oil and dust cover.

591167 Binocular Microscope Each **\$1,777.00 591168** Trinocular Microscope Each **\$2,004.00**



591170 Wolfe C-Mount Adapter

This Wolfe® $0.5\times$ C-Mount Adapter is designed to fit the Wolfe® Beta Research Trinocular Microscope (item #591168). The adapter is a necessary accessory for mounting C-mount style digital and analog cameras, such as Motic® Moticams, to the trinocular head. The $0.5\times$ magnification works best with cameras that have the popular $^{1}/_{3}$ " and $^{1}/_{2}$ " chip sensors. Call 800.334.5551 to check for availability of other c-mounts for cameras of various chip sizes.

591170 Each \$119.00



591167 Wolfe Beta Research Binocular Microscope



M17 Advanced Binocular Microscope A3

Advanced High School and College.

Precision, ease of use, and quality add up to a great microscope series!

This precision microscope is up to the task of providing advanced users with the optical performance they need. Quality all-metal internal construction, ergonomic design, and cool LED illumination ensure that this device is durable and easy to use. The M17 features infinity-corrected plan optics, ideal for college laboratories as well as veterinary and medical applications.

sk of cal al rell as

Precision

- Siedentopf head provides large interpupillary range and is ergonomically positioned for operator comfort
- Coaxial coarse- and fine-focusing controls; the focus knob tension control offers feather-touch sensitivity for extremely accurate focusing
- Built-in, low-drive mechanical stage for precise scanning of your specimen

Ease of use

- Head is inclined 45° for ergonomic viewing
- Eyepieces are 20 mm for increased field of view
- Quad objective turret is ball-bearing mounted for smooth, precise positioning of objectives
- Reversed nosepiece gives clear access to the large 140 × 140-mm stage
- Spring-loaded and sealed 40×RD and 100×RD objectives are protected from contact or oil damage

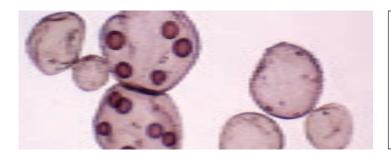
Quality

- Quality manufacturing, all-metal internal parts, and high-grade synthetic lubricants ensure durability and minimal down time
- Swift® Optical Limited Lifetime Warranty covers defective parts and workmanship for the life of the instrument
- \bullet Size, 16" H \times 9" W \times 10" D; wt, about 17 lb

595555 Each **\$1,129.00**



595555 Swift M17 Advanced Binocular Microscope



Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.

Cordless with LED Illuminators

Cordless Microscopes with **LED Illuminators**

Use anywhere—in the classroom or in the field; cordless or plugged in!

- Batteries recharge and stay charged when the microscope is plugged in
- Uses super-bright LED illuminator instead of a small reflective mirror

These cordless compound microscopes can be used anywhere, inside the lab and out. Nickel-metal hydride batteries (included) provide hours of uninterrupted illumination. Unlike some other models, these cordless compound microscopes can be used while the batteries are being charged—that means no downtime for busy laboratories. An AC adapter/charger and a dust cover are included with each microscope.

wolfe

Inclined Student Cordless Microscope

Grades 3-6.

A moveable stage allowing hands-off slide adjustment and locked-on stage clips are just a few of the features that make this lightweight, cordless microscope ideal for student use. The TT52 LED Inclined Student Cordless Microscope offers many other advantages:

- Features include inclined, rotatable head with all-glass optics; locked-in 10× widefield pointer evepiece and triple nosepiece with 4×, 10×, and spring-loaded 40× objectives
- Designed to eliminate slipping or drifting out of focus, the innovative focusing system has no gears to strip or jam; provides smooth stage movement for stability and precise control and large knobs for easy focusing; slip clutch prevents damage by allowing knobs to turn even when stage has reached upper/lower travel stops
- · Sturdy, all-metal stand
- Wolfe® 5-year limited warranty (excluding bulb, batteries, and adapter/charger)
- Size, 11" $H \times 4^{1/2}$ " $W \times 6$ " D; wt, about 4 lb

▲ 591210 Model TT52 LED Student Cordless Microscope Each **\$189.00 590987** LED Replacement Lamp

Each \$11.95



591210 Wolfe Inclined Student Cordless Microscope

INITER New! Dual View Cordless Student Microscope

Grades 3-8.

Designed for young biology students, this introductory compound microscope features all-metal construction for ruggedness and durability. Its coaxial coarse- and fine-focusing controls make it easy to use and increases accuracy. The 45° dual-view head allows 2 students or a teacher and a student to view microscopic specimens at the same time. A built-in slip clutch prevents damage to the microscope and slides. The advanced cordless LED illumination provides a safer, cooler, long-life lighting system that will increase the microscope's placement options in the classroom. Five-year limited lifetime warranty.

- Widefield 10× eyepieces with pointer
- 4×, 10×, and 40×R achromatic objectives that are parcentered and parfocalled
- · Revolving triple nosepiece with positive click stops
- 31/2" movable stage makes it easy for small hands to adjust specimen
- Fixed condenser and 6-hole rotating disc diaphragm
- · LED cordless (rechargeable) illumination
- Includes 3 AA NiMH rechargeable batteries and single adapter
- Size, $10^{1/2}$ " H × 4" W × 6" D; wt, $4^{1/5}$ lb

593002 Each \$214.00

Cordless Student Microscope

Cordless with LED Illuminators

Microscopes



LED Cordless Educational Microscopes ▲³

Grades 7-12.

Unique in design, engineering, quality, and value

Pack up one of these cordless, portable microscopes and take it anywhere you have something needing a closer look. With an inclined 360° rotatable head, in-stage condenser, in-base illuminator, and iris diaphragm, each is ready for the most demanding student laboratories—whether inside or outside. The included AC adapter/charger can power the microscope from a standard electrical outlet, or charge the internal nickel-metal hydride batteries for up to 60 hr of cordless use per charge.

 Cool, energy-efficient, long-lasting LED illumination with intensity control is the best choice for educational microscopy

 Reversed nosepiece allows objectives to rotate out of harm's way, providing better stage access

 Rugged metal construction, metal focusing gears, and student-proof, locked-on components

 Superior DIN** optical system and precision manufacturing assure the microscopes are parcentric as well as parfocal and deliver bright, sharp images

 Separate coarse and fine adjustments with tension control for faster, more accurate focusing at high magnifications

 Easy "one-touch" stage clips; simply place a finger at the back of the stage clip and both clamps will lift to accept the slide

 Built-in mechanical stage (items #590972 and #590973) allows scanning of the entire specimen without moving the slide with your fingers

 Iris diaphragm with infinite degrees of control for more precise contrast and image resolution

Quality DIN** optics with WF10× pointer eyepiece and 4×, 10×, spring-loaded 40×, and 100× (item #590973) objectives that retract to prevent possible slide damage

Wolfe® lifetime limited warranty (excluding bulb, batteries, and adapter/charger)

The **LED Cordless Educational Microscope with Mechanical Stage** has all the basic features plus a built-in mechanical stage with low-position coaxial controls. The **LED Cordless Advanced Educational Microscope with Mechanical Stage** has all the basic features plus a spring-loaded $100\times$ oil-immersion lens, quadruple nosepiece, Abbe condenser, and built-in mechanical stage. Size, 14" H \times 5" W \times 61/2" D; wt, about 7 lb.

**DIN: Deutsche Industrie Normen, an industry standard.



Item No.	Name	Objective Lens	Mechanical Stage	Diaphragm	Each
590971	LED Cordless Educational Microscope	4×, 10×, 40×R	Stage Clips	Adjustable Iris	\$314.00
590972	LED Cordless Educational Microscope with Mechanical Stage	4×, 10×, 40×R	Built-In	Adjustable Iris	\$374.00
590973	LED Cordless Advanced Educational Microscope with Mechanical Stage	4×, 10×, 40×R, 100×R	Built-In	Adjustable Iris with Abbe Condenser	\$525.00

Wolfe® LED Educational Series Replacement Lamp

Replacement lamp assembly fits Wolfe® LED Educational Series microscopes manufactured in 2016 or later.

590979 Each \$15.50



590979 Wolfe LED Educational Series Replacement Lamp







Cordless with LED Illuminators



Cordless Advanced LED Microscopes A³

Grade 9-College.

Choose from 2 microscopes that include the latest and best features for educational microscopy. Affordably priced, these microscopes are designed for high performance, ease, and practicality. The rechargeable cordless feature allows you to use them in any location, and the built-in handle and cordless operation make them among the easiest and safest microscopes in the industry to transport. The series is available in 2 different styles, allowing you to choose the features that best suit the needs of your classroom. Size, 15" H \times 7" W \times 9" D; wt, 11 lb.

High performance

- Widefield WF10×/18-mm eyepiece on a 360° rotating head (item #591006)
- Widefield WF10×/20-mm eyepieces with Siedentopf-design binocular head (item #591008) add comfort for long-term viewing
- Superb optical quality with advanced parfocal, parcentric, EA achromatic objectives
- Advanced coaxial coarse- and fine-focusing adjustment with upper-limit stop to prevent damage to slide and objective
- Spiral-mounted 1.25 N.A. Abbe condenser with iris diaphragm and filter holder

Easy to use

- Reverse-mounted, quadruple nosepiece with positive click-stops for precise magnification changes
- Rounded stage and reverse-mounted objectives allow for easier slide access and manipulation
- Built-in mechanical stage with low-position coaxial controls gives students precise control over slide movements—excellent for slide scanning at higher magnifications

Practical value

- Integrated handle and cordless operation encourage proper handling and provide neat, easy storage
- Variable-intensity, energy-efficient, cool LED lighting for extended viewing of live specimens
- LED bulbs last longer than any other type of lighting system, up to 50,000 hr

Great warranty

· Lifetime limited warranty, excluding bulb

Item No.	Head Type	Objectives	Each
591006	Monocular	$4\times$; $10\times$; spring-loaded $40\times$	\$555.00
591008	Siedentopf Binocular	4×; 10×; spring-loaded 40×; spring-loaded oil-immersion 100×	\$845.00

Wolfe® Advanced LED Series Replacement Lamp

Fits the Wolfe® Advanced LED Series compound microscopes.

590987 Each **\$11.95**

The Power of Carolina.com

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Cordless

Cordless Microscopes

CxL Cordless Microscopes

Grade 9-College.

Where style meets function!

Reflecting fresh designs and rugged exteriors, these CxL microscopes feature quality optical and mechanical components for a lifetime of carefree use. Their new LED illumination systems provide cool light, allowing you to view living specimens for longer periods without damaging them. Internal rechargeable batteries enable cordless operation. Available with binocular or trinocular head. The trinocular head allows you to connect digital microscopy cameras, such as Moticams, for imaging using the optional

C-Mount Adapter.

- Semi-plan achromatic optical system designed to provide true color and contrast
- 45° inclined binocular or trinocular head, IPD range from 54 to 74 mm
- · Quadruple nosepiece with rubber grip
- LP series DIN** semi-plan achromatic objectives with antifungal coating
- Rectangular mechanical stage (135 × 124 mm) with low-drive movement controls for scanning at higher magnification; X/Y travel range, 76 × 50 mm
- 1.25 N.A. Abbe condenser with aspheric lens, iris diaphragm, and snap-in blue filter
- · Coaxial coarse- and fine-focusing controls on ball drive system for smooth operation
- Long-lasting LED bulb (up to 50,000 hr)
- Universal power supply for line voltages from 100- to 240-V AC. 50/60 Hz
- · Built-in rechargeable lithium-ion battery for cordless operation
- Size, 15" H × 9" W × 10" D; wt, 10 lb

592837 CxL Binocular Each \$782.25 592838 CxL Trinocular Each \$919.80 592839 C-Mount Adapter Each \$169.05



Microscopes

Lx 300 Laboratory Microscope

Grade 9-College.

Improved ergonomics and optical

performance in a more economical package

The LABOMED® Lx 300 fulfills educational and laboratory users' requirements for improved ergonomic features and performance in a more economical package. With an infinity-corrected optical system, Siedentopf head, and large doubleplate stage, the Lx 300 is equipped to handle many microscopy tasks. The Siedentopf head has a butterfly articulation feature, providing 2 distinct viewing heights. All optics are treated with LABOMED® MaxLite™ proprietary coatings that deliver a high degree of antireflection and scratch resistance, giving users better image quality in a highly durable package.

- 45° Siedentopf head and dual focusable eye tubes articulate 360°, making the Lx 300 easy to store
- Reversed 4-position nosepiece for easy stage access
- EP2 infinity-corrected plan achromatic DIN** 4×, 10×, 40× (spring-loaded), and 100× (spring-loaded, oil-immersion) objectives deliver superb field flatness and color fidelity
- Mechanical stage (150 × 135 mm) with double specimen holder
- 1.25 N.A. Abbe substage condenser with aspheric lens, iris diaphragm, and blue daylight filter
- Variable-intensity EcoPro[™] LED illumination delivers truer daylight color temperature, runs cool, and lasts up to 50,000 hr
- Built-in Li-ion battery and AC adapter/charger for cordless and corded use
- Coaxial coarse and fine focus on ball drive system for smooth operation
- Universal power supply for line voltages from 100- to 240-V AC, 50/60 Hz
- Size, 15" H × 9" W × 11" D; wt, 15 lb

592840 Each \$987.00





M3600C Series Cordless Educational Microscopes A

Grade 9-College.

Introducing a new look to the flagship model of the Swift® Optical education line. The Swift® M3600C Series continues the Swift® tradition for innovation, now available in

rechargeable, cordless models. Built-in handle, variable LED illumination, and lead-free objectives are just some of the state-of-the-art features that put this series in a class of its own. Ideal for high school students and advanced grade levels.

Optical system

- Widefield 10×/18-mm eyepiece with graduated pointer
- DIN** standard achromat objectives are parfocalled, parcentered, and color-coded
- Nosepiece is ball-bearing mounted for smooth, precise positioning of objectives; mounted in reverse position to facilitate ease in changing slides
- Camera port integrated into head for attachment of optional Motic® Moticam camera
- . C-mount lens and 1.5-mm wrench included

Illumination

- Upgraded variable 0.5-W LED provides bright, white illumination
- Single 8-hr charge allows up to 50 hr of use
- Up to 500 recharge cycles (a total of 20,000 to 25,000 hr of use from a single set of 3 AA rechargeable nickel hydride batteries); included battery charger automatically shuts off to prevent overcharging batteries and shortening battery life

- . Upgraded coaxial coarse- and fine-focusing controls for ease of use
- · Slip clutch prevents damage to focusing system
- · Tension adjustment eliminates stage drift
- · Safety rack stop prevents damage to slides and objective lenses

Dimensions: base, $9^{1/4} \times 6^{\prime\prime}$ (235 × 151 mm); height, 141/4" (362 mm). Wt, 98/10 lb (21.6 kg). Comes with 110- to 220-V switching power supply and Swift® Limited Lifetime Warranty.

ease of use	595572 Swift M3600C
	Series Cordless
	Educational Microscope

Item No.	Model	Objectives	Stage	Condenser	Each
595572	M3603C	4×, 10×, 40×R	Stage Clips	Built-In N.A. 0.65 with Iris	\$452.00
595574	M3604C-3	4×, 10×, 40×R	Built-In Mechanical	Abbe 1.25 Spiral	\$516.00
595576	M3604C-4	4×, 10×, 40×R, 100×R	Built-In Mechanical	Abbe 1.25 Spiral	\$578.00



M3802CB-4 Cordless Microscope ▲3

Grade 9-College.

Packed with research-grade features, the M3802CB-4 is ideal for advanced high school biology, college, veterinary, medical, or techni-

cal applications. Combining a new design with a curved handle that encourages proper handling, infinity-corrected plan objectives, variable-intensity LED illumination, and smooth coaxial focusing, this microscope fits the needs of taxing clinical and student environments. Size, 14" H \times 6" D \times 9" W; wt, 11 lb.

Performance

- Swift® high-resolution optics are parfocaled and parcentered
- · Plastic iris diaphragm shield protects iris from damage

Research-grade features

- Binocular head is inclined at 45° and rotatable 360° for ergonomic viewing
- W10×D 18-mm eyepieces
- 4×D, 10×D, 40×RD, and 100×RD infinity-corrected plan objectives for a flatter field of view; 40× and 100× objectives are spring-loaded and sealed to protect optics from contact damage
- Coaxial coarse- and fine-focusing controls
- · Built-in mechanical stage with smooth-moving, low-drive coaxial controls
- 1.25 N.A. Abbe condenser with iris diaphragm increases contrast for sharp, crisp images

Cordless stand

- Built-in battery power indicator light changes from red to green when fully charged
- . Allows for up to 50 hr of continuous use on a single 8-hr charge

LED illumination

· Easy-to-replace LED lasts up to 50,000 hr

Quality

· Swift® Optical Limited Lifetime Warranty covers defective parts and workmanship for the life of the instrument

595549 Each \$925.00

**DIN: Deutsche Industrie Normen, an industry standard.



595549 Swift M3802CB-4 Cordless Microscope





Cordless

Intermediate Cordless Stereomicroscopes A

Grades 6-12.

Dual magnification—in the class or in the field

- · Cordless operation—can be used anywhere
- LED illumination—cooler and lasts longer than standard tungsten bulbs
- Built-in dual magnification—view different sizes of specimens

Now you can take microscopic study outside, in the field, or virtually anywhere. These cordless microscopes are perfect for viewing rocks, fossils, insects, plants, larger protozoa, and more. The LED lighting system on top and bottom provides bright, energy-efficient illumination and is ideal for larger specimens. Unlike many competing models, they are fully functional while being recharged, so there's no downtime for students. Additional features:

- 45° inclined binocular head for a more comfortable viewing angle
- · Paired objective in a rotating turret for fast magnification changes
- Choice of 2 microscopes with either 10x and 30x Magnification or 20x and 40x Magnification for viewing a wide variety of specimens
- Adjustable eyetubes with 51- to 75-mm interpupillary distance suitable for a variety of students

Includes an AC adapter/charger and AA nickel-metal hydride batteries. Size, 10" H \times 4 $^1/_2$ " W \times 7" D; wt, 6 lb.

591844 10× and 30× Magnification Each **\$319.00 591846** 20× and 40× Magnification Each **\$319.00**



Visit our online catalog at Carolina.com for our complete selection of Wolfe® microscopes.



Microscopes



Intermediate Tri-Power Cordless Stereomicroscope A³

Grades 6-12.

Introducing the most versatile stereomicroscope Wolfe® has ever offered. Three levels of magnification and cordless operation make it a great choice for the classroom or field.

- LED illumination—cooler and lasts longer than tungsten or halogen bulbs
- Built-in tri-power magnification—view a large variety of specimens
- Cordless operation—can be used anywhere

With 3 magnifications, $10\times$, $20\times$, and $40\times$, students can view 3-D images of rocks, fossils, insects, plants, larger protozoa, and much more. The variable-intensity top and bottom LED illumination provides cool, bright, energy-efficient lighting that will not harm live specimens. Unlike many competing models, this stereomicroscope is fully functional while being recharged, eliminating a source of downtime. Additional features:

- \bullet 45° inclined binocular head for a more comfortable viewing angle
- Three sets of objectives housed in a rotating turret for fast magnification changes
- · Forward-facing head that makes it easy for students to manipulate and exchange specimens
- \bullet Size, 12" H \times 6" W \times 9" D; wt, 6 lb

Includes an AC adapter/charger, 3 rechargeable AA nickel-metal hydride batteries (installed), and frosted stage plate.



563

Visit Carolina.com for new

products and current pricing.

Microscopes Stereomicroscopes

The advantages of having a stereomicroscope in your classroom:

- No specimen preparation necessary
- 3-D image has depth
- View virtually anything—whole specimens or slides
- Simple to use and frustration free

- · No special lighting required—use indoors or out
- Binocular viewing—use both eyes

wolfe

- Long working distance, large field of view
- Image is erect—not reversed or upside down

A stereomicroscope sparks and maintains students' interest through almost limitless specimen choice and gives simple, immediate insight into the world beyond the naked eye.





Close-up of stage plate from 591815 Wolfe Student Stereomicroscope, $20\times$ and $40\times$ Magnification

Student Stereomicroscopes A

Grades 6-12.

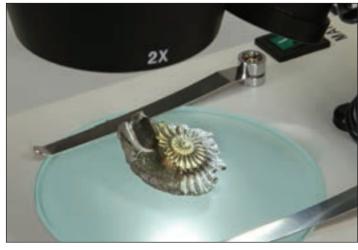
Advanced LED illumination and forward-facing head make the Wolfe® Student Stereomicroscopes outstanding performers in the science classroom.

- LED lighting has a longer lifetime than tungsten and provides a bright, cool light source that is especially beneficial for viewing living specimens
- Independently controlled upper and lower illuminators allow proper viewing of opaque and transparent specimens
- Forward-facing head places the microscope in a better position for students to manipulate and exchange specimens

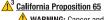
Just imagine how a stereomicroscope will widen your classroom studies—allowing you to view everything from tiny cells to large rock, wood, plant, and insect specimens. These durable Wolfe® dual-magnification student microscopes have built-in, rotating objectives that make changing magnifications a snap. Their 45° inclined binocular heads conveniently adjust to accommodate large specimens. Each of these educational microscopes includes eyecups, stage clips, 3 stage plates (frosted, black, and white), and dust cover.

- Your choice of 10× and 30× Magnification or 20× and 40× Magnification
- Working distance of 75 mm with a maximum on-stage specimen height of 35 mm
- Inclined eye tubes for viewing ease, even when seated
- · Adjustable interpupillary distance
- · Independently adjustable left eye tube focus
- Size, 10" H \times 4 $^{1}/_{2}$ " W \times 7" D; wt, about 5 lb

591810 10× and 30× Magnification Each **\$289.00 591815** 20× and 40× Magnification Each **\$289.00**



LED lighting is cool and energy efficient











Intermediate LED Stereomicroscopes 🗥

Grade 9-College.

Exceptional value in a new generation of stereomicroscopes

View small and large specimens in clear high-resolution 3-D with Wolfe's new generation of stereomicroscopes. Featuring all-glass optics, bright 5-way LED illumination, and sensible prices, these educational stereomicroscopes are exceptional values. With a vertical LED incident light built into the head holder, a 45° LED incident light built into the arm, and a reflected LED light housed in the base, they offer you more lighting possibilities than any stereomicroscopes we have ever offered. All models are corded, connect to a standard outlet, and include a stage plate and dust cover. Whether you choose **Dual Magnification** or **Zoom Magnification**, these stereomicroscopes provide an exceptional value—and an exceptional view.

Optics

- 10×, widefield, locked-on eyepieces
- Eye tubes inclined 45° for viewing comfort; left eye tube has independent focus
- Lockable binocular head rotates 360° and has easy interpupillary distance adjustment
- Magnification changer conveniently located on the side of the microscope head

Illumination

- LED lighting in 5 combinations for maximum flexibility in viewing opaque or transparent specimens
- LED lamps produce virtually no heat—perfect for viewing live specimens
- LED lamps last longer than other types of lamps—up to 50,000 hr!

Frame

- Fixed-arm all-metal stand holds up to rugged educational use
- · Locked-on 1-touch stage clips for easy slide placement
- Size, 13" H × 8" W × 12" D; wt, 10 lb

Warranty

· Lifetime limited warranty

591830	Dual Magnification (10× and 30×)	Each	\$409.00
591832	Dual Magnification ($20 \times$ and $40 \times$)	Each	\$409.00
591834	Zoom Magnification (10× to 30×)	Each	\$585.00



wolfe

StereoPro[™] Advanced Stereomicroscope ^{▲³}

Grade 9-College.

This university-level microscope employs the Greenough stereoscopic optical system, providing a large-scale zoom ratio with sharp, 3-dimensional images and a wide field of view. Designed with a 367-mm eye point and a comfortable viewing angle of 45° , this quality microscope can provide hours of viewing without discomfort. The 6:1 zoom ratio delivers a standard magnification range of $7.5\times$ to $45\times$ for viewing a wide variety of specimens. Due to the parfocal optical design, readjustment of the focus position while zooming is not necessary. The cool, long-lasting LED illumination is especially useful while viewing temperature-sensitive living specimens.

- High eye point widefield 10×, 20-mm eyepieces allow spectacle wearers access to the complete field of view
- Large, 110-mm working distance allows viewing a variety of different sized specimens
- Multi-layered lens coatings deliver high-contrast images with reduced internal reflections
- Anti-fungus treatment of all optics allows for use of the StereoPro[™] in a variety of humid environments
- Dual-rocker switches and rheostat control allow both upper and lower illumination to be activated simultaneously and adjusted separately
- Heavy-duty, all-metal frame
- Wolfe® lifetime limited warranty (excluding bulb, cord, and fuse)
- \bullet Size, 131/8" H \times 62/3" W \times 91/3" D; wt, 11 lb

591985 Each \$949.00



High eye point eyepieces allow spectacle wearers access to the complete field of view



Black-and-white stage plate is included for increased contrast of opaque specimens



Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.

(wolfe)

7–45× Zoom Stereomicroscope ▲3

Grades 8-College.

Students can view 3-D images of a broad variety of specimens thanks to this zoom stereomicroscope's wide magnification range $(7-45\times)$. It is perfect for viewing rocks, fossils, insects, plants, larger protozoa, electronics, and more. The rheostat-controlled top and bottom LED illumination system provides bright, energy-efficient light that will not damage heat-sensitive specimens.

- Binocular head inclined 45° for comfortable viewing
- Forward-facing head makes it easy for students to manipulate and exchange specimens
- Long 98-mm working distance allows the user to view a wide variety of specimens
- Frosted stage plate
- Universal (120/240 V) built-in power supply with detachable cord
- Five-year limited warranty (excluding bulbs)
- \bullet Size, 15" H \times 8" W \times 10" D; wt, 7 lb

591983 Each **\$539.00**





Detail of 591983 Wolfe 7-45× Zoom Stereomicroscope



Close up of stage plate from 591983 Wolfe 7–45× Zoom Stereomicroscope (in use)



Detail of 591983 Wolfe 7-45× Zoom Stereomicroscope



MicroscopesDigital Microscopes

Wolfe® Digital Series

Wolfe® microscopes change the way you teach!

Revolutionary digital technology allows you to attach your microscope to a computer, projector, or video screen. Special *Motic*[®] *Images Plus 3.0 ML* software is included free with the DigiVu[™] 2.0 Cordless Digital Microscope (item #591268) and lets you use Wolfe[®] digital microscopes for:

Capturing images

- · Record still, time-lapse, and video
- · Capture JPG, TIF, BMP, or SFC formats

Accurate measuring

wolfe

- Measure lines, circles, irregular shapes, and more
- Make simple, accurate calibrations

Live viewing

- Teach an entire class with 1 microscope
- View a live image in high resolution and true color

Editing images

- Edit captured images with available effects
- Use simple segmentation to count and manually split objects

Recording narration

- Create multimedia class reports
- · Add your voice to multiple points



DigiVu[™] 2.0 Cordless Digital Microscope ^{△³}

Grades 6–12.

Wolfe's DigiVu™ 2.0 Cordless microscope provides the freedom to capture microscopic images in the classroom or field, using a laptop computer. This microscope uses cool, efficient LED lighting that runs off rechargeable NiMH batteries (included) for up to 50 hr of use per charge. Students can view real-time images on the computer screen, allowing the microscope to be shared. Images can be captured as stills, video clips, or time-lapse sequences. The included *Motic® Images Plus 3.0 ML* software allows students to perform accurate measurements of specimens within the image. Captured images may be placed in Word® documents and PowerPoint® presentations. Like all Wolfe® DigiVu™ microscopes, this unit can also be used with interactive whiteboards and LCD projectors for a classroom teaching experience. The package comes complete with software, quick start guide, USB cable, AC adapter/charger, and dust cover. System requirements: Windows® 7 and above: Macintosh® OS X and above.

- Reversed nosepiece includes parfocal, achromatic DIN**, 4×, 10×, and 40× (spring-loaded) objectives
- Locked-on 10× widefield eyepiece
- Focus mechanism has separate coarse and fine adjustments; incorporates travel stops and a slip clutch to protect slide, objectives, and focus assembly
- Built-in mechanical stage with low-position coaxial controls gives students precise control over slide movements—excellent for slide scanning at higher magnifications
- Professional CMOS imaging chip provides 5-megapixel (2,592 x 1,944) resolution for excellent image detail
- Iris diaphragm with infinite degrees of control for more precise contrast and image resolution
- Wolfe® lifetime limited warranty (excluding bulbs, camera, and cords); 1-year warranty on internal camera
- Size, 15" H \times 5" W \times 61/2" D; wt, about 71/2 lb

591268 Each **\$698.00**

**DIN: Deutsche Industrie Normen, an industry standard.









DigiVu[™] 5.0 Advanced Digital Microscope **△**³

Grade 9-College.

Capture and save that incredible view!

• 5-MP camera with advanced USB 3.0 connection creates crisp, detailed microscope images that you can view live or save to your computer for printing, presentations, or future use

• 3-W LED variable illuminator provides 20,000 hr per bulb with no heat—perfect for viewing living specimens

- Semi-plan objectives offer a flatter field of view compared to standard achromatic
- Trinocular head allows the viewer to use both eyes, reducing eyestrain during extended viewing
- Unlike some microscopes with built-in cameras, the top-mounted digital camera can be removed and replaced as technology changes, preventing future obsolescence
- The compact rackless stage design without prominent gear rack enhances user safety in educational environments and allows even more convenient use of the X/Y movement

With Wolfe's highest quality digital microscope, you can do more than just view your slides—you can capture compelling high-resolution, true-color images. An excellent educational microscope for advanced high school and college-level studies, the DigiVu™ 5.0 includes the 5-MP Moticam A5 microscope camera and USB 3.0 cable. The camera delivers up to 30 fps at 2,592 × 1,944 pixels per frame. Free downloadable *MotiConnect* software for Windows® 10 and above, and for Macintosh® OS 10.9 and above, provides image capture, live viewing, accurate measurement, and image editing. Then use the camera's USB 3.0 capability for significantly faster live image transfer on newer computers with 3.0 connections.

Additional features:

- Trinocular head and 10×, 18-mm widefield eyepieces with dioptric compensation
- Full set of 4x, 10x, 40xR, and 100xR (oil immersion) semi-plan objectives; 40xR and 100xR objectives are spring-loaded and retract to protect the prepared slide from damage
- Coaxial coarse- and fine-focus controls with coarse tension adjustment to prevent stage drift
- 1.25 N.A. Abbe condenser (focusable) with filter holder and iris diaphragm for superior image contrast
- Wolfe® lifetime limited warranty on microscope (excluding bulbs, camera, and cords); 1-year warranty on camera

Visit Carolina.com for computer requirements. Size, 17" H \times 7" W \times 9" D; wt, 15 lb.

591335 Each \$1,659.00



591335 Wolfe DigiVu 5.0 Advanced Digital Microscope



Grade 6-College.

The DigiVu™ DVM 6.0 combines the latest in digital imaging technology with a high-quality microscope specifically designed for educational use. The detachable camera system features a high-resolution 8" color touch screen tablet based on the popular Android® platform. The camera connects to the tablet through a dedicated high-speed wireless connection. This is an all-inone digital microscope ideal for group learning and fully functional without an external computer.

The high-resolution camera can capture high-quality still images (4 MP) and video clips of microscopic specimens. Using the microscope's built-in Wi-Fi®, high-definition-quality live images can be viewed and sent to other tablets, Wi-Fi®-enabled computers, or smartphones. The included Motic® app (MotiConnect) allows users to capture, measure, and edit images at the touch of a finger.

The DigiVu™ DVM 6.0 features state-of-the-art LED illumination with intensity control that produces a bright white light with virtually no heat. This is especially beneficial when viewing live protozoa.

Tablet

- 8" full-color tablet with high-resolution IPS touch screen mounted on universal bracket holder
- Android® operating system
- Pre-loaded MotiConnect application software to view, capture, annotate, measure, and edit captured images

Camera

- HD resolution through Wi-Fi®; 4 MP capture
- · Full-color precision optical sensor adapted for microscopy use

Microscope

- Monocular head, 30° inclined
- DIN** standard EA 4×, 10×, 40× achromatic objectives mounted on a 4-hole rotating turret
- An optional 100× spring-loaded, oil-immersion objective (item #591297) can be added easily
- Reversed quadruple revolving nosepiece provides maximum operating space
- · Separate coarse- and fine-focus controls for increased accuracy
- Low-profile mechanical specimen holder with low-position coaxial X-Y controls makes it easy to scan the entire specimen without using fingers to move the slide
- Focusable 1.25 N.A. Abbe condenser with iris diaphragm for excellent control of image contrast
- Wolfe® lifetime limited warranty (excluding bulbs, camera, and cords); 1-yr warranty on camera and tablet
- Size, 19" H × 6" W × 7" D; wt, 10 lb

591316 Each \$1,049.00

**DIN: Deutsche Industrie Normen, an industry standard.

Wolfe® 100× Oil-Immersion Achromatic Objective

This spring-loaded 100× objective easily screws into the quadruple nosepiece of the Wolfe® DigiVu $^{\text{\tiny{M}}}$ DVM 6.0 Digital Microscope (item #591316). It increases the highest magnification available from $400\times$ to $1,000\times$ —perfect for viewing cellular details. Immersion Oil (item #853311) is needed when using this objective.

591297 Each \$79.00



591297 Wolfe 100× Oil-Immersion Achromatic Objective



591316 Wolfe DigiVu DVM 6.0 Digital Microscope (simulated screen image)



DigiVu™ DVM 9.0 Digital Microscope A3

Grade 9-College.

The Wolfe® DigiVu™ DVM 9.0 offers the latest in digital technology for the classroom. Ideal for group learning, this full-featured microscope combines high-quality construction with a versatile digital camera that is detachable. The camera features a universal bracket that securely holds a high-resolution 8" color touch screen tablet based on the popular Android® operating system. This all-in-one digital microscope is fully functional without a computer. Its high-resolution camera can capture 4.0-megapixel still images and video clips. The wireless connection between the camera and tablet enables the HD-quality live image to also be transmitted to another tablet or Wi-Fi®-enabled device. The included Motic® MotiConnect app lets users capture, measure, and edit images at the touch of a finger. State-of-the-art LED illumination with intensity control produces a bright white light with virtually no heat. This is especially beneficial when viewing live protozoa.

Tablet

- 8" high-resolution IPS touch screen mounted on universal bracket holder
- · Android® operating system
- Preloaded *MotiConnect* application software to view. capture, annotate, measure, and edit images captured from the microscope

Camera

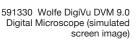
- HD resolution through Wi-Fi®; 4.0-megapixel still image
- Full-color precision optical sensor adapted for microscopy

Microscope

- Widefield 10×, 20-mm eyepieces on a 360° rotating head
- Superb optical quality with advanced parfocal, parcentric, DIN** standard EA 4×, 10×, 40×, and 100× (oil-immersion) achromatic objectives
- · Siedentopf-design trinocular head with C-mount adapter
- Advanced coaxial coarse- and fine-focusing adjustments with upper-limit stop to prevent damage to slide and objective
- · Built-in mechanical stage with low-position coaxial controls offers precise control over slide movements—excellent for slide scanning at higher magnifications
- Spiral-mounted 1.25 N.A. Abbe condenser with iris diaphragm and filter holder
- Integrated handle and cord wrap encourage proper handling and provide neat, easy storage
- Variable-intensity, energy-efficient, cool LED lighting for extended viewing of live specimens
- Wolfe® lifetime limited warranty (excluding bulbs, camera, and cords); 1-year warranty on camera and tablet
- Size, 21" H × 9" W × 9" D; wt, about 14 lb

591330 Each \$1,715.00

**DIN: Deutsche Industrie Normen, an industry standard.







M17T-BTI1-P Digital Screen Microscope ▲3

Grade 8-College.

Your all-in-one image viewing and capture solution

Combining Swift® Optical's reputation for optical and mechanical quality with the latest in digital imaging, the M17T-BTI1-P brings the best of both worlds to your classroom. With its unique bracket system, the microscope's tablet screen can be adjusted, allowing multiple students to view and share live images on the screen. Pre-loaded *MotiConnect* apps allow image capture, annotation, measurement, and sharing. Connect up to 5 wireless devices. This research-level microscope also incorporates 3-W LED illumination, infinity-corrected objectives, and widefield 20-mm eyepieces for a very crisp image. Comes with 110- to 220-V external switching power supply. Size, 22" H × 7" W × 10" D; wt, 30 lb.

Digital image viewing, storage, and manipulation

- 8" color LCD touch screen Android®-based tablet
- · Built-in camera captures still and video clips
- Pre-loaded *MotiConnect* apps for image capture, annotation, and sharing
- USB and WiFi® interface allow direct or wireless connection
- Resolution: USB: 1,280 × 720/1,280 × 1,024 preview mode, 2,592 × 1,944 (5 MP) still image capture; WiFi[®]: 1,280 × 960 preview mode, 1,280 × 960 (1.3 MP) still image

LED illumination

- 3-W energy-efficient LED illumination provides brilliant white light with virtually no heat
- · Variable-intensity illumination allows user to control brightness

Ease of use

- · Coaxial fine and coarse focus system
- Built-in low drive mechanical stage for superior specimen scanning
- · Rack-and-pinion, 1.25 Abbe condenser with iris diaphragm
- DIN** infinity-corrected 4×D, 10×D, 40×RD, and 100×RD (oil) objectives assure superior
 optical clarity

Quality

- · Quality manufacturing and all-metal internal parts ensure durability and minimal downtime
- Swift® limited lifetime warranty on microscope; 1-year limited warranty on tablet screen

595563 Each \$2.203.00

**DIN: Deutsche Industrie Normen, an industry standard.

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.



595563 Swift M17T-BTI1-P Digital Screen Microscope (simulated screen image)



Digital



Grade 9-College.

Exceptional value in a new-generation digital stereomicroscope!

View small and large specimens in clear, high-resolution with Wolfe's new generation DigiVu™ stereomicroscope. Featuring an 8" customized Android® tablet with microscopy camera, all-glass optics, bright 5-way LED illumination, and a sensible price, this digital stereomicroscope is an exceptional value. The high-resolution Wi-Fi® camera (4.0 megapixel) and tablet allow individual students or groups to view, capture, and share images with the touch of a finger. Capture images as stills or video clips in the internal memory; or share them wirelessly via Wi-Fi® with up to 5 other tablets, Wi-Fi®-enabled computers, or smartphones. The universal mounting bracket allows the tablet to be easily replaced in the future if desired.

Classroom advantages

- The tablet and camera combination enables computer-free digital microscopy
- Perfect for viewing larger specimens such as rocks, wood, plants, insects, and larger protozoans

Tablet

- Operating system: Android®
- Screen size: 8"
- Preloaded MotiConnect application software to view, capture, annotate, measure, and edit images captured from the microscope

Camera

- Image capture resolution: 4.0 megapixel
- Video capture resolution: 720p (HD)

Optics

- Dual magnification, 20× and 40×
- Magnification changer conveniently located on the side of the microscope head

Illumination

- LED lighting in 5 combinations for maximum flexibility in viewing opaque or transparent specimens
- LED lamps produce virtually no heat—perfect for viewing living specimens

Warranty

- Wolfe® lifetime limited warranty (excluding bulbs, camera, and cords);
 1-year warranty on camera and tablet
- Size, 19" H × 9" W × 12" D; wt, 12 lb

592019 Each \$1,209.00



592019 Wolfe DigiVu DVM 10 Digital Stereomicroscope (simulated screen image)



CELESTRON New! Celestron PentaView **LCD Digital Microscope**

Grades 6-12.

A touch screen LCD microscope with advanced features at a sensible price

The PentaView makes taking high-resolution still images and videos of specimen slides easier than ever with its 5 fully achromatic objective lenses, mechanical stage, 4.3" TFT full-color touch screen, 5-megapixel CMOS sensor, and 4-GB SD card for storage. The LCD screen rotates 180° so you can easily share the view with others. For a bigger audience, use the A/V output to display the image on a television or projector. With magnification from 40× to 600× (2,400× with digital zoom), the PentaView is ideal for viewing a range of cellular specimens on slides. Great for the discriminating instructor or serious hobbyist, this is an excellent tool for labs, schools, home study, and more.

ullet 5 fully achromatic objective lenses: 4×, 10×, 20×, 40×, and 60×

- Top and bottom adjustable LED illumination
- · Fully mechanical stage
- . Coarse- and fine-focus knobs
- · A/V output with cable
- · Optional battery mode
- SD card slot with 4-GB SD card included (supports up to 32 GB)
- . Universal AC adapter with multi-plugs for international usage
- Includes 10 prepared slides, hard carrying case, dust cover, touch pen, USB cable, A/V cable
- Two-year Celestron® warranty
- Size, 13" H \times 5 $^{1}/_{2}$ " W \times 7" D; wt, 4.2 lb

592407 Each \$625.00



592407 Celestron PentaView LCD Digital Microscope



Visit Carolina.com/scopeguide for help selecting the right microscope.

CELESTRON LCD Digital Microscope II 🕰

Easy to use and at an affordable price, the Celestron® LCD Digital Microscope II is great for the discriminating teacher or serious hobbyist and ideal for labs, schools, and the home. With fully achromatic lens objectives, mechanical stage, 31/2" full-color TFT screen, and 5-megapixel CMOS sensor, this digital microscope allows for high-resolution imaging of specimen slides. The microscope's 1-GB SD card offers enough storage to capture over 600 highresolution images for lab reports, papers, lessons, and more.

With 40× magnification to 1,600× with digital zoom, the LCD Digital Microscope II is ideal for viewing a wide range of cellular specimens on slides, as is the case with most traditional microscopes. The LCD screen rotates 180° so you can easily share your discoveries with others. For larger audiences, use the TV output to display images via a television or projector. Includes a limited 2-year Celestron® warranty.

- Full-color 31/2" TFT LCD screen with onboard software
- Built-in 5-megapixel digital camera captures high-resolution images and 30 fps SD video
- Fully adjustable mechanical stage for easy slide movement
- 180° rotating head for easy sharing of images
- Rotating objective lens turret with 3 lens powers: 4x, 10x, and 40x
- Camera sensor acts as 10× eyepiece lens, yielding 40×, 100×, and 400× powers
- 4× digital zoom for magnification up to 1,600×
- Measuring reticle for comparing specimen sizes
- 1-GB SD card for saving up to 620 high-resolution images
- TV output for display on large monitors for classroom or lab environment
- Comes with a free 15-page curriculum booklet, Exploring Cells with the LCD Digital Microscope II
- Includes dust cover, canvas carrying case with shoulder strap, 5 prepared slides, 4-plug international AC adapter
- \bullet Size, 13" H \times 51/2" W \times 61/2" D; wt, 31/2 lb

592402 Each \$309.00





Microscope A

Grades 6-12.

Advanced features at a reasonable price

The Celestron® TetraView microscope is affordable, yet offers advanced features. These include 4 fully achromatic objective lenses, a mechanical stage, a 4.3" TFT color LCD touchscreen, a 5-megapixel CMOS sensor, and a 2-GB SD card for storing captured images.

Magnification from 40× to 400× (1,600× with 4× digital zoom) makes TetraView ideal for viewing a range of cellular specimens on slides. Rotate the LCD screen up to 180° to share images with others. For a bigger audience, use the TV output to display images on a television or projector.

Advanced and affordable, the Celestron® TetraView is an excellent tool for classrooms, labs, and serious hobbyists.

- Still or video image capture and storage
- Quadruple nosepiece with 4×, 10×, 20×, and 40× objectives
- Total magnification from 40× to 400× (1,600× with 4× digital zoom)
- 2-GB SD card—SD slot supports up to 32-GB card
- 31/2 × 31/2" mechanical stage for easy slide scanning
- · Coarse- and fine-focus adjustments
- Filter wheel with 3-position diaphragm
- . 2.0 USB cable to upload images to a computer
- Universal AC adapter; also accepts 4 AA batteries (not included) for field use
- Includes 7 prepared slides, touchscreen pen, carrying case, video cable, and dust cover
- Two-year limited warranty
- Size, 13" H × 5¹/₂" W × 7" D; wt, 4 lb

592405 Each \$479.00





Microscopes **Digital Cameras**

Motic® A-Series USB Cameras ▲3 Turn almost any microscope into a digital microscope

The Motic® Moticam A Series offers a complete range of attachable microscopy cameras that are must-have additions to the microscopes you currently have. With a built-in line of sCMOS sensors ranging from 1 MP to 5 MP, you can easily live stream to your computer. Choose from 3 camera resolutions to meet your needs and budget. The higher the resolution, the better the image quality—important to remember if you are projecting the image onto a large screen.

The A1 Digital Camera is the introductory model and has 1-MP resolution, which is good for viewing on laptops or standard-sized computer monitors. The A2 Digital Camera is a mid-level camera with increased, 2-MP resolution, which is better when viewing on larger computer monitors. The A5 Digital Camera features 5-MP resolution, and it is helpful when projecting images on a large screen or printing high-quality images.

Each Moticam can be attached to your microscope's trinocular C-mount, or you can use the included eyepiece adapters and focusable lens to attach it directly onto your microscope's eyepiece. The easy-to-use, yet powerful MotiConnect software can be downloaded to capture, measure, annotate, and share your images. System requirements: Windows® 7 and above; Macintosh® OS X and above.

- Focusable lens that allows you to use the Moticam as a macro camera
- Calibration slide to ensure accurate measurements of specimens
- 2× variable diameter eyepiece adapters to attach the camera to almost any microscope eyepiece
- Macro tube that enables viewer to see larger specimens, such as large insects, without a microscope

591431 A1 Digital Camera Each \$235.00 **591432** A2 Digital Camera Each





591432 Motic A2 Digital Camera



591433 Motic A5 Digital Camera

Motic Moticam X5 Plus Wi-Fi® Camera A3

The Moticam X5 is an HDMI-resolution Wi-Fi® digital microscopy camera capable of transmitting live images directly onto tablets, computers, or even smartphones. Perfect for Bring Your Own Device (BYOD) institutions, the Moticam X5 can be accessed from a web browser or through the freely downloadable MotiConnect app for iOS® or Android® devices. Live images can be shared with up to 6 devices at the same time. The Moticam X5 also includes an RJ45 port for wired networking or connection to a wireless router system to broadcast the fast frame rate images farther and to more students. Now anyone can capture true color 4MP still images and work on them independently on their own device. The X5 easily connects over the eyepiece of any full-sized microscope using the included adjustable eyepiece adapters or to microscopes equipped with C-mount adapters.

- CMOS 1/3" sensor with 4.0-megapixel capture resolution
- 1,280 × 720; 1,920 × 1,080 (full HD) live display
- Maximum 30 frames per second
- 2.4 GHz and 5 GHz compatible device

Requirements

- An Android®- or iOS®-ready device, or
- A Wi-Fi®-enabled computer (Windows® and Macintosh® only)

- CS ring adapter, focusable lens, 30mm and 38mm eyepiece adapters, Motic[®] 4-dot calibration slide, and macro-tube
- 12-V power adapter
- RJ45 port

591438 Each \$409.00



591438 Motic Moticam X5 Plus Wi-Fi Camera

CELESTRON Handheld Digital Microscope Pro A

Grades 6-12.

The Celestron® Handheld Digital Microscope Pro is an easy-to-use, low-power microscope with a 5-megapixel sensor for capturing photos and video of your discoveries. Use the Microscope Pro's high magnification to view traditional slides, or its low magnification to view stamps, coins, bugs, plants, rocks, skin, gems, circuit boards, and more.

Create high-resolution images, VGA-quality video, and time-lapse animations using

the Micro Capture Pro software included. You can also take accurate measurements and make notes on your specimens using this intuitive software. An adjustable LED illuminator ensures your specimens are clear and bright, and the fully adjustable, professional stand allows for steady shots, even at high magnification.

Intended for educational use, discriminating hobbyists, or professionals, the Handheld Digital Microscope Pro is well suited for jobs such as entomology, industrial quality control, component inspection, medical investigation, scientific research, and forensics documentation.

- True 5-megapixel sensor to capture and save high-resolution images and videos of your specimens
- 5-element IR high-quality cut-glass lens ensures sharper
- 20× to 200× magnification; great for low-power observation of 3-D specimens (Note: Final magnification determined by monitor size)
- · Adjustable height stand included for hands-free operation
- 4-ft USB 2.0 cable for easy maneuverability when viewing large surfaces
- Intuitive software with measuring features
- Compatible with Windows® XP/Vista/7/8 and Macintosh® OS X 10.6–10.7 systems
- Celestron® 2-year limited warranty

591752 Each \$175.00



591752 Celestron Handheld Digital Microscope Pro (simulated screen image)



Grades 6-12.

The Celestron® MicroDirect™ 1080p HDMI Handheld Digital Microscope is an easy-to-use, low-power microscope with a high-speed 3.5-megapixel sensor. Unlike most digital microscopes, the MicroDirect™ has a 1080p HDMI video output that connects directly into an HDMI monitor or projector for live high-resolution video streaming. The camera has a micro SD card slot (card not included) for capturing 3.5-megapixel still images and video clips. These features eliminate the need for a computer connection, which is why the MicroDirect™ is one of the easiest digital microscopes to set up and use.

The MicroDirect™ is powered by a USB connection. Plug one end of the USB cable (included) into the microscope and the other end into an open USB 2.0 port on your computer, monitor, or projector. If your device has no USB 2.0 port, plug the USB cable into a 120-V (5-V, 1-A) power

adapter (not included), then plug the power adapter into an electrical outlet. Note: The included USB cable works with all standard USB plugs that come with many of today's electronics (such as smartphones and tablets).

Create high-resolution images, VGA-quality video, and time-lapse animations using the Micro Capture Pro software included for Windows® 7.1 and above. You can also take accurate measurements and make notes on your specimens using this intuitive software. An adjustable LED illuminator ensures your specimens are clear and bright, and the fully adjustable, professional stand allows for steady shots, even at high magnification.

Intended for educational use, discriminating hobbyists, or professionals, the MicroDirect is well suited for jobs such as entomology, industrial quality control, component inspection, medical investigation, scientific research, and forensics documentation.

• Celestron® Micro Capture Pro software DVD with measuring feature

· Adjustable height stand and calibration ruler included

• 20× to 200× magnification

. Manual focus range from 10 mm to infinity

Adjustable 8-LED ring illuminator

· Celestron® 2-year limited warranty

• Size, $6^9/_{10} \times 5^1/_2 \times 4^1/_3$ "; wt, $2^1/_5$ lb (microscope and stand)

591770 Each **\$258.00**



591770 Celestron MicroDirect 1080p **HDMI** Handheld Digital Microscope



Field Microscopes

Shinco® Scope

The Shinco® Scope is designed for rugged student use in the field or classroom. This microscope is easy to use and needs only available outdoor light or minimal indoor light—no lamps, cords, or mirrors required. There are no knobs or gears, so there are no adjustments to fuss with. The Shinco® Scope's threaded focus control system also makes it simple for younger students to use. The $30\times$ total magnification and reflective-light capabilities allow you to view the exterior of 3-D specimens, printed matter, and other ordinary objects. The microscope also has a prism illuminator that sends transmitted light through the stage, allowing you to view the internal structure of thinly sectioned slide specimens. Comes with vinyl dust cover and a set of 5 common slides. Size, 10° H \times $4^{1}/_{4}^{\circ}$ W \times 4° D; wt, 2.4 lb.

- Locked-on eyepiece
- Threaded focus control system
- · Nickel-plated brass scope tube
- Locked-on stage clips
- · Limited lifetime warranty

597115 Each **\$105.00**



My First Lab™ Duo-Scope

Grades K-6.

Priced to fit any budget

This 2-in-1 microscope with over 50 accessory pieces is an excellent beginner microscope for younger students. Two light sources allow for viewing both slides and solid objects, including coins, plants, stamps, insects, jewelry, and more. This scope features capabilities that would normally require the use of 2 instruments—a basic biological scope to look at specimens on a slide (light shines from underneath) and a traditional stereor dissecting microscope to view solid objects at lower power (light shines down onto the specimen). The Duo-Scope easily handles either application! Cordless battery power makes it portable for field study.

- 10× eyepiece
- 40×, 100×, and 400× magnification
- · Real optical glass lenses
- LED illumination both above and below
- Uses 3 AA batteries (not included)
- 1-year warranty
- Accessories include 5 blank slides, 1 concavity (well) slide, and 4 prepared slides; 2 bottles of stain; forceps and scalpel; and plastic test tube and petri dish

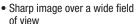
597100 Each \$124.00

20× Elementary Stereomicroscope

Grades 1-6.

This cordless stereomicroscope is a great tool for studying large specimens (e.g., minerals, insects, and plant parts) under low magnification virtually anywhere. It also can show greater specimen detail during a dissection. Standard rack-

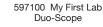
and-pinion focusing allows you to turn the knob and slide this dissecting microscope's head up and down. Powered by 2 AA batteries (not included). Size, 9" H × 4" W × 5" D; wt, 11/4 lb.



- Upright binocular head, 55- to 75-mm interpupillary distance
- 20× magnification
- 70-mm working distance
- Built-in LED upper illumination
- Easy-to-carry plastic body

597151 Each \$88.00





Microscopes Optics

Telescopes





Designed with portability and durability in mind, this travel telescope offers exceptional

value for the classroom. With a compact and portable design to fit easily into the included custom backpack for traveling and storage, the Travel Scope 70 is made of the highest quality materials to ensure stability, durability, low maintenance, and years of use. Optics are coated for crisp, clear images and contain erect image diagonal so that views are correctly oriented. Ideal for terrestrial and casual astronomical observation. Two-year warranty.

- Includes The Sky® X First Light Edition CD-ROM
- Smooth-functioning altazimuth mount with easy pointing to located objects
- Preassembled aluminum, full-size photographic tripod ensures a stable platform

Specifications:

Optical Design: Refractor 70 mm (2.76") Aperture: 400 mm (15.75") Focal Length:

20 mm (20× magnification) and 10 mm (40× magnification) Eyepieces (2):

Finderscope: 5×24 Optical Coating: Fully coated 3.3 lb Weight: 602591 Each \$127.00

Binoculars



602596 Celestron StarSense Explorer LT 80AZ

CELESTRON°

StarSense Explorer™ LT 80AZ A3

The manual telescope reinvented, StarSense

Explorer[™] is the first telescope that uses your smartphone to analyze the night sky and calculate its position in real time. This telescope is ideal for beginners thanks to the app's user-friendly interface and detailed tutorials. It's like having your own personal tour guide of the night sky. Note: An Android® (7.1.2 and higher) or iOS® (iPhone® 6 and newer) smartphone (not included) is needed to run the StarSense Explorer™ app. See celestron.com for a list of compatible devices.

- StarSense Explorer[™] app automatically generates a list of currently visible objects—view planets, brighter nebulae and galaxies, star clusters, and double stars
- · Manual altazimuth mount with slow-motion altitude adjustment and sliding rod makes it easy to follow the on-screen arrows to your desired target
- · Fully coated glass optics for bright, sharp views
- Full-height tripod with an accessory tray to keep you organized

Specifications:

Eyepieces (2): 25 mm (36× magnification) and 10 mm (90× magnification)

Optical Design: Refractor Aperture: 80 mm (3.1") Focal Length: 900 mm (35.43") Mount: Manual altazimuth

Weight: 9.2 lb **602596** Each \$269.00



Cometron[™] 7 × 50 Binoculars **△**³

Get ready for the next awe-inspiring comet with this sleek, portable pair of binoculars. Large 50-mm objective lenses and multi-coated optics offer

amazing light-gathering capabilities, bringing celestial objects into bright, sharp focus. Cometron™ 7 × 50 Binoculars are ideal for comet watching, stargazing, and viewing craters on the moon. The wide field of view lets you explore expansive swaths of sky to quickly pinpoint the object you want to see and then keep it in sight without constant movement. The rubberized aluminum housing is durable, lightweight, and tripod adaptable for extended comfort during long stargazing sessions. Comes with wide neck strap and carrying case for security, portability, and graband-go convenience. Celestron's limited lifetime warranty covers repairs or replacement in cases of defective components but does not cover damage from normal wear and tear.

Specifications:

Field of View: 357 ft @ 1,000 yd

Magnification: 7× Objective Lens: 50 mm Weight: 1.7 lb

 $6^6/_{10} \times 7^8/_{10} \times 2^1/_2$ Dimensions:

602587 Each \$52.50







602575 Celestron UpClose G2 Roof Prism Binoculars, Model 8 x 21



Hide and seek! This series has a compact size that is perfect for smaller hands and is lightweight to ensure portability. The UpClose® G2 Roof Prism Series Binoculars from Celestron® are just right for catching a perfect view of nature at a moment's notice.

Each includes useful, friendly features for any classroom: popular size, diopter adjustment for precise focusing, affordably priced, and rubber covered for safety and durability. The optics are fully coated to give clear, sharp, high-contrast views. Choice of 8× or 10× magnification.

- Ultra-compact design with folding center bridge
- · Diopter adjustment for precise focusing
- · Protective rubber covering with embossed logo for firm grip
- Water-resistant body
- Nylon carrying case and strap included for travel and safe storage
- · No-fault warranty provides best protection and product support on the market

Item No.	Model	Magnification	Wt	Each
602575	8 × 21	8×	6 oz	\$24.95
602576	10 × 25	10×	9 oz	\$27.95



602577 Celestron UpClose G2 Porro Binoculars, Model 7 x 35

CELESTRON UpClose® G2 Porro Series Binoculars A

Binocular for all field studies and activities.

Robust, full-size binoculars come in 3 models, each featuring a large knurled center focus knob for smooth and accurate focusing. Water-resistant and tripod adaptable, this series also has a diopter adjustment on the right eyepiece that allows students to customize the focus based on their own eyesight.

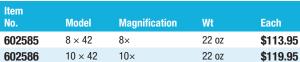
Rubber hand grips with embossed logos provide comfort and a secure grip. Most important, UpClose® binoculars feature high-quality BK7 optics that provide bright, clear, and sharp views during a variety of outdoor activities such as birding, wildlife viewing, and more. Includes carrying case and strap for travel and safe storage. An ideal choice at an affordable price for high-quality binoculars that will provide years of use to your students. No-fault warranty provides the best protection and product support on the market.

Item No.	Model	Wt	Each
602577	7 × 35	24 oz	\$44.95
602578	8 × 40	24 oz	\$46.95
602580	$10-30 \times 50$ zoom	28 oz	\$82.95



Perfect for birders, hunters, travelers, and sports fans, these mid-size binoculars meet the needs of every outdoor enthusiast. Multi-coated optics offer high-resolution, high-contrast views, and the BaK-4 glass prism gives you enhanced color fidelity.

binoculars are waterproof, fog proof, and nitrogen-purged for use in all kinds of weather. Large focus knobs make focusing easy and precise, and twist-up eyecups allow for quick adjustment of eve relief to obtain the full field of view. Comfortable straps are pre-attached to the binoculars. The objective lens covers are semi-attached so you won't lose them. Lightweight, ergonomic design for maximum comfort. Includes neck strap, lens cloth, soft protective carrying case, and instruction manual. Tripod adaptable. Limited lifetime warranty.





602585 Celestron Outland X Binoculars, Model 8 × 42



602586 Celestron Outland X Binoculars, Model 10 × 42

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Magnifiers







Carson[®] HookUpz[™] 2.0 Universal Smartphone Optics Digiscoping Adapter

The HookUpz™ 2.0 digiscoping adapter enables you to connect your smartphone or phablet to the eyepiece of a spotting scope, telescope, microscope (including slit lamp), monocular, endoscope, borescope, and other optics to capture still images or video. It is compatible with devices such as the iPhone® 6/6S Plus and Samsung® Galaxy® models with cases up to 3³/₄" wide and with dual-camera smartphones. The HookUpz™ 2.0 can be used on straight or slightly tapered eyepieces that have an outer housing diameter of 25 to 58 mm and a depth of at least 14 mm. Includes a zippered EVA storage case and a lens spacer for added eye relief. Backed by Carson's limited lifetime warranty. Size, 4 × 1³/₄ × 4¹/₂"; wt, 3 oz. **Note:** The HookUpz™ 2.0 is not compatible with tablets, riflescopes, and eyepieces with complex shapes.

602025 Each \$78.28

Novagrade® Microscope Smartphone Adapter

Increase classroom engagement by turning your conventional microscopes into digital ones using students' phones. Having students use their phones is the surest and quickest way to dramatically increase their engagement, comprehension, and curiosity. Take experiments to new levels by capturing still images or using slowmotion and time-lapse video features built into the phones. The best part is that when your students get new phones, the school gets a free digital camera upgrade!

The **Smartphone Adapter** is the highest quality universal digiscoping adapter on the market and will accept any phone in any case. Multiple, included collets ensure a good fit to any round monocular- or binocular-style microscope eyepiece. Lifetime anodized aluminum construction and soft-touch grippers provide secure connections to phones and microscopes. You can even take your adapter outdoors to video distant wildlife with your spotting scope, telescope, or binoculars using the optional Novagrade® **Standard Compression Ring Set**. This set of 5 injection-molded, polymer rings provides the perfect fit for eyepieces with diameters ranging from 39 to 60.75 mm. Works with any Novagrade® adapter.

597050 Smartphone Adapter Each **\$184.00 597051** Standard Compression Ring Set Each **\$28.50**

582





Carson[®] BigEye[™] Magnifier

The BigEye has a 5"-diam, 2× viewing lens—likely the biggest of any handheld magnifier available! Although the lens is big, it's also lightweight because it's made of high-quality crystal clear acrylic. This magnifier is perfect for viewing insects, rocks, foliage, or anything that captures a student's curiosity. Size, $10 \times 5^{1}/_{5} \times 7/_{10}$ "; wt, 6.5 oz.

602287 Each \$14.16



Carson® BugLoupe™

602288

Carson BugLoupe

Your students have never really seen a bug close-up until they've used the BugLoupe $^{\text{TM}}$. Professional-grade 4.5× acrylic optics allow them to see the finest details. The loupe is prefocused for quick, easy viewing; students simply place it over a bug and explore. Size, $4^{1}/_{5} \times 4^{1}/_{5} \times 3^{"}$; wt, 6.9 oz.

602288 Each \$13.85

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.



Optics



Carson® LumiLoupe™ Ultra, LL-88

Explore the fine details of plants, insects, stamps, coins, and other specimens with the LumiLoupe $^{\text{TM}}$ Ultra. It features a $5\times$ lens and 6 ultra bright LED lights with 3 brightness levels for a brilliant close-up view. Requires 3 AAA batteries (not included). Size, $5^{1/2} \times 3^{3/10} \times 1^{2/5}$ "; wt, 6.7 oz.

602284 Each \$26.11



Carson® LumiLoupe™ Plus, LO-10

The LumiLoupe™ Plus makes viewing the ordinary extraordinary by revealing unseen details in everyday objects. The magnifier's $10.5 \times$ focusable dual lenses allow for more power and less distortion for sharp, close-up inspections. Its transparent base permits ambient light to illuminate the subject for bright, clear viewing. The high magnification and wide viewing angle make the LumiLoupe™ Plus ideal for viewing insects, foliage, coins, stamps, and more. Size, $3 \times 3 \times 1^3/4$ "; wt, 3 oz.

602293 Each \$12.82



Carson® LumiLoupe™, LL-77

The LumiLoupe[™] is a $7\times$ power stand magnifier that makes viewing the ordinary extraordinary by revealing unseen details in everyday objects. The magnifier's prefocused dual lenses allow for close-up inspections, and its transparent base permits ambient light to illuminate the subject for bright, clear viewing. The LumiLoupe[™] is ideal for viewing insects, foliage, maps, and graphics. Size, $3\times3\times2^{1/2}$ "; wt, 4 oz.

602291 Each \$11.28



602100 Tripod Magnifier

Tripod Magnifier A³

10×, screw focusing. **602100** Each **\$8.95**



602283 Extra-Large Bug Viewer, 2.5×

Extra-Large Bug Viewer, 2.5×

A rugged, clear plastic viewer with 5-mm squares on the bottom for easy specimen measurement. Features a removable $2^1/2^n$ -diam glass lens. The base measures $3^1/2^n$ sq with the lens mounted $3^1/2^n$ from the bottom.

602283 Each \$9.25



602111 Folding Pocket Magnifier, Double

Folding Pocket Magnifier, Double

Designed with 2 lenses combined in the same mounting. Magnification of the 2 lenses combined is about $10\times$. Plastic lenses.

602111 Each **\$5.75** 12+ Each **\$4.85**



602113A Large Pocket Magnifier

Large Pocket Magnifier

Made in USA. Double lens ($3\times$ and $6\times$) constructed of quality, 38-mm-diam plastic and mounted in durable plastic frames. Lens folds into plastic case for storage.

602113A Each \$8.65



602014 Carson MagniRama Magnifier, 3×

Carson® MagniRama™ Magnifier, 3×

This $3 \times$ magnifier with 50-mm-diam crystal-clear glass optics is a great learning tool for students of all ages. It's small and lightweight enough (1.5 oz) to fit in backpacks or even pockets, and comes in orange, green, or yellow (our choice).

602014 Each \$3.29

Microscopes Optics



602219 Handheld Magnifier, Acrylic Lens

Handheld Magnifier, Acrylic Lens

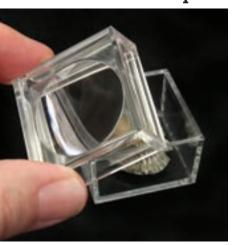
Constructed of a 1-piece, plastic frame equipped with acrylic lens containing a bifocal insert for extra power. 3" diam; $2 \times$ lens; $4 \times$ bifocal insert lens.

602219 Each \$9.40

Plastic Boxes with Magnifying Lids

Acrylic box with magnifier built into the lid. Ideal for examining insects and other small objects.

602278	4× (1" sq)	Each	\$2.39
		12+ Each	\$1.89
602279	$3 \times (1^{1}/2^{11} \text{ sq})$	Each	\$3.70
		12+ Each	\$3.15



602279 Plastic Box with Magnifying Lid, 3×



602276 Dual Plastic Magnifier, 3× and 6×

602277 Triple-Lens Plastic Magnifier

Dual Plastic Magnifier, 3x and 6x

Contains a 1 3 /4"-diam 3× lens, and a 3 /4"-diam 6× lens mounted in a plastic handle. Overall length, 4 /2".

602276 Each \$2.15 12+ Each \$1.59

Triple-Lens Plastic Magnifier

 $2\times/6\times/8\times.$ Contains a 1"-diam $2\times$ lens, $^5/_8$ "-diam $6\times$ lens, and a $^1/_2$ "-diam $8\times$ lens. Overall length, 4".

602277 Each \$2.15



602274 Thermo-Plastic Magnifier, $4\times$

Thermo-Plastic Magnifier, 4× Optically correct. 1" diam, 2" focus.

602274 Each \$1.35 12+ Each \$1.09

586



602272 Thermo-Plastic Magnifier, $3\times$

Thermo-Plastic Magnifier, 3×

An optically correct magnifier produced from new, tough thermoplastic. $1^{1}/_{2}$ " diam, 3" focus.

602272 Each \$1.45 12+ Each \$1.15

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.



Carolina Investigations® for AP® Environmental Science

Kits that Support the AP® Curriculum and, More Important, Your Classroom

Our exclusive approach to the AP® curriculum

After listening to teacher feedback, we improved our popular labs to make them even better. For example, we made our kits more inquiry-based and relevant to current issues and concerns. But like our original kits for AP® Environmental Science, we made sure these kits still engage students and encourage success. These kits aren't just meant to address concepts on the APES Exam, but are designed to give your students an unmatched opportunity to use the Science Practices in your classroom.

- Classroom tested, teacher approved
 Designed to support inquiry-based learning
- · Real-world issues integrated with science concepts

Carolina Investigations® for AP® Environmental Science kits offer a unique perspective on the world around your students. Allow them to experience labs that focus on 4 distinct subject areas that relate to Earth Systems & Resources, Ecological Systems, Issues & Impacts, and Sustainability & Solutions. Pick various topics from each strand to create your own robust hands-on lab curriculum. Focus on labs that can be performed in your classroom or explore and sample your surrounding environment. Carolina has everything you need to outfit your AP® Environmental Science classroom or lab.

Teacher's Choice

Teacher Testimonial

"As an experienced AP® Environmental Science instructor, I enjoy using Carolina's AP® Environmental Science kits because they are user friendly, well packaged, easy to transport and store, and incorporate inquiry activities into the labs. I use them in my classroom and highly recommend them to other educators."

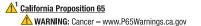
Flo Gullickson, PAEMST, NBCT High Point, NC

> Visit Carolina.com for complete lists of kit materials and more information.

Carolina Investigations® for AP® Environmental Science Kits

	Item			
	No.	Kit Title	Unit	Topic
	180600	Quality of Natural Waters: Biological Factors	1, 5, 8	1.3, 5.4, 8.2
Λ^3	180602	Quality of Natural Waters: Physical and Chemical Factors	1, 5, 8	1.3, 5.4, 8.2
	180803	Primary Consumer Energy Flow	1	1.9 & 1.10
<u>^1</u>	181061	Biogeochemical Cycles	1	1.4, 1.5, 1.6, 1.7, & 1.9
<u>^1</u>	181066	Primary Productivity and Energy Flow	1	1.8
<u>^1</u>	180812	Soil Productivity	4	4.3
	180815	Exploring Biodiversity	2	2.1
Λ^3	180818	Population Growth with <i>Lemna minor</i>	3	3.4 & 3.5
<u>^1</u>	180821	Soil Formation and Properties	4	4.2 & 4.3
	180824	Coriolis Effect and Atmospheric Circulation	4	4.4, 4.5, & 4.7
Λ^3	181080	Agriculture and Feeding a Growing Human Population	5	5.12 & 5.15
	180830	Biomass to Biofuel	6	6.1 & 6.7
	181083	Air Pollution and Vehicle Emissions	7	7.1
Λ^3	180836	Acid Deposition	7	7.7
	180839	Wet Scrubbers and Air Pollution	7	7.6
<u></u>	180842	Cultural Eutrophication and Biodegradable Waste	8	8.5
Λ^3	180845	Wastewater Treatment	8	8.11
Λ^3	180848	Ocean Acidification	9	9.7
	180851	Loss of Biodiversity	9	9.10
	180854	Impacts on Freshwater Ecosystems: Salt Toxicity	8	8.1, 8.12, & 8.13
	180860	Exploring Human Population Dynamics	3	3.5, 3.6, 3.7, & 3.8

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Carolina Investigations

Environmental Science

Looking for recommendations to outfit your AP® Environmental Science labs this year?

Carolina Investigations® for AP® Environmental Science Lab Bundles A3

Looking for effective, cost-saving ways to outfit your AP® Environmental Science labs this year? Carolina offers you 2 convenient lab bundle solutions. All of our original labs for AP® Environmental Science have been completely redesigned to provide additional support and offer techniques for success on the APES Exam. We carefully chose our Carolina Investigations® for AP® Environmental Science kits within each of the major topic disciplines to provide diverse concepts that encompass real-world impacts and the basics of field exercises with soil, air, and water quality testing. Each kit includes enough materials for a class of 32 students, plus a detailed teacher's manual with background information, step-by-step procedures, inquiry activities, a reproducible student guide, and 12 months of access to digital resources. Additional APES kits can be purchased separately to supplement the topics that you want to cover during the year. When you are preparing for your next APES class, conveniently refill your bundle with the 10-Lab Bundle Refill or the 19-Lab Bundle Refill. Bundle and save today! Note: Items #180702 and #180706 cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, MT, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped Elodea canadensis, Elodea najas, or Chara, depending on availability. Canadian orders require a permit from the Canadian government. Residents of AK must apply for a permit from your state game and fish department to receive pond snails. Item #180803 cannot be shipped into Puerto Rico.

10-Lab Bundle (item #180700) includes:

Quality of Natural Waters: Biological Factors Kit (item #180600)

Quality of Natural Waters: Physical and Chemical Factors Kit (item #180602)

Soil Formation and Properties 8-Station Kit (item #180821)

Soil Productivity 8-Station Kit (item #180812)

Population Growth with Lemna minor 10-Station Kit (with voucher) (item #180818)

Primary Consumer Energy Flow Kit (with voucher) (item #180803)

Air Pollution and Vehicle Emissions 8-Station Kit (item #181083)

Acid Deposition 8-Station Kit (item #180836)

Agriculture and Feeding a Growing Human Population 8-Station Kit (item #181080) Wastewater Treatment Kit (item #180845)

19-Lab Bundle (item #180702) includes everything in the 10-Lab Bundle, plus:

Coriolis Effect and Atmospheric Circulation 8-Station Kit (item #180824)

Exploring Biodiversity Kit (item #180815)

Primary Productivity and Energy Flow 8-Station Kit (item #181066)

Biogeochemical Cycles 8-Station Kit (with voucher) (item #181061)

Cultural Eutrophication and Biodegradable Waste 8-Station Kit (with voucher) (item #180842)

Ocean Acidification 16-Station Kit (item #180848)

Loss of Biodiversity 8-Station Kit (item #180851)

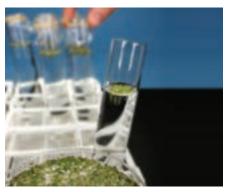
Wet Scrubbers and Air Pollution 8-Station Kit (item #180839)

Biomass to Biofuels 8-Station Kit (with voucher) (item #180830)

180700	10-Lab Bundle	Each	\$2,058.00
180704	10-Lab Bundle Refill	Each	\$962.00
180702	19-Lab Bundle	Each	\$3,658.50
180706	19-Lab Bundle Refill	Each	\$1,655.00



181083 Air Pollution and Vehicle Emissions Kit (in use)



Includes

digital

teacher's

manuals!

180818 Population Growth with Lemna minor Kit (in use)



180600 Quality of Natural Waters: Biological Factors Kit (in use)



180845 Wastewater Treatment Kit (in use)

Teacher Testimonial

"Your kits aim high and offer clear instructions and GREAT introductions . . . [The] kits are at the level needed for the AP® level of environmental science! I will be using some of them next year!"

Anne Soos

Princeton, NJ

Teacher Testimonial

"I recommend Carolina Biological AP® Environmental Science materials at the AP® Institutes I conduct each summer. Both [Carolina] EcoKits® and [Carolina] Investigations® for AP® Environmental Science kits are excellent for APES instructors of all experience levels, but they are extremely useful for new APES instructors just getting started. The inquiry-based design of the Carolina lab and activity modules allows students to investigate a wide range of environmental factors in a structured format."

Brian Kaestner

San Antonio, TX

Carolina Investigations



180600 Quality of Natural Waters: Biological Factors Kit

Quality of Natural Waters: Biological Factors Kit

This lab activity enables students to monitor water quality and determine the Water Quality Index (WQI) for several local test sites. Students gather samples and test for dissolved oxygen, coliform bacteria, biochemical oxygen demand, total solids, and change in temperature. The **Kit** is designed for a class of 32 students working in 8 groups of 4. The **Refill** replenishes all of the kit's consumable items. **Note:** Additional water quality tests are available in Carolina Investigations® for AP® Environmental Science: Quality of Natural Waters: Physical and Chemical Factors Kit (item #180602).

180600	Kit	Each	\$184.80
180601	Refill	Each	\$85.80
180710	Digital Teacher's Manual	Each	\$5.95



180602 Quality of Natural Waters: Physical and Chemical Factors Kit

Quality of Natural Waters: Physical and Chemical Factors Kit

In this lab activity, students monitor water and determine the Water Quality Index (WQI) for local test sites. They test samples from each site for turbidity, nitrates, phosphates, pH, and temperature change. **Kit** is designed for a class of 32 students working in groups of 4. **Refill** replenishes all consumable items. **Note:** Additional water quality measurements are available in Carolina Investigations® for AP® Environmental Science: Quality of Natural Waters: Biological Factors Kit (item #180600).

 ų
 180602
 Kit
 Each
 \$392.00

 ų
 180603
 Refill
 Each
 \$79.80

 180711
 Digital Teacher's Manual
 Each
 \$5.95

All APES kits and bundles include a 12-month student and teacher's guide subscription.

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Biogeochemical Cycles Kit

Students study the biogeochemical cycles at work in a miniature aquatic ecosystem. They set up a 1-gallon aquarium, then—each week—measure water loss, temperature, and levels of pH, nitrite/nitrate, phosphate, and hydrogen sulfide. They also observe and record changes in biodiversity weekly. After 2 weeks, students design and implement an experiment to manipulate a parameter of the ecosystem and, in the following weeks, observe the change's effects on the system. **Kit** is designed for a class of 32 students working in 8 groups of 4. **Refill** replenishes consumed materials in the kit. **Note:** Order the kit or the refill with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Cannot be shipped into AK, AL, ID, IL, IN, MA, ME, MI, NH, NY, OH, OR, VT, WA, or WI. Restricted states will be shipped compatible organisms and/or plants (Elodea canadensis, Elodea najas, or Chara, depending on availability). Canadian orders require a permit from the Canadian government. Residents of AK must apply for a permit from your state game and fish department to receive pond snails. Sold only to schools and businesses.

	181061	Kit (with voucher)	Each	\$268.80
	181061P	Kit (with perishables)	Each	\$268.80
	181062	Refill (with voucher)	Each	\$159.20
<u> </u>	181062P	Refill (with perishables)	Each	\$159.20
•	180714	Digital Teacher's Manual	Each	\$5.95

International Customers

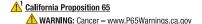
The importation of plants, seeds, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.



181061P Biogeochemical Cycles Kit (with perishables)

Hawaii Restriction Notice

Shipment of living materials (viruses, algae, bacteria, plants, protozoa, insects, and other animals) into HI is restricted. Please contact the Hawaii Department of Agriculture (808.832.0566) before ordering this material, and if necessary, provide us with import permits and other pertinent information.







Carolina Investigations



181066 Primary Productivity and Energy Flow Kit

Environmental Science

Primary Productivity and Energy Flow Kit

Integrate the second law of thermodynamics into plant growth and development with this primary productivity lab. Students gain hands-on experience with manipulating parameters that affect net and gross productivity and plant respiration. They also investigate how energy flows through trophic levels in an ecosystem. Kit provides enough materials for 32 students working in 8 groups of 4.

▲ 181066 Kit Each \$136.50 180715 Digital Teacher's Manual Each \$5.95



New! Primary Consumer Energy Flow Kit

• Connected to Unit 1: The Living World: Ecosystems, topics 1.9: Trophic Levels and 1.10: Energy Flow and the 10% Rule

Students investigate the efficiency with which developing painted lady butterflies (Vanessa cardui) incorporate their food into their body mass. In this lab, painted lady larvae, representing a primary consumer, feed on a growth medium that represents a primary producer. To track the amount of medium consumed over time, students daily measure and record the mass of a control cup and a cup containing the larvae or chrysalises. At the end of the experiment, students graph their data in multiple ways, analyze the results, and calculate efficiency. Kit provides materials for 15 groups of students. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Cannot be shipped into Puerto Rico. Painted lady butterflies cannot be released in CT or ND.

 180803
 Kit (with voucher)
 Each
 \$69.80

 180803P
 Kit (with perishables)
 Each
 \$69.80

 180803EBK
 Digital Resources
 Each
 \$12.95



180815 Exploring Biodiversity 8-Station Kit

New! Exploring Biodiversity Kit

• Connected to Unit 2: Biodiversity, topic 2.1: Introduction to Biodiversity

In each of the investigations in this kit, students use a different method to observe and sample the invertebrate community of various habitats. Students analyze their data to draw conclusions regarding the biodiversity of those habitats. In the first investigation, students collect soil samples and use a Berlese funnel to isolate the invertebrates for counting individuals and categories. In the second investigation, students bait sample cards, observe and categorize the ants that come, and compare data from different habitats and different niches (i.e., different baits). The **8-Station Kit** provides materials for 8 groups of students; the **1-Station Kit** includes materials for 1 group. Visit **Carolina.com** for complete lists of kit materials.

 180815
 8-Station Kit
 Each
 \$224.80

 180816
 1-Station Kit
 Each
 \$49.80

 180815EBK
 Digital Resources
 Each
 \$12.95

New! Population Growth with Lemna minor Kit

• Connected to Unit 3: Populations, topics 3.4: Carrying Capacity and 3.5: Population Growth and Resource Availability

Students conduct investigations and analyze the carrying capacity and biotic potential of a model plant species, *Lemna minor*, known commonly as duckweed. Students formulate a hypothesis, set up an experiment where they grow duckweed in different conditions, collect data, and analyze population growth. Then they discuss and apply knowledge gained from their experiments to a real-world scenario. The activity is conducted over a 4-week period. The **10-Station Kit** includes materials for 10 groups of students, the **5-Station Kit** for 5 groups. Visit **Carolina.com** for complete lists of kit materials. **Note:** *Order the kit with the perishable material included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.*

¹ 180818 ¹ 180818P	10-Station Kit (with voucher) 10-Station Kit (with perishables)	Each Each	\$84.80 \$84.80
180819	5-Station Kit (with voucher)	Each	\$54.80
⚠ ³ 180819P	5-Station Kit (with perishables)	Each	\$54.80
180818EBK	Digital Resources	Each	\$12.95

All APES kits and bundles include a 12-month student and teacher's guide subscription.

New! Exploring Human Population Dynamics Kit

 Connected to Unit 3: Populations, topics 3.5: Population Growth Resource Availability, 3.6: Age Structure Diagrams, 3.7: Total Fertility Rate, and 3.8: Human Population Dynamics

In this set of investigations, students have an opportunity to develop their analytical skills by delving into historical data, then apply these techniques to unique datasets. The tasks within this activity encompass the collection, organization, and analysis of data, culminating in the application of global case study data to explore a diverse array of world population parameters. **Kit** provides materials for 8 groups of students; visit **Carolina.com** for a complete list of kit materials.

 180860
 Kit
 Each
 \$49.80

 180860EBK
 Digital Resources
 Each
 \$12.95

New! Soil Formation and Properties Kit

Connected to Unit 4: Earth's Systems and Resources, topics 4.2:
 Soil Composition and Erosion and 4.3: Soil Formation and Properties

Throughout a series of laboratory investigations, students explore the formation of soil and analyze several of its physical characteristics. Students investigate soil properties, including structure, particle size, density, and permeability. Students also examine the weathering of rocks as well as the physical properties of isolated soil components (sand, clay, and humus). During this lab students use the Soil Texture Triangle to identify soil types. The 8-Station Kit provides materials for 8 groups of students; the 1-Station Kit includes materials for 1 group. Visit Carolina.com for complete lists of kit materials.

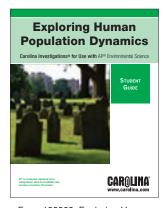
↑ 180821 8-Station Kit Each \$128.80 ↑ 180822 1-Station Kit Each \$58.80 180821EBK Digital Resources Each \$12.95

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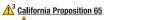
180818P Population Growth with Lemna minor 10-Station Kit (with perishables)



From 180860 Exploring Human Population Dynamics Kit



180821 Soil Formation and Properties 8-Station Kit





Carolina Investigations



180812 Soil Productivity 8-Station Kit

Environmental Science

New! Soil Productivity Kit

• Connected to Unit 4: Earth Systems and Resources, topic 4.3: Soil Composition and Properties

In this series of lab investigations, students test different characteristics of soil to determine how they impact plant growing capacity, or soil productivity. In addition to testing provided soils, students collect their own soil samples. They test waterholding capacity, macronutrient content, ion-exchange capacity, particle distribution, permeability, and porosity. After analyzing the results of the investigations, students conduct a final investigation in which they develop an experimental plan for testing soil productivity by measuring healthy plant growth. The **8-Station Kit** provides materials for 8 groups of students; the **1-Station Kit** includes materials for 1 group. Visit **Carolina.com** for complete lists of kit materials.

↑ 180812 8-Station Kit Each \$185.00 ↑ 180813 1-Station Kit Each \$88.80 ↑ 180812EBK Digital Resources Each \$12.95



180824 Coriolis Effect 8-Station Kit

New! Coriolis Effect Kit

Connected to Unit 4: Earth Systems and Resources, topics 4.4:
 Earth's Atmosphere, 4.5: Global Wind Patterns, and 4.7: Solar Radiation and Earth's Seasons

Through a series of activities, students develop an understanding of the Coriolis effect and its influence on global air circulation. Students use a turntable and inflatable globe to explore how rotation of the earth affects the apparent path of wind traveling in a straight line. They relate their findings to the movement of air masses on the earth. The **8-Station Kit** includes materials for 8 groups of students, the **1-Station Kit** for 1 group. **Visit Carolina.com** for complete lists of kit materials.

 180824
 8-Station Kit
 Each
 \$188.80

 180825
 1-Station Kit
 Each
 \$28.80

 180824EBK
 Digital Resources
 Each
 \$12.95



181080 Agriculture and Feeding a Growing Human Population Kit

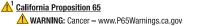
Agriculture and Feeding a Growing Human Population Kit

Engage students with activities that allow them to evaluate the trade-offs between agricultural production and the environment. Students first construct a calorimeter from a soda can to calculate the energy and food calories contained in different foods. They next determine how much food is required to support 1 person, and then calculate how much agricultural land is needed to produce enough food to feed the world population. **Kit** is designed for a class of 32 students working in 8 groups. **Refill** replenishes the consumables in the kit.

 ⚠³
 181080
 Kit
 Each
 \$133.50

 181081
 Refill
 Each
 \$47.80

 180721
 Digital Teacher's Manual
 Each
 \$5.95



New! Biomass to Biofuels Kit

• Connected to Unit 6: Energy Resources and Consumption, topics 6.1: Renewable and Nonrenewable Resources and 6.7: Energy from Biomass

In this set of investigations, students first use 3 mechanical pretreatments of grass to determine maximum production of glucose from cellulose through enzymatic digestion. After analyzing their data, students expand on their knowledge from the first investigation to design an experiment that tests additional pretreatments to maximize glucose production. The 8-Station Kit includes materials for 8 groups of students, the 1-Station Kit for 1 group. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable material included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

180830 180830P 180831	8-Station Kit (with voucher) 8-Station Kit (with perishables) 1-Station Kit (with voucher)	Each Each Each	\$79.80 \$79.80 \$54.80
180831P	1-Station Kit (with perishables)	Each	\$54.80
180830EBK	Digital Resources	Each	\$12.95

Carolina Investigations



180830P Biomass to Biofuels 8-Station Kit (with perishables)

181083 Air Pollution and Vehicle Emissions Kit

Air Pollution and Vehicle Emissions Kit

Students measure atmospheric components to investigate some of the relationships involved in air pollution caused by burning fossil fuels. They record levels of ultraviolet light, temperature, and ozone and learn how environmental factors interact with fossil fuel pollutants to produce smog. Students then test car exhaust for carbon dioxide levels. They explore the Air Quality Index (AQI), and discuss the health hazards associated with fossil fuel pollution, along with steps that can be taken in daily living to reduce air pollution. **Kit** is designed for a class of 32 students working in 8 groups of 4. Refill replenishes all the consumable items in the kit.

181083 \$231.50 Each 181084 Refill Each \$99.80 180722 Digital Teacher's Manual Each \$5.95

All APES kits and bundles include a 12-month student and teacher's guide subscription.

New! Acid Deposition Kit

• Connected to Unit 7: Atmospheric Pollution, topic 7.7: Acid Rain

In this lab, students measure the pH of unpolluted "rainwater" and simulated acid rain. They also model the effects of acid rain on human-made structures. Then they determine the buffering effects of 3 types of soil (clay, sand, and humus) and 3 types of bedrock (granite, basalt, and marble). Kit provides materials for 10 groups of students; visit Carolina.com for a complete list of kit materials.

180836 Each \$138.80 180836EBK Digital Resources \$12.95 Each



180836 Acid Deposition Kit

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Carolina Investigations

180839 Wet Scrubbers and Air Pollution 8-Station Kit

Environmental Science

New! Wet Scrubbers and Air Pollution Kit

· Connected to Unit 7: Atmospheric Pollution, topic 7.6: Reduction of Air Pollutants

In this laboratory exercise, students construct a model wet scrubber that operates much like one at an incineration plant. They burn wood and observe how particulates and other pollution are removed by the scrubber. They measure the change in pH of the scrubber solution and the mass of solid precipitate formed. Students then evaluate the benefits and shortcomings of wet scrubbers and answer questions about air pollution. The 8-Station Kit provides materials for 8 groups of students; the 1-Station Kit includes materials for 1 group. Visit Carolina.com for complete lists of kit materials.

180839	8-Station Kit	Each	\$124.80
180840	1-Station Kit	Each	\$29.80
180839EBK	Digital Resources	Each	\$12.95



180842P Cultural Eutrophication and Biodegradable Waste Kit (with perishables)

New! Cultural Eutrophication and Biodegradable Waste

• Connected to Unit 8: Aquatic and Terrestrial Pollution, topic 8.5: Eutrophication

In investigation 1, students model one aspect of cultural eutrophication, using milk as a biodegradable pollutant and yeast as a decomposer. They observe the effect of aerobic decomposition on the concentration of dissolved oxygen in water. Then in investigation 2, each student group designs and conducts an experiment to examine the effects of excessive nutrient input on algae growth and water quality. Kit provides materials for 8 groups of students; visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material.

<u>^</u> 1 180842	Kit (with voucher)	Each	\$134.80
△¹ 180842P	Kit (with perishables)	Each	\$134.80
180842EBK	Digital Resources	Each	\$12.95



CAROLINA

↑¹ California Proposition 65 MARNING: Cancer – www.P65Warnings.ca.gov

New! Wastewater Treatment Kit

• Unit 8: Aquatic and Terrestrial Pollution, topic 8.11: Sewage Treatment

Familiarize students with the physical, biological, and chemical processes of a wastewater treatment plant. In this laboratory investigation, students use the wastewater apparatus as a model to observe simulations of primary, secondary, and tertiary wastewater treatment processes. Through this process, they explore the efficiency, effectiveness, and ecological impact of various treatment models, fostering a deeper understanding of sustainable solutions for managing and purifying wastewater. Kit includes materials for 1 group of students to conduct the investigation or for a teacher to use as a demonstration; visit Carolina.com for a complete list of kit materials.

180845 Each \$134.80 **180845EBK** Digital Resources Each \$12.95



New! Impacts on Freshwater Ecosystems: Salt Toxicity Kit

 Connected to Unit 8: Aquatic and Terrestrial Pollution, topics 8.2: Human Impacts on Ecosystems, 8.12: Lethal Dose 50%, and 8.13: Dose Response Curve

In these investigations, students evaluate how ecosystems are impacted by increasing salt concentrations. Students examine effects on freshwater ecosystems by evaluating the impact of sodium chloride (NaCl) on duckweed (Lemna minor). Then students study how magnesium chloride (MgCl $_2$) and calcium chloride (CaCl $_2$) affect the survival of duckweed. In doing this, students calculate the LD $_{50}$ and create dose response curves for the different solutions. **Kit** provides materials for 8 groups of students; visit **Carolina.com** for complete lists of kit materials. **Note:** Order the kit with the perishable material included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.

 180854
 Kit (with voucher)
 Each
 \$74.80

 180854P
 Kit (with perishables)
 Each
 \$74.80

 180854EBK
 Digital Resources
 Each
 \$12.95

New! Ocean Acidification Kit

• Connected to Unit 9: Global Change, topic 9.7: Ocean Acidification

In this series of laboratory activities, students investigate ocean acidification. First, they observe the effect that atmospheric carbon dioxide has on the pH of simulated seawater when it is absorbed. Next, students investigate the effect that temperature has on the solubility of carbon dioxide in seawater by heating samples of acidified and non-acidified simulated seawater and observing changes in pH as an indicator of changes in dissolved carbon dioxide. Finally, students measure the change in mass of crushed coral placed in an acidified solution for 5 days, to examine how calcium carbonate structures are affected by increasing ocean acidity. The 16-Station Kit provides materials for 16 groups of students; the 2-Station Kit includes materials for 2 groups. Visit Carolina.com for complete lists of kit materials.

↑ 180848 16-Station Kit Each \$138.80 ↑ 180849 2-Station Kit Each \$48.80 180848EBK Digital Resources Each \$12.95

All APES kits and bundles include a 12-month student and teacher's guide subscription.

New! Loss of Biodiversity Kit

• Connected to Unit 9: Global Change, topic 9.10: Human Impacts on Biodiversity

In this investigation, students play a card game to simulate population changes and potential species loss in a temperate forest community due to realistic local factors such as habitat loss or fragmentation, pollution, invasive pathogens, overharvesting, climate change, and the establishment of invasive species. Students analyze their resulting data sets to determine which factors had a greater impact on biodiversity decline or loss within the community. They are then challenged to research one of these threats to biodiversity and propose a real-world, workable solution to the threat, or a solution to mitigate the damage created by the threat. Finally, students have the opportunity to evaluate the potential success of the solution they propose by introducing it as a rule in the modeling card game. The **8-Station Kit** provides materials for 8 groups of students; the **2-Station Kit** includes materials for 2 groups. Visit **Carolina.com** for complete lists of kit materials. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

 180851
 8-Station Kit
 Each
 \$62.80

 180852
 2-Station Kit
 Each
 \$38.80

 180851EBK
 Digital Resources
 Each
 \$12.95

AP® is a trademark registered or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.

Carolina Investigations



180854P Impacts on Freshwater Ecosystems: Salt Toxicity Kit (with perishables)



180848 Ocean Acidification 16-Station Kit



Teacher Resources Teacher Resources



LaMotte® BioPaddles® Total Coliform Activity Kit

Get fast, reliable cultivation and enumeration of coliform bacteria suitable for

total colony counts (TCC). **Kit** contains a box of **Nutrient TTC/MacConkey BioPaddles®** (also sold separately as a refill) and a digital teacher resource with a complete coliform test field activity, teacher and student review PowerPoint®, and iPad®/iPod® formatted material that provides helpful background information on coliforms, field testing, total viable count (TVC), and total coliform count (TCC) enumeration. Also includes access to the free LaMotte® BioPaddles® Colony ID™ Lite App to perform a side-by-side comparison to photos in a microbe library, plus information regarding

testing, total viable count (TVC), and total coliform count (TCC) enumeration. Also includes access to the free LaMotte® BioPaddles® Colony ID™ Lite App to perform a side-by-side comparison to photos in a microbe library, plus information regarding organisms, microhabitats, microbiological techniques, and more! **Note:** *This item is shipped via ground from the manufacturer in Maryland on Mondays and Tuesdays only, and delivered Wednesday through Friday only (depending on delivery location). Please allow 2 weeks advance notice with specific Monday or Tuesday shipping data.*

 653581
 Kit
 Each
 \$79.00

 653580
 Nutrient TTC/MacConkey BioPaddles
 Box of 10
 \$57.00

Environmental Science



180845 Wastewater Treatment Kit

New! Wastewater Treatment Kit

• Unit 8: Aquatic and Terrestrial Pollution, topic 8.11: Sewage Treatment

Familiarize students with the physical, biological, and chemical processes of a wastewater treatment plant. In this laboratory investigation, students use the wastewater apparatus as a model to observe simulations of primary, secondary, and tertiary wastewater treatment processes. Through this process, they explore the efficiency, effectiveness, and ecological impact of various treatment models, fostering a deeper understanding of sustainable solutions for managing and purifying wastewater. Kit includes materials for 1 group of students to conduct the investigation or for a teacher to use as a demonstration; visit Carolina.com for a complete list of kit materials.

↑ 180845 Kit Each \$134.80 180845EBK Digital Resources Each \$12.95



LaMotte® AP® Environmental Science Water Quality Assessment Package

With this extensive curriculum, students explore the Water Quality Index (WQI)—using classroom and field activities—and learn STEM-based skills that satisfy Section VI (water pollution) of the AP® Environmental Science topic outline. It includes 10 Nutrient TTC/MacConkey BioPaddles® (also sold separately as a refill) for coliform testing, LaMotte® TRACER meter (measures salt, total dissolved solids, and temperature), teacher resources, and LaMotte® Deluxe Water Quality Education Outfit (item #652450). Note: These items are shipped via ground from the manufacturer in Maryland on Mondays and Tuesdays only, and delivered Wednesday through Friday only (depending on delivery location). Please allow 2 weeks advance notice with specific Monday or Tuesday shipping date.

 653583
 Package
 Each
 \$685.00

 653580
 Nutrient TTC/MacConkey BioPaddles
 Box of 10
 \$57.00



653583 LaMotte AP Environmental Science Water Quality Assessment Package



Environmental ScienceInquiries in Science Environmental Science Series

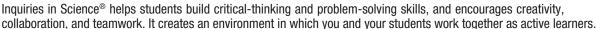
Grades 9-12.

Inquiries in Science® is our exclusive series of hands-on kits specifically designed to help high school students understand abstract, hard-to-grasp science concepts. The series tracks well with most textbooks, and kit topics reflect state science standards and extensive educator input. Since Inquiries in Science® is modular, you can use the kits individually, as a strand, or as a series to teach environmental science.

The 5E Learning Cycle

Field-tested in classrooms nationwide, Inquiries in Science® employs guided inquiry based on the 5E learning cycle of engage, explore, explain, extend, and evaluate. This inquiry-based approach also promotes STEM (science, technology, engineering, and math) practices. It enables students to:

- Consider a real-world question or problem
- Understand the science concept by analyzing data and communicating findings
- Plan and conduct an investigation and gather data
- Apply their findings to the original real-world question or problem and master the science concept



ENGAGE EXTEND Real-World Situation EXPLORE

Inquiries in Science® Components

- Kit—Includes lab supplies (enough for at least 30 students working in groups) plus teacher's manual.
- **Kit Refill**—Replenishes consumed materials. If it contains live or perishable materials, order the kit refill with the live/perishable materials included or with a voucher to request the live/perishable materials later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.
- Multi-Class Equipment Set—Includes extra lab supplies so you can use the kit in 1 additional class section per day. Note: You'll also need to order an extra kit refill for each additional class section. For example, to teach the same Inquiries in Science® kit in 3 biology sections on the same day, purchase 1 kit, 2 kit refills, and 2 multi-class equipment sets.

Inquiries in Science® Environmental Science Series Kits · FREE Digital Teacher's Manual with Kit Purchase

Each kit includes enough materials for at least 30 students working in groups. Receive a FREE digital teacher's manual and student guide for each kit with package purchase. For full kit descriptions visit Carolina.com. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

Inquiries in Scien Package Contains all 19 kits	in the series.	<u></u>	Per pkg	\$4,400.00			
Inquiries in Science®: Natural Resources Lab Package Contains all 6 kits in the Natural Resources strand.		<u>^</u> 3251501	Per pkg	\$1,546.00			
Included Kits	Description	Item No.	Each	Refill Item No. (with perishables)	Each	Refill Item No. (with voucher)	Each
Uncovering the Atmosphere Kit	Discover the composition of the atmosphere, the development of frontal systems, and how the atmosphere regulates and circulates heat.	<u>^</u> 3251421	\$230.00	<u>^</u> 3251461	\$57.35	-	
Modeling the Hydrosphere Kit	Investigate ocean currents and determine what creates and influences both surface and subsurface currents.	<u></u> 1251401	\$238.00	<u>^</u> 1251451	\$84.86	-	
Saving Soils Kit	Explore the formation of soil and its physical properties when reacting with water. Investigate weathering of rocks, local soil particle size composition, and permeability rates of different soil samples. Note: <i>Multi-Class Equipment Set available.</i>	<u>^</u> 1251402	\$305.00	<u>^</u> 1251452	\$125.92	-	
Mining for Minerals Kit	Use topographic maps and wax casts of landscapes to explore for mineral deposits using sediment readings and core samples.	<u>^</u> 3251403	\$400.00	251453	\$148.64	-	
Determining Agricultural Resources Kit	Research local agricultural products and practices, explore alternate means to growing food, and develop a plan to meet agricultural needs for a community. Note: <i>Multi-Class Equipment Set available.</i>	251404	\$134.50	251454	\$69.56	-	
Examining Energy Resources Kit	Build a working wind turbine and try to optimize the energy output it produces.	<u>^</u> 3251405	\$373.00	<u>^</u> 3251455	\$49.67	-	





Inquiries in Science

Environmental Science

ce®: Ecology/Ecosystem Lab Package 1 the Ecology/Ecosystems strand.	<u>^</u> 3251502	Per pkg	\$1,565.69			
Description	ltem No.	Each		Each	Refill Item No. (with voucher)	Each
Design a microorganism ecosystem and study the organism interactions within it.	<u>^</u> 2251019	\$346.59	<u>^</u> 2251089	\$231.59	<u>^</u> ² 251069	\$243.59
Explore and build mathematical models of population growth, and generate J- and S-shaped population curves. Investigate the response of yeast culture growth to environmental changes.	251420	\$147.61	251457	\$97.22	-	
Simulate the impact of a disease on monoculture and biodiverse communities, then perform transect and quadrat sampling on a theoretical population.	251422	\$99.05	-		-	
Set up and observe an ecosystem advancing through the stages of ecological succession. Note: <i>Multi-Class</i> <i>Equipment Set available.</i>	251409	\$252.84	251459	\$116.14	251476	\$128.14
Explore the importance of different biotic and abiotic factors involved in the nitrogen cycle. Students construct a complete nitrogen cycle that combines the fish, bacteria, and plants into one system. Note: <i>Multi-Class Equipment Set available.</i>	<u>^</u> 1251010	\$312.70	251059	\$142.30	251082	\$154.30
Determine specific biotic and abiotic factors needed for a functioning ecosystem based on student-designed models. Note: <i>Multi-Class Equipment Set available.</i>	1 ³ 251410	\$312.79	<u>^</u> 3251460	\$282.03	△ ³251480	\$294.03
Analyze the contents of owl pellets and construct ecological pyramids to represent the data collected.	251011	\$238.37	251090	\$75.38	-	
ce®: Human Influence Lab Package 1 the Human Influence strand.	<u>^</u> 3251503	Per pkg	\$1,420.10			
Description	ltem No.	Each	Refill Item No. (with perishables)	Each	Refill Item No. (with voucher)	Each
Investigate global human population patterns and predict the size of the world population over a 30-year period based on student-generated survivorship curves.	251413	\$195.50	-		-	
Explore different types of chemical and physical air pollutants, and research the sources of these pollutants, as well as the health hazards associated with them.	<u>^</u> 3251414	\$290.00	<u>^</u> 3251464	\$126.30	-	
Students design and conduct their own experiment to determine the effects of water pollution on living organisms. Note: <i>Multi-Class Equipment Set available.</i>	<u>^</u> 3251415	\$360.00	<u>^</u> 3251465	\$281.51	<u>^</u> 3251478	\$293.51
Discover, through experimentation, how the greenhouse gas carbon dioxide interacts with the atmosphere to contribute to rising global temperatures.	<u>^</u> 1251417	\$287.00	<u>^</u> 1251467	\$94.14	-	
Students investigate the importance of the Clean Air and Clean Water Acts, as well as the concept of the Tragedy of the Commons, as students investigate each issue and its impact on the environment. Note: <i>Multi-Class Equipment Set available.</i>	251418	\$239.95	251468	\$111.03	251477	\$123.0 3
Students calculate their ecological footprint, then estimate a more complete footprint to determine the number of plants needed to sustain the human population. Then, through role-playing, attempt to sustain an island community.	251419	\$154.25	-			
	Description Design a microorganism ecosystem and study the organism interactions within it. Explore and build mathematical models of population growth, and generate J- and S-shaped population curves. Investigate the response of yeast culture growth to environmental changes. Simulate the impact of a disease on monoculture and biodiverse communities, then perform transect and quadrat sampling on a theoretical population. Set up and observe an ecosystem advancing through the stages of ecological succession. Note: Multi-Class Equipment Set available. Explore the importance of different biotic and abiotic factors involved in the nitrogen cycle. Students construct a complete nitrogen cycle that combines the fish, bacteria, and plants into one system. Note: Multi-Class Equipment Set available. Determine specific biotic and abiotic factors needed for a functioning ecosystem based on student-designed models. Note: Multi-Class Equipment Set available. 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Pagina Pagina and conduct their own experiment to determine the effects	The Ecology/Ecosystems strand. A251502 Per pkg \$1,565.69	Description A 251502 Per pkg \$1,565.69

All Inquiries in Science® kits come with a FREE digital teacher's manual with purchase. The digital teacher's manual is accessed through our e-learning portal, Carolinascienceonline.com. The digital teacher's manual allows you to display the manual on a digital Smartboard, print on demand and to your specifications, and make and save notes. Look for an email after purchase with your FREE access code for this valuable resource!





▲ WARNING: Cancer – www.P65Warnings.ca.gov





Environmental Science Carolina EcoKits®

Carolina EcoKits

Carolina EcoKits® activities are designed to allow students to investigate topics associated with biology, environmental science, and earth science. All Carolina EcoKits® have an environmental or ecological application, which allows students to make real-world connections. Activities, background information, and assessments stress relevance. Students use mathematics authentically to analyze collected data. Our hope is that as students investigate science concepts, they will also better understand the impact they have on their environment.



187014P Carolina EcoKits: Carrying Capacity and Algal Blooms without Carolina Spectroscopy Chambers (with perishables)



187100P Carolina EcoKits: Contributors to the Carbon Cycle (with perishables)



187220P Carolina EcoKits: Human Impacts on Water Quality (with perishables)

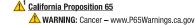
Carolina EcoKits® Series

Populations and Interactions	Communities and Ecosystems	Impacts to Global Ecology
Population Growth and Carrying Capacity 187000 Per kit \$68.00	Contributors to the Carbon Cycle 187100 Per kit \$112.80	Climate Mechanisms
Species Interactions 187002 Per kit \$99.80	Biodiversity	Climate Patterns and Species Distribution 187202 Per kit \$98.50
Invasive Species 187004 Per kit \$76.80	Food Chains and Energy Flow 187104 Per kit \$98.50	Energy Sources <u>^</u> 3 187204 Per kit \$173.50
Estimating Population Size 187006 Per kit \$166.80	Nitrogen Cycle	Solid Waste Management 187210 Per kit \$198.80
Predator-Prey Relationships 187010 Per kit \$99.80	Life in the Biomes 187108 Per kit \$99.80	LC ₅₀ Aquatic Toxicity 187212 Per kit \$88.00
Endangered Species 187206 Per kit \$91.80	Matter Cycling ▲¹ 187112 Per kit \$269.50	Resource Sustainability 187214 Per kit \$67.50
Build Your Own Microcosm 187012 Per kit \$198.80	Habitat Degradation 187208 Per kit \$112.80	Ethanol Biofuel 187216 Per kit \$149.80
Carrying Capacity and Algal Blooms 187015 Per kit \$96.50	Changing Ecosystems 187222 Per kit \$71.50	Air Quality Survey
Modeling Population Genetics and Evolution 187016 Per kit \$152.00	Investigating Ecological Succession 187224 Per kit \$96.50	Human Impacts on Water Quality 187220 Per kit \$144.50
		Tropospheric Ozone Testing 653045 Per kit \$37.80
		Oil Spill Bioremediation 181324 Per kit \$96.00
		Investigating the Effects of Pollutants in Soil 653048 Per kit \$119.80



Find more information about any kit at Carolina.com.













Teacher's Choice

Carolina EcoKits

Populations & Interactions



187000 Carolina EcoKits: Population Growth and Carrying Capacity (with voucher)

Carolina EcoKits[®]: Population Growth and Carrying Capacity

Grades 9–12. The fast reproduction rate of duckweed makes it a perfect organism for studying population growth. Students first predict what changes will take place within a population in a closed system. After creating a closed-system environment for duckweed, students investigate their predictions by completing regular counts of the population over a 3- to 4-week period. Using the collected data students graph the population data, calculate growth rate, and determine the carrying capacity of the system. Kit accommodates a class of up to 30 students working in pairs. **Note:** Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187000 Kit (with voucher) Each **\$68.00 187000P** Kit (with perishables) Each **\$68.00**



187006 Carolina EcoKits: Estimating Population Size

Carolina EcoKits®: Estimating Population Size

Grades 9–12. Students explore and evaluate 4 different sampling techniques that are used to estimate population size: transects, quadrats, mark and recapture, and removal sampling. Conducting multiple runs for each method, students estimate population cover, density, and size using basic algebra and graphing skills. Students share their data with other groups, compare their data to the actual numbers, and determine how accurate their estimates are. Kit accommodates 30 students working in 10 groups of 3.

187006 Per kit **\$166.80**

Environmental Science



187014P Carolina EcoKits: Carrying Capacity and Algal Blooms without Carolina Spectroscopy Chambers (with perishables)

Carolina EcoKits®: Carrying Capacity and Algal Blooms

Grades 9–12. Students investigate an algal bloom scenario and, in the process, explore factors that affect the carrying capacity of ecosystems. To do this, students use a spectroscopy chamber to monitor the growth of populations of algae in different concentrations of nutrient solutions. Kit accommodates 10 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with or without Carolina® Spectroscopy Chambers, and with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187014 Kit without Carolina Spectroscopy Chambers (with voucher)

Each \$61.50

187014P Kit without Carolina Spectroscopy Chambers (with perishables)

Each **\$61.50**

187015 Kit with Carolina Spectroscopy Chambers (with voucher)

Each **\$96.50**

187015P Kit with Carolina Spectroscopy Chambers (with perishables)

Each **\$96.50**

653355 Carolina Spectroscopy Chamber

Each **\$12.50** 5+ Each **\$11.95**



187016 Carolina EcoKits: Modeling Population Genetics and Evolution

Carolina EcoKits®: Modeling Population Genetics and Evolution

Grades 9–12. Cichlid speciation in Lake Victoria introduces the investigative phenomenon of variation and distribution of expressed traits in a population and how this might lead to evolution. Over the course of 2 investigations, students use a card set and genetic corn to gather data about allelic frequencies and phenotypes in a stable population. In a third investigation, students plan, model, and present the results of genetic exchanges that disrupt genetic equilibrium. Students work toward answering the driving question, "How do scientists recognize that a population is evolving?" Kit accommodates 16 student groups and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187016 Per kit \$152.00

Carolina EcoKits



187010P Carolina EcoKits: Predator-Prey Relationships (with perishables)

Carolina EcoKits®: Predator-Prey Relationships

Grades 9–12. In this kit, students use direct observation and modeling to examine the relationship between predator and prey in 2 sets of organisms. First, students examine the relationship between *Daphnia* and *Hydra* and between *Stentor* and *Chilomonas*. Students then collect data while modeling a predator-prey relationship with beads. Students graph and analyze the collected data before drawing conclusions about the relationship between predator and prey. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For best results, use perishable materials within 2–3 days of receipt.*

187010 Kit (with voucher) Each **\$99.80 187010P** Kit (with perishables) Each **\$99.80**



187012 Carolina EcoKits: Build Your Own Microcosm

Carolina EcoKits®: Build Your Own Microcosm

Grades 9–12. Using this inquiry-based kit, students create an enclosed aquatic ecosystem that allows them to observe biogeochemical and life cycles. Students observe this ecosystem, known as a microcosm, and identify ecological relationships. They are then challenged to find the answer to a fundamental question: "What factors can determine whether an ecosystem will succeed or fail?" The activity requires approximately 4 weeks to complete. Kit accommodates a class of up to 32 students working in groups of 4. Note: Kit includes vouchers for 2 sets of living organisms shipped separately. Set 1 includes Daphnia pulex, Lumbriculus, and algae for a food source. Set 2 includes pond snails, Chara, and dwarf aquarium frogs. Allow approximately 12 days between requested arrival dates for these 2 sets. Cannot be shipped into AK or VA.

187012 Per kit \$198.80



187002 Carolina EcoKits: Species Interactions (with voucher)

Carolina EcoKits®: Species Interactions

Grades 9–12. Working in groups that rotate to 4 different lab stations, students observe examples of competition, predation, parasitism, and symbiosis. First, students explore predation as they observe Stentor protozoa prey upon Chilomonas. Next, students observe Amoeba and Stentor as they compete for the Chilomonas food source. Students then extract the gut contents of termites and examine protozoan symbionts. At the last lab station, students study the parasitic relationship between WOWBugs and Sarcophaga larvae. Kit accommodates a class of up to 32 students working in pairs. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

187002 Kit (with voucher) Each **\$99.80 187002P** Kit (with perishables) Each **\$99.80**



187004 Carolina EcoKits: Invasive Species

Carolina EcoKits®: Invasive Species

Grades 9–12. Students investigate invasive species by performing 2 engaging activities. In the first, they explore how the addition of a second, more efficient, predator affects an existing predator's population. In the second activity, students monitor a simulated ecosystem of colored squares. They sample the ecosystem using quadrats and examine the effect of an introduced species on 2 native species. With the data, students then calculate population density and percent cover for each species. Kit accommodates a class of up to 32 students working in groups of 4.

187004 Per kit \$76.80

Carolina EcoKits®: Endangered Species

Grades 9-12. Students explore how environmental changes affect species populations through a population modeling game. Struggle for Survival, After reflecting on what that model shows, students revise it by proposing "Game Changers" to make it more closely mimic natural systems. Accommodates a class of up to 40 student players. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187206 Per kit \$91.80



187206 Carolina EcoKits: Endangered Species

Communities & Ecosystems



187102 Carolina EcoKits: Biodiversity (with voucher)



187224 Carolina EcoKits: Investigating Ecological Succession

Carolina EcoKits®: Biodiversity A

- · Study the biodiversity of a simulated pond
- · Identify organisms using a dichotomous key
- · Calculate the Simpson index of diversity for different pond levels

Grades 9–12. Students create a simulated pond using 2 culture mixtures and then identify the protists and algae found in their pond using a dichotomous key. Sampling the top, middle, and bottom of the pond, students compare the biodiversity of the various layers using both species richness and the Simpson index for biodiversity. Kit accommodates a class of up to 32 students working in pairs. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187102 Kit (with voucher) Each \$102.50 Each \$102.50 187102P Kit (with perishables)



187104P Carolina EcoKits: Food Chains and Energy Flow (with perishables)

Carolina EcoKits®: Investigating Ecological Succession ▲ Carolina EcoKits®: Food Chains and Energy Flow ▲

Grades 9-12. Students gather evidence over time as they observe and describe patterns in the relationships among populations within a hay infusion, a model pond. They explore how this model ecosystem changes over time and how these changes follow a general pattern called succession. Accommodates up to 8 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Kit includes a voucher to request perishable materials later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187224 Per kit \$96.50

1 California Proposition 65

MARNING: Cancer – www.P65Warnings.ca.gov

12 California Proposition 65

MARNING: Reproductive Harm – www.P65Warnings.ca.gov

Grades 9-12. Students examine microorganisms and create a food chain based on observed feeding patterns. Students explore energy transfer through different trophic levels of a food chain using a simulation activity. Using their finding that all energy is not transferred, students calculate the energy flow through the food chain they created. Kit accommodates 30 students working in pairs. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Be sure to carefully plan the arrival of your perishables; Didinium will starve to death if not used within 1 day of receiving the culture.

187104 Kit (with voucher) \$98.50 Each 187104P Kit (with perishables) Each \$98.50



MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

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187222 Carolina EcoKits: Changing Ecosystems

Carolina EcoKits®: Changing Ecosystems

Students use a card game to model population changes in a temperate forest community as they explore how changes in ecosystems can lead to a loss of biodiversity. Students then evaluate the card game as a model and develop their own version to simulate population changes in a different community. Kit contains enough materials for 8 groups and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187222 Per kit \$71.50



187100P Carolina EcoKits: Contributors to the Carbon Cycle (with perishables)

Carolina EcoKits®: Contributors to the Carbon Cycle

Grades 9–12. Students conduct experiments and analyze data in order to figure out the interrelationships of the inputs and outputs of a balanced, closed freshwater aquarium system. Students use elodea and aquatic snails as model organisms as they seek to understand how both photosynthesis and cellular respiration impact the carbon cycle. Kit accommodates 10 groups of 3. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a prepaid coupon to request the perishables later at your convenience. Contact us or return the coupon at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Residents of AK must apply for a permit from your state game and fish department to receive pond snails. Cannot be shipped into AL, IL, IN, MA, ME, MI, NH, NY, OH, OR, VT, WA, or WI; restricted states will receive compatible plants. Canadian orders require a permit from the Canadian government.

187100 Kit (with voucher) Each **\$112.80 187100P** Kit (with perishables) Each **\$112.80**

Teacher's Choice

Carolina EcoKits



187112P Carolina EcoKits: Matter Cycling (with perishables)

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Carolina EcoKits®: Matter Cycling 11

- Create a model of a mini pond ecosystem
- Alter a parameter of a pond ecosystem, and observe the effects on the biogeochemical cycles
- Learn how pond parameters relate to the biogeochemical cycling of carbon, nitrogen, sulfur, water, phosphorous, and oxygen in an aquatic ecosystem

Grades 9–12. Investigate biogeochemical cycles at work in a mini pond ecosystem. Students measure temperature, water loss, pH, and sample biodiversity each week. They examine water quality by testing levels for phosphate, hydrogen sulfide, and nitrite/nitrate within each ecosystem. They learn how this environment (and each parameter) links to the biogeochemical or matter cycle. Kit accommodates a class of 28 students working in groups of 4. **Note:** Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187112 Kit (with voucher) Each **\$269.50 187112P** Kit (with perishables) Each **\$269.50**



Carolina EcoKits®: Nitrogen Cycle 11

- Conduct soil tests to measure nitrogenous compounds in soil
- Compare the biomass of mature clover with Rhizobium to that of mature clover without Rhizobium
- Examine and compare root nodules of mature clover with Rhizobium to mature clover without Rhizobium

Grades 9–12. Students observe the nitrogen cycle at work by growing clover both with and without *Rhizo*-



187106 Carolina EcoKits: Nitrogen Cycle (with voucher)

bium, a nitrogen-fixing bacterium. They compare the biomass and nitrogen content of the soil to uninoculated clover to understand how nitrogenous compounds are cycled with the aid of bacteria. Kit accommodates 30 students working in pairs. **Note:** Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187106 Kit (with voucher) Each **\$79.80 187106P** Kit (with perishables) Each **\$79.80**

Carolina EcoKits



187208 Carolina EcoKits: Habitat Degradation (with voucher)

Carolina EcoKits®: Habitat Degradation

- · Observe animal behavior when a habitat area is decreased
- · Build models to collect, analyze, and graph data
- Apply observations to real-world scenarios

Grades 9-12. In this activity students work in groups to study how an organism responds to habitat loss. Students perform an experiment using choice chambers to determine the habitat preference of pill bugs. Then they decrease the size of the pill bugs' desired habitat and record the observed pill bug behavior. Students apply their observations to real-world habitat degradation due to human land use. Kit accommodates a class of up to 32 students working in groups of 4. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187208 Kit (with voucher) Each \$112.80 187208P Kit (with perishables) Each \$112.80

Impacts to Global Ecology



187202P Carolina EcoKits: Climate Patterns and Species Distribution (with perishable)

Carolina EcoKits®: Climate Patterns and Species **Distribution**

Grades 9-12. Students experimentally observe and evaluate the influence of climate patterns on the distribution of species. To do this, students expose cultures of mixed protists to different temperatures for a period of 3 days, making daily temperature recordings and assessing the taxonomic diversity. Kit accommodates a class of up to 30 students working in groups of 3. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187202 Each \$98.50 Kit (with voucher) 187202P Kit (with perishable) \$98.50 Each



187108 Carolina EcoKits: Life in the Biomes (with voucher)

Carolina EcoKits®: Life in the Biomes

- Observe the unique characteristics and traits of specific biomes
- Construct models and make predictions about the effects of threats to the habitats and climate of biomes
- Suggest ways to preserve biomes

Grades 9-12. Students study the biotic and abiotic factors of ecosystems through the exploration of various terrestrial biomes. They use models of biomes and representations of climate (temperature and precipitation) to determine specific characteristics of the biomes and the life found within. Then they complete graphic organizers about a selected biome and share the information with the rest of the class. Kit accommodates a class of 30 or more students and can be used for multiple classes. Each station requires 20-30 minutes. Either have student groups complete all 6 stations, or assign 1 biome to 6 groups, which then present to the rest of the class. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Cannot be shipped into CA.

187108 Kit (with voucher) \$99.80 Each 187108P Kit (with perishables) Each \$99.80



187200 Carolina EcoKits: Climate Mechanisms

Carolina EcoKits[®]: Climate Mechanisms A

- . Model the rotation of the earth and infer the effects on air currents
- Observe how the sun's radiant energy is distributed unevenly across the earth's surface
- Use convection fluid to demonstrate how air currents are affected by convection

Grades 9-12. Students use a model globe and convection fluid to simulate factors that affect climate, including rotation of the earth, the distribution of solar energy on the surface of the earth, and the Coriolis effect. Students fill small vials with convection fluid to simulate how convection affects the movement of air masses. Kit accommodates a class of 32 students working in 8 groups of 4.

187200 Per kit \$152.80





187204 Carolina EcoKits: Energy Sources



Carolina EcoKits®: Energy Sources A3

- · Learn about renewable and nonrenewable energy resources
- Examine different energy technologies and analyze the pros and cons of each
- Design and build models to represent different examples of energy sources

Grades 9–12. In these laboratory exercises, students explore different types of renewable and nonrenewable energy resources. Working in groups of 4, students rotate to 8 different stations over a period of 2 hours. At each station, they perform a 15-minute activity that relates to energy production. They produce coal gas, work with a water wheel, burn methane bubbles, split water molecules, test photovoltaic cells, build a wind turbine, model geothermal energy, and explore batteries. Kit accommodates a class of 32 students.

187204 Per kit \$173.50



187216P Carolina EcoKits: Ethanol Biofuel (with perishable)



Carolina EcoKits®: Ethanol Biofuel

- Learn about alcohol fermentation and the role of enzymes
- Investigate the ethanol production process with enzymatic digestion
- Use scientific methodology to compare yeast fermentation of different concentrations

Grades 9–12. Students apply scientific methodology to investigate enzyme digestion of cellulose and yeast alcohol fermentation in the presence of different concentrations of glucose. They then generate a standard curve to determine the concentration of glucose in solution. After understanding the reactions taking place, students discuss advantages and disadvantages of various sources of ethanol. Kit accommodates a class of 32 students working in 8 groups of 4. **Note:** Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187216 Kit (with voucher) Each **\$149.80 187216P** Kit (with perishable) Each **\$149.80**

Carolina EcoKits



187214 Carolina EcoKits: Resource Sustainability



Carolina EcoKits®: Resource Sustainability

- Recognize the reality of consumption as well as the value and necessity of conservation
- Think critically about sustainable and unsustainable resource use practices
- · Learn the difference between renewable and nonrenewable resources

Grades 9–12. Students explore sustainable resource use practices by modeling the harvesting and management of several natural resources. They simulate the harvesting of timber as well as the excavation and retrieval of precious metals, gemstones, and fossil fuels from an ecosystem. They must confront the challenges involved with obtaining important natural resources while simultaneously attempting to protect and conserve the environment. Materials are sufficient for 32 students working in 8 groups of 4. Sixty minutes is required for this exercise.

187214 Per kit **\$67.50**



187212P Carolina EcoKits: LC₅₀ Aquatic Toxicity (with perishable)



Carolina EcoKits®: LC₅₀ Aquatic Toxicity

- · Learn about some environmental impacts of population growth
- · Perform static aquatic toxicity testing
- Determine and graph the results of an LC₅₀ test

Grades 9–12. Students are introduced to static toxicity tests used by the EPA and other health and environmental organizations to set water quality standards. During the lab, students prepare various concentrations of ammonium sulfate, a fertilizer component, and introduce *Daphnia magna* into their solutions. After 24 hours, students observe the mortality percentage of *Daphnia* in each concentration and determine the LC_{50} of ammonium sulfate. Kit accommodates a class of 30 students working in groups of 6. **Note:** *Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.*

187212 Kit (with voucher) Each **\$88.00 187212P** Kit (with perishable) Each **\$88.00**

Carolina EcoKits



187218 Carolina EcoKits: Air Quality Survey

Carolina EcoKits®: Air Quality Survey ▲3

- · Promote a deeper understanding of air pollution as a global issue
- Observe the effects of different types of air pollution on common materials
- Describe ways to reduce air pollution

Grades 9–12. Increase your students' awareness of an important global issue, air quality, and human impact on it. Student groups rotate through 8 workstations, investigating the effect of various pollutants. The activities—examining the effects of air pollutants on fabrics, investigating light pollution, collecting and examining particulate matter, simulating acid rain and its effects, and demonstrating the acidity of smoke—and classroom discussions help students consider air quality from a local and global perspective. Kit accommodates a class of up to 32 students working in groups of 4 and includes 1-year access to digital resources that support 3-dimensional instruction.

187218 Per kit \$69.50



Carolina EcoKits®: Investigating the Effects of Pollutants in Soil

- . Measure dry and wet biomass to determine productivity
- · Explore different pollutants with your class
- Examine how energy flows can be altered by pollution

Grades 9–12. Students can see the effects of air and water pollution all around them; however, soil pollution is harder to spot. In this activity, your students grow their own rye grass ecosystem and use it to experiment with different levels of pollutants. They can see firsthand how pollution impacts primary productivity and the flow of energy in the terrestrial system. Students also learn to estimate pollution's impact on productivity by performing biomass measurements. Kit accommodates 32 students working in groups of 4.

653048 Per kit \$120.23

Environmental Science

Carolina EcoKits®: Tropospheric Ozone Testing

- Learn how elevated levels of ozone affect our environment and our health
- Investigate what factors have an effect on ozone levels
- Conduct reaction testing using ozone test paper to better understand a realworld environmental issue

Grades 9–12. Investigate a real-world environmental issue when your students perform an experiment to test for elevated levels of ozone. This kit allows them to develop an understanding of the causes of this



type of environmental pollution along with the troposphere and how ozone affects it. While students conduct this hands-on investigation, they observe a sample of how we can impact our environment. They conduct reaction testing using ozone test paper to determine the ground level of ozone in different areas around the school. Using this information, they create a map of the testing sites and formulate a hypothesis to explain the results. They learn ways in which elevated levels of ozone can be harmful to living tissues. Kit accommodates a class of up to 32 students working in pairs. The activities can be completed over 2 days, with an 8-hr reaction period required after setting up the test papers.

653045 Per kit \$37.80



187220P Carolina EcoKits: Human Impacts on Water Quality (with perishables)

Carolina EcoKits®: Human Impacts on Water Quality

Grades 9–12. Students use a chromogenic medium to quantify any coliforms in water sources of their choosing and compare the results to local water regulations. They also analyze water samples from a fictitious location, attempting to determine a source of contamination. Then they propose design solutions that might reduce the environmental impacts of human activities linked to bacterial contamination of water. Kit accommodates up to 10 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables.

187220 Kit (with voucher) Each **\$144.50 187220P** Kit (with perishables) Each **\$144.50**



187210P Carolina EcoKits: Solid Waste Management (with perishable)

Carolina EcoKits®: Solid Waste Management

- Set up composting bins
- Take weekly temperature measurements of the core and the exterior of the compost
- Graph the temperature changes during the composting process
- · Describe ways to reduce personal waste

Grades 9–12. Students study the science of composting right in the classroom. They construct a simulation of a small composting bin with both organic and inorganic waste items. They then analyze the process of decomposition in the composting bin over the course of a 4- to 5-week period through observations and temperature readings. With this kit, students experience real-life composting using vermicomposting. Kit accommodates 32 students working in groups of 4. **Note:** Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187210 Kit (with voucher) Each **\$198.80 187210P** Kit (with perishable) Each **\$198.80**

Carolina EcoKits



181324 Carolina EcoKits: Oil Spill Bioremediation

Carolina EcoKits®: Oil Spill Bioremediation

Grades 9–12. Students conduct and analyze a simulated bioremediation of an oil spill, then use their observations to attempt to improve the simulation. Finally, they explore data from the Deepwater Horizon oil spill and consider the role of bioremediation and the impacts of oil spills on ecosystems. **Kit** materials are sufficient for 32 students working in pairs and include digital resources. **Kit Refill** replenishes all kit consumable items. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

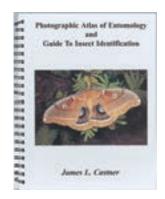
181324 Kit Each **\$96.00 181325** Kit Refill Each **\$22.25**

Teacher Resources

Photographic Atlas of Entomology and Guide To Insect Identification

Grade 12 and up. James L. Castner. 2000. 174 pages. More than 600 color photographs illustrate the structural characteristics and anatomical features of the major insect families and arthropod groups discussed in entomology courses. Explanations and illustrations of external anatomy and insect development are also provided. Dichotomous keys to the family level are included for the major orders, as well as a glossary of specialized terms. Spiral binding.

454489 Each \$69.50



National Audubon Society North American Field Guides

Full-color photographs, range maps, and ample descriptions make these books among the best identification guides available. Size is just right to fit the hand. Vinyl bindings.

455096	Birds—Eastern	Each	\$25.50
455096A	Birds—Western	Each	\$25.50
454559	Butterflies	Each	\$25.50
454701	Fishes	Each	\$25.50
459057	Fossils	Each	\$25.50
454499	Insects & Spiders	Each	\$25.50
455306	Mammals	Each	\$25.50
458371	Mushrooms	Each	\$25.50
454806	Reptiles and Amphibians	Each	\$25.50
459066	Rocks and Minerals	Each	\$25.50
454369	Seashells	Each	\$25.50
458110	Trees—Eastern	Each	\$25.50
458111	Trees—Western	Each	\$25.50
458819A	Wildflowers—Eastern	Each	\$25.50
458819B	Wildflowers—Western	Each	\$25.50
452389	Set (one each of the above)	Each	\$358.80



National Audubon Society North American Field Guides

Natural Waters

Natural Waters

Water Analysis



Carolina® Shirt Pocket Water Test Kit

Grade 4 and up. Using safe, reliable, 1-step dip strips sealed in foil packets, this kit fits easily in a shirt pocket, yet contains enough material to test 10 water samples for free and total chlorine, pH, total alkalinity, total hardness, nitrate and nitrite, nitrogen, total copper, and total iron. Results are presented quantitatively as parts per million (ppm). Testing is simple: just dip the end of the test strip in the water sample, swirl for the specified amount of time, and compare the resultant color with the color chart on each foil packet. Plastic water sample vial is included.

652748 Per kit **\$50.80**

Environmental Science



652747 Carolina 9-Factor Classroom Water Quality Test Kit

Carolina® 9-Factor Classroom Water Quality Test Kit

For a class of 30 students. Truly an excellent way for students of all ages to learn about the water they drink at home and at school! Using nonhazardous, reliable, 1-step dip strips, each student tests samples of water to determine the levels of free and total chlorine, pH, total alkalinity, total hardness, total nitrate and nitrite as nitrogen, total copper, and total iron. Testing is simple: just dip the end of the test strip in the water sample, swirl for the specified amount of time, and compare the resultant color with the color chart to obtain the quantitative (ppm) result. Kit contains 30 packets (60 test strips) for each of the 9 parameters listed for a total of 540 tests.

652747 Per kit \$145.00



Water Test Strips

Reliable, nontoxic combination dip strip gives accurate quantitative values in seconds. Available in vials of 50 strips each, except for Total Iron and Total Copper, which have 25 strips per vial, and Free and Total Chlorine, which has 30 strips per vial.

Item No.	Water Test Strip	Range	No./Vial	Each
652729	pH and Total Alkalinity (TA)	pH: 6, 6.5, 7, 7.5, 8, 8.5, 9 TA: 0, 80, 120, 180, 240, 360 ppm	50	\$17.50
652730	Free and Total Chlorine	Free Chlorine: 0.0, 0.1, 0.2, 0.5, 1.0, 2.5, 5.0 ppm Total Chlorine: 0.0, 0.1, 0.2, 0.5, 1.0, 2.5, 5.0 ppm	30	\$29.80
652731	Ultra-High Free Chlorine	0; 25; 50; 200; 500; 800; 1,100; 1,500; 2,000 ppm	50	\$23.80
652732	Total Hardness	0, 50, 120, 250, 425 ppm	50	\$14.50
652736	Nitrate and Nitrite Nitrogen	Nitrate: 0.0, 0.5, 5.0, 10.0, 20.0 ppm Nitrite Nitrogen: 0.15, 0.3, 1.0, 3.0, 10.0 ppm	50	\$25.50
652738	Total Iron (ferric/ferrous)	0.0, 0.1, 0.3, 1.0, 5.0 ppm	25	\$22.70
652740	Total Copper	0, 0.05, 1, 2.5, 5 ppm (mg/L)	25	\$22.50



653500 LaMotte Lead Test Kit

LaMotte® Lead Test Kit

This safe, reliable, and easy-to-use lead test kit allows identification of lead in drinking water above the EPA action level of 15 parts per billion. Gives results in only 10 min. Each test comes sealed in its own pouch and includes a test vial and dropper. Kit contains 10 tests and instructions.

653500 Per kit \$116.75



652749 Household Water Quality Test Kit

Household Water Quality Test Kit

Using safe, reliable, 1-step dip strips sealed in foil packets, this kit fits easily in a shirt pocket, yet contains enough material to test 2 municipal or well-water samples for free and total chlorine, pH, total alkalinity, total hardness, nitrate and nitrite nitrogen, total copper, and total iron. Results are shown as parts per million (ppm). Testing is simple: just dip the end of the test strip in the water sample, swirl for the specified amount of time, and compare the resultant color with the color chart on each foil packet. Instructions and water sample vial are included.

652749 Per kit \$23.25



652712 Water Quality Test Kit

Water Quality Test Kit

Here is an easy, safe, and economical way to test for some of the most common contaminants found in drinking water. The kit's test strips are based on recognized test methods. Instructions are clear, no harsh chemicals are used, no expensive equipment is required, and results are easy to see. The supplied table lets you record and compare your results to the EPA-recommended levels. Kit includes the following 2 pH 1 Lead

2 Total Alkalinity

2 Hydrogen Sulfide

2 Total Chlorine 2 Iron 2 Free Chlorine 2 Copper 2 Chloride 2 Total Hardness

1 Pesticide

2 Nitrate/Nitrite Nitrogen 2 Sulfate 652712 Per kit \$63.50

Testing the waters in your classroom?

Various properties can be tested right in the field. Check out our handheld meters on pages 617-624.

Natural Waters

653581 LaMotte BioPaddles Total Coliform Activity Kit

LaMotte® BioPaddles® Total Coliform Activity Kit

Get fast, reliable cultivation and enumeration of coliform bacteria suitable for total colony counts (TCC). Kit contains a box of Nutrient TTC/MacConkey BioPaddles® (also sold separately as a refill) and a digital teacher resource with a complete coliform test field activity, teacher and student review PowerPoint®, and iPad®/iPod® formatted material that provides helpful background information on coliforms, field testing, total viable count (TVC), and total coliform count (TCC) enumeration. Also includes access to the free LaMotte® BioPaddles® Colony ID™ Lite App to perform a side-by-side comparison to photos in a microbe library, plus information regarding organisms, microhabitats, microbiological techniques, and more! Note: This item is shipped via ground from the manufacturer in Maryland on Mondays and Tuesdays only, and delivered Wednesday through Friday only (depending on delivery location). Please allow 2 weeks advance notice with specific Monday or Tuesday shipping date.

653581 Kit Each \$79.00 653580 Nutrient TTC/MacConkey BioPaddles Box of 10 \$57.00



652790 LaMotte Nitrate-Nitrogen Test Kit

LaMotte® Nitrate-Nitrogen Test Kit

Unique 2-tablet reagent system measures nitrate nitrogen from 0 to 15 ppm (0 to 66 ppm as nitrate) in one-third the time required for other nitrate test kits. Kit includes foil-wrapped, unit-dose tablets for 50 tests, easy-to-handle plastic test tubes with spill-proof caps, and plastic Octa-Slide color comparator with values at 0, 1, 2, 4, 6, 8, 10, and 15 ppm nitrate nitrogen. Order both items #653572 and #653573 to refill kit.

652790 Nitrate-Nitrogen Kit \$77.10 Each 653572 Nitrate #1 \$16.50 Each 653573 Nitrate #2 Each \$18.20

CHEMetrics Water Test Kits

These kits combine accuracy and reliability with simplified methodology that is

not available in other field test products. Unique vacuum-sealed test ampules contain premeasured aliquots of reagent and are self-filling. Just immerse the ampule in the water sample and snap its tip; the ampule fills automatically and delivers a quantitative result, usually in 2 minutes or less! Each kit contains a color comparator. 30 test ampules, graduated water sampling cup, and instructions. Packed in a highdensity plastic, flip-lid carrying case. Refills contain 30 additional test ampules.



652756 Nitrate Water Test Kit

	Item No.	Description	Testing Range	Each
	652750	Dissolved Oxygen Kit	1 to 12 ppm	\$97.80
	652751	Dissolved Oxygen Refill		\$45.50
	652753	Phosphate Kit	0 to 1 and 1 to 10 ppm	\$94.80
	652754	Phosphate Refill		\$47.30
Λ^3	652756	Nitrate Kit	0 to 3 ppm	\$109.00
<u></u> ^3	652757	Nitrate Refill		\$58.50

1 Bacteria

Bring the Laboratory to the Field with LaMotte® Water Test Kits

- A higher degree of analytical sensitivity than other field methods
- . Test methods that are easy to use and reproduce
- · Confidence in accurate test results



652915 LaMotte Phosphate Water Test Kit (high range)

LaMotte® Water Test Kits

These LaMotte® kits are used to analyze natural waters and aquarium systems through either colorimetric or titration protocols. Colorimetric kits require the addition of reagents to the test sample to create a color change. This color change is then compared to a chart or an easy-to-use LaMotte® Octa-Slide Comparator. The comparator contains 8 color standards with built-in filters to eliminate optical distortion. Titration kits use the unique LaMotte® Direct Reading Micro Burette. Important features of the micro burette include use of small amounts of titrates and small quantities of sample, a sealed test chamber for mixing, reproducible test results, and easily made titrations in the field. Each kit performs 50 tests.



Environmental Science

652865 LaMotte Dissolved Oxygen Water Test Kit



652920 LaMotte Phosphate Water Test Kit (low range)

Test Kit	Method	Testing Range	Resolution	Test Kit Item No.	Test Kit Each	Refill Item No.	Refill Each
Water Alkalinity Kit	Direct Read Titrator	0-200 ppm as CaCO ₃	4 ppm	652801	\$52.55	652804	\$25.30
Ammonia/Nitrogen Kit	Salicylate Color Chart	0.0-4.0 ppm NH ₃ -N	0.5–2 ppm	652815	\$92.25	⚠ ³ 652816	\$32.10
Carbon Dioxide Kit	Direct Read Titrator	0-50 ppm CO ₂	1 ppm	652825	\$61.30	△ ³ 652826	\$21.20
Dissolved Oxygen Kit	Winkler Titration All-Liquid System	0–10 ppm 0 ₂	0.2 ppm	652865	\$76.50	652866	\$47.90
Nitrate Kit (low range)	Cadmium Reduction Comparator with Axial Reader	0–1.0 NO ₃ –N	0.2 ppm	△ ³ 652898	\$115.65	△ ³ 652899	\$50.30
Nitrate Kit (high range)	Cadmium Reduction Octet Comparator	0.25-10.0 NO ₃ -N	0.25-2 ppm	652900	\$103.95	△ ³ 652901	\$45.95
Phosphate Kit (high range)	Octet Comparator	1.0-10 ppm PO ₄ 3-	2 ppm	652915	\$139.00	652916	\$23.20
Phosphate Kit (low range)	Ascorbic Acid Octet Comparator	0.0-2.0 ppm PO ₄ 3-	0.2-0.5 ppm	652920	\$117.00	652921	\$37.40
pH Kit (freshwater)	Bromthymol Blue	6.0-7.4 pH	0.2	652925	\$55.75	652926	\$10.45
pH Kit (wide range)	Octet Comparator	3.0-10.5 pH	0.5	652927	\$55.60	⚠ ³ 652928	\$10.25
Salinity Kit	Direct Read Titrator	0-40 ppt Salinity	0.4 ppt Salinity	652945	\$98.65	⚠ ³ 652946	\$59.60
Total Hardness Kit	Calcium, Magnesium, and Total Hardness Direct Reading Titrator	0-200 ppm CaCO ₃	4 ppm	652970	\$87.60	652971	\$52.00
Turbidity Kit	Dropper Pipet	5–100 JTU/5 JTU; 10–200 JTU/10 JTU		652980	\$103.00	652981	\$18.20
Nitrate-Nitrogen Kit	Zinc Reduction Octa-Slide Comparator	0–15 ppm NO ₃ –N	0.25–2 ppm	652790	\$77.10	653572* 653573*	\$16.50 \$18.20



*Order BOTH items #653572 and #653573 to refill kit.



Natural Waters



652982 LaMotte Water TesTabs Ammonia Kit

LaMotte® Water TesTabs® Kits

Grade 5 and up. Investigate water quality using safe, simple TesTabs® reagents. Each complete, economical kit contains easy-to-read, diagrammed instructions; a color chart; a test factor flash card; and all the necessary apparatus and non-hazardous TesTabs® to perform 100 tests.

652982 Ammonia Kit Each **\$44.90**

652983 Dissolved Oxygen/BOD Kit

Each **\$49.40** Nitrate Kit

652984 Nitrate Kit Each **\$42.10**

652985 Phosphate Kit Each **\$36.45**

652986 pH Kit

Each **\$34.60**



652984 LaMotte Water TesTabs Nitrate Kit

LaMotte® TesTabs® Refills

Refills of the TesTabs® reagents used in Earth Force® Low-Cost and Standard water-testing kits (items #652567, #652568, #652569, and #652790) are sold separately. The TesTabs® refills can be used to perform 25 tests for dissolved oxygen; 50 tests for nitrate, pH, and phosphate; and 44 tests for coliform bacteria.

653570	Dissolved Oxygen	Each	\$16.15
653571	Coliform Bacteria	Each	\$154.65
653572	Nitrate #1	Each	\$16.50
653573	Nitrate #2	Each	\$18.20
653574	pH	Each	\$19.85
653575	Phosphate	Each	\$16.50
653576	Nitrate Wide Range	Each	\$18.40



653570 LaMotte Dissolved Oxygen TesTabs Refills

653571 LaMotte Coliform Bacteria TesTabs Refills

LaMotte® BioPaddles® Microbiology simplified!

These flexible dual-agar paddles each contain microbe-specific media enclosed in a sterile vial. Identify and quantify microbes in air, soil, and water or on any surface. BioPaddles® do not require any other testing equipment—only a magnifier and a 35° C warm place (or incubator) to incubate. BioPaddles® products include access to the free LaMotte® BioPaddles® Colony ID™ lite app for comparison of "unknown" microbe growth on the BioPaddles® to a library of photos. Each box includes ten 2-sided paddles for 20 total testing surfaces. **Note:** These items are shipped via ground from the manufacturer in Maryland on Mondays and Tuesdays only, and delivered Wednesday through Friday only (depending on delivery location). Please allow 2 weeks advance notice with specific Monday or Tuesday shipping date.

Item No.	BioPaddles® Type of Agar(s)	Description	Each
653577	Nutrient Agar	For routine culture of non-fastidious bacteria	\$57.00
653578	Sabouraud Dextrose	For selective cultivation of fungi (yeasts and molds)	\$57.00
653579	Tryptic Soy/Rose Bengal	For the cultivation of a wide variety of microorganisms (TSA) and selective isolation of yeasts and molds (RB)	\$57.00
653580	Nutrient TTC/MacConkey	For field sampling, cultivation, and enumeration of coliform bacteria total colony counts (TTC)	\$57.00





653580 LaMotte Nutrient TTC/MacConkey BioPaddles

Multiparameter Kits

Carolina® Water Quality Saddlebag

Test your local waterways with this handy field lab kit. The durable saddlebag is designed to be worn on the side (with a built-in carrying strap) to store and transport your testing equipment into the field. It contains all materials needed to test for total alkalinity, acidity, total hardness, dissolved oxygen, nitrate, and pH. For ease of use, step-by-step instructions and color-coded reagents are provided.

181542 Each \$349.80





181542 Carolina Water Quality Saddlebag (above) and in use (left)



181400 LaMotte AM-12 TesTabs Water Investigation Kit

Investigate water pollution using safe, simple TesTabs® reagents. A lightweight carrying case houses 12 individual field test modules. Each module contains nonhazardous TesTabs® reagents, easy-to-read, diagrammed instructions, color chart, test-factor flash card, and the necessary apparatus to perform 100 tests. Kit includes an instruction manual and *The Monitor's Handbook*.

Includes tests for:

Alkalinity Hardness Chlorine pH
Dissolved Oxygen/BOD Chloride Nitrate Copper
Ammonia Iron Chromium Phosphate

181400 Per kit \$329.00

LaMotte® Deluxe Water Quality Education Outfit A3

This kit contains all the information and equipment needed to set up a student-operated water quality monitoring program. Thorough, step-by-step instructions enable students to make skillful, accurate water quality analyses in the lab or field on the first try. Complete water quality test kit contains all materials to perform 50 tests for dissolved oxygen, pH, nitrate nitrogen, alkalinity, phosphate, turbidity, and temperature. Packaged in a field-friendly tote constructed of durable, waterproof fabric and a solid plastic bottom that keeps contents dry. Top handle, side handles, and shoulder strap make toting easy; and handy exterior pockets are perfect for notebooks, maps, and pens. **Refill** includes consumable components.

652450 Kit Each **\$537.00 652452** Refill Each **\$171.95**



Customer Review

Environmental Science

"'Won' this test outfit at an Outdoor Ed continuing education summer program; what a great prize! I was able to develop an entire 'What's in OUR local water?' research-based curriculum around using most of the tests. My high school kids had to bring in water samples from well/citv/ surface waters for classroom testing. Student teams then had to choose and research 3 different parameters, and present them in a professional PowerPoint® to their classmates for peer review and evaluations. This is the best test kit for such a purpose, especially when you have a lot of students studying the same subject. My only complaint is that the students too easily lose the small instruction cards and reading strips; it would be great if at least one extra card was included in each individual test box."

High School Biology Teacher Santa Fe, NM



652450 LaMotte Deluxe Water Quality Education Outfit



CAROLINA

California Proposition 65
WARNING: Reproductive Harm – www.P65Warnings.ca.gov



Natural Waters





Earth Force® Low-Cost Water Quality Monitoring Kit ▲3

Developed in cooperation with Global Rivers Environmental Education Network (GREEN). This compact kit provides a simple and economical method of testing well water or naturally flowing water for 8 basic water quality parameters: coliform bacteria, temperature, turbidity, dissolved oxygen, biochemical oxygen demand (BOD), nitrate, pH, and phosphate. Simple, illustrated, bilingual (English/Spanish) instructions ensure accurate results. Kit comes packed in screwlid canister and includes liquid crystal thermometer, turbidity measuring scale, labware, and reagents for 3 coliform bacteria tests, unlimited temperature and turbidity tests, and 10 tests each of the other water quality factors.

652567 Per kit \$49.90



652569 Earth Force Low-Cost Estuary Kit

Earth Force® Low-Cost Estuary Kit

By popular demand: A modification of the popular Earth Force® Low-Cost Water Quality Monitoring Kit (item #652567), the Estuary Kit is specifically designed to provide simple and affordable methods of testing saline and brackish waters. Water quality tests include coliform bacteria, salinity, dissolved oxygen, nitrate, pH, phosphate, temperature, and turbidity. Supplied with reagents and components necessary to complete 10 tests for each of the water quality factors and 2 coliform bacteria tests.

652569 Per kit \$67.45



653607 LaMotte Urban Water Test Kit

LaMotte® Urban Water Test Kit

Urban youth may feel that environmental issues are not a part of their world, when in fact issues involving waters are all around them. This kit is a hands-on introduction to basic concepts of water chemistry and environmental awareness in urban areas. Includes comprehensive handbook, necessary equipment, and enough materials using the TesTabs® method to test up to 10 times for chlorine, copper, iron, hardness, nitrate, pH, and phosphates, plus coliform (5 times) and temperature (unlimited). Suitable for testing drinking water, run-off, and street puddles.

653607 Per kit \$69.50



652568 Earth Force Standard Water Monitoring Kit

Earth Force® Standard Water Monitoring Kit

An inquiry-based approach to watershed education and a great tool for beginning a school-based, community-involved, water-monitoring program. This kit utilizes the same safe, economical TesTabs® method of water testing as our Earth Force® Low-Cost Water Quality Monitoring Kit (item #652567). Each module contains easy-to-read, bilingual (English/Spanish) instructions with diagrams; a color chart; a test factor flash card; and the necessary apparatus to perform 100 tests for biochemical oxygen demand, dissolved oxygen, nitrate, pH, phosphate, and temperature; 44 tests for coliform bacteria; and unlimited testing for benthic macroinvertebrates and turbidity.

652568 Per kit \$329.00



Environmental Science

LaMotte® Pondwater Tour Kit A²

Grade 4 and up. An exciting introduction to hands-on investigation in environmental science using procedures similar to those employed by professional scientists worldwide. Study unit is complete with everything a teacher needs to lead a group of up to 50 students through a detailed study of water quality in a lake, stream, pond, or aquarium. Each student collects water samples and makes measurements of pH, dissolved oxygen, nitrate, and ammonia using foil-sealed reagent tablets. Lecture materials, illustrated handouts, teacher tips, student instructions, data sheets, and student activity worksheets are included. Refill includes foil-sealed reagent tablets.

Each \$113.35 **652415** Kit **652416** Refill Each \$90.90



652415 LaMotte Pondwater Tour Kit



LaMotte® Tapwater Tour Kit

Grade 4 and up. What's coming out of your tap? The newly updated electronic version of the ever popular Tapwater Tour is a classroom investigation of how and why the characteristics of tap water can vary and affect everyday activities. After reviewing background material about pH, chlorine, hardness, copper, and iron, students work independently and in teams to test their own tap water samples with simple TesTabs® reagent tablets. Students use observations and analyze shared data

from the hands-on activities to explore water quality. Activities can be modified to fit specific curriculum needs or learning opportunities. Data sheets and puzzles for each unit can be printed or filled in electronically by students using a computer or tablet. Kit

includes instructor manual, student manual with data sheets and puzzles, classroom color chart, and reagents and sample test bags for 50 students. Refill includes consumable components.

652411 Kit Each \$94.55 **652412** Refill \$83.85 Each

652411 LaMotte Tapwater Tour Kit

LaMotte® Watershed Tour Kit

Grade 4 and up. Introduce students to stream/river ecosystems through a classroom-based tour of a virtual watershed. Students learn about stream ecology, water quality issues, and their own connection to a watershed. Through a weeklong series of hands-on TesTabs® tablet tests, exercises, and activities, students sample 4 stations along a river continuum-from the headwater to the mouth of the river as it enters the estuary—to study how the stream changes and how human activities can influence water quality. Includes lecture materials, illustrated handouts, teacher tips, test procedures, TesTab® reagents, data sheets, and exercises to reinforce key concepts. Kit contains reagents and test tubes for 50 students working in groups. Refill includes consumable components.

652417 Kit Each \$122.00 652418 Refill Each \$21.80



652417 LaMotte Watershed Tour Kit

Natural Waters



652400 LaMotte Limnology Water Test Kit

LaMotte® Limnology Water Test Kit

Contains all necessary materials for analysis of inland waters. Individual units include dissolved oxygen, carbon dioxide, nitrate/phosphate, silica, pH (3.0 to 10.0), and calcium/magnesium/ total hardness. Separate units provide easy distribution to 6 teams of students in the field. Packaged in a field-friendly tote constructed of durable, waterproof fabric and a solid plastic bottom that keeps contents dry. Top handle, side handles, and shoulder strap make toting easy; and handy exterior pockets are perfect for notebooks, maps, and pens. Kit also includes sample bottles, report forms, and 3 supplemental handbooks: *Limnology; A Study of Water Quality;* and *Investigating Water Quality Problems*, which are also available as downloadable as files.

652400 Per kit \$660.00

LaMotte® Aquaculture Test Kits A3

Monitor and test for 9 critical factors in a saltwater or freshwater habitat.

- Saltwater Kit tests: alkalinity, ammonia nitrogen, carbon dioxide, dissolved oxygen, nitrate nitrogen, nitrite nitrogen, pH, salinity, and temperature
- Freshwater Kit tests: alkalinity, ammonia nitrogen, carbon dioxide, chloride, dissolved oxygen, nitrite nitrogen, pH, temperature, and total hardness

Both kits include a sturdy waterproof carrying case with lid label instructions and separate instruction sheets, labware, accessories, sampling bottles, and reagents for 50 tests of each factor. The refills include consumable components.

652520	Saltwater Kit	Each	\$417.00
652521	Saltwater Refill	Each	\$241.60
652435	Freshwater Kit	Each	\$344.00
652436	Freshwater Refill	Each	\$231.75



652435 LaMotte Freshwater Aquaculture Test Kit



652437 LaMotte Aquaponics Test Kit

LaMotte[®] Aquaponics Test Kit ▲

Aquaponics is a rapidly growing industry and hobby that combines traditional aquaculture and modern hydroponic systems. Give students a hands-on opportunity to view and monitor the water quality elements of an aquaponics system with this test kit. The kit allows your students to test for ammonia, nitrite, nitrate, pH, iron (ferrous and ferric), alkalinity, and dissolved oxygen. Uses comparator and direct-reading titration methods. **Kit** contains enough materials to perform 50 tests of each nutrient and includes reagents, labware, accessories, and instructions in a foam-lined carrying case. **Refill** includes consumable components. Tests are compatible with fresh, brackish, and salt water.

652437 Kit Each **\$345.00 652438** Refill Each **\$195.60**

Meters

Electrical Conductivity

OHAUS Conductivity/TDS Portable Meter A

When it's time to take students into the field, this OHAUS portable meter will prove itself to be durable, convenient, and accurate. The meter measures conductivity and total dissolved solids and comes with a 4-ring electrode and 2 bottles of conductivity solution. With an IP54 protection rating against water and dust damage, the device also boasts a minimum battery life of 250 hours and stores 30 sets of data memory. Comes with built-in stand, LCD display, electrode holder, wrist strap, and batteries.

Specifications:

Range: 0.1 μ S/cm to 199.9 mS/cm; 0.1 mg/L to 199.9 g/L (TDS); 0 to 100° C

Resolution: Auto range; 0.1° C

Calibration: 1 point; 3 predefined standards

186029 Each \$621.00



Environmental Science

186029 OHAUS Conductivity/TDS Portable Meter

Salinity

OHAUS Salinity Pen Meters A

Convenient salinity testing with an economical solution! These simple-to-use salinity pen meters offer fast and accurate results. With them, you can measure a sample's salinity, or dissolved salt content, using just 1 hand! Each meter is designed with a durable IP67 waterproof housing, protective cap that safeguards the sensor, and automatic shutdown to preserve battery life. Storage case and wrist strap included. The **Salinity/Temperature Pen Meter** also includes temperature compensation and measurement. Replacement electrodes are available for both meters.

Specifications:	186026	186027	
Range	0.0 to 10.0 ppt	0.0 to 80.0 ppt	
Resolution	0.1	ppt	
Accuracy	±2.5% FS	±1.5% FS	
ATC	Without temperature display	With temperature display	
Display	Single	Dual	
Auto Shutdown	After 6 min of non-use 4 AG13 1.5-V micro alkaline		
Battery			

186026	Salinity Pen Meter	Each	\$97.00
186027	Salinity/Temperature Pen Meter	Each	\$143.00
186041	Salinity Pen Meter Replacement Electrode	Each	\$75.00
186042	Salinity/Temperature Pen Meter Replacement Electrode	Each	\$75.00

OHAUS®



186026 OHAUS Salinity Pen Meters

Sper Salinity Refractometer

This refractometer is powered only by ambient light; no other power source is necessary. It features automatic temperature compensation, which makes manual temperature corrections unnecessary. Other features include a double scale, salinity in parts per thousand, and specific gravity. It measures salt content in seawater, breeding ponds, or pickling brines and other applications.

Specifications:

Range: Salinity: 0 to 100 ppt; specific gravity: 1.000 to 1.070

Resolution: Salinity: 1; specific gravity: 0.001
Accuracy: Salinity: ±1%; specific gravity: ±0.0001%

Temperature Compensation: Automatic

652388 Each \$136.50



652388 Sper Salinity Refractometer

Environmental Science рH

Carolina® pH Meter

This economical pH meter is a lightweight, compact solution for measuring pH anywhere—in the lab or in the field. Featuring 2-point calibration (pH 4 and 7), it makes measurements between 0 and 14 pH, with an accuracy of ±0.1. The electrode is easily replaceable; simply unscrew the old electrode and screw on a new one. Batteryoperated (uses four 1.5-V AG13 button batteries, not included).

Specifications:

Range: 0.0 to 14.0 pH ±0.1 pH Accuracy: Temperature Compensation: 0 to 50° C Operating Temperature Range: 0 to 50° C

Dimensions: $175 \times 41 \times 23 \text{ mm}$

Weight: 65 q

188100 Each \$48.80



188100 Carolina pH Meter

118100 Go Direct pH Sensor

New! Go Direct® pH Sensor

An important and versatile sensor for lab and field activities alike, this sensor gives students the freedom to explore pH without the inconvenience of dangling wires or spilled solutions. Just connect and start collecting data with your device; the sensor transmits live readings and captures data in real time. Sensor is comprised of a pH electrode connected to a Go Direct® electrode amplifier via a BNC connector. Includes free software that is intuitive and easy to use. Visit Carolina.com for additional details and warranty information. Note: Vernier products are designed for educational use only. They are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

118100 Each \$109.00

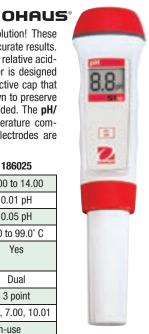
OHAUS pH Pen Meters ▲

Convenient pH testing with an economical solution! These simple-to-use pH pen meters offer fast and accurate results. With them, you can measure a sample's pH, or relative acidity or alkalinity, using just 1 hand! Each meter is designed with a durable IP67 waterproof housing, protective cap that safeguards the sensor, and automatic shutdown to preserve battery life. Storage case and wrist strap included. The pH/ Temperature Pen Meter also includes temperature compensation and measurement. Replacement electrodes are available for both meters.

Specifications:	186024	186025

Range	0.0 to 14.0	0.00 to 14.00
Resolution	0.1 pH	0.01 pH
Accuracy	0.1 pH	0.05 pH
Temperature Range	NA	0.0 to 99.0° C
Temperature Compensation	NA	Yes
Display	Single	Dual
Calibration	NA	3 point
Buffer Group	NA	4.01, 7.00, 10.01
Auto Shutdown	After 6 min of non-use	
Battery 4 AG13 1.5-V micro		micro alkaline

186024 pH Pen Meter Each pH/Temperature Pen Meter 186025 Fach 186039 pH Pen Meter Replacement Electrode Each pH/Temperature Pen Meter Replacement Electrode 186040



186024 OHAUS pH Pen Meter

\$74.00 \$126.00 \$51.00 Each \$91.00

Sper Test Tube pH Pen

Designed for simple one-handed operation, this pen meter offers highly stable and accurate readings displayed on a large LCD. It automatically calibrates to 4-, 7-, and 10-pH buffers and can be adjusted to recognize others. Features a hold function, automatic shutoff, and low-battery indicator. Its case is IP65 waterproof, and the meter floats if dropped into water. Easy to use for students in the lab or field. Comes with 2 button-cell batteries, built-in electrode, and protective cap. Fits standard test tubes 16×50 mm or larger.

Specifications:

Battery Type: 2 × CR2032 Calibration: 4, 7, and 10 pH Accuracy: ±0.2 pH Range: 0.00 to 14.00 pH Resolution: 0.1 pH Dimensions: $235 \times 35 \times 25 \text{ mm}$

Weight: 71 g 652371 Each \$56.50



Don't forget calibration solution!

You'll find Carolina® pH Meter Calibration and Maintenance Set (item #185740) at Carolina.com.





186028 OHAUS pH Portable Meter

OHAUS pH Portable Meter A

When it's time to take students into the field, this OHAUS portable meter will prove itself to be durable, convenient, and accurate. The meter measures relative acidity or alkalinity and includes a 3-in-1 plastic gel electrode and pH buffer sachet. With an IP54 protection rating against water and dust damage, the device also boasts a minimum battery life of 250 hours and stores 30 sets of data memory. Comes with built-in stand, LCD display, electrode holder, wrist strap, and batteries.

Specifications:

Range: 0.00 to 14.00 pH; -1.999 to 1.999 mV; 0 to 100° C

Resolution: 0.01 pH; 1 mV; 0.1° C Calibration: 3 points; 1 predefined group

186028 Each \$539.00

Dissolved Oxygen

OHAUS DO Pen Meter A

Created specifically for educational purposes, this dependable pen meter features simple operation in a slim, portable design that offers highly accurate results time after time. You can even measure a sample of dissolved oxygen using just 1 hand. Built with the student in mind, the OHAUS DO Pen Meter features durable IP67 waterproof housing and a protective cap that safeguards the membrane. Also, it shuts off automatically to preserve battery life. Meter comes with a storage case and a wrist strap to help prevent damage due to unintentional dropping. Testing membranes have a shelf life of 9 to 12 months with regular use. Replacement Membrane and Replacement Electrode are also available.

Specifications:

Range: 0.0 to 19.9 mg/L Resolution: 0.1 mg/L ±0.5 mg/L Accuracy:

Temperature Compensation: 5 to 45° C (41 to 113° F)

Battery Type: 4 AG13 1.5-V micro alkaline batteries

Display: **Dual LCD**

 $185 \times 42 \times 37 \text{ mm}$ Size:

Weight:

186043 Meter Each \$494.00 186044 Replacement Electrode Each \$306.00 186045 Replacement Membrane Each \$139.00

Environmental Science



186020 Milwaukee Pocket-Sized pH/Temperature Meter

Milwaukee Pocket-Sized pH/Temperature Meter

This portable, waterproof pH/temperature meter displays both readings in an extended range on a large, dual-level readout. It also provides a stability indicator and hold function that freezes the display for easy and accurate recording. The temperature sensor ensures fast response time, and its proximity to the pH electrode quarantees highly accurate temperature-compensated readings. The meter, which includes a 2-year warranty, features automatic calibration in 1 or 2 points (with memorized standard and NIST buffer sets) and automatic shutoff after 8 minutes of non-use. Comes with protective cap, 20-mL sachets of calibration solution, hard carrying case (perfect for field use), 1.5-V batteries, and instructions. The modular Replacement Probe allows for easy access and quick replacement and includes a 6-month warranty.

Specifications:

Range: pH, -2.0 to 16.0; temperature, -5.0 to 60.0° C

(23.0 to 140.0° F)

\$64.50

Resolution: pH, 0.1; temperature, 0.1° C (0.1° F) Accuracy: pH, ± 0.1 ; temperature, $\pm 0.5^{\circ}$ C ($\pm 1^{\circ}$ F)

Each

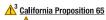
Calibration: Automatic 1 or 2 points Temperature Compensation: Automatic −5.0 to 60.0° C

Battery Type and Life: 1.5 V; 300 hr Size and Weight: 200 × 38 mm; 100 g 186020 Meter Each \$111.00

186021 Replacement Probe



186043 OHAUS DO Pen Meter





OHAUS Dissolved Oxygen Portable Meter A

When it's time to take students into the field, this OHAUS portable meter will prove itself to be durable, convenient, and accurate. The meter measures the amount of oxygen in a sample and includes a galvanic DO electrode and temperature sensor. With an IP54 protection rating against water and dust damage, the device also boasts a minimum battery life of 250 hours and stores 30 sets of data memory. Comes with built-in stand, LCD display, electrode holder, wrist strap, and batteries.

Specifications:

Range: 0.0 to 199.9%, 200 to 400%; 0.00 to 19.99, 20.0 to 45.0 mg/L; 0.00 to 19.99,

20.0 to 45.0 ppm; 0 to 50° C

Resolution: 0.1%, 1%; 0.1 mg/L, 1 mg/L; 0.01 ppm, 0.1 ppm; 0.1° C

Calibration: 1 or 2 points; 100% and 0%

186030 Each \$851.00



652372 Sper Digital Dissolved Oxygen/Temperature Meter

Sper Digital Dissolved Oxygen/Temperature Meter

This reasonably priced meter measures dissolved oxygen (D0) to determine water quality. It features automatic temperature compensation as well as manual compensation for salinity and altitude. Simultaneously displays D0 (in % or mg/L) and temperature readings (in °C or °F). Review 99 data points readings directly on the large backlit LCD. D0 probe heads feature built-in membranes to save time with easy replacement. Unit also functions as a pH and conductivity meter when used with optional probes (sold separately). Comes in a hard carrying case complete with pB-free (lead-free) galvanic D0 probe with 9' cable, 2 spare probe heads with D0 membranes installed, electrolyte solution, and 4 AAA batteries.

Specifications:

Dissolved Oxygen: Range, 0 to 20 mg/L; resolution, 0.1 mg/L; accuracy, ± 0.4 mg/L

Oxygen in Air: Range, 0 to 100%; resolution, 0.1%; accuracy, ±0.7%

Temperature: Range, 0 to 60° C (32 to 140° F); resolution, 0.1° C or F; accuracy,

±1° C (±2° F)

Weight: 6.5 oz (397 g)

Size: $6^{3/4} \times 2^{3/4} \times 1^{1/4}$ " (170 × 70 × 33 mm)

652372 Each \$444.80

Portable Dissolved Oxygen Meter

Includes 2-year warranty on meter

Designed for various applications from school laboratory experimentation to waste-water treatment. Reliable and extremely accurate, yet affordable and easy to operate. Ruggedly designed polarographic probe is conic in shape and suitable for BOD applications. Calibration done in air at the push of a button. Built-in automatic temperature compensation and low-battery indicator are 2 accessory features. Includes 9-V battery, zero oxygen solution, carrying case, and 2-year manufacturer's warranty.

Specifications:

Range: 0.0 to 19.9 ppm
Resolution: 0.1 ppm
Accuracy: 1.5% of full scale
Calibration: 2 point through trimmers

Temperature Compensation: Automatic from 0 to 30 $^{\circ}$ C (32 to 86 $^{\circ}$ F) Environment: 0 to 50 $^{\circ}$ C (32 to 122 $^{\circ}$ F), 95% RH max Battery: 9-V battery, 250 hr of continuous use Dimensions: $3^{1}/_{5} \times 5^{7}/_{10} \times 1^{2}/_{5}$ " (80 × 145 × 35 mm) Weight: 7.5 oz (214 g) (with battery)

 185700
 Meter
 Each
 \$430.50

 185705
 Replacement Membranes
 Pack of 5
 \$79.80



Natural Waters Bench Meters

Environmental Science



186051 OHAUS Starter pH Bench Meter (in use; beaker not included)

OHAUS Starter pH Bench Meter

With a clear, user-friendly interface and the ability to store up to 99 items in its internal memory, this pH bench meter is a reliable and efficient addition to basic laboratories or science classrooms. An affordable, intuitive instrument, measuring pH from 0.00 to 14.00 and temperatures from 0.0 to 100.0 °C, it also features autobuffer recognition and auto-endpoint modes that make calibration and measurement straightforward tasks. Visit Carolina.com for more specifications.

186051 Each \$433.00



186057 OHAUS Advanced pH Bench Meter (in use; beaker not included)

OHAUS Advanced pH Bench Meter

The next step in the evolution of OHAUS' original Starter Series, this benchtop meter is designed to be reliable, efficient, and user-friendly. It measures pH (–2.00 to 16.00), temperature (–5.0 to 110 °C), and ORP (±2,000.0 mV) and can store 1,000 items in memory, providing an efficient tool for data collection. The integrated i-Steward monitors the condition of electrodes to ensure consistent and repeatable measurement accuracy. A $6^1/2^{\shortparallel}$ LCD screen and touch keypad simplify changing the parameters, executing setup, and performing calibration. With standard RS232 and USB interfaces, the meter can connect to external devices for expanded storage. For more specifications visit Carolina.com.

186057 Each \$755.00



186053 OHAUS pH Bench Meter (in use; beaker not included)

OHAUS pH Bench Meter

Designed with a large LCD screen and 6 instructional menu buttons, this meter is simple and straightforward to use. Measures pH (0.00 to 14.00), temperature (0 to 100 $^{\circ}\text{C}$), and ORP (±1,999 mV) and has a 99-item memory for pH measurements, ensuring efficient data collection. A stand-alone electrode holder with a small base gives you greater flexibility when running experiments, making this device a perfect space saver for your lab. For more specifications visit Carolina.com.



186055 OHAUS Conductivity/TDS/Salinity Bench Meter (in use; beaker not included)

OHAUS Conductivity/TDS/Salinity Bench Meter

With the capability to measure conductivity (0.01 μ S/cm to 199.9 mS/cm), total dissolved solids (0.1 mg/L to 199.9 g/L), salinity (0 to 99.9 psu), and temperature (0.0 to 100.0 °C), plus a 99-item memory for measurements, this meter is an efficient tool for data collection. Large LCD screen and 6 instructional menu buttons allow straightforward use. Stand-alone electrode holder with small base provides greater flexibility when running experiments and saves benchtop space in your lab. Visit Carolina.com for more specifications.

186055 Each \$631.00

Environmental ScienceNatural Waters

Multiparameter Meters



OHAUS Multiparameter Pen Meters ▲3

Convenient testing for multiple parameters with an economical solution! These simple-to-use multiparameter pen meters allow you to test temperature, pH, conductivity, and either TDS or salinity with one device. They offer fast and accurate results. These meters are designed with durable IP67 waterproof housing, a protective cap that safeguards the sensor, and automatic shutdown to preserve battery life. They also come with storage case and wrist strap.

Specifications:	186046	186048
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Range	0–1,999 μs/cm; 0.0–99.0° C; 0.00–14 pH; 0.0–1,000 mg/L	0.0–99.0° C; 0.00–14 pH; 0.00–19.99 ms/cm; 0.0–10.0 ppt	
Resolution	0.01 pH; 1 μs/cm	0.01 pH; 0.01 ms/cm; 0.1 ppt; 0.1° C	
Accuracy	±0.05 pH; ±0.5° C; ±2.0% FS	±0.05 pH; ±0.5° C; ±2.0% FS	
Temperature Compensation	Automatic		
Calibration	3 p	point	
Auto Shutdown	Yes; after 6 minutes of non-use 4 AG13 batteries		
Battery			

186046 Conductivity/pH/TDS Pen Meter Each **\$162.00 186048** Conductivity/pH/Salinity Pen Meter Each **\$162.00**





Mini Environmental Quality Meter

Monitor up to 3 environmental parameters simultaneously with 1 tiny instrument. This lightweight meter is simple to operate one-handed and reads wind speed, air temperature, and relative humidity. Meter can sense airflow as low as 0.4 m/s. Other features include min/max, hold, and backlit display. Comes with wrist strap, carry pouch, and button cell battery. Specifications for each measurement are available at Carolina.com.

652006 Each \$141.80



Apera Multiparameter pH/EC/TDS/Salinity Pocket Tester

Use this multiparameter pocket tester with several applications in regular aqueous solutions, such as hydroponics, aquaculture, pools and spas, tap/drinking water, water treatment, and more. Simultaneously test pH,

EC/TDS, salinity, and temperature quickly and accurately. Features 1- to 3-point auto-calibration with auto-buffer recognition and 0 to 50° C auto-temperature calibration. Auto-recognition and reminders of stable values improve consistency. Large, 2-color backlit LCD monitor clearly displays calibration or measuring. Sturdy carrying case comes with ready-to-use calibration solutions, calibration bottles, soaking solution, AAA batteries, and lanyard. CE approved. Two-year warranty. Other features include:

- IP67 waterproof housing
- . Meter floats on water
- Auto power-off
- · Self-diagnosis
- · Low-battery warning
- · Stable-reading indicator
- Auto-hold reading lock

Specifications:

Range: pH, -2.00 to 16.00; EC, 0 to 200.0 μ S, 0 to 2,000 μ S, 0 to 20.00 mS; TDS,

0.1 ppm to 10.00 ppt; salinity, 0 to 10.00 ppt; temperature, 0 to 50° C

(32 to 122° F)

Resolution: pH, 0.01/0.1; EC, 0.1/1 μ S, 0.01 mS;

temperature, 0.1° C

Accuracy: pH, ± 0.01 (± 1 digit); EC, $\pm 1\%$ FS;

temperature, ±0.5° C

TDS Ratio: 0.4:1.0 182378 Each \$207.00



pH/EC/TDS/

Salinity Pocket Tester

Environmental Quality Meter

Extremely accurate with fast response times, this handy meter records air speed, air temperature, relative humidity, light, and thermocouple temperature onto a removable SD card for easy data upload preformatted for Excel®. You also can stream data directly to a computer using the optional USB Cable. Each data set includes the parameter being measured, time, and date. Visit Carolina.com to view all specifications. Also includes a fold-out tripod and large, easy-to-read backlit LCD. Comes ready to use in a soft carrying case with detachable 4-parameter environmental



probe (also accepts standard type K or J thermocouple probe), 6 AA batteries, 2-GB SD card, instruction manual, and 5-year warranty.

652001 Meter Each **\$339.80 652002** USB Cable Each **\$34.50**

Environmental Science

749552 PocketLab Air

PocketLab® Air

PocketLab® Air is a science lab powerful enough for professional-grade air research, but compact and user-friendly enough to put the power directly into the hands of students. Imagine measuring the air quality of a schoolyard, the lunchroom, and students' homes, or tracking the changes throughout the year and comparing that data to historical climate data for any region. Fully rechargeable via micro USB and communicates with a wireless device (phone, tablet, laptop, or Chromebook® computer with built-in Bluetooth® 4.0), allowing you to capture a broad range of data: carbon dioxide, particulate matter, ozone, AQI, dew point, heat index, temperature, humidity, barometric pressure, light intensity, and altitude. View more details and specifications at Carolina.com.

749552 Each \$348.00



749554 PocketLab Weather

PocketLab® Weather

This sensor is everything a mini meteorologist needs to see the science in our everyday world and finally understand what the weather reporters are talking about. Use it to design dozens of experiments that make science come alive. Fully rechargeable via micro USB, Weather communicates with a wireless device (phone, tablet, laptop, or Chromebook® computer with built-in Bluetooth® 4.0), allowing you to capture a range of data: temperature, barometric pressure, altitude, light intensity, humidity, dew point, and heat index. View more details and specifications at Carolina.com. Silicone Protective Case, similar to a smartphone case, protects Weather from abuse and provides additional attachment options.

749554 Weather Each \$128.00 Silicone Protective Case 749551 Each \$10.00



PocketLab Silicone Protective Case (right) and in use (above)

PocketLab® Voyager

Design hundreds of science experiments covering physics, engineering, earth science, chemistry, and biology with one device. The extremely versatile Voyager combines 8 popular science sensors into a single portable device to create a science lab that fits in your hand. Fully rechargeable via micro USB, it communicates with a wireless device (phone, tablet, laptop, or Chromebook® computer with built-in Bluetooth® 4.0), allowing you to capture a broad range of data: acceleration, angular velocity, magnetic field, position, velocity, temperature, barometric pressure, altitude, light intensity, humidity, dew point, and heat index. View more details and specifications at Carolina.com. Silicone Protective Case, similar to a smartphone case, protects Voyager from abuse and provides additional attachment options.

749550 Voyager Each \$198.00 749551 Silicone Protective Case \$10.00 Each



749556 PocketLab Thermo

PocketLab® Thermo

Let this simplified 2-temperature probe solution turn your next science lesson into an exploration. The dual temperature sensor includes 2 thermistor probes with simultaneous measurement capabilities; use it to compare any 2 temperatures, any time, anywhere. The probes are waterproof and safe to use in most acids and bases. The device is powered by a coin cell battery (CR2032, included) and communicates with a wireless device (phone, tablet, laptop, or Chromebook® computer with built-in Bluetooth® 4.0), allowing you to capture data. View more details and specifications at Carolina.com.

749556 Each \$49.00

Natural Waters





749560 PocketLab G-Force Sensor

PocketLab® G-Force Sensor

This sensor is everything you need to bring physics concepts to life in a car small enough to fit on a toy car track. Measure velocity, position, *g*-force, acceleration, rotation, and direction using one device. Instantly track, measure, and analyze the data of any motion experiment. Device is fully rechargeable via micro USB and communicates with a wireless device (phone, tablet, laptop, or Chromebook® computer with built-in Bluetooth® 4.2), allowing you to capture a range of data. View more details and specifications at Carolina.com.

749560 Each \$129.00



749557 PocketLab Temperature Probe

PocketLab® Temperature Probe

For use with PocketLab® Voyager (item #749550) or PocketLab® Weather (item #749554). Plug in this temperature probe to either device to measure the temperature of a liquid, inside a refrigerator, in the soil, attached to surfaces—anywhere you can insert or attach the flexible temperature probe. Probe is attached to a 1-m-long cable. Temperature range is -40 to 105° C (-20 to 221° F).

749557 Each \$14.00



749502 databot 2.0

databot™ 2.0

databot™ 2.0 is a wireless, remote-ready scientific tool that brings the world of data to life instantly. When used with your own smart device and the Vizeey™ app (downloaded for free), databot™ 2.0 lets you collect information from 16 included sensors that measure motion, temperature, altitude, velocity, and much more. It's the easiest way to begin visualizing and exploring real data. Visit Carolina.com for more features and details.

749502 Each \$179.99

Natural Waters Sampling Equipment

Environmental Science



652000 Ecology Field Kit

Ecology Field Kit ▲

For inland or marine waters. Includes necessary apparatus for investigating and collecting aquatic organisms and water sediment samples. All apparatus is made of durable, noncorrosive materials for stability and long life. Complete with instructions.

Kit includes:

Bottom-Sampling Dredge Sounding Lead and Calibrated Line 3-gal Collecting Bucket 5-gal Collecting Bucket Collecting Tray and Equipment

652000 Per kit \$1,217.50

Dip Net Forel-Ule Color Scale Plankton Net Sand/Mud Sieve Secchi Disk 4 × 20-ft Seine (item #651315 Seine Poles not included) Water-Sampling Bottle Water Thermometer



652262 Secchi Disk with Calibrated Line

Secchi Disk with Calibrated Line

Includes a black-and-white Secchi disk that is 20 cm in diameter and a 20-m nylon line that is calibrated every 0.5 m. Meets The GLOBE® Program specifications.

652262 Each **\$93.50**



652125 LaMotte Water Sampler

LaMotte® Water Sampler

Collect water samples quickly and easily! Use the included 20-m calibrated line to place your sampler at a specific depth. Then send a weighted messenger down the line to trigger the closing mechanism. After your sample has been collected, pull up the sampler to view and test the water. The clear polycarbonate body allows immediate visual inspection of the collected water. Open one of the end caps to obtain a sample of the collected water.

652125 Each \$346.00



652101 Bottom-Sampling Dredge

Bottom-Sampling Dredge

Stainless-steel dredge retrieves a uniform volume (67 cu in) of soft bottom sediment to the surface for analysis. Simple trigger mechanism and scissor design removes a consistent sample every time.

652101 Each \$303.00

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651280 Going Collecting Set

Going Collecting™ Set A3

Several useful field-collecting items for easy collection, examination, and transportation of specimens during field trips and student excursions. Includes $3^{1/2}$ -gal plastic bucket with handle, 10" stainless-steel forceps, 10" collecting bulb, 2 hand-dip nets (2 sizes of mesh), pair of utility cutters, 6 specimen jars (8 oz), and folding magnifier.

651280 Per set \$62.00



665411 Rapitest Rain Gauge

Rapitest® Rain Gauge

Accurately measure rainfall with this handy rain gauge. The clear polystyrene rain gauge, scaled in inches and millimeters, measures up to 5" of rain. It includes a black polystyrene mounting bracket that allows easy attachment to a wall or fence post and easy removal to empty and record rainfall.

665411 Each \$8.50

Natural Waters



745435 Enviro-Safe Pocket Thermometer with Case

Enviro-Safe® Pocket Thermometer with Case

Enviro-Safe® pocket thermometers provide the same safety as our standard Enviro-Safe® thermometers. Each thermometer is protected in a screw-capped plastic case, making them ideal for field use. Cases are open to allow reading while thermometers remain cased. The 6"-L thermometers are graduated in 0.5° C divisions and are total immersion. Lines and numbers are permanently fused to the glass.

745435 Each \$16.70



722570 High-Precision Specific Gravity Hydrometer

High-Precision Specific Gravity Hydrometer

Plain-form hydrometer used to measure the density of liquid at 60° F. Specific gravity range: 1.000 to 1.070 with 0.0005 graduations. Length, 325 mm. With steel shot balast. Meets The GLOBE® Program specifications.

722570 Each \$45.45

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652220 Sand/Mud Sieve

Sand/Mud Sieve

Useful for collecting burrowing marine organisms and organisms found in soft-bottom sediments of inland waters. Made of heavy-duty, galvanized, $^{1}/_{8}$ "-mesh screen supported by a water-sealed $24 \times 15 \times 3$ " wooden frame.

652220 Each **\$123.50**

Environmental Science

Carolina® Turbidity Tube

Use this clear, redesigned tube to measure the turbidity of shallow or flowing bodies of water where a Secchi disk can't be used. A single operator controls the water-level discharge from the tube by gently pushing it against the ground to activate the stop plunger when the 45-mm Secchi-disk design is visible. This action immediately stops the flow of water to accurately and efficiently measure the water's transparency. This unique tube features a side scale with centimeter and Nephelometric Turbidity Unit (NTU) markings, and comes in 120-cm (standard) and 60-cm (small) lengths. NTU scale markings: 120-cm tube, 0 to 122; 60-cm tube, 0 to 60.

 182006
 120-cm Turbidity Tube

 Each
 \$87.00

 182007
 60-cm Turbidity Tube

 Each
 \$72.00



Detail of 182007 Carolina 60-cm Turbidity Tube (above) and 182006 Carolina 120-cm Turbidity Tube (right)



Modeling Waterways

Carolina® Stream Kit

Grades K–12. This kit provides quick access to a freshwater ecosystem—right in your classroom. Use it as a means for students to practice water quality sampling, testing, and macroinvertebrate observation and identification before beginning fieldwork; or to simply engage students' curiosity about living things and moving water. It includes a 35-gal, freestanding water garden; a 5-gal, 3-section cascade; and a 350-gal/hr pump with tubing. These components can be assembled in minutes to create a freshwater stream and pond ecosystem in your classroom. Kit also includes an instruction manual, complete with assembly instructions; recommendations for substrates, plants, and animals; and suggested activities. Shipped motor freight.

181150 Per kit \$469.00

Customer Review

"The Carolina Stream Kit is a fantastic addition to my classroom. We set up the kit indoors. Everyone, students and teachers alike, stops by to check out the pond, the fish, and see what kind of water quality testing we are doing. In addition to being great for my students to practice their environmental lab skills, it offers a soothing 'chill out' corner, for students to relax and get focused. We are so happy to have it! It was a snap to set up, and is working great after 3 weeks!"

High School Earth/Environmental Science Teacher



181150 Carolina Stream Kit

Stream Table Kit

This portable unit is outstanding for demonstrating stream erosion and deposition of soils either in the classroom or outside. Kit includes a plastic tray, drain trough, tray support, siphon tube, and a detailed teacher's guide. Order sand separately.

GE09888 Kit Each \$118.50 ↑ GE09891 Sand (50 lb) Each \$77.00



GEO9888 Stream Table Kit with GEO9891 Sand

Carolina® Classroom River Kit A3

Submerse your class in a curriculum-based, hands-on exploration of a river system in your classroom. Students participate in the research, design, layout, and construction of an indoor river. Team-building, role-playing, and cooperative-learning exercises help to establish students' growth as their community's future ecological stewards. *The Indoor River Book* serves as an illustrative, step-by-step instructional manual. This guide's integrated activities provide a foundation from which to launch your class into a study of your local watershed.

Many different wetland habitats can be simulated. The primary habitats include a marsh, drainage pond, and the river itself. Depending on the design of your indoor river, water flowing down the river course will pour out into the pond/aquarium, circulate into the marsh using a submersible pump anchored in the pond/aquarium, and ultimately overflow into the start of the river course, completing the water's circuit.

Students learn about the relationship between aquatic plants, fish, and various macro-invertebrates while observing and recording their interactions and changes over time. Human activities and impacts on the river system can be considered. Traditional subject areas addressed include math, biology, chemistry, social studies,

language arts, geography, and design technology. (Living organisms

and wood not included.)

Kit includes:

10-gal Glass Aquarium 10-gal Plastic Tub 10-ft Roll Plastic Tubing Submersible Pump Seam Sealer Handles Hose Clamps pH Test Strips The Indoor River Book

Box Screws (1 lb)

182150 Per kit \$369.80



Illustration of 182150 Carolina Classroom River Kit (in use)



652008 Biotic Index Data Sheet

Biotic Index Data Sheet 1

Water-resistant data sheet for recording data after sorting and identifying freshwater aquatic macroinvertebrates to the order level and some to the family level. Includes instructions and formulas for calculating the Pollution Tolerance Index (PTI) Score and Rating; text is in English and Spanish. Write on, wipe off, and reuse in the field or indoors. Dimensions: 9×12 ". Pack of 6.

652008 Per pack \$19.95



184555 LaMotte Macroinvertebrate Identification Card Set

Ö

LaMotte® Macroinvertebrate Identification Card Set

Grade 4 and up. Easily the best set of aquatic macroinvertebrate ID cards available to educators. Each card features a full-color photograph of a commonly found aquatic macroinvertebrate on the front of the card and detailed line drawing with critical identification tips on the back. Ideal for environmental laboratory and field work at any level. Set of 18 laminated flash cards. Meets The GLOBE® Program specifications.

Set includes:

Crane Flies

Alderflies Damselflies
Black Flies Dobsonflies
Caddisflies Dragonflies

Dobsonflies Midges
Dragonflies Planarians/Flatworms/Earthworms
Leeches/Snails Sow Bugs/Scuds

Mavflies

184555 Per set \$69.65

Environmental Science



652007 Dichotomous Identification Key to Freshwater Macroinvertebrates

Dichotomous Identification Key to Freshwater Macroinvertebrates

Spiral bound dichotomous key for identification of aquatic macroinvertebrates to the order level and some to the family level. Color-coded based on Pollution Tolerance Index. Includes glossary, body part illustrations, and size reference; text is in English and Spanish. Water-resistant for field or indoors. Use separately or as an enhancement to the LaMotte® Leaf Pack Stream Ecology Kit (item #652003). Dimensions: $10^{1}/_{2} \times 12^{\circ}$. Pack of 6.

652007 Per pack **\$49.00**



652003 LaMotte Leaf Pack Stream Ecology Kit

LaMotte® Leaf Pack Stream Ecology Kit

Exciting hands-on investigation focuses on the abundance and diversity of organisms (particularly macroinvertebrates) associated with accumulations of decomposing leaves in freshwater ecosystems. Students collect fallen leaves and create their own leaf packs, then design and conduct scientific, field-oriented experiments to determine the optimum conditions for biodiversity. Activities are adaptable to varying time constraints and class sizes. Kit includes all necessary materials for 6 groups of students to conduct leaf pack studies, tree identification manual, macroinvertebrate identification cards, strainer, petri dishes, sample trays, thermometers, hand lenses, and instructor's manual. All components are reusable.

652003 Kit Each **\$315.00 653596** Mesh Bag Pack of 30 **\$37.00**

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Stoneflies

Water Beetles

Carolina® Aquatic Macroinvertebrate Card Set

Allow your students to model sampling the diversity of macroinvertebrates in stream while in your classroom. This is a great way to bring macroinvertebrate sampling to students who might not get the opportunity to do this firsthand or to preview macroinvertebrate sampling before going in the field. Each illustrated card is printed with a biotic index value and a pollution tolerance value. By making simulated streams using an assortment of cards, you can challenge your students to determine the health of a stream. Card size, $4^1/_4 \times 3^1/_2$ ". Set includes 280 cards—10 each of 28 representative macroinvertebrates.

184567 Per set \$19.00



184567 Carolina Aquatic Macroinvertebrate Card Set



184556 LaMotte Aquatic Macroinvertebrate Life Cycle and Habitat Flash Card Set

MacroLens Lawons 4.5%

184558 LaMotte MacroLens

LaMotte® Aquatic Macroinvertebrate Life Cycle and Habitat Flash Card Set

Grade 4 and up. This set of 22 full-color, laminated cards features photos of freshwater aquatic macroinvertebrates in both immature and adult stages. Designed to help students understand the life cycle and habitats of unique aquatic life-forms, this flash card set can be used as an extension of our Macroinvertebrate Identification Card Set (item #184555). Includes a teacher's manual containing facts on insect characteristics, such as life cycles, taxonomy, food webs, and how macroinvertebrates can be indicators of water quality. Additional instructions for recommended activities are also included. Meets The GLOBE® Program specifications.

184556 Per set \$79.70

630

LaMotte® MacroLens™

This handy magnifier offers $4.5\times$ magnification and fits over a standard-size petri dish. Size is 4" in diameter. Great for field collection, or for observing organisms up close to identify macroinvertebrates.

184558 Each \$17.70

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Natural Waters Pollution

Environmental Science



652701 Lab-Aids Qualitative Introduction to Water Pollution Kit

Lab-Aids® Qualitative Introduction to Water Pollution

By performing simple colorimetric chemical analyses, students examine water samples for the presence of a wide variety of possible contaminants. Although the testing procedures are simple and straightforward, the results are reliable and dramatic. Natural and treated water samples are tested for ammonia, chlorine, chromium, copper, cyanide, iron, nitrate phosphate, silica, sulfide, and pH. Enough material is provided for 50 repetitions of each of the factors tested. Kit includes all necessary labware and supplies; 50 student worksheets/guides; and teacher's manual with (M)SDS.

652701 Per kit \$318.80



652704 Carolina Bacterial Pollution of Water Kit

Carolina® Bacterial Pollution of Water Kit

Students learn about the importance of clean water in human health, water treatment for microbial contamination, and 1 of the methods used to test the safety of water for human use. They then collect water samples and test them for chlorine and chloramines, bacteria, and coliform bacteria. Students next do research to discover the number of coliform bacteria allowed in water for various human activities. They gain valuable skills and experience in sterile technique and plating and culturing bacteria. This kit is designed for 10 groups of students working in groups of 3. Visit Carolina.com for complete lists of kit materials.

652704 Per kit \$82.50



251415 Testing Water Pollution Kit

Testing Water Pollution Kit

Grades 9-12. Explore the causes and effects of water pollution with this laboratory activity. Students first perform a serial dilution to grasp the concepts of ppm and ppb. They test the water in their area for contaminants, including dissolved oxygen, nitrates, and phosphates. The lab concludes with students designing and conducting their own experiment to determine the effects of water pollution on living organisms. Note: Order the kit with the perishable material included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.

	251415		Each	\$360.00
Λ^3	251465	Kit Refill (with perishable materials)	Each	\$281.51
Λ^3	251478	Kit Refill (with voucher)	Each	\$293.51
	251539	Multi-Class Equipment Set	Each	\$57.55



187212P Carolina EcoKits: LC₅₀ Aquatic Toxicity (with perishable)



Carolina EcoKits[®]: LC₅₀ Aquatic Toxicity

- · Learn about some environmental impacts of population growth
- · Perform static aquatic toxicity testing
- Determine and graph the results of an LC₅₀ test

Grades 9-12. Students are introduced to static toxicity tests used by the EPA and other health and environmental organizations to set water quality standards. During the lab, students prepare various concentrations of ammonium sulfate, a fertilizer component, and introduce Daphnia magna into their solutions. After 24 hours, students observe the mortality percentage of Daphnia in each concentration and determine the LC_{50} of ammonium sulfate. Kit accommodates a class of 30 students working in groups of 6. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

187212 \$88.00 Kit (with voucher) Each 187212P Kit (with perishable) Each \$88.00



Carolina EcoKits®: Oil Spill Bioremediation

Grades 9–12. Students conduct and analyze a simulated bioremediation of an oil spill, then use their observations to attempt to improve the simulation. Finally, they explore data from the Deepwater Horizon oil spill and consider the role of bioremediation and the impacts of oil spills on ecosystems. **Kit** materials

are sufficient for 32 students working in pairs and include digital resources. **Kit Refill** replenishes all kit consumable items. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

181324 Kit Each **\$96.00 181325** Kit Refill Each **\$22.25**



181324 Carolina EcoKits: Oil Spill Bioremediation





187220P Carolina EcoKits: Human Impacts on Water Quality (with perishables)

Carolina EcoKits®: Human Impacts on Water Quality

Grades 9–12. Students use a chromogenic medium to quantify any coliforms in water sources of their choosing and compare the results to local water regulations. They also analyze water samples from a fictitious location, attempting to determine a source of contamination. Then they propose design solutions that might reduce the environmental impacts of human activities linked to bacterial contamination of water. Kit accommodates up to 10 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables.

187220 Kit (with voucher) Each **\$144.50 187220P** Kit (with perishables) Each **\$144.50**



For more kits exploring Environmental Microbiology, see pages 20–21.

Tour a wastewater treatment plant without leaving your classroom!

- · Safely simulates all the steps of wastewater treatment
- Shows real-world application of chemical and biological decomposition of organic waste
- Includes self-contained apparatus that can be used anywhere in your classroom
- Addresses Environmental Quality Teaching Standards

New! Wastewater Treatment Kit

• Unit 8: Aquatic and Terrestrial Pollution, topic 8.11: Sewage Treatment

Familiarize students with the physical, biological, and chemical processes of a wastewater treatment plant. In this laboratory investigation, students use the wastewater apparatus as a model to observe simulations of primary, secondary, and tertiary wastewater treatment processes. Through this process, they explore the efficiency, effectiveness, and ecological impact of various treatment models, fostering a deeper understanding of sustainable solutions for managing and purifying wastewater. Kit includes materials for 1 group of students to conduct the investigation or for a teacher to use as a demonstration; visit Carolina.com for a complete list of kit materials.

180845 Kit Each \$134.80 180845EBK Digital Resources Each \$12.95 Wonterwater Transfer

180845 Wastewater Treatment Kit

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Soil Analysis

N-P-K Soil Test Kit

Chemical Composition

For upper elementary, middle, and high school students. Students can perform up to 50 safe, easy, hands-on tests for nitrogen, phosphorus, and potassium levels using TesTabs® testers. Each kit includes the necessary apparatus, simple diagrammed instructions, and laminated color chart. Meets The GLOBE® Program specifications.

181875 Per kit \$39.20



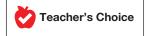


LaMotte® Soil pH TesTabs® Kit Wide range—4.00 to 11.00 pH in 1.0-pH units

Keep tabs on soil pH with this TesTabs® kit. It is ideal for younger students and teachers who want an alternative to liquid pH indicators. Kit includes simple diagrammed instructions, a laminated color chart, and materials for 50 tests. **Note:** *Manufacturer recommends using distilled or deionized water for tests.*

181876 Per kit \$20.80

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665404 Rapitest Soil Test Kit

Rapitest® Soil Test Kit

Soil testing in 3 easy steps. Just mix soil with water, pour liquid into comparator, and add contents of capsule to instantly compare color for test reading. Test Kit contains materials for 40 tests: 10 tests each for pH, nitrogen, phosphorus, and potash. Instructions included. Replacement Set contains 40 capsules to complete 10 tests each for pH, nitrogen, phosphorus, and potash.

665404 Each \$30.50 Test Kit 665404A Replacement Set Each \$21.50

Looking for simplified soil science for elementary or middle school students? Check out the LaMotte® Topsoil Tour Kit (item #653185) at Carolina.com.



653182 LaMotte Soil Texture Kit

LaMotte® Soil Texture Kit

Students compare soil samples from various locations by separating them into sand, silt, and clay fractions with dispersing and flocculating reagents. Tests are performed in calibrated conical tubes held upright in a clear holder. Kit includes complete instructions and background information plus sufficient chemicals for 50 tests. Refill contains replacement soil flocculating reagent and texture dispersing reagents to replenish kit consumables.

653182 Kit Each \$96.25 **653184** Refill Each \$26.30

Soil Analysis



Lead Soil Test Kit

Leaded or unleaded? Ask the right question and get the right answer. Students perform accurate, simple, and nonhazardous tests for lead in soil they collect themselves. The guick, 3-step procedure allows for an accuracy reading of up to 100 parts per million (ppm). Simply fill the test vial with soil, add reagent, mix for 30 s, dip test strip in soil/reagent mixture, and wait. Within minutes a color change will occur on the test strip pad and the presence or absence of lead will be evident. Instructions and enough materials for 5 soil tests included.

181805 Per kit \$49.80



From GEO778 Carolina Soil Porosity and Permeability Kit

Carolina® Soil Porosity and Permeability Kit

Grades 6-12. Perform side-by-side, quantitative comparisons of water movement through soils. Four different soil samples show the relationships between particle size, shape, and uniformity with porosity and permeability. The expansive teacher's manual includes background information on aquifers and groundwater flow, as well as activities that cover porosity, permeability, specific yield, capillary action, and settling rates. Procedures for the testing of native soils are also included. Column size, 16" L \times 1¹/₂" diam; apparatus size, 21" H \times 6¹/₂" W \times 7" D.

Kit includes:

Column Stand

2 Clear Plastic, 16" Columns 2 End Caps with Tubing and Clamps

2 Syringes (60 mL)

GE0778 Per kit \$193.80

Fine Sand Sample Coarse Sand Sample **Gravel Sample** Mixed Sand and Gravel Sample

Soil Analysis

Environmental Science



653584 LaMotte Soil Macronutrients Kit



653201 LaMotte Plant Macronutrient Kit

LaMotte® Soil Macronutrients Kit A3

Use this comprehensive introduction to the study of soil properties to learn preparation, extraction, and filtration techniques and procedures developed specifically for testing soil nutrients. **Kit** includes a rugged field carrying case that houses individual test kit modules and valuable handbooks (to assist and supplement soil science studies), an easy-to-use soil sampling tube, soil sampling bags, and a complete soil texture curriculum unit. Individual test modules contain 40 tests for pH, 50 tests for nitrogen and phosphorus, and a turbidity column for 30 tests for potassium. **Kit Refill** replenishes all consumable reagents and materials in the kit.

653584 Kit Each **\$619.00 653585** Kit Refill Each **\$339.15**

LaMotte® Plant Macronutrient Kit A3

An excellent tool to illustrate the relationship between soil nutrients and plant health. Students perform colorimetric tests for nitrogen, phosphorus, and potassium (N-P-K) by preparing liquid extracts from plant tissue. Kit provides enough reagents and labware for 50 tests per test factor. Includes the *LaMotte® Soil Handbook* and complete instructions.

653201 Per kit \$164.00



653586 LaMotte Soil Micronutrients Kit

GARDEN GUIDE Linkotte Soil Handibook

653203 LaMotte Garden Kit

LaMotte[®] Soil Micronutrients Kit ▲²

This is a comprehensive introduction to the study of soil micronutrient properties. **Kit** includes a rugged field carrying case that houses individual test kit modules and valuable handbooks to assist and supplement soil science studies. Includes 50 individual soil tests for aluminum, ammonia, calcium, chlorides, iron, magnesium, manganese, nitrate, and sulfate. **Kit Refill** replenishes the consumable reagents and materials in the kit.

653586 Kit Each **\$774.00 653587** Kit Refill Each **\$472.75**

LaMotte® Garden Kit

Use this simple test kit to learn the specifics about your soil before starting your gardening project. Used for soil science education or garden analysis, the kit includes rapid test procedures, diagrammed instructions, and laminated color charts used to measure concentrations of nitrogen, phosphorus, potassium (15 tests each), and soil pH (30 tests). *The Garden Guide Manual* and *LaMotte® Soil Handbook* are included to interpret test results and offer lime and fertilizer recommendations. **Refill** includes consumable components. Visit **Carolina.com** for complete lists of kit materials.

653203 Kit Each **\$87.95 653206** Refill Each **\$55.85**

Go to Carolina.com to view specifications and testing parameters.



635



Carolina® Physical and Chemical Properties of Soil Kit <u>∧</u>¹

Learn how the different properties of soil relate to plant growth and agricultural economics through these hands-on explorations. Students conduct a variety of experiments to reveal the nature of unknown soil samples. Their tests examine composition of soil, water-holding capacity, permeability, pH and macronutrient ion content, and ion-exchange capacity. All activities are conducted in a lab setting as students test provided and unknown samples they've collected. Includes enough materials for 30 students. Visit Carolina.com for a complete list of kit materials.

Kit includes:

Testing Equipment Chemicals 182000 Per kit \$187.90

Sand Sample Clay Sample

Humus Sample Teacher's Manual

Student Guide



180605 Soil Productivity Kit (above) and in use (right)

Soil Productivity Kit

Exploring different characteristics of soil provides insight into how productive the soil might be for farming purposes. Students conduct experiments on different types of soil to observe and measure properties such as water-holding capacity, ion-exchange capacity, macronutrient content, and particle-size distribution to determine which types of

soil are the most productive for growing plants. Students then test their hypotheses by planting alfalfa to track success. The materials in the Kit are sufficient for 32 students working in groups of 4. Refill supplies all consumable materials to replenish the kit.

180605 \$199.80 Each 180606 Refill \$114.80 Each 180713 Digital Teacher's Manual Each \$5.95

Soil Analysis



180821 Soil Formation and Properties 8-Station Kit

New! Soil Formation and Properties Kit

• Connected to Unit 4: Earth's Systems and Resources, topics 4.2: Soil Composition and Erosion and 4.3: Soil Formation and Properties

Throughout a series of laboratory investigations, students explore the formation of soil and analyze several of its physical characteristics. Students investigate soil properties, including structure, particle size, density, and permeability. Students also examine the weathering of rocks as well as the physical properties of isolated soil components (sand, clay, and humus). During this lab students use the Soil Texture Triangle to identify soil types. The 8-Station Kit provides materials for 8 groups of students; the 1-Station Kit includes materials for 1 group. Visit Carolina.com for complete lists of kit materials.

180821 8-Station Kit \$128.80 Each 180822 1-Station Kit Each \$58.80 180821EBK **Digital Resources** \$12.95 Each



GEO8692 Soil Analysis Kit

Soil Analysis Kit

Soil composition has been a keystone experiment in earth science classrooms for many years. Our soil analysis kit teaches students the skills needed to properly conduct soil composition tests as well as allows them to collect and evaluate local soil samples. By bringing in local soil samples, students can develop a stronger connection to their local environment while still building a knowledge base applicable to any other environment.

GE08692 Per kit \$264.80

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Soil Analysis Soil Organisms



653601 LaMotte Soil Microbe Hunter Activity Kit (in use)

LaMotte[®] Soil Microbe Hunter[™] Activity Kit A fun, safe way to bring STEM-based learning into your classroom!

Grades 5-10. This complete STEM-based curriculum guides students through the culturing and presumptive identification of common microbes on innovative LaMotte® BioPaddles®. Each paddle contains microbe-specific media enclosed in a sterile vial. Working in teams, students explore soil formation, soil characteristics, and the effects of environmental conditions on soil microbes. Groups prepare and assess their samples using contact impression technique, dilution technique, root wash technique, and the Rossi-Cholodny buried slide contact transfer technique. Students identify microbial diversity in their various environmental soil samples. Kit includes teacher's manual, student guide, and presentations; magnifying lenses; and Tryptic Soy/Rose Bengal BioPaddles® (also sold separately to perform additional activities included in the manual). Kit also includes free access to the LaMotte® Bio-Paddles® Colony ID™ Lite App to compare "unknown" microbe growth on the Bio-Paddles® against a library of photos. Note: This item is shipped via ground from the manufacturer in Maryland on Mondays and Tuesdays only, and delivered Wednesday through Friday only (depending on delivery location). Please allow 2 weeks advance notice with specific Monday or Tuesday shipping date.

653601 Kit Each **\$96.25 653579** Tryptic Soy/Rose Bengal BioPaddles Box of 10 **\$57.00**



703490 Carolina Winogradsky Column Set

Carolina® Winogradsky Column Set △¹

Intermediate—Easy to perform; requires some basic training in microbiology.

A simple means of encouraging and demonstrating the growth of soil microbes such as protozoa, fungi, bacteria, and algae. Interrelationships of these microbes can be observed over a 6-week period. Soil sample must be field collected. The apparatus can be reused. Includes plastic column, solid rubber stopper, calcium carbonate, calcium sulfate, teacher instructions, and free 1-year access to digital resources that support 3-dimensional instruction.

703490 Per set \$20.70

Environmental Science



Soil Organism Biodiversity Kit

Grades 6–12. Help students develop a new appreciation for the richness of biodiversity. This hands-on kit provides them with



the opportunity to do the same habitat-sampling research that ecologists do. The difficulty ecologists face in providing precise numbers of species and individuals within a species becomes apparent. Kit includes enough materials for 30 students working in groups of 3 to perform a soil sample biodiversity test. From the samples taken, students classify each specimen and then use the data to calculate biodiversity. Three indices can be used—species richness, Simpson's index, and the Shannon-Wiener index.

652016 Per kit \$68.80

MudWatt® Microbe Kit It's a living battery that runs on dirt!

Discover the power of microbes by building your very own microbial fuel cell. The Mud-Watt® is a fun and educational science kit that uses the natural microbes found within dirt to generate electricity. The kit comes with everything you need except the dirt, so go dig some up! Within a few days, the MudWatt's LED light will start to blink, using the power generated by the microbes within your dirt. Within a week, you'll be able to power a digital clock and thermometer—no batteries needed! Try these activities:

 Through open-ended scientific investigation, experiment with different types of dirt (and things in your refrigerator) to see which produce the most power.

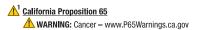


180940 MudWatt Microbe Kit

 Track the growth of your MudWatt's power and bacteria population and unlock new chapters of a comic book with the free MudWatt® Explorer app (available on iTunes® and Google Play™).

Sync your Bluetooth $\!\!^{\scriptscriptstyle{(\!0)}}$ device to track or email your data.

180940 Per kit \$54.50



Sampling Equipment





GEO801 Water-Resistant Soil Color Chart

Water-Resistant Soil Color Chart

This water-resistant soil chart uses the Munsell System of Color Notation. The chart has 208 extra-large color chips to be mounted on the edge of the page for easy comparison to soil samples. Chart features soil structure diagrams and a soil structure ruler. The water-resistant pages may be cleaned after each use without damage. Chip size, $^{11}/_{16} \times 1^{1}/_{2}$ ". Meets The GLOBE® Program specifications.

GE0801 Each \$81.50

One-Piece Soil Auger

This soil auger is constructed of heavyweight steel for maximum durability. Dutch auger bucket measures $2^3/4^{\text{H}}$ W \times 7" L. The auger's total length is $47^1/2^{\text{H}}$, and it can bore a hole 3.3 ft (1 m) deep. Meets The GLOBE® Program specifications.

GE0805 Each \$524.80

GEO805 One-Piece Soil Auger

Soil Screen Sieve, #10

For separating soils and aggregates. 2-mm mesh. Size, 4" diam \times 2¹/₈" D. Meets The GLOBE® Program specifications.

GE09301 Each \$17.50

GEO9301 Soil Screen Sieve, #10





GEO9310 Screen Sieve Set

2888

GEO9312 Metal Sieve Set shown separated (above) and stacked (right)

Metal Sieve Set

This set of stackable, stainless-steel mesh sieves is ideal for separating soil or sediment particles of multiple sizes. Includes 6 convenient sizes: 4,000 microns, 2,000 microns, 500 microns, 250 microns, 125 microns, and 63 microns. All are 20 cm in diameter and 4 cm deep. Comes with lid and catch pan.

GE09312 Per set \$170.00

Screen Sieve Set

An inexpensive set for separating soils and aggregates. Consists of 4 stacking, plastic sieves, lids, and storage compartment. Each sieve is $2^1/8^{\circ}$ D and 4° in diameter. Mesh sizes (US Bureau of Standards) are: #6, #20, #40, and #100.

GE09310 Per set \$56.25

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Air Quality Air Quality







187218 Carolina EcoKits: Air Quality Survey

Carolina EcoKits®: Air Quality Survey A

- Promote a deeper understanding of air pollution as a global issue
- Observe the effects of different types of air pollution on common materials
- . Describe ways to reduce air pollution

Grades 9–12. Increase your students' awareness of an important global issue, air quality, and human impact on it. Student groups rotate through 8 workstations, investigating the effect of various pollutants. The activities—examining the effects of air pollutants on fabrics, investigating light pollution, collecting and examining particulate matter, simulating acid rain and its effects, and demonstrating the acidity of smoke—and classroom discussions help students consider air quality from a local and global perspective. Kit accommodates a class of up to 32 students working in groups of 4 and includes 1-year access to digital resources that support 3-dimensional instruction.

187218 Per kit \$69.50

Ö

Carolina® Air Pollution Assay Kit A³ Illustrate the effects of air pollution on lichens

Intermediate—Easy to perform; requires some basic training in microbiology.

For a class of 30. Lichens are extremely sensitive to air pollution. A decrease in their numbers in a particular location is an indication of increasing air pollution. Students stain a lichen sample and then subject it to various cation solutions. The speed with which the



dye is leached out of the lichen correlates with the speed at which these cations from polluted air are taken up by lichen in nature. The exercise can be completed in 2 class periods. A paper punch is required, but not included. With teacher instructions.

Kit includes:

Foliose Lichen Sample Screw-Cap Test Tubes Methylene Blue Solution Cadmium Chloride Solution Lead Chloride Solution Lithium Chloride Solution Manganese Chloride Solution Sodium Chloride Solution Zinc Chloride Solution Windex® (control)

155820 Per kit \$94.50



Environmental Science



181083 Air Pollution and Vehicle Emissions Kit

Air Pollution and Vehicle Emissions Kit

Students measure atmospheric components to investigate some of the relationships involved in air pollution caused by burning fossil fuels. They record levels of ultraviolet light, temperature, and ozone and learn how environmental factors interact with fossil fuel pollutants to produce smog. Students then test car exhaust for carbon dioxide levels. They explore the Air Quality Index (AQI), and discuss the health hazards associated with fossil fuel pollution, along with steps that can be taken in daily living to reduce air pollution. Kit is designed for a class of 32 students working in 8 groups of 4. Refill replenishes all the consumable items in the kit.

 181083
 Kit
 Each
 \$231.50

 181084
 Refill
 Each
 \$99.80

 180722
 Digital Teacher's Manual
 Each
 \$5.95



653075 Carolina BioKits: Acid Rain

Carolina BioKits®: Acid Rain 43

For a class of 30. With this kit students observe the effects of acid rain on a plant and the interaction of acid rain with the physical environment. Students also test for the presence of acid rain in their area. **Kit** is reusable with the purchase of the **Refill**, which replenishes all consumable items in the kit.

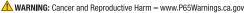
Kit includes: Radish Seed and Potting Soil

Basalt and Granite Chips Marble Rocks pH Test Strips and Color Charts Bogen Universal Indicator and Chart Pipets and Straws Filter Disks White Vinegar Sodium Bicarbonate Plastic Wrap Rubber Bands and Twist Ties Petri Dishes, Vials, and Tubes Teacher's Manual with Reproducible Student Guide

653075 Kit Each **\$136.50 653076** Refill Each **\$74.50**

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Air Quality

Carolina EcoKits®: Tropospheric Ozone Testing

- Learn how elevated levels of ozone affect our environment and our health
- Investigate what factors have an effect on ozone levels
- Conduct reaction testing using ozone test paper to better understand a real-world environmental issue

Grades 9–12. Investigate a real-world environmental issue when your students perform an



experiment to test for elevated levels of ozone. This kit allows them to develop an understanding of the causes of this type of environmental pollution along with the troposphere and how ozone affects it. While students conduct this hands-on investigation, they observe a sample of how we can impact our environment. They conduct reaction testing using ozone test paper to determine the ground level of ozone in different areas around the school. Using this information, they create a map of the testing sites and formulate a hypothesis to explain the results. They learn ways in which elevated levels of ozone can be harmful to living tissues. Kit accommodates a class of up to 32 students working in pairs. The activities can be completed over 2 days, with an 8-hr reaction period required after setting up the test papers.

653045 Per kit \$37.80

Sper Indoor Air Quality Meter All-in-1 meter measures CO₂, humidity, and dew point, plus air and wet bulb temperatures

You and your students can investigate air quality in your classroom, laboratory, or other indoor space with this portable all-in-1 meter. Its backlit display simultaneously indicates CO2 level, humidity, and air temperature, or you can choose a rotating display of dew point and wet bulb temperature instead of air temperature. Meter calculates TWA (time-weighted average) and STEL (short-term exposure limit) for CO₂ measurements. Additional features include audible CO₂ threshold alarms; hold, min, max, and avo functions; an RS232 computer interface; and simple user calibration of CO2 and relative humidity. NDIR (nondispersive infrared) CO₂ sensor technology ensures longterm accuracy, stability, and reliability. Meter comes in a hard carrying case with 4 AA batteries. Size, $8^{1/2} \times 3 \times 2^{1/2}$ "; wt, 10 oz. **Note:** Relative humidity calibration solutions are not included and must be purchased separately.



Specifications:

		Range	Resolution	Accuracy
	Air Temperature	–10 to 60° C; 14 to 140° F	0.1° C/F	0.6° C; 0.9° F
	Relative Humidity	0 to 100%	0.1%	±3% (10 to 90%); ±5% (otherwise)
	Dew Point	-13.3 to 60° C; 8 to 140° F	0.1° C/F	
	Wet Bulb Temperature	-73.4 to 60° C; -100 to 140° F	0.1° C/F	
	CO ₂	0 to 5,000 ppm	1 ppm	±30 ppm ±5% reading

182375 Each \$511.40





Ozone Test Paper

- · Quick and easy to use
- · Suitable for indoor and outdoor testing
- · Economical pricing for classroom labs and science projects

Analyze these strips after only 10 minutes of exposure. Simply compare the stick's color with the color chart on the container for semi-quantitative results ranging from <90 to >210 $\mu g/m^3$ 0_3 . An ozone content of 180 $\mu g/m^3$ is considered a critical value above which sensitive persons should avoid strong physical exertion.

653105 Pack of 12 \$28.50



653044 Carolina Airborne Particulates Examination Kit

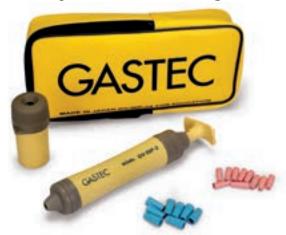
Carolina® Airborne Particulates Examination Kit

For a class of 30 students. Includes 50 adhesive dust particle collectors with peel-off backing. The collectors are placed in desired locations, then collected and examined with a magnifier or microscope (not included). The dust particle collector has a grid of 1-mm squares and space to note location, time and date, weather conditions, and name of student or group. Comes with reproducible student guide.

653044 Per kit \$30.80



Air Quality/Surface Testing



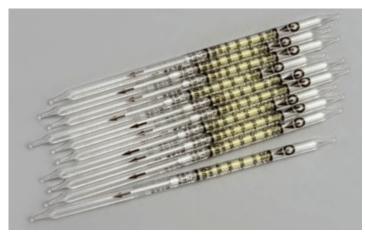
653091 GASTEC Precision Gas Analysis Apparatus

GASTEC Precision Gas Analysis Apparatus

A fast, economical method of performing on-site analyses of specific gases. Set the volume of air to be collected, either 50 mL or 10 mL, then use the precision sampling pump to draw the sample of air (or other gas mixture) through a calibrated, glass gas detector tube. Contact with a specific gas causes a color change inside the gas detector tube, which enables the user to read the concentration of the gas directly from the wall of the tube. The entire test can be accomplished in less than a minute, with an accuracy that rivals gas chromatography! Air Sampling Pump Kit includes pump with detector tube activator and soft carrying case. Replacement Handle replaces the existing handle on older GASTEC Precision Gas Analysis Apparatus, allowing it to collect 2 volumes of gas (10 mL and 50 mL). Gas detector tubes sold separately.

653091 Air Sampling Pump Kit Each **\$191.00 653092** Replacement Handle Each **\$62.50**

Environmental Science



653079 Carbon Monoxide Gas Detector Tubes

Gas Detector Tubes

For use with GASTEC Precision Gas Analysis Apparatus (item #653091). Gas concentration markings are on sidewall for direct-read convenience. In boxes of 10 tubes each, except for oxygen, which has 5 tubes per box.

Item	Gas			
No.	Detector Tube	Range	No./Box	Each
653088	Oxygen, Low Volume	7 to 23%	5	\$28.80
653079	Carbon Monoxide	24 to 400 ppm	10	\$60.25
653080	Carbon Dioxide	0.03 to 1.0%	10	\$60.25
653081	Carbon Dioxide	0.5 to 8.0%	10	\$60.25
653084	Sulfur Dioxide	2 to 40 ppm	10	\$60.25
653086	Ozone	0.5 to 10 ppm	10	\$60.25
653087	Nitrogen Oxide	1 to 20 ppm	10	\$60.25

Surface Testing





823002 Contact Plates

Contact Plates

One-part, 65×15 -mm culture plate with 10-mm grid in bottom. Prepared with tryptic soy agar. Lecithin and Tween 80° are added to neutralize disinfectants. These plates make it easy to test surfaces for microorganisms as the agar surface is slightly raised. The cover is removed and the agar is applied directly to the surface to be tested. The plate is then incubated and the number of colonies counted using the grid.

823002 Pack of 10 \$48.50 10+ Packs Each \$43.65

Environmental Science Population Studies

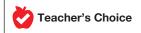


187006 Carolina EcoKits: Estimating Population Size

Carolina EcoKits®: Estimating Population Size

Grades 9–12. Students explore and evaluate 4 different sampling techniques that are used to estimate population size: transects, quadrats, mark and recapture, and removal sampling. Conducting multiple runs for each method, students estimate population cover, density, and size using basic algebra and graphing skills. Students share their data with other groups, compare their data to the actual numbers, and determine how accurate their estimates are. Kit accommodates 30 students working in 10 groups of 3.

187006 Per kit \$166.80





187004 Carolina EcoKits: Invasive Species

Carolina EcoKits®: Invasive Species

Grades 9–12. Students investigate invasive species by performing 2 engaging activities. In the first, they explore how the addition of a second, more efficient, predator affects an existing predator's population. In the second activity, students monitor a simulated ecosystem of colored squares. They sample the ecosystem using quadrats and examine the effect of an introduced species on 2 native species. With the data, students then calculate population density and percent cover for each species. Kit accommodates a class of up to 32 students working in groups of 4.

187004 Per kit \$76.80

Population Studies



180818P Population Growth with Lemna minor 10-Station Kit (with perishables)

New! Population Growth with Lemna minor Kit

 Connected to Unit 3: Populations, topics 3.4: Carrying Capacity and 3.5: Population Growth and Resource Availability

Students conduct investigations and analyze the carrying capacity and biotic potential of a model plant species, *Lemna minor*, known commonly as duckweed. Students formulate a hypothesis, set up an experiment where they grow duckweed in different conditions, collect data, and analyze population growth. Then they discuss and apply knowledge gained from their experiments to a real-world scenario. The activity is conducted over a 4-week period. The 10-Station Kit includes materials for 10 groups of students, the 5-Station Kit for 5 groups. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher to request delivery of perishable material.

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180818	10-Station Kit (with voucher)	Each	\$84.80
△ ³ 180818P	10-Station Kit (with perishables)	Each	\$84.80
180819	5-Station Kit (with voucher)	Each	\$54.80
△ ³ 180819P	5-Station Kit (with perishables)	Each	\$54.80
180818EBK	Digital Resources	Each	\$12.95



187010P Carolina EcoKits: Predator-Prey Relationships (with perishables)

Carolina EcoKits®: Predator-Prey Relationships

Grades 9–12. In this kit, students use direct observation and modeling to examine the relationship between predator and prey in 2 sets of organisms. First, students examine the relationship between *Daphnia* and *Hydra* and between *Stentor* and *Chilomonas*. Students then collect data while modeling a predator-prey relationship with beads. Students graph and analyze the collected data before drawing conclusions about the relationship between predator and prey. **Note:** *Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For best results, use perishable materials within 2–3 days of receipt.*

187010 Kit (with voucher) Each **\$99.80 187010P** Kit (with perishables) Each **\$99.80**

Biodiversity Biodiversity



652131 Quad/Sect Kit

Quad/Sect Kit

Uniform population density field experimentation can now be done economically and accurately using two 20-m calibrated transect lines and quadrat that complete this classic sampling device. Whether sampling periwinkles in the meadow or pennies on a tabletop, the quadrat can be easily assembled into 1 square that is 1 m on each side, or 2 squares that are each 0.5 m on each side. This versatile tool has an almost limitless application in all field studies.

652131 Per kit \$114.80



180815 Exploring Biodiversity 8-Station Kit

New! Exploring Biodiversity Kit

. Connected to Unit 2: Biodiversity, topic 2.1: Introduction to Biodiversity

In each of the investigations in this kit, students use a different method to observe and sample the invertebrate community of various habitats. Students analyze their data to draw conclusions regarding the biodiversity of those habitats. In the first investigation, students collect soil samples and use a Berlese funnel to isolate the invertebrates for counting individuals and categories. In the second investigation, students bait sample cards, observe and categorize the ants that come, and compare data from different habitats and different niches (i.e., different baits). The **8-Station Kit** provides materials for 8 groups of students; the **1-Station Kit** includes materials for 1 group. Visit **Carolina.com** for complete lists of kit materials.

 180815
 8-Station Kit
 Each
 \$224.80

 180816
 1-Station Kit
 Each
 \$49.80

 180815EBK
 Digital Resources
 Each
 \$12.95

Environmental Science



187102 Carolina EcoKits: Biodiversity (with voucher)

Carolina EcoKits®: Biodiversity A3

- · Study the biodiversity of a simulated pond
- · Identify organisms using a dichotomous key
- Calculate the Simpson index of diversity for different pond levels

Grades 9–12. Students create a simulated pond using 2 culture mixtures and then identify the protists and algae found in their pond using a dichotomous key. Sampling the top, middle, and bottom of the pond, students compare the biodiversity of the various layers using both species richness and the Simpson index for biodiversity. Kit accommodates a class of up to 32 students working in pairs. **Note:** Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187102 Kit (with voucher) Each **\$102.50 187102P** Kit (with perishables) Each **\$102.50**



New! Loss of Biodiversity Kit

• Connected to Unit 9: Global Change, topic 9.10: Human Impacts on Biodiversity

In this investigation, students play a card game to simulate population changes and potential species loss in a temperate forest community due to realistic local factors such as habitat loss or fragmentation, pollution, invasive pathogens, overharvesting, climate change, and the establishment of invasive species. Students analyze their resulting data sets to determine which factors had a greater impact on biodiversity decline or loss within the community. They are then challenged to research one of these threats to biodiversity and propose a real-world, workable solution to the threat, or a solution to mitigate the damage created by the threat. Finally, students have the opportunity to evaluate the potential success of the solution they propose by introducing it as a rule in the modeling card game. The 8-Station Kit provides materials for 8 groups of students; the 2-Station Kit includes materials for 2 groups. Visit Carolina.com for complete lists of kit materials. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

 180851
 8-Station Kit
 Each
 \$62.80

 180852
 2-Station Kit
 Each
 \$38.80

 180851EBK
 Digital Resources
 Each
 \$12.95

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Environmental Science Energy Flow



180803P Primary Consumer Energy Flow Kit (with perishables)

New! Primary Consumer Energy Flow Kit

 Connected to Unit 1: The Living World: Ecosystems, topics 1.9: Trophic Levels and 1.10: Energy Flow and the 10% Rule

Students investigate the efficiency with which developing painted lady butterflies (Vanessa cardui) incorporate their food into their body mass. In this lab, painted lady larvae, representing a primary consumer, feed on a growth medium that represents a primary producer. To track the amount of medium consumed over time, students daily measure and record the mass of a control cup and a cup containing the larvae or chrysalises. At the end of the experiment, students graph their data in multiple ways, analyze the results, and calculate efficiency. Kit provides materials for 15 groups of students. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher to request delivery of perishable material. Cannot be shipped into Puerto Rico. Painted lady butterflies cannot be released in CT or ND.

 180803
 Kit (with voucher)
 Each
 \$69.80

 180803P
 Kit (with perishables)
 Each
 \$69.80

 180803EBK
 Digital Resources
 Each
 \$12.95

Natural Selection



171200 Natural Selection Kit

Natural Selection Kit

Students explore natural selection and the way in which environmental change affects the genetic traits of a population. They also examine the Hardy-Weinberg principle and the concept of genetic equilibrium. Using models of peppered moths, students conduct a series of experiments, changing the environmental variables and recording the results. They calculate the allelic, genotypic, and phenotypic frequencies for several generations of moths. These activities guide students to understand how environmental change can influence the allelic frequencies for a population over time. Kit contains enough materials for 30 students working in groups of 3 and includes a teacher's manual with reproducible student guide; visit Carolina.com for complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

171200 Per kit **\$89.75**

California Proposition 65 WARNING: Cancer – www.P65Warnings.ca.gov

Energy Flow/Natural Selection



187104P Carolina EcoKits: Food Chains and Energy Flow (with perishables)

Carolina EcoKits®: Food Chains and Energy Flow 1

Grades 9–12. Students examine microorganisms and create a food chain based on observed feeding patterns. Students explore energy transfer through different trophic levels of a food chain using a simulation activity. Using their finding that all energy is not transferred, students calculate the energy flow through the food chain they created. Kit accommodates 30 students working in pairs. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Be sure to carefully plan the arrival of your perishables; Didinium will starve to death if not used within 1 day of receiving the culture.

187104 Kit (with voucher) Each **\$98.50 187104P** Kit (with perishables) Each **\$98.50**



171995P Natural Selection with Drosophila Kit (with perishables)

Natural Selection with Drosophila Kit

Bringing a realistic model of natural selection and evolution into your classroom has never been easier. Using the model organism *Drosophila melanogaster*, students introduce a single advantageous "mutation" (red eyes) into a population of white-eyed "ancestral" strain flies. They then observe and calculate the new trait's spread and the shift in population phenotypes over generations. The fitness advantage offered by the "mutation" classically exhibits evolution by natural selection—and your students can see it happen right in the classroom. This kit is designed for 32 students working cooperatively in 8 groups of 4. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Keep Drosophila cultures at room temperature; do not refrigerate. **Please order at least 2 weeks in advance of desired ship date.**

 171995
 Kit (with voucher)
 Each
 \$128.00

 171995P
 Kit (with perishables)
 Each
 \$128.00

Natural Selection/Population Genetics



747520 Natural Selection 8-Station Kit

Natural Selection Kit

- Connected to Unit 7: Natural Selection, topics 7.2: Natural Selection and 7.3: Artificial Selection
- · Addresses content in Enduring Understanding EVO-1

Students investigate natural genetic variation leading to variable survival rates in brine shrimp. Students place brine shrimp eggs in solutions of different salinity and measure hatching viability. Then students design and conduct an experiment to investigate further another factor that may impact hatching viability or survival rates of brine shrimp. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit Carolina.com for complete lists of kit materials.

	747520	8-Station Kit	Each	\$71.93
	747521	1-Station Kit	Each	\$42.50
\triangle	747522	8-Station Refill	Each	\$63.00
	747520EBK	Digital Resources	Each	\$12.95

Population Genetics



747510 Population Genetics and Evolution 8-Station Kit

Population Genetics and Evolution Kit*

- Connected to Unit 7: Natural Selection, topics 7.4: Population Genetics and 7.5: Hardy-Weinberg Equilibrium
- Addresses content in Enduring Understanding EVO-1

Students examine the genetics of a population and consider how allelic frequencies can provide evidence about the evolution of species. Students model a population using cards to represent individual alleles, then collect phenotypic data from a population of Wisconsin Fast Plants®. Using direct counting and the Hardy-Weinberg equation, students determine the frequencies of the 2 alleles. Then students design and conduct an experiment to investigate population genetics further. The **8-Station Kit** includes enough materials for 8 groups. The **1-Station Kit** includes materials for 1 group. The **8-Station Refill** replaces consumed items. Visit Carolina.com for complete lists of kit materials.

↑ 747510 ↑ 747511 ↑ 747512 ↑ 747510ERK	8-Station Kit 1-Station Kit 8-Station Refill	Each Each Each	\$118.80 \$87.50 \$90.80 \$12.95
747510EBK	Digital Resources	Each	\$12.95

AP® is a trademark registered and/or owned by the College Board, which was not involved in the production of, and does not endorse, these products.

Environmental Science



747540 Investigating Selection with Wisconsin Fast Plants Kit

New! Investigating Selection with Wisconsin Fast Plants® Kit

- Connected to Unit 7: Natural Selection, topics 7.2: Natural Selection and 7.3: Artificial Selection
- Addresses content in Enduring Understanding EVO-1

In 2 guided investigations, students explore selection as a mechanism that can drive change in a population. They plant Wisconsin Fast Plants® seeds that vary in the number of cotyledons present on the seedlings, then examine the seedlings to determine their traits and how these traits vary. They then perform a selection experiment, crossing polycot plants to each other to see how cross pollination affects the frequency of polycots in the offspring population. Kit includes enough materials for 8 groups; visit Carolina.com for a complete list of kit materials.

↑ 747540 Kit Each \$98.80 747540EBK Digital Resources Each \$12.95



187016 Modeling Population Genetics and Evolution Kit

Modeling Population Genetics and Evolution Kit

Grades 9–12. Cichlid speciation in Lake Victoria introduces the investigative phenomenon of variation and distribution of expressed traits in a population and how this might lead to evolution. Over the course of 2 investigations, students use a card set and genetic corn to gather data about allelic frequencies and phenotypes in a stable population. In a third investigation, students plan, model, and present the results of genetic exchanges that disrupt genetic equilibrium. Students work toward answering the driving question, "How do scientists recognize that a population is evolving?" Kit accommodates 16 student groups and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187016 Per kit \$152.00

International Customers*

The importation of plants, seed, plant products, and planting media may be regulated by your country. Before ordering, check with your governmental officials, and if necessary, provide us with import permits and other necessary documentation. Phytosanitary certificates, inspections, and other documentation may be required and may result in delays and additional charges.



Environmental Science Microbiology



766300 Carolina Environmental Microbiology Kit

Carolina® Environmental Microbiology Kit A1

Introduces a student to the study of microbes in the immediate environment. Suitable for a class of up to 30 students and may be used at any educational level. Students learn to pour plates, isolate molds and bacteria from a variety of sources, make plate counts of bacterial colonies, and prepare slides for microscopic examination. With student instructions and teacher's manual; visit Carolina.com for a complete list of kit materials. **Note:** A microscope, preferably with an oil-immersion lens, is needed but not included.

766300 Per kit \$87.50

Rhizobium Inoculum

A bacteria and soil preparation for mixing with leguminous seed before planting to obtain nodule formation and nitrogen fixation. Works well with clover and alfalfa seed (not included). Shipped as a 6-oz package containing enough inoculum for 50 to 60 lb of seed. For seed, order item #158282 Alfalfa Seed.

154719B Each \$25.15



154719B Rhizobium Inoculum

Rhizobium Inoculum with Clover Seed

Beginning—Easy to perform; requires no experience in microbiology.

For 30 students. Members of the bacterial genus *Rhizobium* exist in a symbiotic relationship with leguminous plants (peas, clover, and soybeans). The *Rhizobium* species grow in nodules on the roots of the plants and fix atmospheric nitrogen. This supplies the plant with nitrates and the bacteria with energy and a favorable environment.



154720 Rhizobium Inoculum with Clover Seed

When legumes are plowed under, significant amounts of nitrates are added to the soil. Students plant clover seeds that have been inoculated with the *Rhizobium* bacteria. After 5 to 6 weeks, the nodules on the roots can be observed. The exercise requires 5 to 6 weeks from setup to completion. Teacher must supply potting soil and pots. With instructions.

154720 Per set \$17.25





154601 Carolina Environmental Sampling Kit (with prepared bottles)

Carolina® Environmental Sampling Kit

Beginning—Easy to perform; requires no experience in microbiology.

For a class of 30. Introduce your students to the fascinating world of microbes. Students investigate environments of their choice for the presence of bacteria and fungi. They learn to describe the characteristics of colonies that grow from their samples. All materials provided to sample both liquid (e.g., drinking water) and solid (e.g., your file cabinet) environments. Includes complete instructions and your choice of prepared bottles or prepared plates.

154601 Kit (with prepared bottles) Each **\$95.45 154603** Kit (with prepared plates) Each **\$115.55**

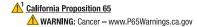


131207 Carolina Minipond Ecosystem Kit

Carolina® Minipond Ecosystem Kit

An outdoor habitat for microorganisms. This maintenance-free habitat simulates a pond, yet can be brought into the classroom for study of microscopic algae and protists. Activities include discovering pond traffic and observing the organisms' shapes and feeding habits. Kit requires the use of a microscope and can be modified for younger students by incorporating the inexpensive item #972767 Carolina® Student Microscope (30×). Kit includes a mini pond container, pond substrate, protozoan mixture, algae mixture, pH test strips, nutrient solution, slides, and coverslips. With instructions.

131207 Per kit **\$71.45**



Carolina STEM Challenge

Environmental Science







*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of, and do not endorse, these products.

CAR@LINA

STEM CHALLENGE®

Engineer. Engage. Excite.

Carolina STEM Challenge® kits for middle and high school classrooms offer students real-world design challenges in an exciting tournament-style format. Integrating STEM into your current curriculum has never been easier!

Carolina STEM Challenge is an expanding line of kits for physical sciences (pages 782-786), chemistry (page 889), environmental sciences with a focus on emerging energies (pages 648-650), and life sciences (pages 327 and 650). Each kit provides energetic STEM supplemental activities for easy integration into any science classroom.

All kits focus on the science and engineering practices built upon in the Next Generation Science Standards*. Students engaging in these kits will be able to demonstrate pertinent STEM skills such as:

- Asking Questions and Defining Problems
- . Developing and Using Models
- Planning and Carrying Out Investigations
- · Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Providing students with challenging, fun activities, each Carolina STEM Challenge® kit is designed to include everything you need for classroom success:

- Warm-ups and demonstrations
- Science content
- Literacy extensions
- · Notebooking options
- · Grading (and scoring) rubrics

Carolina is proud to offer FREE digital teacher's manuals as an added benefit to our proprietary kits. Visit

Carolina.com

and type "digital teacher's manual" in the search field to learn more.

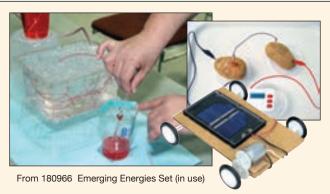


Carolina STEM Challenge®





Emerging Energies Series



Carolina STEM Challenge®: Emerging Energies Set 🕰

Bring engaging STEM activities into your curriculum with these inquirybased, real-world activities. Each focuses on an alternative energy source and presents a challenge that students solve using science concepts and engineering problem-solving skills. Use this set of 8 kits throughout the school year to continually challenge students and hone their criticalthinking skills. Carolina STEM Challenge® kits are easy to set up and make learning fun! All include FREE 1-year access to digital resources that support 3-dimensional instruction.

Set includes:

Geothermal Kit (item #180956) Hydroelectric Power Kit (item #180952) Biofuels Kit (item #180950) Battery Dilemma Kit (item #180958)

180966 Per set \$825.50

Passive Solar Design Kit (item #180962) Wind Farm Kit (item #180964) Solar Car Design Kit (item #180960) Solar Water Distillation Kit (item #180954)

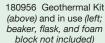


Hydroelectric Power Kit A

Do your students understand hydroelectric power? With this hands-on, engaging STEM kit, they discover how emerging energies can change the way we develop and convert electric energy. Students observe a hand generator that converts mechanical energy into electrical energy. Student groups then design their own water wheel and compete with other groups to implement the most effective design. Materials are sufficient for 32 students working in 8 groups of 4 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

180952 Per kit \$134.80





Geothermal Kit A

By studying surface area and heat transfer in real-world scenarios, your students can model how to harness the geothermal energy that is generated and stored in the ground beneath them. Student groups design their own model to demonstrate the use of geothermal energy and compete with each other to implement the most effective design. They demonstrate their knowledge of surface area and heat transfer by answering questions and interpreting results. Materials are sufficient for 32 students working in 8 groups of 4 and include 1-year access to digital resources that support 3-dimensional instruction.

180956 Per kit \$155.80



180950 Biofuels Kit (above); in use (right)



Biofuels Kit

This exciting STEM challenge will allow students to investigate the entire ethanol production process while learning about alcohol fermentation and exploring the role of enzymes. Students develop valuable engineering and critical thinking skills by competing to design an apparatus for measuring gas production during yeast fermentation. This lab is designed for a class of 32 students working in 8 groups of 4 and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once

180950 Per kit \$87.50

Carolina STEM Challenge

Environmental Science



180958 Battery Dilemma Kit (above) and in use (right)

Battery Dilemma Kit

Allow your students to assume the role of electrical engineers, designing batteries using a potato and pairs of dissimilar metals. Students compare various metals as they attempt to produce the highest-voltage, and eventu-

ally the best, battery. Student groups then compete to design ways to boost and to alter the voltage output of their batteries. This kit is designed for 10 lab stations with students working cooperatively in groups of 3; it includes 1-year access to digital resources that support 3-dimensional instruction.

180958 Per kit \$101.80



Wind Farm Kit

How can wind create "energy" in your class? Introduce students to this renewable energy source, and create excitement and cooperative learning with this competition-based STEM kit! First, students research the fundamentals of wind energy and wind turbine design. Small groups then design and build their own wind turbine to optimize performance. Materials are sufficient for 30 students and include 1-year access to digital resources that support 3-dimensional instruction.

180964 Per kit \$117.00



Passive Solar Design Kit

Design and construct your own scale model vacation home to explore passive solar building and design techniques. Learn about the effects of insulation on heating, cooling, and thermal mass for regulating temperatures. Determine and experience types of real-world modifications to simulate optimal seasonal home heating and cooling requirements. This kit is designed for 12 lab stations of students working cooperatively in groups of 2 or 3 and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

180962 Per kit \$104.80



traction, front- or rear-wheel drive, and wheelbase are all design factors that are considered. Finally, students race their cars to determine the most successful design. This activity is designed for a class of 32 students working cooperatively in 8 groups of 4. Kit includes 1-year access to digital resources that support 3-dimensional instruction.

180960 Per kit \$190.50



See more Emerging Energies Kits on the next page.

Environmental Science

Carolina STEM Challenge



180954 Solar Water Distillation Kit

Solar Water Distillation Kit

Build excitement around water distillation by allowing students to design, construct, and test their own water distillation apparatus. Inside a classroom setting, your students will gain hands-on experience with evaporation and distillation while using an incandescent light source to model solar energy. They will also gain real-world experience using distillation to remove contaminants (salt) from water. Students compete to produce the most contaminant-free water in a 24-hr period. This kit is designed for a class of 30 students working in pairs and includes 1-year access to digital resources that support 3-dimensional instruction.

180954 Per kit \$84.00

Life Science

Hydroponics Kit ▲

Tackle the properties of hydroponic gardens, substrates, and return on investment with this easy-to-use Carolina STEM Challenge® activity. Students explore hydroponic substrates, learn the factors needed to grow plants hydroponically, and develop and build their own hydroponic substrate model. They are then challenged by celebrity chef Chuck Thacker to develop the most cost-effective way to grow greens for his restaurant. Materials are sufficient for 32 students working in groups of 4 and include 1-year access to digital resources that support 3-dimensional instruction.

158300 Per kit \$128.00



158300 Hydroponics Kit



157896 How to Train a Plant Kit

About the base of the second o

145000 How to Train Your Isopod Kit (with voucher)

How to Train a Plant Kit

Mesh plant development and STEM to allow your students to predict and manipulate plant growth. Students examine seed germination and observe patterns of growth in response to various stimuli. Then they explore the plant tropism of pea seeds to design a system that demonstrates the effects of touch, light, or gravity on plant growth. This hands-on design challenge reinforces concepts such as basic plant anatomy, cell communication, and basic experimental design. Materials are sufficient for 32 students working in groups of 4 and include 1-year access to digital resources that support 3-dimensional instruction.

157896 Per kit \$85.00

How to Train Your Isopod Kit

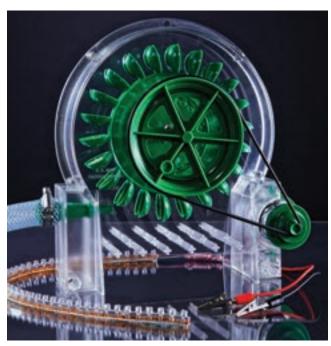
In this Carolina STEM Challenge®, students become animal trainers to learn about isopod behavior. Lab groups study animal preferences and behavior and then develop and design experiments to encourage isopods to move towards a specific target. This kit provides enough material for 32 students working in groups of 4 and includes 1-year access to digital resources that support 3-dimensional instruction. **Note:** Order the kit with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. For immediate use, order the kit with the perishable materials included.

 145000
 Kit (with voucher)
 Each
 \$133.70

 145000P
 Kit (with perishables)
 Each
 \$133.70

Alternative Energy

Alternative Energy



183264 The PowerWheel Bundle (in use)

The PowerWheel™ Bundle

Charge your laptop or cell phone with water from your tap! The PowerWheel™ micro hydro generator is an amazing tool for learning about alternative energy, hydropower, and other renewable sources of energy. Utilizing a Pelton wheel turbine, the PowerWheel™ provides a hands-on, visual way to explore the world of energy by using water from your tap. Includes a fully assembled PowerWheel™, LED light strip, hose attachment, bridge rectifier to convert AC output to DC, and a user's manual.

183264 Each \$267.50



183202 Hydropower Kit

Hydropower Kit

Grade 3 and up. Let your students explore the power of water through model building and experimentation. Using the kit, students build and experiment with a water-wheel, sawmill, hammer mill, water tower, and even a hydroelectric power station! These hands-on activities help students learn how water power can be harnessed to do different types of physical work. Students also investigate the intriguing properties of water by performing experiments involving surface tension, adhesion, and cohesion. Kit comes with a full-color, 32-page experiment manual that offers illustrated instructions and scientific information.

183202 Per kit \$75.00

Environmental Science



759250 Renewable Energy Education Set

Renewable Energy Education Set

Are you ready to teach green energy technologies and help students develop their environmental awareness? Construct an entire miniature renewable energy system for experimentation and demonstration, including a working miniature wind turbine, a solar photovoltaic panel, an electrolyzer, a Proton Exchange Membrane (PEM) fuel cell, and a hydrogen storage system. The set encourages students to learn the system step by step, configure it in different ways, and visualize the workings of clean energy principles from start to finish. Provides 40+ hours of activities as part of your science, engineering, design, or technology course. Contains enough hardware, software, and curriculum for 4 to 5 students to share. Includes instructions; PC and distilled water are needed but not supplied.

759250 Per set \$434.00



Wind Power Kit

Grade 3 and up. Using kit materials, students construct a wind turbine complete with electric generator, adjustable rotors, and wind speed indicator. They can then conduct more than 20 experiments with the device, including using different numbers of rotor blades, blade angles and profiles, wind speeds, gear ratios, and more. Other experiments demonstrate the ability to use the turbine's mechanical energy to lift a heavy weight or to generate electrical power to light an LED or charge a battery. During these experiments, students learn about the physics of force and motion as it applies to wind power technology. Kit includes a full-color, 32-page experiment manual with illustrated instructions and scientific information.

183201 Per kit \$75.00

Environmental Science

KidWind® Basic Turbine Kit

- Make and test turbine blades
- · Store easily for future classes

The basic turbine is a great start for teaching students about wind energy. Tested and approved by thousands of teachers worldwide, this is one of the most affordable and robust wind turbine kits on the market. Students can design turbine blades for it and test power output with a multimeter, LED lamps, or an ultra capacitor (each sold separately). This is where

it all began for KidWind®, developing a simple, robust, yet highly experimental classroom turbine.

The KidWind® Basic Turbine Kit has been built by teachers in hundreds of workshops since 2004. Visit Carolina.com for more details and specifications.

183251 Per kit \$134.00



183251

KidWind Basic Turbine Kit

KidWind® MINI Turbine Kit

- · Assemble this model wind turbine in 5 minutes!
- Demonstrate its power output by lighting an LED lamp or playing music

The KidWind® MINI is perfect for demonstrating how a wind turbine generates electricity. Its tower is made from recycled plastics, further enhancing the kit's green power theme. Combine kits to create a wind farm that pumps water much more effectively than a single MINI Turbine. Go to Carolina.com for more details and specifications.

183252 Per kit **\$54.00**

Alternative Energy



183253 KidWind Advanced Wind Experiment Kit

New! KidWind® Advanced Wind Experiment Kit

Grade 7-College. Students discover advanced aspects of wind turbine technology and test different blade designs, gear ratios, and devices to measure electrical and weightlifting power. They can use the blades they design to generate electricity, lift weights, and pump water. All you need to add is a wind source, basic tools, and imagination! Visit Carolina.com for more information.

Specifications:

Height:

Diameter: Maximum Blade Diameter: 36" (27" with provided materials)

Notes: Number of Different Gear Ratios: 3 Maximum Number of Blades: 12

Power Output: 0 to 2 W 183253 Per kit \$174.00





Teacher's Choice

Vertical Axis Wind Turbine Kit

This easy-to-assemble windmill/wind turbine kit includes wood, metal, and Styrofoam® parts that are pre-cut and ready for quick engineering. Instructions are simple, step by step, and in color. Kit includes a measuring device to assure balanced assembly and expandable bands that maintain tension on the airfoil blades. Practice 21st-century skills and build a model based on real wind turbine engineering. Find a windy location to hang your finished wind turbine and watch it turn! Hanging mechanism included.

183206 Per kit \$15.50

See page 649 for our Carolina STEM Challenge®: Wind Farm Kit that uses vertical axis wind turbines.



183206 Vertical Axis Wind Turbine Kit

Use DataClassroom to help students explore graphing, statistics, and data analytics!

Learn more at Carolina.com.







Alternative Energy Solar Energy

Environmental Science



747024 SunArt Paper (in use)

SunArt Paper

Harness the energy of the sun to create beautiful and unique shadow prints on sunsensitive paper. Includes a clear acrylic sheet to hold your art in place. Pack contains 15 sheets of $8\times 10^\circ$ paper.

747024 Per pack \$17.60



759848 Carolina Solar Energy Kit

Carolina® Solar Energy Kit A²

Explore nuclear fusion, daily and seasonal changes in the sun's angle, the sun's scale and output, and methods of capturing solar energy. Examine the sun's role to introduce topics such as energy conversion, chemical changes, light waves, alternative energy, radiant energy, and photovoltaic cells. Materials support 16 student pairs. Includes instructions and a review of right triangle math. Black light, scientific calculators, and empty aluminum cans needed but not supplied. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

759848 Per kit \$89.25



Solar Energy Beads

Not all light is made up of the same energy. Using Solar Energy Beads, students can uncover an invisible form of light energy called ultraviolet (UV) light. The beads change color in direct sunlight (which contains UV light) and then change back to white when removed from sunlight. The pack of 1,000 beads is perfect for classroom or school projects. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

956209 Per pack \$30.00



Environmental Quality Meter

Extremely accurate with fast response times, this handy meter records air speed, air temperature, relative humidity, light, and thermocouple temperature onto a removable SD card for easy data upload preformatted for Excel®. You also can stream data directly to a computer using the optional **USB Cable**. Each data set includes the parameter being measured, time, and date. Visit **Carolina.com** to view all specifications. Also includes a fold-out tripod and large, easy-to-read backlit LCD. Comes ready to use in a soft carrying case with detachable 4-parameter environmental probe (also accepts standard type K or J thermocouple probe), 6 AA batteries, 2-GB SD card, instruction manual, and 5-year warranty.

652001 Meter Each **\$339.80 652002** USB Cable Each **\$34.50**



MARNING: Reproductive Harm – www.P65Warnings.ca.gov

Environmental Science Specimen Viewing Apparatus

Wolfe® Intermediate Cordless Stereomicroscopes ▲3 Dual magnification—in the class or in the field

- · Cordless operation—can be used anywhere
- LED illumination—cooler and lasts longer than standard tungsten bulbs
- · Built-in dual magnification—view different sizes of specimens

Grades 6–12. Now you can take microscopic study outside, in the field, or virtually anywhere. These cordless microscopes are perfect for viewing rocks, fossils, insects, plants, larger protozoa, and more. The LED lighting system on top and bottom provides bright, energy-efficient illumination and is ideal for larger specimens. Unlike many competing models, they are fully functional while being recharged, so there's no downtime for students. Additional features:

- 45° inclined binocular head for a more comfortable viewing angle
- Paired objective in a rotating turret for fast magnification changes
- Choice of 2 microscopes with either 10x and 30x Magnification or 20x and 40x Magnification for viewing a wide variety of specimens
- Adjustable eyetubes with 51- to 75-mm interpupillary distance suitable for a variety of students

Includes an AC adapter/charger and AA nickel-metal hydride batteries. Size, 10° H \times 4° / 2° W \times 7° D; wt, 6 lb.

591844 10× and 30× Magnification Each **\$319.00 591846** 20× and 40× Magnification Each **\$319.00**

591846 Wolfe Intermediate Cordless Stereomicroscope, 20× and 40× Magnification



Specimen Viewing Apparatus

Shinco® Scope

- Locked-on eyepiece
- · Threaded focus control system
- · Nickel-plated brass scope tube
- Locked-on stage clips
- · Limited lifetime warranty

The Shinco® Scope is designed for rugged student use in the field or classroom. This microscope is easy to use and needs only available outdoor light or minimal indoor light—no lamps, cords, or mirrors required. There are no knobs or gears, so there are no adjustments to fuss with. The Shinco® Scope's threaded focus control system also makes it simple for younger students to use. The 30× total magnification and reflective-light capabilities allow you to view the exterior of 3-D specimens, printed matter, and other ordinary objects. The microscope also has a prism illuminator that sends transmitted light through the stage, allowing you to view the internal structure of thinly sectioned slide specimens. Comes with vinyl

dust cover and a set of 5 common slides. Size, 10" H \times 4 $^{1}/_{4}$ " W \times 4" D; wt. 2.4 lb.

597115 Each \$105.00



597115 Shinco Scope

You can also get a closer look with our Living Wonders® View Chamber on page 659.



131016 MicroAquarium

MicroAquarium™

Use with a microscope, hand lens, or as a photographic chamber!

This innovative chamber allows for maintaining and studying a great variety of small aquatic organisms for extended periods of time. Organisms can be viewed with a hand lens (not included). The ease and versatility of this chamber allows students of all ages and ability levels to observe behaviors of both protozoans and macroscopic animals. Size, $75 \times 50 \times 4$ mm. With stand and instructions.

131016 Each **\$9.85 131017** Pack of 10 **\$92.65**

Field Collection Field Collection



650736 PVC Chest Wader



PVC Chest Waders

Rana II®. These chest waders have a nylon-reinforced PVC upper with a flip-out security pocket, adjustable suspenders with quick release buckles, and waterproof boot attachments with taped seams. The boot outsoles are cleated for traction. Available in 4 men's boot sizes; dimensions provided are for waders.

	Item No.	Size	Inseam	Outseam	Waist/ Chest	Thigh	Boot Height	Each
New!	650735	7	33"	52"	48"	28"	11"	\$181.20
	650736	8	33"	52"	48"	28"	11"	\$181.20
	650737	10	34"	53"	52"	31"	11"	\$181.20
	650738	12	35"	54"	52"	32"	11"	\$181.20

Environmental Science





Knee Boots

These rubber boots are perfect when longer hip boots are not necessary. Lined with a padded innersole and completely waterproof.

650708	Size 8	Pair	\$70.00
650709	Size 9	Pair	\$70.00
650710	Size 10	Pair	\$70.00
650711	Size 11	Pair	\$70.00
650712	Size 12	Pair	\$70.00

If you don't see the size you want here, call 800.334.5551 to check availability.

Aquatic Nets



Minnow Seine A3

Brown lock-weave netting. Includes floats, leads, and tie strings. Mesh size, $^{1/_8}$ "; dimensions, 4 \times 20 ft. **Note:** Aluminum Seine Poles (item #651315) not included.

651310 Each \$64.17

Customer Review

"I have used this net for years and I finally need to get a new one after many years of hard work. It has gotten me through 3 different jobs and finally succumbed to years of wear and tear. A great deal for the money. I recommend attaching it to broom handles or large dowels for even easier use."

Earth/Environmental Science Teacher



652165 Kick Net

Kick Net

This 1 \times 1 m², 500- μ m, white mesh net is designed to meet the requirements of groups performing US EPA Rapid Bioassessment Protocols for aquatic benthic invertebrates. Features hemmed sides with poles and reinforced bottom seam for anchoring. Meets The GLOBE® Program specifications.

652165 Each \$167.50

Aluminum Seine Poles

Aluminum tubes 51" L with plastic tips and $^{1}/_{4}$ " holes at top and bottom for tying seine ropes.

651315 Per pair \$34.85

Don't forget the LaMotte® Macroinvertebrate Identification Card Set on page 629.

GLOBE®, The GLOBE Program®, and the GLOBE® logo are trademarks of the US Government. Use of these trademarks and certification by Carolina that its products conform to specifications of The GLOBE Program® do not imply endorsement of Carolina or its products by the US Government.



651315 Aluminum Seine Poles



Environmental Science

Elaworts

652160 Student Plankton Net

Student Plankton Nets

These professional-grade student plankton nets are designed to provide quantitative analysis of plankton hauls from both fresh and marine waters. Each net comes with a mouth-end fastener comprised of a brass ring with bridle. The cod-end assembly includes 1 plastic collecting bottle and a rubber-coated clamp. The **Replacement Cod End** includes a rubber-coated clamp. The **Replacement Collecting Bottle** includes bottle only. Net length-to-mouth diameter ratio is 3:1. Made in the USA.

	Item No.	Mesh Size	Mouth Diam	Each
Ö	652158	50 μ	5"	\$229.00
	652159	100 μ	8"	\$293.55
	652160	150 μ	5"	\$201.00
ı	Accessory			
	652161	Replacement Co	od End	\$20.40
	652164	Replacement Co	\$12.50	



651320 Aluminum Dip Net

Aluminum Dip Net

D-shaped hoop is 14×14 ". Has 42" handle with $\frac{1}{4}$ "-mesh netting.

651320 Each \$38.20

Field Collection



651290 Heavy-Duty Collecting Net

Heavy-Duty Collecting Net

This sturdy net has a $1^{1/8} \times 60^{\circ}$ hardwood handle with a steel ferrule for added strength. The heavyduty, D-shaped frame has a vinyl net guard to protect the extra-fine, $^{1/16}$, green nylon netting.

651290 Each \$59.60



651344A Aquatic Net with Guard

Aquatic Nets Collect with the best

- · High-quality collection net
- · Recommended for field-collecting activities
- Net-saver guard option available (item #651344A)

This durable nylon aquatic net is a practical size and shape for collecting in ponds and streams. It has a 16×9 " D-shaped frame and hardwood handle. Net with Guard has a steel "net saver" guard that provides extra reinforcement to help extend the useful life of the net. Mesh size, $\frac{1}{4}$ ".

651344 Net Each **\$57.70 651344A** Net with Guard Each **\$66.85**



651297 D-Frame Aquatic Net

D-Frame Aquatic Net

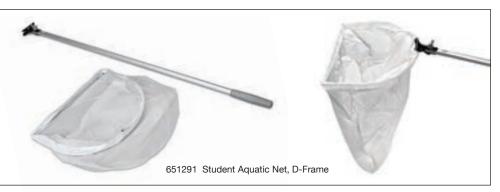
Wildco. Professional quality. The 800×900 -µm mesh nylon net bag is reinforced with heavy muslin band and internal rope at the edge. Bag also has protective canvas bottom. It attaches to the rust-resistant, stainless-steel net ring with plated steel clips. The net is 12" in diameter with a depth of 22". Natural hardwood finished handle is $1^{1}/_{4}\times52$ ".

651297 Each **\$243.25**

New! Student Aquatic Net, D-Frame

This net is perfect for sweeping up aquatic fauna. It features a strong, D-shaped ring that is 12" diam. It has a sturdy metal handle. Net ring and handle can be separated for compact storage. Net is made of fine nylon mesh.

651291 Each \$57.50



Field Collection Insect Nets

Environmental Science

651342 Collecting Net

Collecting Net

The 16 \times 12" net is 100% nylon and the aluminum handle is 30" L. Mesh size, $^{1}\!/_{4}$ ".

651342 Each \$38.50

Insect and Larvae Collecting Net

The 16"-diam bag is made of muslin to catch the smallest specimens. With 36" aluminum handle.

651335 Each \$45.65



651335 Insect and Larvae Collecting Net





651336 Fish and Insect Net

651380 Pacific Aerial Net



651350 Pacific Sweeping Net

New! Fish and Insect Net

This net features a deep, lightweight bag with wide mesh, which is perfect for insects or fish. It has a reinforced nylon rim and a 23" collapsible aluminum handle.

651336 Each \$55.00

Pacific Aerial Net

Complete with 15" hoop, 36" handle, and bag of medium-mesh netting.

651380	Net	Each	\$39.15
		12+ Each	\$35.25
651382	Replacement Bag	Each	\$17.45
		12+ Each	\$15.70

Pacific Sweeping Net

Strong muslin bag reinforced at rim. Complete with 15" hoop and 3-ft handle.

651350	Net	Each 12+ Each	\$44.65 \$40.20
651352	Replacement Bag	Each 12+ Each	\$21.20 \$19.10

Carolina Teacher Tips

Net Results

Use the Pacific Aerial Net (item #651380) for capturing fragile insects such as butterflies, moths, and dragonflies. Use the Pacific Sweeping Net (item #651350) to brush through vegetation, capturing beetles and other insects.

To see our complete selection of nets, visit Carolina.com.

Environmental Science Entomology

Kits



652016 Soil Organism Biodiversity Kit

Soil Organism Biodiversity Kit

Grades 6–12. Help students develop a new appreciation for the richness of biodiversity. This hands-on kit provides them with the opportunity to do the same habitat-sampling research that ecologists do. The difficulty ecologists face in providing precise numbers of species and individuals within a species becomes apparent. Kit includes enough materials for 30 students working in groups of 3 to perform a soil sample biodiversity test. From the samples taken, students classify each specimen and then use the data to calculate biodiversity. Three indices can be used—species richness, Simpson's index, and the Shannon-Wiener index.

652016 Per kit **\$68.80**

Entomology



180815 Exploring Biodiversity 8-Station Kit

New! Exploring Biodiversity Kit

• Connected to Unit 2: Biodiversity, topic 2.1: Introduction to Biodiversity

In each of the investigations in this kit, students use a different method to observe and sample the invertebrate community of various habitats. Students analyze their data to draw conclusions regarding the biodiversity of those habitats. In the first investigation, students collect soil samples and use a Berlese funnel to isolate the invertebrates for counting individuals and categories. In the second investigation, students bait sample cards, observe and categorize the ants that come, and compare data from different habitats and different niches (i.e., different baits). The **8-Station Kit** provides materials for 8 groups of students; the **1-Station Kit** includes materials for 1 group. Visit **Carolina.com** for complete lists of kit materials.

 180815
 8-Station Kit
 Each
 \$224.80

 180816
 1-Station Kit
 Each
 \$49.80

 180815EBK
 Digital Resources
 Each
 \$12.95



654000 Basic Entomology Kit

653701 Science Action Club: Bug Safari Kit

Basic Entomology Kit

Contains all materials necessary to collect and properly preserve insects. Instructions are in book provided with kit.

Kit includes:

Rehydration Chamber Insect Pinning Forceps Butterfly Paper (50 sheets) Pacific Aerial Net Insect Killing Jar 4 oz Ethyl Acetate 1 pt Isopropyl Alcohol Adjustable Insect Mounting Board 300 Assorted Insect Pins Simon & Schuster's Guide to Insects

654000 Per kit \$188.99

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Science Action Club: Bug Safari Kit

Grades 5–8. A Science Action Club kit makes it easy and fun to lead hands-on STEM in afterschool and summer programs. Through games, projects, and exciting investigations, youth explore nature, contribute to authentic science research, and design creative strategies to protect the planet. Bug Safari explores small creatures with big environmental impacts. During this unit, youth use real tools and technology to learn the basics of bug science and what it means to be an entomologist. On local field expeditions, youth search for bugs, collect specimens, and post photographs to iNaturalist online social network, then identify arthropod species and document habitat conditions that influence our planet's health. Kit includes activity plans, supplies for 20+ students, and staff training. Visit Carolina.com for a complete list of kit materials and additional details.

653701 Per kit \$1,499.00

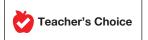
We have more Science Action Club kits!

Find the Bird Scouts Kit (item #653703) on page 662 and the Cloud Quest Kit (item #653705) on page 692.

Entomology Insect Traps

Environmental Science







654131 Pitfall Traps

Pitfall Trap

All plastic. For collecting and sampling soil arthropods. Consists of an outer cup, which is buried at ground level, removable inner cup for making repeated collections, and removable funnel.

654131 Pack of 10 \$15.65



654135 Insect Aspirator

Insect Aspirator

All plastic. For collecting small insects and other small arthropods, particularly flying insects.

654135 Each \$18.99

Insect Viewing



145590 Living Wonders View Chamber

674278 Magnifying Bug Jars

Magnifying Bug Jars

Acrylic magnifying bug jar with built-in $3\times$ magnifier. Size, $1^1/2^{"}$ cube. Pack of 6.

674278 Per pack \$25.34

Living Wonders® View Chamber

Enjoy an up-close encounter with your live organisms using our $5\times$ -magnifying view chamber. This durable clear acrylic chamber, with removable watertight end caps, permits both aquatic and terrestrial viewing. Remove the magnifier and use the chamber under a stereomicroscope for even closer observation. The compact size allows carrying your viewer wherever you go—in the field, in the lab, or at home. Chamber is $^{1/4}\times 2^{1/2}$ ". Magnifying piece is 1" in diameter and 2" tall.

145590 Each \$13.65

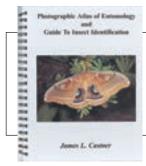
LaMotte[®] MacroLens[™]

This handy magnifier offers $4.5\times$ magnification and fits over a standard-size petri dish. Size is 4" in diameter. Great for field collection, or for observing organisms up close to identify macroinvertebrates.

184558 Each \$17.70



184558 LaMotte MacroLens



Photographic Atlas of Entomology and Guide To Insect Identification

Grade 12 and up. James L. Castner. 2000. 174 pages. More than 600 color photographs illustrate the structural characteristics and anatomical features of the major insect families and arthropod groups discussed in entomology courses. Explanations and illustrations of external anatomy and insect development are also provided. Dichotomous keys to the family level are included for the major orders, as well as a glossary of specialized terms. Spiral binding.

454489 Each \$69.50

Environmental Science

Entomology

Minutien Pins

Stainless steel. A very small, stiff pin ideal for use in humid conditions or with small marine specimens.

654366 0.15-mm Diam Pack of 500 **\$35.90** 2+ Packs Each **\$32.30 654370** 0.20-mm Diam Pack of 500 **\$36.26** 2+ Packs Each **\$32.65**

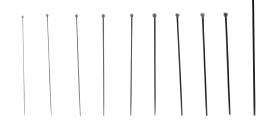


654366 Minutien Pins

Insect Pins

These quality insect pins, made of spring steel with nylon heads, are protected against rust by 2 coats of black enamel. Very sharp and stiff, they can pin most insects.

654300	Size 000	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654301	Size 00	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654302	Size 0	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654303	Size 1	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654304	Size 2	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654305	Size 3	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654306	Size 4	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654307	Size 5	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654308	Size 6	Pack of 100	\$16.35	10+ Packs Each	\$14.70
654309	Size 7	Pack of 100	\$16.35	10+ Packs Each	\$14.70

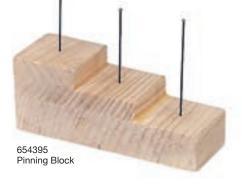


654300 to 654309 Insect Pins

Pinning Block

Has 3 steps. Size, $3^3/_4 \times 1^1/_4 \times 1^3/_4$ ".

654395 Each **\$7.15** 10+ Each **\$6.45**





Insect Pin Holder

Wooden block with 6 holes for pins and a formica top surface.

654390 Each \$11.30

654193 Insect Spreading Board

New! Insect Spreading Board

This spreading board features quality wooden construction. It has an adjustable-width groove, which accommodates insects with bodies up to 12 mm in width. The non-scarring synthetic sheet can be pinned repeatedly without leaving marks. Inside depth, 11/2".

654193 Each \$29.15



654191 Insect Mounting Board

Insect Mounting Board

Lightweight pinning board made of Styrofoam®. Central groove tapers from 5 to 11 mm to allow versatility in pinning different-sized insects. Size, $39 \times 17 \times 3$ cm.

654191 Pack of 10 **\$43.40** 5+ Packs Each **\$39.05**



654230 Adjustable Insect Mounting Board

Adjustable Insect Mounting Board

One board is adjustable along the support so desired width can be obtained for different-sized insects. The central groove is filled with balsa wood for easy pinning. Size, 14" L \times 57/8" W. Groove adjustable to $^5/8$ " maximum by means of a wing nut at each end.

654230 Each \$49.50 12+ Each \$44.55

Entomology



654538 Riker Specimen Mount

Riker Specimen Mounts

Especially made for mounting botanical and zoological specimens. The container is a cardboard box filled with absorbent polyester fiberfill. The top is glass neatly glued to both sides of the cardboard lid. Includes 4 pins for securing the lid. **Note:** *Dimensions are for assembled container (lid on box); box interior dimensions are in parentheses.*

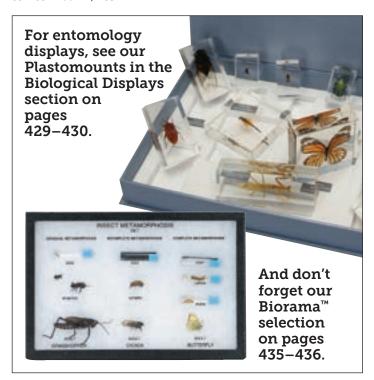
654536	$6^{1}/_{4} \times 8^{1}/_{4} \times {}^{7}/_{8}$ " H ($6^{1}/_{8} \times 8^{1}/_{8}$ ")	Each 12+ Each	\$11.70 \$10.55
654538	$8^{1/4} \times 12^{1/4} \times {}^{7/8}$ " H ($8^{1/8} \times 12^{1/8}$ ")	Each	\$15.50
654540	$12^{1/4} \times 16^{1/4} \times {}^{7/8}$ " H ($12^{1/8} \times 16^{1/8}$ ")	12+ Each Each 12+ Each	\$13.95 \$19.95 \$17.95



New! Featherweight Entomological Forceps

Made of extremely thin, flexible spring steel (stainless steel), which is ideal for handling fragile specimens or insect eggs. With broad tips. Length, 41/2".

654195 Each \$2.65



Environmental Science



New! Insect Display Case

A beautiful display for your collection

This insect display case with polished wood has 2 brass clasps for secure closure and a glass window for viewing. The bottom is lined with a thick pad for pinning insects. The double wall creates a perforated fumigation chamber. Exterior dimensions are $17^7/_{10} \times 12 \times 2^7/_{10}$ " with a $1^1/_2$ " chamber depth.

654531 Each \$135.00



New! Insect Pinning Forceps

Instrument has broad angled tips that can securely but gently grip a specimen during pinning. Stainless steel. Length, $4^{1}/2^{\circ}$.

654194 Each \$3.95



If you need charging solution, see Ethyl Acetate (item #861490) in the Chemicals section.

Environmental Science Birding



653703 Science Action Club: Bird Scouts Kit

Science Action Club: Bird Scouts Kit

Grades 5-8. A Science Action Club kit makes it easy and fun to lead hands-on STEM in afterschool and summer programs. Through games, projects, and exciting investigations, youth explore nature, contribute to authentic science research, and design creative strategies to protect the planet. Bird Scouts explores feathers, flight, and the features that make birds unique. Using tools and technology, youth identify local species and investigate environmental changes that impact bird behavior. The checklists that youth submit to eBird—a citizen science project from the Cornell Lab of Ornithology—help scientists track changes in bird distribution and abundance across the globe. Kit includes activity plans, supplies for 20+ students, and staff training. Visit Carolina.com for a complete list of kit materials and additional details.

653703 Per kit \$1,499.00

We have more Science Action Club kits!

Find the Bug Safari Kit (item #653701) on page 658 and the Cloud Quest Kit (item #653705) on page 692.



651936 Bird Nesting Box

Bird Nesting Box

White-cedar nesting box for wrens, chickadees, nuthatches, and other small birds. Easy-toassemble kit. Hinged side panel for easy cleaning. Size, $7 \times 6 \times 6$ ".

651936 Per kit \$18.66



651938 Bird Nesting Box

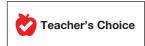
Bird Nesting Box

White-cedar nesting box for bluebirds, titmice, and small woodpeckers. Easy-to-assemble kit. Hinged front panel for easy cleaning. Size, $9 \times 7 \times 8$ ".

651938 Per kit \$20.19



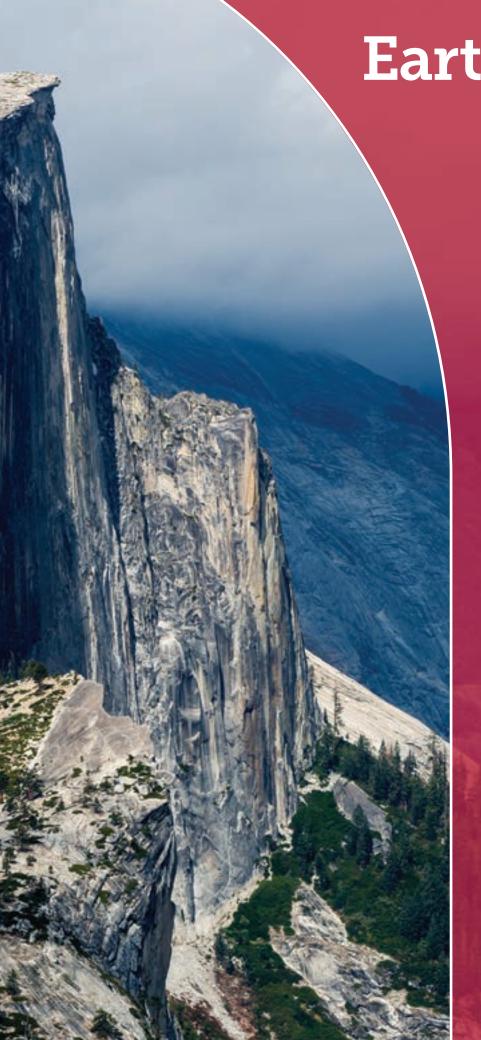
651796 Bird Feeder Kit



Bird Feeder Kit

This do-it-vourself kit is great for novice bird enthusiasts. It is fun for students and easy to assemble as they learn wildlife conservation practices, and the benefits of recycling. Students must use recycled plastic soda bottles to serve as the holder for the bird seed. Kit includes screw-on plastic base, funnel for easy filling, hanger for mounting, and instructions.

651796 Per kit **\$8.35**



Earth & Space Science

664 Carolina Kits 3D[®]

664 Space Systems

665 History of Earth

666 Earth's Systems

666 Weather & Climate

667 Human Sustainability

668 Earth Science

668 Rocks & Minerals

672 Individual Specimens 673 Testing Equipment

675 Rock Cycle

675 Fossils

678 Structure of Earth

678 Models & Globes

679 Plate Tectonics

680 Earthquakes

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684 Marine Science

685 Convection & Density

685 Weather

685 Barometers

686 Thermometers/ Psychrometers/

Hygrometers

688 Rain Gauges

689 Wind Monitoring

690 Meters

691 Weather Stations

692 Weather Kits

693 Teacher Resources

694 Space Science

694 Solar System Models

695 Teacher Resources

Earth & Space Science

Carolina Kits 3D®

Carolina Kits 3D[®] Earth and Space Science Bundles A

Grades 9-12. The earth and space science kits in these bundles were built from the ground up to engage students in scientific and engineering practices while they apply core ideas and crosscutting concepts—experiences that are key to thriving with the NGSS and phenomena-based learning. The kit investigations allow your students to explore a variety of topics from 5 broad content areas: Space Systems, History of Earth, Earth's Systems, Weather and Climate, and Human Sustainability. There are 3 different bundle options:

Sample Bundle:

- Features 4 earth and space science kits
- Includes one kit addressing one topic in each of 4 broad content areas

Basic Bundle:

- Includes 10 earth and space science kits
- Covers many of the major topics in earth and space science

Advanced Bundle:

- Includes 17 earth and space science kits
- · Covers the major topics in earth and space science

Bundle Refill replenishes kit consumable items. Supports NGSS* and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Visit Carolina.com for complete lists of kit materials. /!\ WARNING: CHOKING HAZARD-Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once. /!\ WARNING: CHOKING HAZARD—Toy contains a marble. Not for children under 3 yrs.

311905 \$380.00 Sample Bundle Each Sample Bundle Refill 311915 Each \$268.80 \$888.50 311904 Basic Bundle Each

311914 311903 Advanced Bundle 311913 Advanced Bundle Refill

\$388.80 Basic Bundle Refill Each Each \$1,585.20 \$698.80 Each

CAROLINA

Carolina Kits 3D° Earth

Science Advanced

Bundle

Carolina Kits 3D° Earth Science Sample Bundle



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Space Systems



Evidence of the Big Bang Kit A

Grades 9-12. Use evidence to support the formation of the universe through the Big Bang theory in the classroom. In this series of 5 investigations, students collect pieces of evidence that each provide part of the story. They explore the spectra of different elements and light sources, analyze star spectrographs, investigate the Doppler effect for sound and light, model the expansion of the universe, and digitally observe the remnants of the Big Bang. Kit accommodates 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331102 Per kit \$108.80



From 331104 Stellar Origin of the Elements Kit

Stellar Origin of the Elements Kit

Grades 9-12. Students model the process of nucleosynthesis in the classroom by playing, and then evaluating, a game. In this series of 2 investigations, they explain how elements are formed in stars. Then students play a game following the nucleosynthesis pathway, review an infographic, and analyze the game as a model. Kit accommodates 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D.

331104 Per kit \$63.80



Planetary Motion Kit A

Grades 9–12. Model Kepler's laws of planetary motion in the classroom. In this series of 6 investigations, students use mathematical and computational thinking to describe the motions of the planets. They investigate ellipses, calculate eccentricity, use data to determine the orbit of a planet, collect evidence about the speed of a planet during its orbit, and calculate centripetal force to further understand planetary motion. Kit contains enough materials for 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD. Toy contains a marble. Not for children under 3 yrs.

331106 Per kit \$117.80

History of Earth

History of Earth

Earth Science





Grades 9–12. Students use different types of evidence to support the idea of seafloor spreading and to explain the relative ages of oceanic and crustal rocks. In this series of 4 investigations, they explain how the age of crustal rocks provides evidence of seafloor spreading. Students also model core sampling, identify patterns in data on the age of the ocean floor, use magnetic data to model seafloor spreading, and explore the density of oceanic and continental crust. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331114 Per kit \$125.80



331118 Modeling Earth Processes: Destructive Forces Kit (in use)

Modeling Earth Processes: Destructive Forces Kit ▲¹

Use models to explore destructive Earth processes such as sinkholes, landslides, and glaciers in the classroom. In this series of 3 investigations, students discover mechanisms that cause changes in Earth's features. They observe different landscapes and think about the forces that may have caused them, model sinkholes and identify the conditions necessary for their formation, explore how glaciers affect the surface of Earth, and collect data on the formation of landslides. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331118 Per kit \$100.50



331116 Modeling Radiometric Dating Kit (in use)

Modeling Radiometric Dating Kit ▲

Model radiometric dating and explain how evidence from radiometric dating can help construct an account of Earth's history. In this series of 3 investigations, students explain how scientists know the ages of rocks and why the oldest rocks on Earth are not as old as Earth. They model half-life, explore how elements have different half-lives, and calculate the age of simulated samples. Kit accommodates 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331116 Per kit \$119.80



Modeling Earth Processes: Constructive Forces Kit ▲

Use models to explore constructive Earth processes such as convergent plate boundaries, volcanoes, and river deposition in the classroom. In this series of 3 investigations, students discover mechanisms that cause changes in Earth's features. They observe different landscapes and think about the forces that may have caused them, model the formation of mountains at convergent plate boundaries, explore how volcanos affect the surface of Earth, and collect data on the formation of river deltas. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331120 Per kit \$132.50

Earth Science Earth's Systems

Earth's Systems/Weather & Climate



Plate Tectonics and Island Formation Kit

Grades 9–12. Students construct an explanation of how matter cycles in Earth's interior and apply it to the movement of Earth's plates. In this series of 4 investigations, they use models to describe the formation of the Hawaiian Islands. Students digitally explore data to find patterns in seismic activity, determine how temperature impacts density, and model convection currents and the formation of a volcano. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331128 Per kit \$104.80



Coevolution of Earth's Systems Kit

Collect evidence on how feedback between the biosphere and other Earth systems causes a continuous co-evolution of Earth's surface in your classroom. In this series of 5 investigations, students construct an explanation describing why banded iron formations developed. They investigate precipitation reactions, the conditions necessary for rusting, the relationship between aquatic photosynthetic organisms and dissolved oxygen concentrations, and saturated solutions, and analyze patterns in the concentration of oxygen in the atmosphere over time. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331134 Per kit \$72.50



Transformative Properties of Water Kit ▲³

Investigate the properties of water and how they affect Earth's materials and processes. In this series of 3 investigations, students seek to understand how water can change rock. They determine how chemical weathering impacts different rock types by exposing rock samples to vinegar and observing changes in both mass and appearance. Then they model mechanical weathering through frost wedging, the movement of water over rocks, and measuring and observing changes in the rock materials. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD-Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

331130 Per kit **\$119.80**



From 331132 Modeling the Carbon Cycle Kit

Modeling the Carbon Cycle Kit A

Develop models showing the biological, geological, and anthropogenic impacts to the carbon cycle in the classroom. In this series of 4 activities, students explain the patterns in atmospheric carbon dioxide data over the past 800,000 years. They describe biogeochemical cycles; analyze atmospheric carbon dioxide data; explore biological, geological, and anthropogenic processes dealing with the carbon cycle; conduct an activity to explore a method of carbon sequestration; then play a game to model some of the anthropogenic impacts on the carbon cycle. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331132 Per kit \$82.50

Weather & Climate



Climate Variation Kit 113

Describe the major processes that lead to Earth's climate variation. In this series of 4 investigations, students explore the mechanisms that produce the patterns seen on a Köppen-Geiger climate map. They model how the tilt of Earth impacts light intensity, how different surfaces store and transmit solar energy, convection currents, and the Coriolis effect. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331158 Per kit \$72.80



From 331160 Analyzing Patterns in Climate Change Kit

Analyzing Patterns in Climate Change Kit

Analyze tree ring data to collect indirect evidence about how the climate of a region has changed over time. In this series of 3 investigations, students identify patterns and differences in tree rings, compare climate data with tree formation, analyze data from tree rings in an area, and construct an argument about what is happening with the climate in the region. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331160 Per kit \$94.80

Human Sustainability

Human Sustainability



From 331146 Hydroponics and Sustainability Kit

Hydroponics and Sustainability Kit

Explore hydroponics and explain its uses and limitations as a tool to help sustain human populations and manage natural resources. In this investigation, students design a solution for producing enough food for growing populations and the shift from rural to urban communities. They grow plants hydroponically in a modified ebb and flow system, analyze data from their hydroponic systems, and make recommendations about using hydroponics. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331146 Per kit \$89.80



Earth Systems and Climate Change Kit A

Explain how the ocean, the atmosphere, and the biosphere interact while investigating climate change in the classroom. In this series of 3 investigations, students describe why pteropods, marine organisms, have calcium carbonate shells that are degrading. They describe the effect of acid on calcium carbonate shells, model the interaction of atmospheric carbon dioxide and ocean water, analyze data, and look for patterns in atmospheric carbon dioxide concentration, oceanic carbon dioxide concentration, oceanic carbon dioxide concentration, and oceanic pH. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331150 Per kit \$94.80

Earth Science



From 331148 Analyzing Wind Power Potential Kit

Analyzing Wind Power Potential Kit

Build and refine a design for a wind turbine in the classroom and analyze constraints while evaluating sites for a proposed wind turbine. In this series of 3 investigations, students investigate a solution to reduce the environmental impacts of current energy production techniques, like burning fossil fuels. They build a model wind turbine, refine the design to improve function, analyze data about proposed sites and turbines, then use the evidence to prepare an argument about whether the specific wind turbine should be installed at the site. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.



331142 Earthquake Simulation Kit (in use)

Earthquake Simulation Kit A

Build a shake table in the classroom and explore how technological advances allow scientists to gather data on earthquakes to work to mitigate the damage. In this series of 3 investigations, students explain why some buildings are impacted in earthquakes, but others remain intact. They collect evidence on how buildings respond to different frequencies of shaking, build a model shake table and building, and build a dampener to improve the stability of their buildings. Kit accommodates 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331142 Per kit \$119.80

Earth Science Rocks & Minerals

Sets



Comprehensive Mineral Collection

Provide students a complete unit for the study of mineralogy with a collection of 11 different mineral sets, consisting of 126 individual specimens. The sets include Scale of Hardness, Fracture, Streak, Cleavage, Tenacity, Luster, How Minerals Are Colored, Unusual Physical Properties, Crystalline Aggregates, Natural Crystals, and Fluorescent Minerals. Each set includes an identification key and compartmented tray.

GE090 Per set \$358.80



Earth Science Collection

A basic, introductory unit of 75 rocks and minerals that demonstrates the major rock-forming minerals; minerals in the scale of hardness; physical properties as shown by streak, luster, cleavage, and fracture; and specific gravity. Specimens are about $1^{1}/_{4} \times {}^{3}/_{4}$ ". Includes an identification key, compartmented tray, streak plate, magnet, magnifier, and *Rocks and Minerals* study guide.

GE0110 Per set \$158.50



The Classification of Minerals Collection

This collection contains 50 examples of silicates, oxides, sulfates, phosphates, and other major mineral groups as classified in *Dana's Textbook of Mineralogy*. Specimens are about 1" in size. Includes identification key and compartmented tray.

GE02194 Per set \$127.80

Customer Review

"This collection is a good starter collection. It has many different types of rocks that students will be interested in. Also the rocks are of a good size, not tiny."

Earth/Environmental Science Teacher



Classroom Collection of Rocks and Minerals

A study unit of 50 rocks and minerals designed specifically for general classroom use. Can be used in industry as well as specific studies in the following groups: rockforming minerals; igneous, metamorphic, and sedimentary rocks; ores of common metals; gemstones; and minerals in the scale of hardness. Specimens are 1 \times 1" and are number coded and keyed to a list on the inside cover of the compartmented container. With <code>Rocks</code> and <code>Minerals</code> study guide.

GE0190 Per set \$73.00

Customer Review

"Excellent collection for any classroom or for personal use. My 3 children have loved examining the different rocks and comparing their textures and colors. Great learning tool for pupils of all ages. Would highly recommend!"

Educator

Rocks & Minerals

Earth Science



Introduction to Rocks Study Kit

A great kit for studying the basic rock types. Includes 5 each of igneous, sedimentary, and metamorphic rocks; an activity guide; and a magnifying glass.

GE0111 Per kit **\$27.00**



Introduction to Minerals Study Kit

Students learn to identify 15 common minerals by observing and testing their physical properties. Activity guide, magnifying glass, streak plate, and nail are included.

GE02878 Per kit \$36.80



Economy Introductory Rock Set

A great starter set for anyone looking to explore and learn more about geology. Contains 12 different rocks and minerals; visit Carolina.com for complete list. Specimens are not labeled but set comes with identification card. Each sample was selected and hand processed by an actual geologist, ensuring it exhibits defining features. Students can test features such as luster, hardness, streak color, and more. While the specimens vary in shape and size, all measure approximately 1". Includes storage box.

GE0103 Per set \$16.00



Mineral Exploration Kit

Introduce students to the basic techniques of mineral identification. Students will learn to identify 12 common minerals by observing and testing their physical properties. Each kit contains a 1-lb bag of mineral chips in gravel, forceps, streak plate, magnet, and a magnifier. Three rock samples demonstrate how rocks are composed of small mineral chips. Teacher's guide and storage box are included.

GE02199 Per kit \$46.60





Introductory Rock Collection

An excellent beginner set of fifteen 1 to $1^{1}/2^{11}$ specimens from the igneous, metamorphic, and sedimentary groups. Includes identification key and compartmented tray.

GE0108 Per set **\$40.80**

Earth Science

Rocks & Minerals



New! Carolina® Sedimentary Rock Set

The 12 rocks in this set are sedimentary rocks. They are derived from preexisting rocks through the processes of erosion, followed by compaction and chemical precipitation. Each specimen is selected and hand processed by an actual geologist, ensuring the sample exhibits defining features. Specimens are about 1" each and come with a full-color key for identification. Specimens are not numbered and may vary based on availability.

GE0657 Per set \$18.80

New! Carolina® Metamorphic Rock Set

The 12 rocks in this set are metamorphic rocks. Generally, they are reformed or recrystallized in the solid state by pressure and heat, and they may be influenced by chemically active solutions. Igneous, sedimentary, and other metamorphic rocks become new metamorphic rocks—those derived from preexisting rocks through the processes of erosion, followed by compaction and chemical precipitation. Each specimen is selected and hand processed by an actual geologist, ensuring the sample exhibits defining features. Specimens are about 1" each and come with a full-color key for identification. Specimens are not numbered and may vary based on availability.

GE0658 Per set \$18.80

New! Carolina® Igneous Rock Set

The 12 rocks in this set are igneous rocks. They are representative of the intrusive and extrusive igneous rocks and those related to volcanic activities. Each specimen is selected and hand processed by an actual geologist, ensuring the sample exhibits defining features. Specimens are about 1" each and come with a full-color key for identification. Specimens are not numbered and may vary based on availability.

GE0659 Per set \$18.80

Basic Geology Collection

Contains forty-five 1 to $1^{1}/2^{11}$ rocks from the igneous, metamorphic, and sedimentary groups. Includes identification key and compartmented tray.

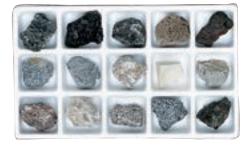
Igneous Rock Collection (item #GE0630) Sedimentary Rock Collection (item #GE0652) Metamorphic Rock Collection (item #GE0670)

GE0115 Per set \$96.00









Igneous Rock Collection

Contains fifteen 1 to 11/2" rocks representative of the intrusive and extrusive igneous rocks and those related to volcanic activities. Includes identification key and compartmented tray.

GE0630 Per set \$35.80



Sedimentary Rock Collection

Contains fifteen 1 to 11/2" rocks derived from preexisting rocks through the processes of erosion, followed by compaction and chemical precipitation. Includes identification key and compartmented tray.

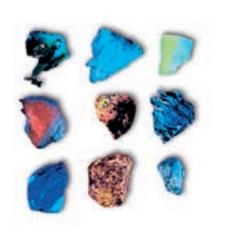
GE0652 Per set \$35.80



Metamorphic Rock Collection

Contains fifteen 1 to $1^{1}/2^{\shortparallel}$ rocks generally reformed or recrystallized in the solid state by pressure and heat, and may be influenced by chemically active solutions. Includes identification key and compartmented tray.

GE0670 Per set \$35.80



GEO2315 Fluorescent Minerals Long-Wave Collection



Study the response of minerals to long- and short-wave ultraviolet rays. Each set contains nine 1 to $1^1/2^{\rm u}$ specimens, identification key, and compartmented tray.

GEO2315 Long-Wave Collection Each **\$60.00 GEO2317** Short-Wave Collection Each **\$66.50**



Student Collection

Designed to accompany the Washington School Collection (item #GE0155), these unlabeled chips allow individual student study and comparison. Packaged in a plastic bag.

GE0157 Per set \$12.50



Washington School Collection

A classroom standard for many years, this 40-specimen collection features study categories that include: rockforming minerals; ore-forming minerals; industrial minerals; and sedimentary, igneous, and metamorphic rocks. Specimens are about 2 \times 1½". Includes identification key, compartmented tray, and *Rocks and Minerals* study guide.

GE0155 Per set \$111.80



Luster Collection

Fifteen 11/2" specimens illustrate the kind and degree of luster for metallic and nonmetallic groups. Includes identification key and compartmented tray.

GE02880 Per set \$58.80



GEO2885 Hardness Scale Collection

Hardness Scale Collections

Provide a visual representation of the hardness scale with this collection of 1" specimens. Available with a diamond (hardness #1 through #10) and without (hardness #1 through #9). Includes identification key and compartmented tray.

GE02885 Collection

Each **\$24.80**

GE02885A Collection with Diamond

Each **\$44.00**



Streak Collection

Contains 8 of the most highly colored 1" mineral specimens. Includes a streak plate, identification key, and compartmented tray.

GE02902A Per set \$33.50

Earth Science

Individual Specimens

Mineral Specimens

Mineral Specimens

Specimens in packs of 10 range in size from 1 \times 1" to 1 \times 2".

Item No.	Name	Quantity	Each
GE03427B	Biotite, Mica	Pack of 10	\$19.50
GE03428B	Calcite, Cleavages	Pack of 10	\$27.00
GE03448B	Fluorite, Cleavable	Pack of 10	\$20.50
GE03452B	Graphite, Pure	Pack of 10	\$29.50
GE03476B	Magnetite, Lodestone	Pack of 10	\$22.50
GE03482B	Muscovite, Mica, Cleavable	Pack of 10	\$28.50
GE03486B	Pyrite, Pure	Pack of 10	\$26.50
GE03497B	Quartz, Crystal Rock	Pack of 10	\$11.50
GE03498B	Quartz, Rose	Pack of 10	\$11.50

Rock Specimens

Igneous Rocks

Specimens in packs of 10 range in size from 1 \times 1" to 1 \times 2".

Item No.	Name	Quantity	Each
GE01012B	Basalt	Pack of 10	\$11.50
GE01080B	Granite, Gray	Pack of 10	\$11.50
GE01130B	Pumice, Gray	Pack of 10	\$12.00



Mineral Specimens



Igneous Rocks

Sedimentary Rocks

Specimens in packs of 10 range in size from 1 \times 1" to 1 \times 2".

Item No.	Name	Quantity	Each
GE01188B	Coal, Bituminous	Pack of 10	\$11.00
GE01194B	Conglomerate	Pack of 10	\$11.00
GE01198B	Limestone, Fossil	Pack of 10	\$16.00
GE02010B	Sandstone, Gray	Pack of 10	\$11.50
GE02020B	Shale, Gray	Pack of 10	\$11.50



Sedimentary Rocks

Metamorphic Rocks

Specimens in packs of 10 range in size from 1 \times 1" to 1 \times 2".

Item No.	Name	Quantity	Each
GE02046B	Gneiss	Pack of 10	\$11.50
GE02054B	Marble, White	Pack of 10	\$13.50
GE02084B	Slate	Pack of 10	\$10.50



Metamorphic Rocks

Rocks & Minerals **Testing Equipment**

Earth Science



Glass Plate

For scratch testing hard and soft minerals. Package of 10 plates. Size, $1 \times 2 \times 1/4$ " thick.

GE09475 Per pkg \$24.80



GEO9470 White Streak Plates

Streak Plates

Unglazed porcelain tiles for streak (color) testing of minerals. Available in white or black, so that the minerals, which streak very light colors, can be easily identified. Package of 10 plates. Size, 1×2 ".

GE09470 White Plates Each \$6.20 GE09470A Black Plates Each \$6.20



Rock/Mineral Test Kit

A useful kit for both rock and mineral identification. Consists of 2 streak plates, glass plate, hand lens, dropper bottle, magnet, nail, penny, and a hardness scale. All are packaged in a resealable plastic bag.

GE09478 Per kit \$16.00



Safety Goggles A

Estwing. Protect your eyes from debris and specimen fragments. The clear lenses are made of polycarbonate and are impact resistant, but not unbreakable. Fits over normal-size glasses. With adjustable headband. Meets The GLOBE® Program specifications. Note: Not intended for chemical-splash protection.

GE09205 Each \$9.75



Rock Pick

Estwing. Useful for digging in loose rock and soil. Forged, 1-piece, solid steel construction with pointed tip. Nylon-vinyl cushion grip is molded to shank and will not loosen or come off. Wt, 22 oz.

GE09260 Each \$65.00

Carolina® GeoBox

This waterproof tote with nylon neck lanyard contains everything the budding geologist needs for rock and mineral identification. Comes with a waterproof Rite in the Rain® All-Weather Student Notebook for writing down field observations and a booklet that explains how to use mineral properties in rock and mineral identification.

Kit includes:

Hand Lens Glass Plate

Dropper Bottle Magnet Laminated Hardness Scale 2 Streak Plates Nail

Rite in the Rain® All-Weather Student Notebook

GE0900 Per kit \$27.50

Customer Review

"I bought this kit for both my 10-year-old son and 7-year-old daughter, and they both enjoyed testing out the rocks they found with the supplied equipment. You have to purchase a separate field guide to identify the rocks."

University Biology Professor

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Earth Science

Rocks & Minerals





Explore With Me Geology®: Rocks & Minerals

Though smaller in size than traditional specimens, the 24 rocks and minerals in this set offer a tactile and visual learning experience. Includes 6 each of metamorphic, sedimentary, igneous, and minerals as well as an identification chart and plastic storage container. Specimens measure $\frac{3}{4}$ to 1". Pair the set with a dual plastic magnifier equipped with a $3\times$ lens and a $6\times$ lens (item #602276).

GE02870 Per set \$14.00



Chemical and Mechanical Erosion of Rocks Kit

The rock cycle has been the subject of study for many years. A key component to the rock cycle is the mechanical and chemical erosion of rocks. With this kit students learn about the rock cycle and the significance of certain types of erosion. The kit also gives students an opportunity to investigate acid rain and other environmental factors that can be influenced by human actions. Also included is a demonstration to help students visualize the freezing and thawing action of water on rocks. With multiple activities, this kit is sure to keep students engaged throughout the entire experiment. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

GE08691 Per kit \$94.80



GEO4972 Gemstone Mining Kit

Gemstone Mining Kit

Sift, search, and sort rich mine ore from western North Carolina: Discover a variety of colorful minerals and raw gemstones such as emerald, amethyst, quartz, topaz, and citrine. Turn these findings into a lesson on crystal structure, mineral properties (hardness, streak, luster, color, density), and mineral classes. **Kit** includes bucket of gemstones, rocks, and minerals; sorting containers; laminated mineral key cards; hand lenses; and teacher instructions. Supports 4 student pairs. Kit is reusable with the **Gemstone Bucket** (wt, 5 lb).

GE04972 Kit Each **\$80.80 GE04970** Gemstone Bucket Each **\$38.80**



Mohs Hardness Test Kit ▲

The Mohs hardness scale was invented by Friedrich Mohs in 1812. Since then, the Mohs hardness scale has assisted geologists in determining the identity of minerals. With this kit students become familiar with the Mohs hardness scale and develop skills that will help them throughout their studies in earth science. The kit also gives students an opportunity to go out into their local environment and investigate the relative hardness of the minerals around them. Kit includes samples of materials with various levels of hardness and a teacher's manual.

GE08690 Per kit \$168.00



Crystals, Rocks, and Minerals Kit

Learn about rocks and the minerals that form them. Dig deeper—and discover the fascinating crystal structures of these minerals. Much more than just a crystal-growing kit, this experiment kit teaches the chemistry of crystals and the geological science behind rock formation, with more than 18 hands-on projects and investigations.

Grow 3 chemically different types of crystals exhibiting not only different colors, but also different crystal shapes. Build 3-dimensional geometric models of common crystals' shapes including octahedrons, tetrahedrons, and rhomboids. Mold your own crystal geode—a hollow rock with crystals growing inside!

Learn how to test and identify minerals with your very own collection of real specimens included in the kit. Conduct tests to determine a mineral's chemical and physical properties, such as color; luster; streak color; hardness; density; magnetic properties; and carbon, sulfur, or iron content.

Investigate the geologic rock cycle and learn how the 3 main categories of rock—igneous, sedimentary, and metamorphic—are formed, altered, destroyed, and formed again. Includes full-color 32-page experiment manual. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

GE0500 Per kit \$74.00

Rocks & Minerals/Fossils Rock Cycle



Investigating the Rock Cycle Classroom Project Kit

A graphic representation of how the major families of rocks form the dynamic process called the rock cycle. Includes *Investigating the Rock Cycle* chart (24×18 ") with wooden frame and mounted specimens, 30 student charts, 30 specimens of each rock and mineral represented on the chart, 1 test kit (includes streak plate, glass plate, hand lens, magnet, dropper bottle, nail, penny, and hardness scale), and *Rocks and Minerals* study guide.

GE0403 Per kit \$262.80

Nyma Martinis Rock Cycle Hands-on Science

Rock Cycle Kit

A unit of study designed to give students a hands-on approach to learning about the rock cycle. In this kit, students learn about the 3 major types of rock (igneous, sedimentary, and metamorphic) and about where and how these types of rock are formed. Students also learn about the various characteristics of each of the rock types and how to classify the rocks based on them. Includes activity book with 16 lessons; a small loupe magnifier; 12 specimens including igneous, sedimentary, and metamorphic rocks; and a compartmented, plastic storage case.

GE079 Per kit \$91.00

Earth Science



From 612713 Origami Organelles 3-D Paper Model Kit: Rock Cycle

Origami Organelles[™] 3-D Paper Model Kit: Rock Cycle

Your students will make model rocks using the colorful templates provided, which feature real rock images. Then they use them to look at how rocks are formed and the connections between different types of rock. This dynamic model-making kit provides comprehensive coverage of igneous rocks, sedimentary rocks, and metamorphic rocks. Kit includes enough materials for students to assemble up to 5 paper models working cooperatively.

612713 Per kit \$44.95

Fossils



Fossil Kit

An exciting way to introduce your students to the wonderful world of fossil collecting and study. The fossils are replicas cast in Hydro-Stone® and are very detailed. The set includes an ammonite; a cave bear tooth; a crinoid; a trilobite; an *Allosaurus* claw; a sabertoothed tiger tooth fragment; the Golden Guide® book, *Fossils*; and lesson plan.

GE05342 Per kit \$94.50



Giant Trilobite

Plastic. Phacops rana africana. The original was found in Morocco, Africa, and is from the Devonian Period. The overall detail of this specimen is very fine, and the detail of the compound eyes is quite remarkable. The trilobite rests on a slab $7^{1/2} \times 6^{\circ}$ and is about 6° long.

GE06991 Each \$53.30



Fossil Shark Teeth Grab Bag

Consists of damaged shark teeth (count, 60 to 70 teeth). Interesting study specimens.

GE05886 Per bag \$34.50

Earth Science

Fossils

Sets



Fossil Hunt Kit

Grades 6–12. Like the paleontology pros, students hunt for and identify buried fossils. Kit contains 1 lb of gravel mixture with 12 real fossils (2 each of 6 different types) and corresponding large identified specimens, magnifier, forceps, storage box, and teacher's guide.

GE05242 Per kit \$44.80



Advanced Fossil Collection

Contains 30 fossils representing animal phyla and plants from the Cambrian to the Cretaceous Periods. Includes identification key and compartmented tray.

GE05265A Per set \$75.50



Paleozoic Collection

Fifteen specimens represent the animal and plant evidence found in the rock strata from the Cambrian to the Permian Periods. Includes identification key and compartmented tray.

GE05320 Per set \$55.90



Types of Fossilization Collection

This 15-fossil collection illustrates the major types of fossilization: petrification (substitution of a mineral, often silica), pyritization (substitution of iron sulfide), molds and casts (impressions filled with minerals), and distillation or carbonization (a carbon film or layer represents the remains of the original organism). Includes identification key and compartmented tray.



Cenozoic Collection

Fifteen specimens that begin with the Paleocene and go to the Recent. Includes identification key and compartmented tray.

GE05324 Per set \$56.80



Mesozoic Collection

Fifteen specimens represent the varied life-forms that dominated 3 major periods: Triassic, Jurassic, and Cretaceous. This era is best known for the dinosaur, but also saw the development of other forms now extinct or greatly changed. Includes identification key and compartmented tray.

GE05322 Per set \$61.80

Fossils Kits



New! Mystery of the Far-Flung Fossils: Investigating Plate Tectonics Kit

This kit allows students to learn about plate tectonics as they explore real evidence! They take simulated trips to collect geological and biological evidence from 5 continents. Then they analyze data from 3 time periods, the patterns of glacial grooves, and convergently evolved anteaters. Using the collected data, students reconstruct the continents that formed Gondwanaland: Africa, India, South America, Australia, and Antarctica. Kit includes 8 posters of the 5 continents, maps that are color coded to the 4 time periods (300 MYA, 200 MYA, 100 MYA, and the present), and a teacher's guide with reproducible student study guide. Visit Carolina.com for a complete list of kit materials.

GE08410 Per kit \$59.00



GEO5230 Real Fossil Identification Lab Kit

Real Fossil Identification Lab Kit

Uncover and identify authentic animal and plant fossils that are up to 500 million years old. An exciting hands-on activity for the entire classroom. Consists of 15 clay fossil-bearing mounds, 15 sets of excavation tools, fossil card deck (50 cards with detailed drawings of fossils printed on both sides), the *Teacher's Guide to Fossils* (for preparing fossils, answering questions, etc.), and *Fossils*, a student reference book showing major life-forms with geologic periods. **Refill** includes 16 fossil-bearing mounds.

GE05230 Kit Each **\$264.50 975079** Refill Each **\$153.94**



Exciting, thought-provoking, and fun-filled student activities for studying the earth and the life-forms of the past. The kit consists of molds for an ammonite, a crinoid, a trilobite, a cave bear tooth, a shark tooth, and a dinosaur claw. It also includes Gypsum Cement (PerfectCast™) for making the replicas, lesson plans, and complete instructions on how to cast the fossil replicas.

GE05212 Per kit \$94.80

Earth Science



Investigating Life on Earth Set

This set of a framed poster and 21 replica fossils can help your students understand the changes in life on Earth over vast geologic times. The 25×19 " poster allows students to correlate plastic replica fossils to the appropriate geologic time periods and rock layers. Poster illustrations and fossils include both marine and terrestrial life-forms, from the Precambrian through the present. Comes with teacher's guide containing classroom activities.

GE08405 Per set \$186.80



Fossil Kit

Fascinate your students with the study of fossils. Kit includes 21 plastic reproduction fossils that students measure, identify, and classify according to geologic era of origin. Includes a fossil guide.

GE08406 Per kit **\$27.90**



Cast and Paint™ PerfectCast™ Casting Medium

The professional's choice of casting medium for molds and other art projects. Cast and Paint™ PerfectCast™ is 5 times stronger than regular plaster. It is AP nontoxic and reproduces intricate details identical to the original mold. Mix with water. 4 lb.

GE05203 Each \$11.50

Structure of Earth

Earth Science Structure of Earth

Models & Globes



Cross-Sectional Earth Model

Bring the deep layers of our world to light with this unique foam model. The outside surface illustrates both continents and oceans with raised features. Once separated, students discover facts about Earth's core. Each brightly colored hemisphere shows its layers, temperatures, and depths. Includes activity and fact guide. Size, 5" diam.

612750 Each \$21.80



Inflatable 34" Earth's Interior Globe

Help young students visualize the abstract idea of what makes up Earth's interior with this transparent, 34" inflatable globe. The larger continents are displayed with topography. Erasable markers (not included) may be used on the vinyl globe. Hang globe from the ceiling or pass around the classroom for easy viewing.

GE09198 Each \$62.50

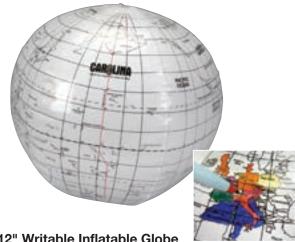
Find more globe options at Carolina.com.



Atlantis Globe

Replogle. Twelve-inch-diameter globe in raised and indented relief. Land areas feature true-to-life colors to illustrate mountains, deserts, forests, and grasslands. Oceans show underwater physical features in rich coloring.

579938A Each \$103.50



Carolina® 12" Writable Inflatable Globe

Provide a fun, hands-on world geography lesson and quickly assess skills-at an affordable price. Our 12"-diameter white, writable, inflatable globe has outlined countries, tropics, continents, oceans, other major bodies of salt water, and an easyto-find red International Date Line. Simply write, wipe, and rewrite on its smooth surface (using wet erase markers, not included) to help your students learn geography topics.

GE09100 Each \$9.25

Plate Tectonics

Plate Tectonics

Kits



GEO456 Pangaea Puzzle 1-Station Kit

Pangaea Puzzle Kit

Grades 9–12. This exciting inquiry-based kit explores how Alfred Wegener used evidence including fossilized flora and fauna, glacial scarring, mountain range locations, continent shape, and climatic changes to formulate the theory of continental drift. Using this kit, students or teachers position a set of continent-shaped magnets in their present-day locations on a magnet-receptive map board. Then, using the same evidence that was available during Wegener's time, students think critically to rearrange the continents. The 8-Station Kit is for a class of 32. The 1-Station Kit can be used as an additional station for large classes, as a teacher demonstration, or as a small-group or home-schooling activity. Kit materials are reusable.

GE0456 1-Station Kit Each **\$49.00 GE0457** 8-Station Kit Each **\$218.80**



GEO480 Pangaea Cutter and Placemat Set

Pangaea Cutter and Placemat Set

Discuss plate tectonics theory in the time it takes to use a cookie cutter—not millions of years—with this set, which includes 1 cutter and 1 placemat. Students easily press the cutter into flattened modeling clay, remove the non-Pangaea segments, then layer with scientific evidence such as mountain ranges or glacial deposits. Combine with the placemat, which doubles as a work space, to explore how the world has changed from the Jurassic Period to the present day, and to learn about Alfred Wegener, Henry Hess, and boundary types. Extend the lesson to study sea floor changes, volcanoes, rock formations, and earth-quakes. Includes instructions featuring QR code links to extra resources; modeling clay and QR code reader needed but not included.

GE0480 Set Each **\$41.40 GE0482** Placemat Each **\$3.80**



Earth Science

Fault Models

Bring faults to life in your classroom with 6 sets of 3-dimensional manipulatives. Each set consists of 5 foam pieces that allow you to model the 3 different types of faults: normal, reverse (thrust), and strike-slip. Includes access code to download interactive teacher and student guides, videos, geoinformation data sets, and other resource information.

GE08444 Set of 6 \$143.50



Carolina® Modeling Tectonic Plate Boundaries Kit 🕰

Grades 5–12. How do we know continental plates move? Why do we think Earth is a changing, dynamic planet? Through hands-on investigations, this kit can help your students explore and understand the answers to these questions while developing a concrete knowledge of planetary processes that contribute to plate tectonics. Students investigate fluid convection, the effects of continental movement, and different types of plate boundaries. They also identify continental plate boundaries by plotting current seismic activity. Kit materials equip a class of students working in 6 groups; visit Carolina.com for a complete list.

959115 Per kit \$158.80



Carolina® Tectonic Sandbox Kit Watch geologic time unfold in your classroom!

Grades 9–12. The Tectonic Sandbox vividly demonstrates convergent, divergent, and transform boundaries in an easy-to-use, self-contained, hands-on model. Students predict landform creations along tectonic boundaries as the crustal plates push, pull, and slide past each other in minutes instead of millions of years. The intricacies of deformation are enhanced with the use of colored sand (included). Ample materials are provided to perform the demonstration several times.

GE0779 Per kit \$189.80



Origami Organelles[™] 3-D Paper Model Kit: Plate Tectonics

Your students will model tectonic plates using the colorful parts provided, then use them to look at their structure and how the plates interact at their margins. In the process, they will gain an understanding for how these interactions form mountains, deep ocean trenches, islands, volcanoes, and cause earthquakes. The models can also be used to look at other interactions, including oceanic plates meeting oceanic plates, oceanic plates meeting continental plates, continental plates meeting continental plates, conservative plate margins, and mid-ocean ridges. Kit includes enough materials for students to assemble up to 5 paper models working cooperatively.

612711 Per kit \$44.95

Earth Science Plate Tectonics



From 612710 Origami Organelles 3-D Paper Model Kit: Earthquakes

Origami Organelles™ 3-D Paper Model Kit: Earthquakes

Earthquakes release huge amounts of energy and cause tremendous amounts of destruction in many parts of the world. Your students will use this dynamic model-making kit to learn about earthquakes, their causes, and their effects. First, they make a subsurface model and a model of a city using the colorful parts. Then they use the subsurface model to look at the features of an earthquake: epicenter, focus (hypocenter), and the P and S seismic waves. Finally, students employ the model of a city to look at the destructive effects of the surface L and R waves. Kit includes enough materials for students to assemble up to 5 paper models working cooperatively.

612710 Per kit \$44.95



Model Seismograph

This model creates a visual representation of the shock waves generated by an earthquake, which can be used to teach both mathematical and geological concepts. By making simple movements next to the model (such as jumping) and manually pulling the paper strip, the device can record the magnitude of the movements and demonstrate how a real seismograph records an earthquake's seismic waves. Includes a roll of paper; a marking device is needed but not supplied.

GE0467 Each \$67.80



School Seismometer

Provides real-time detection of magnitude 3.5 earthquakes up to 150 km away and magnitude 6.5 quakes anywhere in the world!

Built on the proven IRIS (Incorporated Research Institutions for Seismology) pattern, this vertical seismometer can be placed at any stable, relatively undisturbed location in your school. It will continuously deliver seismic signals to a computer for storage, analysis, and display. It detects the P and S waves generated by an earthquake and slower Rayleigh-type surface waves, as well. Windows® software (supplied on CD-ROM) displays a full day's recording on a single screen and automatically saves and organizes the data for later analysis. Damping oil (equal parts STP® Oil Treatment and 10W-40 synthetic motor oil) is needed for proper operation but not included. See additional specifications at Carolina.com.

GE0470 Each \$898.80

Volcanoes



From 612712 Origami Organelles 3-D Paper Model Kit: Volcano

Erupting Cross-Sectional Volcano Model A

Get your students fired up about science!

Create your very own erupting volcano with this unique. no-assembly-required model. Detailed cross section shows the features of the interior of a volcano. One half of the volcano provides named structures, while the other half has only letters, allowing students to quiz themselves. Includes a fact-filled activity guide with all the information students want to know about volcanoes; an easy-to-prepare lava recipe; a 13"-diam, clear plastic tray; and a removable tube that allows for quick cleanup. Model size, 11" H. Visit Carolina.com for a complete list of materials.

612751 Each \$61.80

Origami Organelles™ 3-D Paper Model Kit: Volcano

Your students will enjoy learning about volcanoes using this hands-on model-making kit. They start by constructing a model using the colorful parts provided. Then they use the model to learn about the structure of a volcano and the different types of eruptions. The unique model shows the volcano structure from both the outside and inside in cross section. Students can model the cone, vent, crater, magma chamber, magma, lava, volcanic bombs, ash cloud, pyroclastic flow, and lahars. Kit also covers Hawaiian, Vulcanian, Vesuvian, and Plinian eruptions. Includes enough materials for students to assemble up to 5 paper models working cooperatively.

612712 Per kit \$44.95



Volcanic Eruptions Kit

Grades 3-8. This kit helps students explore the structure of volcanoes through hands-on model construction and experimentation complete with safe, simulated lava eruptions. Students learn about the different types of volcanoes, parts of a volcano, how volcanoes function, and precious gems that volcanoes may produce. They also investigate underwater volcanoes with the included demonstration. The kit is an exciting way to teach your students about the forces at work inside volcanoes. Building materials are appropriate for elementary and middle school classrooms; baking soda and vinegar required but not included. Kit includes enough materials for 24 students working in 6 groups of 4. Meets national standards for grades K-8.

GE0608 Per kit \$158.80

Landforms/Soil Studies

Landforms



Discovering Topographic Maps Kit

Grades K-12. Convert transparent plastic, stackable deli trays into a 3-D topographic map. Transfer contour lines from a student-created 2-D template to the trays, then stack, and be amazed. Introduce topography (contour lines, elevation, map drawing) and develop students' spatial visualization skills. Materials support 8 groups. Needed but not included: water and general office supplies.

GE08378 Per kit \$96.00

Soil Studies



Porosity and Permeability Kit A

While sources of fresh water are usually associated with visible bodies of water such as lakes, rivers, ponds, and streams, the majority of fresh water on Earth is actually underground, collectively referred to as groundwater. Porosity and permeability are 2 factors that affect the amount of groundwater, its ability to move beneath the surface, and how certain environmental issues, such as water pollution, impact different areas. In this activity, students examine 3 different substrates and determine the porosity of each. After finding the volume of water each substrate can hold, students then compare the permeability of the different substrates and determine how each may affect the ability of water to move beneath the surface. Kit contains enough materials for 15 groups.

GE08694 Per kit \$83.80

Earth Science



From GEO778 Carolina Soil Porosity and Permeability Kit

Carolina® Soil Porosity and Permeability Kit

Grades 6–12. Perform side-by-side, quantitative comparisons of water movement through soils. Four different soil samples show the relationships between particle size, shape, and uniformity with porosity and permeability. The expansive teacher's manual includes background information on aquifers and groundwater flow, as well as activities that cover porosity, permeability, specific yield, capillary action, and settling rates. Procedures for the testing of native soils are also included. Column size, 16" L \times 1½" diam; apparatus size, 21" H \times 6½" W \times 7" D.

GE0778 Per kit \$193.80



665404 Rapitest Soil Test Kit

Rapitest® Soil Test Kit

Soil testing in 3 easy steps. Just mix soil with water, pour liquid into comparator, and add contents of capsule to instantly compare color for test reading. **Test Kit** contains materials for 40 tests: 10 tests each for pH, nitrogen, phosphorus, and potash. Instructions included. **Replacement Set** contains 40 capsules to complete 10 tests each for pH, nitrogen, phosphorus, and potash.

 665404
 Test Kit
 Each
 \$30.50

 665404A
 Replacement Set
 Each
 \$21.50



Soil Analysis Kit

Soil composition has been a keystone experiment in earth science classrooms for many years. Our soil analysis kit teaches students the skills needed to properly conduct soil composition tests as well as allows them to collect and evaluate local soil samples. By bringing in local soil samples, students can develop a stronger connection to their local environment while still building a knowledge base applicable to any other environment.

GE08692 Per kit \$264.80



Carolina® Physical and Chemical Properties of Soil Kit ▲¹

Learn how the different properties of soil relate to plant growth and agricultural economics through these hands-on explorations. Students conduct a variety of experiments to reveal the nature of unknown soil samples. Their tests examine composition of soil, waterholding capacity, permeability, pH and macronutrient ion content, and ion-exchange capacity. All activities are conducted in a lab setting as students test provided and unknown samples they've collected. Includes enough materials for 30 students. Visit Carolina.com for a complete list of kit materials.

182000 Per kit \$187.90

For kits that measure additional soil parameters, see pages 633–637.

Earth Science Stream Studies



GEO9888 Stream Table Kit with GEO9891 Sand

Stream Table Kit

This portable unit is outstanding for demonstrating stream erosion and deposition of soils either in the classroom or outside. Kit includes a plastic tray, drain trough, tray support, siphon tube, and a detailed teacher's guide. Order sand separately.

GE09888 Kit Each \$118.50 ▲ GE09891 Sand (50 lb) Each \$77.00

For kits and meters that measure the quality of natural waters, see pages 609–625.

Stream Studies/Field Equipment



Grades K–12. This kit provides quick access to a freshwater ecosystem—right in your classroom. Use it as a means for students to practice water quality sampling, testing, and macroinvertebrate observation and identification before beginning fieldwork; or to simply engage students' curiosity about living things and moving water. It includes a 35-gal, freestanding water garden; a 5-gal, 3-section cascade; and a 350-gal/hr pump with tubing. These components can be assembled in minutes to create a freshwater stream and pond ecosystem in your classroom. Kit also includes an instruction manual, complete with assembly instructions; recommendations for substrates, plants, and animals; and suggested activities. Shipped motor freight.

181150 Per kit \$469.00

Customer Review

"The Carolina Stream Kit is a fantastic addition to my classroom. We set up the kit indoors. Everyone, students and teachers alike, stops by to check out the pond, the fish, and see what kind of water quality testing we are doing. In addition to being great for my students to practice their environmental lab skills, it offers a soothing 'chill out' corner, for students to relax and get focused. We are so happy to have it! It was a snap to set up, and is working great after 3 weeks!"

High School Earth/Environmental Science Teacher

Field Equipment



Brunton® TRUARC3 Compass

One of the most popular baseplate compasses on the market, this liquid-filled compass with smooth needle movement is perfect for teaching basic compass skills. Features easy-to-grip compass housing; enlarged dial marked in 2° increments with N, S, E, and W marked on the side; clear baseplate; and declination correction scale. Size, $2^1/2 \times 3^1/2 \times 1/2^n$; wt, 1.1 oz. Includes lanyard and operating instructions.

GE09112 Each \$29.00



All-Weather Journal

Prevent water damage to your field and/or laboratory notes! This all-weather, $4^5/_8 \times 7^{\shortparallel}$ side-spiral journal contains 50 sheets of horizontal-lined Rite in the Rain® writing paper. Features a polyethylene cover. Use with pencil or All-Weather Pen.

GE09183 Each \$13.00



All-Weather Notebook

Protect your students' field and/or laboratory notes from water damage! The all-weather, $4^{5}/_{8}\times7^{\shortparallel}$ side-stapled notebook contains 24 numbered sheets of horizontal-lined Rite in the Rain® writing paper. Features the Rite in the Rain® all-weather tagboard cover. Use with pencil or All-Weather Pen.

GE09181 Pack of 12 \$79.00

Field Equipment

Earth Science



Student Soil Sampler

Essential for precision sampling of all types of soil. Takes a 1" core sample to a depth of 10". Galvanized steel sampler has a saw-toothed cutting edge, tapered for easy core removal. Cutaway side of the tube permits inspection of soil core. Furnished with 20 soil-sampling bags.

653250 Each \$44.65



Metal Sieve Set

This set of stackable, stainless-steel mesh sieves is ideal for separating soil or sediment particles of multiple sizes. Includes 6 convenient sizes: 4,000 microns, 2,000 microns, 500 microns, 250 microns, 125 microns, and 63 microns. All are 20 cm in diameter and 4 cm deep. Comes with lid and catch pan.

GE09312 Per set \$170.00



Screen Sieve Set

An inexpensive set for separating soils and aggregates. Consists of 4 stacking, plastic sieves, lids, and storage compartment. Each sieve is $2^1/_8$ " D and 4" in diameter. Mesh sizes (US Bureau of Standards) are: #6, #20, #40, and #100.

GE09310 Per set \$56.25





Soil Screen Sieve, #10

For separating soils and aggregates. 2-mm mesh. Size, 4" diam \times 2'/s" D. Meets The GLOBE® Program specifications.

GE09301 Each \$17.50



Water-Resistant Soil Color Chart

This water-resistant soil chart uses the Munsell System of Color Notation. The chart has 208 extra-large color chips to be mounted on the edge of the page for easy comparison to soil samples. Chart features soil structure diagrams and a soil structure ruler. The water-resistant pages may be cleaned after each use without damage. Chip size, $^{11}/_{16} \times 1^{1}/_{2}$ ". Meets The GLOBE® Program specifications.

GE0801 Each \$81.50

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Earth Science Marine Science



OCEARCH™ Shark Playing Cards

These non-traditional cards take a bite out of the boredom of traditional cards by combining technology and real-time interactive learning via QR technology for great white shark tracking. Each number card has a scientific shark tooth illustration corresponding to the number on the card, while face cards have a QR code that allows you to track the shark pictured on the card in real time. Use these cards as you would any deck of playing cards or use only the face cards to gather information about shark migration. In addition to the cards, a shark tooth identification guide is provided.

443426 Per set \$9.80



Ocean Science Kit

With this kit, students conduct 6 basic, illustrative experiments to explain the relationship that salinity, temperature, density, and pressure have to the ocean and its currents. Using their results as a basis for research, students then divide into 3 groups to investigate how a new dam affects a river and the small bay into which it flows, what would happen to the oceans and their inhabitants if the polar ice caps were to melt, and what would happen to the oceans and their inhabitants if the global temperature dropped to 0° C. The results of each group's research are presented to the class by panel discussion. Includes instructions and materials for 24 students.

GE0602 Per kit \$98.80



GEO600 Amazing Waves Kit

Amazing Waves Kit A

With everyday materials, students build a simple wave machine and complete a series of simulations. They construct 4 model coastline environments to identify, compare, and specify the relationship of waves to specific geography. The class then divides into 4 large groups representing local government officials, informed citizens, an environmental group, and land developers. All do research for their group presentation at a "town meeting" concerning a proposed new resort. **Kit** includes instructions and materials for 24 students. **Refill** provides 4 bags of each of the 3 types of sand.

GE0600 Kit Each **\$217.80 GE0601** Refill Each **\$57.50**



Ocean Trash Can Kit

With this kit, students simulate the problems associated with acid rain and other forms of pollution and predict the effects of these pollutants on the ocean and its inhabitants. Students then divide into 3 groups representing the large staff divisions of a newspaper. They research, write, edit, do artwork, lay out, and "typeset" a newsletter about ocean pollution—the sources, pollutants, effects, and present laws. Students then propose actions to prevent and/or reduce the problem. Includes instructions and materials for 24 students.

GE0606 Per kit \$104.80

Convection & Density/Weather

Convection & Density



Air Mass and Convection Kit A:

With this hands-on kit students perform investigations to learn how air masses are formed and how air moves in response to changes in temperature. These investigations help students gain an understanding of the terms air mass, convection current, and front. Kit includes a set of convection tubes, two 120-mL plastic containers, tubing, funnel, 10 smoke sticks, and instructions.

749109 Per kit \$110.50

Density Flow Model Junior

Grade 6 and up. Engage your students with dramatic simulations of many of the earth's dynamic natural processes. Students use scientific inquiry to explore concepts related to geology, meteorology, and freshwater and saltwater systems. The model helps students visualize important concepts such as air masses, fronts, ocean currents, thermoclines, haloclines, internal seiche waves, and more. Manual contains thought-provoking student activities, teacher setup instructions, and answer key.

GE08472 Each \$348.80

Earth Science



Carolina® Convection Fluid A3

This pearly white substance is excellent for teaching units on ocean currents, aerodynamics, turbulence, convection, and many other concepts that can be difficult for students to visualize. Carolina® Convection Fluid is nonflammable, nontoxic, and reusable. It can also be tinted with food coloring, such as red for magma or blue for ocean water. Includes instruction booklet with classroom activities.

GE08450 Each \$23.50

Weather

Barometers



Weather Ball Barometer

Torricelli (1608–1647), who proved that air pressure is subject to variations, devised the first barometer in 1643. Goethe, the famous German playwright, later developed his own simple but effective barometer using the principles established by Torricelli. The Weather Ball, based on Goethe's design, is filled with colored, distilled water. Once filled, the air inside the ball is no longer subject to variations in atmospheric pressure. The liquid in the indicator tube, however, remains open and is directly affected by atmospheric pressure. When atmospheric pressure rises, the liquid is pushed down in the tube, indicating clear weather. When the pressure lowers, the liquid rises, indicating bad weather. Includes complete instructions.

745509C Each \$34.50



Junior Barometer

This barometer is calibrated in millibars ranging from 940 to 1,070 and in millimeters from 715 to 805. The movable pointer lets you observe rising and falling barometric pressure and the amount of change as it occurs. Dial, 21/2". Meets The GLOBE® Program specifications.

749051 Each \$74.50



Dial Barometer

Large, clear, dual scale in hectopascals and millimeters of mercury on a 4" dial. Easy to read from a distance. Equipped with a hanging loop for wall mounting. Accuracy, ±3 hectopascals.

745548 Each \$29.50



See our weather stations starting on page 691.

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Thermometers/Psychrometers/Hygrometers



Dial Thermometer/Hygrometer

Temperature range, -44 to 54° C and -50 to 130° F; accuracy, $\pm 2^\circ$. Humidity range, 20 to 100%. 12"-diam dial with shatterproof, molded crystal.

745538 Each \$61.50



Panel-Mounted Hygrometer/Thermometer

Features dual display for humidity and temperature, plus min/max memory for both. Temperature is switchable from Celsius to Fahrenheit and ranges from -20 to 70° C and -4 to 158° F. Also has freeze alert function. Can sit on table using foldaway stand or can be mounted on wall with Velcro®. Operates on 1 AAA battery (included). Meets The GLOBE® Program specifications.

749094 Each \$69.80



Psychrometer Kit

Range, -40 to 50° C. A simple sling psychrometer, designed especially for student use, measures relative humidity. Complete with instructions.

745554 Per kit \$13.00



Compact Sling Psychrometer

Measure relative humidity with weather bureau-type wet and dry bulb thermometers mounted in a handy, self-contained, pocket-sized case. Plastic case is designed with a slide rule to convert wet and dry bulb readings to relative humidity, eliminating the need for calculating tables. Spirit filled. Range, 0 to 45° C. Meets The GLOBE® Program specifications.

749115 Each \$95.00



Sling Psychrometer

Safe, red liquid in recessed tubes. Built-in water reservoir. Complete with carrying case and plastic chart. Range, 20 to 120° F.

745559 Each \$174.50

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Earth Science



Galileo Thermometer A

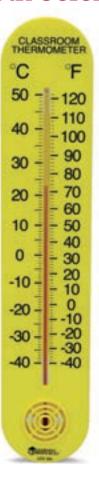
In the 16th century Galileo Galilei discovered the principle that drives this unique thermometer. As a liquid's temperature increases, its buoyancy decreases. This attractive thermometer is a sealed, rugged, high-quality glass tube. Each handmade floater is massed to within 0.002 g to allow an accuracy of $\pm 0.1^{\circ}$ F. Temperature is read by noting the tag on the lowest of the floating temperature floaters. This quality device will spark your students' interest and demonstrate the concept of temperature in a whole new way. Size, 24". Range, 62 to 82° F.

745509A Each \$128.50

Classroom Thermometer

For indoor and outdoor use, this wall-mounted thermometer clearly gives temperature in both Celsius and Fahrenheit scales. Recessed tube for safety. Measures $14^3/4^{\circ}$ L \times 3° W.

962040 Each \$11.35



Large Plastic Thermometer

Features large numerals and graduations silk-screened on a white plastic back. Overall length, 8° . Range, -10 to 120° F and -20 to 50° C. 10 per package.

745515 Per pkg **\$21.00**





Indoor/Outdoor Thermometer

Range, -50 to 55° C and -60 to 130° F. Read outside and inside temperatures from inside on the same $^\circ$ C and $^\circ$ F scales. Size, $2^1/_4 \times 9^\circ$ H.

745522 Each \$17.50



Earth Science Weather

Immersion Thermometer, Plastic Back The red-alcohol-filled thermometer is recessed in a molded plastic back to prevent breakage. Thermometer can be held after immersion in hot liquids without danger of burning students' hands. Range, –58 to 230° F and –50 to 110° C. 745513 Each \$6.00



Immersion Thermometer

Red-alcohol-filled thermometer with dual scale, °C and °F, on metal V-shaped backing. Range, -10 to 110° C, 0 to 230° F. Pack of 5.

745512 Per pack \$19.00

Rain Gauges

Standard Rain Gauge

Made of clear plastic with black graduations and measures up to 5" of rainfall. Includes mounting bracket and instructions. Collector opening, 2" in diameter; overall height, 117/s".

745591A Each \$27.50



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Metric Rain Gauge

Made of clear, tough plastic, this rain gauge measures up to 280 mm of precipitation. The internal measuring tube has a capacity of 25 mm, marked in 0.2-mm divisions. When precipitation exceeds 25 mm, the overflow goes into an outer cylinder; use the internal tube to measure the overflow content. Gauge includes a sturdy rustproof mounting bracket. Size, 102 mm diam \times 356 mm H. Meets The GLOBE® Program specifications.

745592A Each \$79.80

Earth Science

Wind Monitoring





Wind Vane

You can always know which way the wind is blowing with this wind vane. The heavy cast base and sturdy post support a sensitive cone bearing assembly that responds to the slightest breeze. To use, place the "N" facing north and read the wind direction shown by the pointer.

745580 Each \$39.80

Plastic Dual-Scale Anemometer

Quickly determine wind speed at a glance without counting rotations. The movement of the 4 cups slides the gauge upwards on the shaft to the corresponding wind speed in both the m/s and Beaufort scales. Constructed of sturdy plastic, the device is lightweight and portable enough for handheld use. Has predrilled holes for optional pole attachment (mounting hardware needed but not included). Outside cup diameter is 2"; total device height is 12". Comes with instructions.

752717 Each \$44.00



183252 KidWind MINI Turbine Kit

Make Alternative Energy Study a Breeze

From wind monitoring to wind energy experiments,
Carolina has the resources you need.
Turn to page 652 to view KidWind® turbine kits,
which allow students to assemble and test wind turbines.

Earth Science Weather

Meters



Kestrel® 5000 Bluetooth® Weather Meter

This advanced, time-saving instrument is unique in that it has data storage, graphing functions, and computer interface technology. It stores up to 10,000 data points that can be uploaded via Bluetooth® from up to 100 ft away. With a white backlight for daytime use and an optical filter for preserving vision at night, this tough, waterproof, and buoyant instrument enables you to accurately determine barometric pressure; pressure trend; altitude; relative humidity; heat stress index; dew point; wet bulb temperature; density altitude; wind chill; temperature; and wind speed (current, maximum gust, and average). Includes lanyard, lithium battery, pouch, instruction manual, and 5-year manufacturer's warranty. Visit Carolina.com for specifications.

749116 Each \$598.80



Kestrel® 3000 Weather Meter

Put advanced weather technology in the palm of your hand. The waterproof Kestrel® 3000 packs a wide range of functions and technology into a remarkably small, tough, buoyant, handheld instrument. It enables you to accurately determine wind speed (current, maximum gust, and average); air, water, and snow temperature; wind chill; relative humidity; heat stress index; and dew point. Includes a slip-on cover, lanyard, instruction manual, and CR2032 battery. Backed by a 5-year manufacturer's warranty. View specifications at Carolina.com.

749113 Each \$269.80



Kestrel® 1000 Pocket Wind Meter

An accurate, tough, and affordable wind meter that requires no setup—just hold it up to measure wind speed whenever and wherever needed. It can track maximum and average wind speeds along with current readings and allows you to choose the measurement units that suit your application. It measures 0.6 to 40 m/s (1.3 to 134.2 mph) with an accuracy of $\pm 3\%$ and resolution of 0.1 m/s (0.1 mph). Comes with slipon case and lanyard. See additional specifications at Carolina.com.

749110 Each \$148.80



Mini Environmental Quality Meter

Monitor up to 3 environmental parameters simultaneously with 1 tiny instrument. This lightweight meter is simple to operate one-handed and reads wind speed, air temperature, and relative humidity. Meter can sense airflow as low as 0.4 m/s. Other features include min/max, hold, and backlit display. Comes with wrist strap, carry pouch, and button cell battery. Specifications for each measurement are available at Carolina.com.

652006 Each \$141.80





652001 Environmental Quality Meter

Environmental Quality Meter

Extremely accurate with fast response times, this handy meter records air speed, air temperature, relative humidity, light, and thermocouple temperature onto a removable SD card for easy data upload preformatted for Excel®. You also can stream data directly to a computer using the optional **USB Cable**. Each data set includes the parameter being measured, time, and date. Visit **Carolina.com** to view all specifications. Also includes a fold-out tripod and large, easy-to-read backlit LCD. Comes ready to use in a soft carrying case with detachable 4-parameter environmental probe (also accepts standard type K or J thermocouple probe), 6 AA batteries, 2-GB SD card, instruction manual, and 5-year warranty.

652001 Meter Each **\$339.80 652002** USB Cable Each **\$34.50**

Weather

Weather Stations

Earth Science



Mini Weather Station

Introduce basic weather concepts with this versatile apparatus. Measure temperature (in Fahrenheit and Celsius) and wind speed (in mph and kph), then reference the screenprinted chart to easily calculate wind chill. Device freely rotates to indicate wind direction; removable rain gauge allows for quick assessment of rainfall. Designed to be mounted on a post or similar (not included).

749030 Each \$9.50



Wireless Color Weather Station

This weather station displays precise, real-time backyard and indoor weather information. The indoor comfort meter monitors indoor humidity (humid, good, or dry) for ideal comfort. Animated color forecasts with trends react to changing barometric pressure. Monitor indoor and outdoor temperature trends, set high/low temperature alerts, and view daily minimum and maximum temperatures with the time and date that the reading was taken. The outdoor sensor is easily mounted so that it is not disturbed, while the weather station can be wall mounted or free standing. The outdoor sensor requires 2 AA batteries, and the weather station operates using a 5-V AC adapter with 3 AAA batteries for backup. Visit Carolina.com for more information.

749023 Each \$64.50





Personal Weather Station

This versatile weather station is a compact way to get indoor and outdoor weather information. The full-color screen displays both indoor and outdoor temperature, percent relative humidity, programmable hi/low temperature and humidity alert indicators, humidity and temperature trends, time, and date. It allows review of the recorded high and low temperature reading and provides the date and time that the reading was taken. The outdoor sensor is easily mounted so that it is not disturbed, while the weather station can be wall mounted or free standing. The outdoor sensor requires 2 AA batteries, and the weather station operates using a 5-V AC adapter with 2 AA batteries for backup. Visit Carolina.com for more information.

749022 Each \$50.80

Earth Science Weather



New! Davis® Vantage Vue® Weather Station with WeatherLink® Live

The Vantage Vue® wireless weather station provides accurate, reliable weather monitoring in a rugged, weatherproof housing. The Vantage Vue® features a solar panel and primarily operates using solar power, but also includes a battery backup. Sleek, but tough—your outdoor sensor suite sets up in minutes and starts sending data wirelessly to WeatherLink® Live from up to 1,000 ft (300 m). You'll see current weather conditions; temperature and humidity; heat index; barometric pressure; wind speed and direction; wind chill; dew point; rainfall; and moon phase.

WeatherLink® Live allows you to stream live weather data from your weather station to the WeatherLink® Cloud. Since WeatherLink® Live uploads your data via Wi-Fi®, you can see updates as they happen. Access your data via any smartphone or computer. WeatherLink® Live can receive and upload data from up to 8 weather stations. Visit Carolina.com for complete list of materials.

749226 Each \$648.80

Weather Kits



Exploring Meteorology Kit

Weather impacts everyone, every day, in some way. The meteorologists who study weather patterns are our best source for information. This experiment provides students with the experience of being a meteorologist. Students study atmospheric pressure changes and create their own barometer, study wind speed and create their own anemometer, and develop the skills to confidently read a weather map. The activities also include a demonstration of how clouds form, as the instructor forms a vapor cloud. Kit includes enough material for 30 students working in pairs. The demonstration portion has enough material to perform the demonstration 5 times.

//\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

GE08693 Per kit \$69.00

Science Action Club: Cloud Quest Kit

Grades 5–8. A Science Action Club kit makes it easy and fun to lead hands-on STEM in afterschool and summer programs. Through games, projects, and exciting investigations, youth explore nature, contribute to authentic science research, and design creative strategies to protect the planet. Cloud Quest explores the impact of clouds on weather and climate. Using the GLOBE® Observer citizen science platform, youth identify sky conditions and report their discoveries to NASA. Researchers map these observations against satellite image data to study how clouds influence the flow of energy through Earth's atmosphere. Kit includes activity plans, supplies for 20+students, and staff training. Visit Carolina.com for a complete list of kit materials and additional details.

653705 Per kit \$1,499.00



Making Dew (and a Little Frost, Too) Kit

Understand how both dew and frost are formed with this hands-on lab investigation. Introduce concepts such as dew point, humidity, condensation, evaporation, and sublimation. Includes 15 metal cans, 15 metal-backed thermometers, teacher instructions, and reproducible activity sheets. Supports 15 student pairs.

749107 Per kit \$93.50

We have more Science Action Club kits!

Find the Bug Safari Kit (item #653701) on page 658 and the Bird Scouts Kit (item #653703) on page 662.

Weather/Teacher Resources

Earth Science

Teacher Resources



Introduction to Rocks Poster

 $24\times36".$ What a great resource for earth science classes! This poster is divided into 3 sections for each type of rock—igneous, sedimentary, and metamorphic—with illustrations to show how each is formed and a dozen representational specimens per type. A bonus section shows and explains some of the more specialized rock forms such as geodes, concretions, agates, and thunder eggs. Laminated.

575119 Each \$22.50



Introduction to Minerals Poster

 $24\times36^{\circ}$. See 60 known minerals. Includes all 6 crystal classes and presents the physical properties: hardness, habit, luster, cleavage, specific gravity, color, fluorescence, and streak. Informative captions, illustrations, and carefully selected photographs. Laminated.

575121 Each \$22.50

Looking for more earth & space science resources?

Check out the Carolina® Knowledge Center to browse our free resources by discipline.

Carolina.com/knowledge





Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources, and accessories.

Space Science Solar System Models

Solar System Models



612275 Sun, Earth, Moon Systems Model

Sun, Earth, Moon Systems Model

Use this model to teach a range of topics: night and day, seasons, the Sun's movement across the sky, the amount of daylight, shadows, phases of the Moon, solar and lunar eclipses, and more. Includes 2 sizes of Earth and Moon for greater accuracy in demonstrations (instructions included) and is correctly geared to show each month as Earth orbits the Sun. Light from the Sun provides the illumination necessary to model night and day, the seasons, and eclipses, and to create shadows. Comes with teacher guide and indicator card set. Size, 65 cm L \times 25 cm H. **Replacement Bulb** sold separately.

612275 Model Each **\$344.50 612275B** Replacement Bulb Each **\$7.00**



The Orbiter®

Now you can have complete mobility in your classroom! The **Battery-Operated Orbiter®**, structurally identical to the original **Orbiter®**, effectively demonstrates daylight, sunlight, night, seasons, and phases of the Moon anywhere in your room. The **Illuminated Orbiter®** features an illuminated Sun. With all of these sturdy, geardriven models, the Sun, Earth, and Moon manually revolve around each other. Arm is 15" L; Sun is 6" diam; Earth is 4" diam; and Moon is 1" diam. Includes a lesson plan and study guide; battery-operated model also includes 4 AA batteries.

 612258
 Battery-Operated Orbiter
 Each
 \$279.80

 612260
 Illuminated Orbiter
 Each
 \$334.80

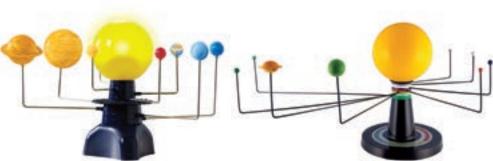
 612261
 Orbiter
 Each
 \$309.80



Sun, Earth, Moon Planetarium

This model of the Earth/Sun system demonstrates seasons, eclipses, and phases of the Moon. The Sun contains an LED that sends a spot of light onto Earth. As users turn the model's handle, Earth revolves around the Sun, and the Moon revolves around Earth. Earth is also tilted at an angle, vividly demonstrating how the position of Earth's axis determines the seasons of hot and cold. As the Moon rotates around Earth, the LED can illuminate the different phases of the Moon as well as demonstrate the shadow cast by the Moon. Batteries included.

612256 Each \$67.00



Motorized Solar System

Grades 3–6. This dramatic light show brings our solar system right into your classroom. The model sun shines onto the 8 planets and Pluto as they orbit around it. A star dome can replace the solar dome, converting a darkened room into a spectacular planetarium sky complete with major constellations. The inner and outer planets rotate at different speeds, providing a more realistic motion. Requires 4 AA batteries (not included).

957152 Each \$77.00

Solar System Simulator

Use this 3-dimensional model, with representations of the Sun and all 8 planets, to examine the solar system with students. Planets are size-appropriate in relation to the Sun. Each planet is on a movable arm, helping students understand Earth's place in the solar system and distance from the Sun, as well as overall planet positioning. Approximate size, 12×22 ".

612252 Each \$99.80

Teacher Resources

Teacher Resources

Space Science



Solar System 4-D Smart Chart

Bring the solar system to life through this interactive augmented and virtual reality-infused smart chart. Connect and play with the solar system through stunning animations, thought-provoking games, educational read-alongs, and so much more using the included app. These key features are designed to support and help your students enhance creative perception, learn about spatial and temporal concepts, and build listening comprehension. Laminated. Included app works with select Apple® and Android® smartphones and tablets only; visit Carolina.com for complete specifications. Size, 42" W × 32" H.

612700 Each \$21.80



Interactive Solar System 4-D Smart Mat

Bring the solar system to life through this interactive augmented and virtual reality-infused 4-D smart mat. Connect and play with the solar system through stunning animations, thought-provoking games, educational read-alongs, and so much more using the included app. The plastic smart mat is designed with key features that support and help your students enhance creative perception, learn about spatial and temporal concepts, and build listening comprehension. Comes with a license allowing you to install the included app on 5 different smart devices per each mat; visit Carolina.com for complete specifications. Mat dimensions, 19" W \times 14" H. Pack of 4 mats.

612702 Per pack \$26.80



Inflatable Solar System Set Turn your classroom into an intergalactic experience!

Demonstrate rotation, revolution, and orbit in 3 dimensions with this durable, washable solar system set. Use these models to teach the position, order, size, and shape of the planets, Pluto, Earth's Moon, and the Sun. Each model inflates easily and has loops for easy hanging. The planets, Pluto, Earth's Moon, and the Sun range in size from 5–23" in diameter. Includes an activity guide with fun planet facts, a foot pump, and a repair kit. Visit Carolina.com for a complete list of set materials.

612752 Per set \$58.00



Giant Magnetic Solar System

Capture your students' attention with these full-color, realistically detailed magnets. Use them to model an array of space science concepts on your whiteboard (or another ferromagnetic surface). Set includes 8 planets, Pluto, the Sun, Earth's Moon, and an asteroid belt. The largest magnet, the Sun, is 10" in diameter.

612753 Per set \$22.50

Space Science



Celestial Globe

This demonstration device shows the apparent positions of the stars visible from Earth. Students can visualize the relative angular positions of the constellations and estimate which stars will be visible from different places on Earth for any rotational position of the planet. Globe consists of 2 concentric spheres mounted on a common axle and supported on a frame with a base. Inner sphere, 4" diam, represents Earth. Outer sphere, 12'/2" diam, has constellations and their stars marked on it; yellow shading indicates the Milky Way galaxy. Axle allows spheres to rotate independently.

612076 Each \$84.80

Moon Globe

Replogle. Official NASA globe. This attractive and useful 12" globe has a 3-D look; the seas and craters stand out in great detail. First Apollo landing site is shown. The globe rests freely on a molded base. Total height, 15".

612060 Each \$97.80

Teacher Resources



The Night Sky Planisphere

Planispheres are used to locate bright objects in the night sky. A planisphere consists of a movable white disc within a plastic frame that has all of the stars marked on it. The Night Sky Planisphere is designed for low distortion and has a light background for easy night readability. The unique 2-sided design allows for north and south facing readings. To use the planisphere, simply hold it toward the horizon in the direction you want to observe. To locate a sky object, dial in the month and year by rotating the white inner disc in the direction of observations to be made (east, west, etc). 30 to 40° N. Made of durable plastic, 81/2" in diameter.

612602 Each \$20.50

Kits



Make Your Own Refractor Telescope Kit

Using kit materials, students build a handheld, $10 \times$ refractor telescope in a matter of minutes and start viewing the heavens as Galileo did in 1609. Kit includes objective and eyepiece lenses, tubes and end caps, assembly instructions, viewing tips, and directions on how to measure focal length and calculate magnification power.

612581 Per kit \$17.00



Investigating and Building Refractor Telescopes Kit

Here is an engaging way to help your students explore how concave and convex lenses refract light to produce real and virtual images. Students measure the lenses' focal lengths and discover how lens pairs can be used to make 2 different types of refracting telescopes. From the determined focal lengths, students calculate their telescopes' magnification powers. Kit includes instructions, activities, and materials to build 8 handheld refracting telescopes (4 Galilean and 4 Keplerian), each with a 444-mm-focal-length objective lens and a 50- or 150-mm-focal-length eyepiece lens.

612580 Per kit \$133.00



Space Measurement Lab

Grades 5–9. Lab-Aids®. This diverse kit provides a series of individualized activities that require students to perform increasingly sophisticated measurements. The primary focus on length over a large scale provides ample opportunities to practice using metric units. Students start by measuring and graphing common objects, move to using tools to find angles, and finish by creating an astrolabe. They determine the radius, diameter, and circumference of Earth; measure the distance to the sun; and consider the size of the solar system. This reusable kit is complete with instructions and materials for 24 students.

612568 Per kit \$144.80



Forensic Science

699 Comprehensive Investigation Kits

708 Ballistics, Tools, & Impressions

711 Fingerprinting & DNA Analysis

713 Blood & Blood Spatter

714 Trace Evidence

716 Forensic Anthropology & Death

718 Toxicology & Drugs

720 Crime Scene Mapping & Documentation

721 Crime Scene Supplies

Forensic Science

Bring Engagement into the Classroom with Forensics!

With attention-grabbing subject matter, the interdisciplinary field of forensic science provides the opportunity for an engaging, problem-solving approach to teaching. Forensic science can be taught as a standalone course or integrated into traditional biology, chemistry, physics, or earth and space science classes.

Clues to Forensic Science Resources

In addition to the intentionally designed kits found in this catalog, Carolina provides digital resources to help you and your forensic science students with your investigations.

Carolina® Knowledge Center

The Carolina® Knowledge Center offers a wealth of free resources for forensic science teachers. Search "forensics" and "forensics activities" at Carolina.com/knowledge to find:

- · Free lessons and activities
- . In-depth articles on forensics subjects
- · Helpful subject buying guides

CTE Forensics Buying Guide

In an effort to support CTE forensics teachers, we have created a guide aligned with the law, public safety, corrections, and security career cluster. This guide identifies all of the kits and materials needed to teach a comprehensive forensics CTE course, along with equipment suggestions and free lessons that are sure to engage your students on the law enforcement services pathway!

Knowledge.carolina.com/CTEforensics

Carolina® Correlations for Forensics

Looking for kits aligned to your forensics textbook? Carolina has made it easier than ever to match hands-on lab materials to your curriculum with our Carolina® Correlations guide to 2 major forensics textbooks.

Carolina.com/correlations







Kits Designed to Be Appropriate for Every Grade Level

Grades 3-6



212300 Who Took Fluffy? Full Kit A for 15 Students

Grades 6-8



212182 The Case of the Lost Skull Kit

High School-College



246734 Identifying Skeletal Remains Kit

Comprehensive Investigation Kits

Forensic Science

Comprehensive Investigation Kits

Carolina's comprehensive forensic investigation kits provide everything you need to teach multiple forensic subjects from one box and incorporate real or fictitious cases to engage and immerse your students in a problem-solving approach to science education.

On the Case



699830 The Case of the Murdered Mayor Kit



For a class of 30 working in groups of 3. Students assume the role of crime scene investigators as they use their observational skills and deductive reasoning to solve a realistic crime scenario. They attempt to identify a prime suspect from a pool of 6 alleged perpetrators using these traditional forensic techniques:

- Fingerprinting
- Hair analysis (requires low-power microscope, not included)
- Tire track impression analysis
- Blood typing (using synthetic blood)
- · Forensic entomology (with artificial fly larvae or maggots)
- Police log review

Kit includes teacher's manual with student guide, reproducible masters, report forms, and extension activities, plus 1-year access to digital resources that support 3-dimensional instruction. Kit Refill includes consumable components. Visit Carolina.com for complete lists of kit materials.

699830 Kit Each \$135.00 New! 699830R Kit Refill Each \$95.75



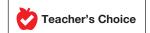
New! Carolina® Forensic Essentials Bundle A

Teach the essential labs of forensic science with one convenient and affordable bundle! This bundle contains 6 of Carolina's most popular forensic science kits that engage students in crime scene documentation, hair and fiber analysis, blood typing, fingerprinting, footwear impressions, and more. Each kit provides enough materials for a class of 30 students.

Bundle includes:

Crime Scene Documentation Kit (item #211845) Hair Analysis Kit (item #699870) Fiber Identification Kit (item #699875) Carolina® Forensics Mystery with Synthetic Blood Kit (item #700113) Carolina® Basic Fingerprinting Kit (item #212050) Footwear Identification and Casting Kit (item #211855)

212500 Per bundle \$475.00





212147 Master Forensics Kit

Master Forensics Kit

For a class of 24 working in 6 groups. This Kemtec® Master Forensics Kit combines multiple forensics kits into one, providing your students a CSI experience that is both comprehensive and interdisciplinary. Included in this kit are 4 unique case scenarios and condensed versions of the following Kemtec® experiment kits:

- Fingerprint Analysis
- Soil and Mineral Analysis
- · Hair Analysis

- Document Analysis
- Analysis of Drugs and Poisons

Kit also includes teacher's manual with student guide and a flash drive containing videos. Kit Refill replenishes kit consumables.

\$899,95 Each 212147 Kit **212148** Kit Refill \$420.00 Each



New! Carolina® Forensic Complete Bundle A3

Everything you need to teach a forensic science course, in one convenient and affordable bundle! This bundle contains 10 of our most popular forensic science kits, allowing your students to perform hair and fiber analysis, DNA analysis with gel electrophoresis, blood typing, drug analysis, fingerprinting, bloodstain pattern analysis, footwear impressions, gunpowder residue testing, and more. Each kit provides enough materials for a class of 30 students. Note: Sold only to schools and businesses.

Bundle includes:

Crime Scene Documentation Kit (item #211845) Hair Analysis Kit (item #699870) Fiber Identification Kit (item #699875) Carolina® Forensics Mystery with

Carolina® Basic Fingerprinting Kit (item #212050) Footwear Identification and Casting Kit (item #211855) **Exploring Electrophoresis Using** Forensic DNA Evidence Synthetic Blood Kit (item #700113) Classroom Kit (item #211034)

Bloodstain Pattern Analysis Kit (item #211860) Drug Analysis Kit (item #699750) **Gunshot and Explosive** Residue Testing Kit (item #211870)

212501 Per bundle \$995.00

Forensic Science



699818 Forensic Activities Comprehensive Kit

Forensic Activities Comprehensive Kit

Grades 9-12. For a class of 30. Designed as a convenient material supplement to Deslich and Funkhouser's Top Shelf: Forensics (2003, 158 pages), this kit highlights and supports 10 of the book's most engaging multidisciplinary activities. Kit includes the *Top Shelf: Forensics* book, the most difficult-to-find supplies required to conduct the activities, and a teacher's manual; visit Carolina.com for a complete list of kit materials. Emphasized forensic activities:

- · Comparison of animal and human hair
- Synthetic blood tests

1 699818 Kit

455956 *Top Shelf: Forensics* Each · Fabric analyses

Soil investigations

\$238.75

Comprehensive Investigation Kits



699880 Microscopic Forensics Kit

Microscopic Forensics Kit

Grades 6-12. For a class of 30. Students go through forensic "training" by observing labeled slides of materials typically found by forensic investigators at a crime scene, including hair, blood, and textiles. After studying the known slides, students are presented with a mock murder mystery and "evidence" found at the crime scene. Students then examine the evidence, compare it to the testimonies of the suspects, and pinpoint the culprit. Kit includes a forensic slide set with accompanying descriptive text, mystery story, evidence, and teacher instructions. Kit Refill replenishes kit consumables or lets you use the kit in an additional class period. Visit Carolina.com for complete lists of kit materials.

Each \$122.00 699880R Kit Refill Each \$38,50

Elementary School Forensic Kits



212193 Missing Money Mystery: An Introduction to Forensic Science Classroom Kit

212196 Cookie Jar Mystery: A Study in Forensic Science Classroom Kit

Missing Money Mystery: An Introduction to Forensic **Science**

Grades 2-3. For a class of 30. This fun, interactive learning program immerses students in scientific discovery as they work to solve the mystery of the stolen funds. Kids will test their CSI skills as they work the case and discover the guilty party. Instructors will find the Missing Money Mystery easy and fun to teach. Each of the 12 lessons provides 1 to 3 activities that teach a new but related aspect of scientific reasoning and a particular scientific process. The text is easy to read and understand, the setups are detailed and uncomplicated, and the processes and procedures are clearly explained in each lesson plan. Classroom Kit includes instructor's guide; digital code for online access to printable student handouts and additional digital resources; and essential supplies to conduct experiments with your class. Visit Carolina.com for complete lists of kit materials.

212193 Classroom Kit Each \$402.50 212195 Student Book Pack of 15 \$147.16

Cookie Jar Mystery: A Study in Forensic Science

Grades 4-5. For a class of 30. A crime has occurred in Mrs. Randall's classroomher favorite cookie jar was broken and some of her homemade cookies were eaten. Hardly serious crimes, these actions are nevertheless crimes that can be solved using a forensic science approach. Your students become crime scene investigators as they work together examining and analyzing evidence needed to solve the mystery of the broken cookie jar. Instructors will find the Cookie Jar Mystery easy and fun to teach. Each of the 12 lessons provides 1 to 3 activities that teach a new but related aspect of scientific reasoning and a particular scientific process. Classroom Kit includes instructor's guide; digital code for online access to printable student handouts and additional digital resources; and essential supplies to conduct experiments with your class. Visit Carolina.com for complete lists of kit materials.

212196 Classroom Kit \$402.00 Each 212198 Student Book Pack of 15

Comprehensive Investigation Kits

Forensic Science



Who Took Fluffy?™ Forensic Science Lab Kits

Grades 3-6. Who Took Fluffy?™ is a whodunit mystery that introduces students to science concepts through Problem-Based Learning (PBL) and activities aligned to NGSS. The mystery? Determine who took Fluffy the rabbit, mascot in Ms. Donroe's classroom. While students solve the mystery, they learn concepts that help form the basis for all science learning, such as pattern recognition, cause and effect, and evidence-based conclusions. Designed to meet the diverse needs of teachers, the Who Took Fluffy?™ series is available as 15- or 30-student refillable full kits with 6 lessons and 5 labs, as separate standalone lab experiences for 15 or 30 students, or as fully online immersive activities with 7 lessons and 5 labs.

Each Full Kit includes the materials needed by students, working individually or in groups, to conduct the lessons and labs:

- · Lesson 1: The Story
- Lesson and Lab 2: Blood Typing
- . Lesson and Lab 3: Hair Analysis
- . Lesson and Lab 5: Fiber Analysis
- · Lesson and Lab 6: Footprint Impression

• Lesson and Lab 4: Fingerprint Analysis 212306 Who Took Fluffy? Hair Analysis Lab Kit for 15

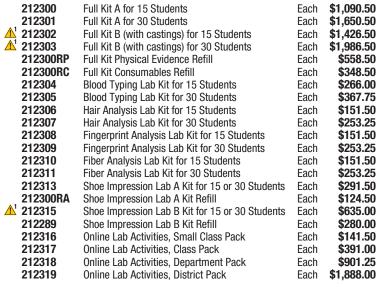
Students

Full kits also provide teacher and student lesson guides with step-by-step procedures; an engaging story booklet presented in a fun, graphically rich style; and a sheet of Badge of Completion stickers for students to earn and display after completing the activity. Full Kit B also includes Bio-Foam® Impression Foam and casting compound so students can make plaster casts of shoe impressions. Refills replenish samples and consumables, allowing a full kit to be reused. Each lab can be purchased separately as a Lab Kit and used as a standalone activity. View full kit and lab kit descriptions and all kit and refill materials lists at Carolina.com.

Students access the Online Lab Activities via a web browser on any device connected to the Internet, including desktop computers, Chromebook® computers, laptops, tablets, and smartphones. Online activities include highquality, graphically rich lessons with 3D exploration, virtual labs, a guided narrative, a dashboard for tracking student progress, and automatically graded multiple choice quizzes—all through the lens of a fun mystery story with friendly cartoon characters. With 4 possible scenarios that a teacher can choose from, the online activities can be kept as a mystery to students in different classes and schools, offering meaningful reusability in the classroom. View pack descriptions and licensing details at Carolina.com.



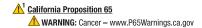
212316 Who Took Fluffy? Online Lab Activities, Small Class Pack (in use)





212302 Who Took Fluffy? Full Kit B (with castings) for 15 Students

Learn more about Who Took Fluffy?™ at Carolina.com.



Forensic Science

Comprehensive Investigation Kits

CSI: Crime Scene Investigators Middle School Kits

Bring the wonder and intrigue of forensics to your classroom

Grades 6-8.

Introduce middle schoolers to the fascinating field of forensics with these engaging kits. Designed as a week-long, cross-curricular unit, the activities in each kit focus on a fictional nonviolent crime yet use the same forensic principles found in real-world cases. Students investigate the crime by collecting evidence, analyzing their findings, and even staging a trial. Tailor the investigative experience to your class—the kits allow you to adapt, modify, or use parts of the lesson plans and activities as you see fit. These kits are sure to make an impression on your students.



212186 The Case of the Missing Mascot Kit

The Case of the Missing Mascot Kit

For a class of 30. The school mascot has been taken, and it's up to your students to solve the mystery before the big game! Was it one of the rival schools? In this cross-curricular investigation, students examine a note, some strange-looking leaves, a mouth guard, and some white fibers that were left at the scene. After fingerprinting the culprit, students stage a trial. Activities include analyzing DNA results; using dichotomous keys to identify selected plants; analyzing handwriting, fingerprints, and bite marks; as well as a fiber flame test. **Kit** includes activity materials. A teacher's guide, student worksheets, map, casebooks, answer keys, and extensive NGSS alignments are available for a free one-time download using a QR code. **Kit Refill** includes consumable components. Visit **Carolina.com** for a complete list of kit materials. **Note:** A microscope and flame source are needed but not supplied.

212186 Kit Each **\$255.00 212187** Kit Refill Each **\$143.00**

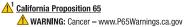


212184 The Case of the Contaminated Creek Kit

The Case of the Contaminated Creek Kit

Grades 6–8. For a class of 30. What? A crime in Crystal Creek? This "whodunit" cold case has an attention-grabbing environmental slant. Students analyze macroinvertebrate species, hair samples, glass samples, lip prints, DNA data, and other assorted clues as they try to deduce the mysteries surrounding the case of Crystal Creek. The cross-curricular kit even engages middle school students in an engineering project with design modifications. Kit includes activity materials. Teacher's manual, student worksheets, fake Facebook® pages, suspect videos, and answer keys are available for a free one-time download using a QR code. Kit Refill includes consumable components. Visit Carolina.com for a complete list of kit materials. Note: A microscope is needed but not supplied.

212184 Kit Each **\$245.00 212185** Kit Refill Each **\$171.00**





212182 The Case of the Lost Skull Kit

The Case of the Lost Skull Kit

Grades 6–8. For 30 students. A mysterious animal skull has been left outside your school. A shoe print has been left beside it, and there is other potential trace evidence in the area. This introductory forensic science unit shows your students how to address the question of who put it there or who stole the money that was inside the skull. This can either be a mystery or a crime scene. Students analyze fingerprint, blood, hair, fiber, imprint, and documentation evidence over the course of about 5 days. Kit includes activity materials. The teacher instructions, student worksheets, suggested cross-curricular activities, directions for how to stage a trial, and extensive NGSS alignments are available for a free one-time download by using a QR code. Kit Refill includes consumable components. Visit Carolina.com for a complete list of kit materials. Note: A microscope, hair spray, and a woman's shoe are needed but not supplied.

212182 Kit Each \$255.00 212183 Kit Refill Each \$136.75



212052 Fingerprinting Student Kit

Fingerprinting Student Kit A

Play the role of a forensic investigator and learn about dactyloscopy, the study of fingerprints, with this easy-to-use student kit. The included fingerprint reference sheets help students analyze the loops, arches, and whorls on their fingerprints. Kit includes 5 fingerprint cards, a pocket fingerprint pad, and cleaner towelettes for cleaning fingers.

212052 Per kit \$20.50

Comprehensive Investigation Kits

Carolina Beyond the Tape™

A fresh take on forensics for biology, chemistry, and physics

Immerse your classroom in a fictitious case as your students play the role of forensic lab technicians and attempt to piece together the evidence and help police solve the crime. Each kit is designed with engaging activities that place students in cases with alluring stories, crime scene reports, and realistic evidence-handling techniques.

Become a Forensic Investigator and Go Beyond the Tape

Case #1 Crash in the Night

- Chemistry
 - Unknown White **Powders**
 - Spectroscopy
- Biology
 - Presumptive Blood
 - Blood Typing
- Physics
 - Crash Modeling
 - Vehicle Weights

Case #2 Golden River Heist

- Chemistry
 - Ink Chromatography
 - · Gun Shot Residue
- Biology
 - Forensic Microscopy
 - Karyotyping

Crash in the Night Kit

Grade 9-College. A local power company's sign lies damaged and the police need your help to put together the pieces and identify the potential culprit. Students jump into the role of forensic scientists as they work to solve this fictional crime involving a car crash. Using deductive reasoning and scientific methodology, students process evidence from the crime scene and integrate conceptssuch as data analysis and scientific writing—to help build a compelling case. Students stay engaged throughout the investigation as they process blood evidence to learn about genetics for biology, identify unknown white powders to hone their chemistry knowledge, or recreate a crash model to reinforce physics principles. Each kit—designed for your discipline of choice—compellingly brings forensic science into your classroom. The kit is designed for at least 30 students working in 10 groups of 3.

211801	Crash in the Night Biology Kit	Each	\$104.25
<u>^</u> 1 211803	Crash in the Night Chemistry Kit	Each	\$94.25
211805	Crash in the Night Physics Kit	Each	\$123.75
<u>^</u> 1 211807	Crash in the Night Interdisciplinary Kit	Each	\$149.95



Forensic Science

211807 Crash in the Night Interdisciplinary Kit (in use)

Golden River Heist Kit

Grade 9-College. Crooks thought they'd pulled off the perfect crime, emptying the local bank's vault and apparently floating away down the river with the looted gold bricks. But they didn't count on a crack team of forensic investigators following hot on their trail. Your students become that team, jumping into the role of forensic scientists working to help "police" solve the fictional crime. Using deductive reasoning and scientific methodology, students process evidence from the crime scene and integrate concepts—such as data analysis and scientific writing—to help build a compelling case. Students stay engaged throughout each investigation as they: develop knowledge by conducting karyotype or forensic microscopy analysis for biology and learn more about chromatography by analyzing ransom-note ink for chemistry. Each kit—designed for your discipline of choice—compellingly brings forensic science into your classroom.

211814	Golden River Heist Biology Kit	Each	\$118.50
4 211816	Golden River Heist Chemistry Kit	Each	\$139.00
1 211820	Golden River Heist Interdisciplinary Kit	Each	\$209.95



211820 Golden River Heist Interdisciplinary Kit

Case #3 Lake Carson Crisis

- Chemistry
 - Phosphate and Nitrate Analysis
 - Dissolved Oxygen
- Biology
 - Algae Identification
 - Macroinvertebrates
- Physics
 - Conductivity
 - Reservoir Model

Lake Carson Crisis Kit

Grade 9-College. The Lake Carson City Park is in desperate need of your help. An algal bloom has broken out in the lake, and it is threatening to shut down local businesses and send this vacation paradise into a downward spiral. Lake Carson needs your students' help to solve its environmental dilemma. Students take on the role of environmental forensics experts, using engineering, modeling, deductive reasoning, and scientific methodology to piece together this scenario's events. They use their scientific background to eliminate suspects and identify the true culprit—and stay engaged throughout the investigation. Students use physics to build reservoir models and LED conductivity testers; test their chemistry skills with water quality assays; and hone their biology knowledge with macroinvertebrate identification. Each compelling kit—designed for your discipline of choice-brings forensic science into your classroom. Note: Order some kits with the perishable material included or with a voucher to request perishable later at your convenience. Contact us or return the voucher to request delivery of perishable material.

211827 Lake Carson Crisis Biology Kit (with voucher) \$86.00

Each

211827P Lake Carson Crisis Biology Kit (with perishable) \$86.00

Each

1 211833 Lake Carson Crisis Interdisciplinary Kit (with voucher) \$184.00

△³ 211833P

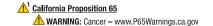
Lake Carson Crisis Interdisciplinary Kit (with perishable) \$184.00 Fach



211833P Lake Carson Crisis Interdisciplinary Kit (with perishable)



From 211833 Lake Carson Crisis Interdisciplinary Kit





Forensic Science Diablo Highway™ Forensic Science Labs

Comprehensive Investigation Kits

This suite of forensic lab activities designed for middle and high school students is based on an unsolved 1930s murder in the southwest Texas desert. Diablo Highway™ is objective-based learning that compels the application of science through real-world problem solving. In conducting the labs, students learn tools and techniques of modern science and apply them to solve the long-cold case.

Diablo Highway™ Forensic Science Lab Kits

Grades 7-12. Based on the true-life double murder of Hazel Frome and her daughter Nancy, killed on a southwest Texas desert road in March 1938, the Diablo Highway™ Full Kit contains 10 forensic lab activities for middle and high school students. The activities promote objective-based learning that compels the application of science through real-world problem solving and is aligned with grade-appropriate NGSS. The full kit provides sufficient materials for a class of 30 working in groups, plus teacher's guide, student's guide copy master, Story of the Crime booklet copy master, and 1-year access to the Online 3-D Evidence Viewer.

The student's quide includes:

- Clearly written, graphically rich, easy-to-understand science lessons
- · Easy-to-follow procedures for the lab activities
- · Answer tables that students record their results in and submit

- Everything included in the student's guide
- Teacher tips on how to prepare for and conduct the labs
- · An answer key

A series of Diablo Highway™ lab kits (sold separately) focus on forensic topics such as fiber analysis, shoe impressions, fingerprint analysis, and more. They enable students to take a closer look at the topics from the perspective of the Diablo Highway™ case. While based on details from the Diablo Highway™ Full Kit crime scene, the labs can also be used as standalone activities.

The Evidence Refill replenishes the full kit's evidence, and the Consumables Refill its consumable materials. The Shoe Impression Lab Kit Refill replenishes shoe impression materials in the full kit or the Shoe Impression Lab Kit. View lab kit descriptions and all materials lists at Carolina.com.

The Diablo Highway™: Online Forensic Science Lab Activity packs (items #212290, #212291, #212292, and #212293) are also available for online learning. Each pack contains 11 lessons and 9 lab activities for middle and high school students. Students access the material via a web browser on any device connected to the Internet, including desktop computers, Chromebook® computers, laptops,

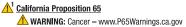
tablets, and smartphones. View pack descriptions and materials lists at Carolin			
<u> 1</u> 212188	Full Kit	Each	\$1,494.00
212287	Full Kit Evidence Refill	Each	\$351.00
212288	Full Kit Consumables Refill	Each	\$278.00
212280	Crime Scene Mapping Lab Kit	Each	\$169.00
212281	Blood Typing Lab Kit	Each	\$263.00
212282	Hair Analysis Lab Kit	Each	\$218.50
212283	Fingerprint Analysis Lab Kit—Option A	Each	\$212.00
212284	Shoe Impression Lab Kit—Option B	Each	\$412.00
212289	Shoe Impression Lab Kit Refill	Each	\$280.00
212285	Firearms Identification Lab Kit	Each	\$363.00
212286	Fiber Analysis Lab Kit	Each	\$169.00
New!212294	Tire Impression Lab Kit	Each	\$100.00
212290	Online Lab Activity, Small Class Pack	Each	\$145.00
212291	Online Lab Activity, Class Pack	Each	\$379.75
212292	Online Lab Activity, Department Pack	Each	\$954.00
212293	Online Lab Activity, District Pack	Each	\$2.890.00



212294 Tire Impression Lab Kit



212282 Diablo Highway Hair Analysis Lab Kit







*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.



212281 Diablo Highway Blood Typing Lab Kit



212283 Diablo Highway Fingerprint Analysis Lab Kit-Option A



Forensic Science



Learn more about Diablo Highway™ Forensic Science Lab Kits at Carolina.com.



212284 Diablo Highway Shoe Impression Lab Kit—Option B



212285 Diablo Highway Firearms Identification Lab Kit



212286 Diablo Highway Fiber Analysis Lab Kit



212287 Diablo Highway Full Kit Evidence Refill



212288 Diablo Highway Full Kit Consumables Refill

Forensic Science The Mystery of Lyle and Louise The Mystery of Lyle and Louise

Kits

Grade 9-College.

The Mystery of Lyle and Louise is a series of independent hands-on lab modules that introduce students to a range of techniques in forensic analysis. Using the modules, students process different evidence from multiple crime scenes in a complex murder mystery scenario set in a rural Appalachian town. An integration of biology, chemistry, mathematics, physics, and criminal justice, the series offers interdisciplinary activities matched to National Science Education Standards. Each kit includes supplies for up to 30 students working in 6 groups and an illustrated teacher's manual with technique background.





212401 The Mystery of Lyle and Louise: DNA Typing Kit

212402 The Mystery of Lyle and Louise: Bite Marks Analysis Kit

The Mystery of Lyle and Louise: DNA Typing Kit A

Identity crisis! Two women are identified post-mortem as Louise Mondelo. Using the latest in DNA-typing technology, students determine which body is actually Louise's. The kit introduces students to gel electrophoresis, polymerase chain reaction (PCR), and short tandem repeat (STR) DNA analysis. Students pour agarose gels, load DNA, run the gels, and analyze results to determine identity and paternity of victims. Note: Kit is very heat sensitive and arrives with at least 6 months of shelf life; refrigerate kit contents immediately upon arrival.

Kit includes:

6 Pre-Melted Agarose Gels BlueVis™ Staining Solution 2 Bottles BlueVis™ Gel Buffer DNA Evidence 6 InstaStain® Methylene Blue Sheets

Teacher's Manual

Needed but not included:

Gel Electrophoresis Apparatus with Power Supplies

Microwave

1-L Glass Bottle

Pipette for Pipetting 10 µL with Tips

5-mL Serological Pipette or 10-mL Graduated Cylinder

Lab Gloves Distilled Water

212401 Per kit \$249.50

The Mystery of Lyle and Louise: Bite Marks Analysis Kit

During a car crash investigation, John Wayne Gretsky presents a bite mark on his arm as an alibi, claiming he was bitten in a bar fight. Your students must determine if his bite is from a bar patron or, maybe, a car crash victim! After learning the basics of forensic odontology, students cast their teeth in wax and apply forensic techniques to identify the teeth. Each student then develops a personal set of objective criteria for bite marks analysis. These criteria are used as students attempt to determine the origin of the bite mark in a photo of John Wayne's arm. Refill includes 60 pieces of baseplate wax and evidence labels. Note: Kit can be shipped and stored at room temperature.

Kit includes:

60 Sheets Wax for Student Impressions

6 Car Crash Victim Wax Impressions

6 Actual Biter Wax Impressions

Wax Labels

6 Protractors

Teacher's Manual

Needed but not included:

Zipper Bags (optional) Lab Gloves (optional)

12402 Kit \$205.95 Fach **212407** Refill Fach \$74.00

To delve deeper into The Mystery of Lyle and Louise, go to Carolina.com where you'll find additional kits.

The Mystery of Lyle and Louise



212403 The Mystery of Lyle and Louise: Questioned Documents Kit

The Mystery of Lyle and Louise: Questioned Documents Kit

During the Mondelo murder investigation police begin to suspect business partner John Wayne Gretsky, finding questionable receipts on his desk. Students must determine if these receipts are legitimate business documents or evidence of a crime. They 1st determine objective criteria for handwriting analysis. After analyzing the handwriting, students dissolve ink gathered from numbers on the suspect invoices. Using thin-layer chromatography, students then create an ink profile for each sample taken from the receipt, determine if the same ink was used to fill out the entire form, and, finally, develop a theory of the suspected forgery. **Note:** *Kit can be shipped and stored at room temperature.*

\$218.50

\$144.00

Each

Each

12 TLC Plates*
6 Development Chambers
6 Bottles Solvent with Droppers*
6 Protractors

Kit includes:

ont Chambers
vent with Droppers*

Suspicious Receipts
with Copies*
Teacher's Manual

212403 Kit 212408 Refill (all * items)

Needed but not included:
100 Microcaps* Scissors

Scissors 12 Glass Microscope Slides 6–12 Forceps Lab Gloves



212405 The Mystery of Lyle and Louise: Hair and Fiber Analysis Kit

The Mystery of Lyle and Louise: Hair and Fiber Analysis Kit ▲3

A large amount of trace evidence is collected during the investigation of the cabin. Students are tasked with analyzing the hair and fiber evidence, learning about evidence handling and comparison. Hairs and fibers are removed from trace-evidence collection tape by dissolving tape adhesive in water, then filtering hairs and fibers from the resulting solution. Next, students characterize the hairs and fibers using microscopy. After processing all evidence, students attempt to match hair and fiber types found at different locations. **Note:** *Kit can be shipped and stored at room temperature.*

Kit includes:

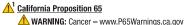
30 Cabin Evidence Collections
12 Suspect Evidence Collections
6 Truck Evidence Collections
Data Collection Worksheets
144 Microscope Slides with Coverslips
6 Bottles Mounting Media
Teacher's Manual

Needed but not included:

Filters, Funnels, and Filter Paper 6–12 Forceps Lab Gloves 6–12 Light-Transmitting Microscopes

212405 Per kit \$205.95

CAR@LINA®



Forensic Science



212404 The Mystery of Lyle and Louise: Blood Spatter Analysis Kit

The Mystery of Lyle and Louise: Blood Spatter Analysis Kit

After blood spatter is found at the cabin crime scene, students determine how the splatter formed. Students first learn about the techniques for blood-spatter pattern analysis, conducting an experiment to determine the relationship between height and angle of impact and size and shape of spatter. Students drop synthetic blood, from different heights and angles, onto paper, then measure the size and shape of those drops. Afterwards, students use a computer spreadsheet program to analyze data and build a mathematical model. They apply the mathematical model to blood-spatter patterns—simulated with a cardboard model—in the cabin. **Note:** *Kit can be shipped and stored at room temperature.*

6 Sets Crime Scene Blood

\$267.50

\$74.75

Snatter Images

6 Packages String*

6 Measuring Tapes

Teacher's Manual

Box Push-Pins

Each

Each

incl	

6 Cardboard Blood Drop Angle Supports 6 3-D Cardboard Cabin Models 50 Sheets 11 × 17" Paper*

6 Bottles Synthetic Blood*
6 Pasteur Pipettes

6 Pasteur Pipette Bulbs

212404 Kit 212409 Refill (all * items)

Needed but not included:

Lab Gloves
Computer with Microsoft®
Excel® or Other
Spreadsheet Program



212410 The Mystery of Lyle and Louise: Fire Debris Analysis Kit

The Mystery of Lyle and Louise: Fire Debris Analysis Kit A¹

When investigators discovered 3 deceased victims at a burned vehicle crash site over the side of Backbone Mountain, they questioned whether the burned vehicle was caused by the crash or foul play. Students examine fire debris from the interior of a burned vehicle at the site of an automobile crash. They learn how forensic scientists analyze fire debris for the presence of ignitable liquid residue in suspected arson cases, and to presumptively test fire debris for the presence of specific ignitable liquids by first analyzing known reference samples. Students then apply what they have learned to determine if the fire started under suspicious circumstances. **Note:** *Kit can be shipped and stored at room temperature.*

Kit includes:

3 Diesel Fuel-Spiked Carpet Reference Samples 3 Gasoline-Spiked Carpet Reference Samples 6 Diesel Fuel Colorimetric Gas Detection Tubes 6 Fire Debris Evidence Samples 6 Gasoline Colorimetric Gas Detection Tubes 12 Analysis Sample Containers 6 Colorimetric Tube Seals Teacher's Manual Needed but not included: 6 Heat Sources

(hot plate or Bunsen burner)
Lab Gloves

212410 Per kit \$269.93



Forensic Science

Ballistics, Tools, & Impressions

Ballistics, Tools, & Impressions



211865 Bullet Trajectory Investigation Kit



211870 Gunshot and Explosive Residue Testing Kit

SIRCHIE Bullet Trajectory Investigation Kit A forensic activity that is sure to hit the mark!

Grade 9-College. Students have the opportunity to learn and apply techniques used by crime scene technicians as they explore the science of bullet trajectories and shooting reconstruction. Kit is fully correlated to the Next Generation Science Standards* (NGSS) and includes 1-year access to a digital teacher's manual and student guide download. Activity is designed for a class of 32 students working in 8 groups of 4. Students will:

- · Calculate angle of incidence from a bullet hole
- · Distinguish entry vs. exit holes based on bullet wipe
- . Measure angle of incidence from a trajectory
- · Identify shooter height and location
- String and photograph scene for photographic documentation of evidence

SIRCHIE Gunshot and Explosive Residue Testing Kit 🕰

Grade 9-College. Here's an opportunity for your students to become crime scene technicians as they learn about explosive residue testing. Students perform chemical tests for the presence of explosive residue. They also observe a scanning electron microscopy (SEM) image for characteristic patterns of gunshot residue (GSR). Kit is fully correlated to the Next Generation Science Standards* (NGSS) and includes 1-year access to a digital teacher's manual and student guide download. Activity is designed for a class of 32 students working in pairs. Students will:

- Chemically test a sample for the presence of nitrates
- . Observe the collection of a sample for SEM testing
- Analyze an SEM micrograph of GSR for characteristic patterns
- Document the evidence collection process

211870 Per kit \$105.50

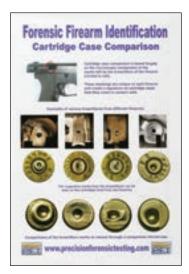


840580 Gunshot Residue Presumptive Test Kit

Gunshot Residue Presumptive Test Kit Λ^3

This 2-step presumptive test kit lets your students test surfaces for exposure to gunshot residue. The first step detects the presence of nitrates (the primary component of gunshot residue), and the second step detects the presence of heavy metals associated with gunshot residue. A positive test is indicated by an immediate color change. Includes instructions and materials sufficient for 30 tests.

840580 Per kit \$52.00



212156 Cartridge Case Comparison Poster

Cartridge Case Comparison Poster

Measures 24 × 36". High-quality pictures demonstrate the essential aspects of forensic firearm identification. A great addition to the Basic Forensic Firearm Identification Kit (item #212151). This poster focuses on cartridge case comparison, the marks associated with the comparisons, and the sources of those marks.

212156 Each \$17.95



212157 Bullet Comparison Poster

Bullet Comparison Poster

Measures 24 \times 36". The high-quality pictures on this poster help to demonstrate the essential aspects of forensic firearm identification. A great addition to the Basic Forensic Firearm Identification Kit (item #212151). This poster focuses on bullet comparison, the marks associated with the comparisons, and some of the different class characteristics.

CAR@LINA®

212157 Each \$17.95

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Ballistics, Tools, & Impressions



212151 Basic Firearm Identification Kit (above) and 212162 Advanced Firearm Identification Kit (right)

Forensic Science



212158 Serial Number Restoration Kit (above) and 212165 Magnetic Serial Number Restoration Kit (right)

Firearm Identification Kits

Make forensic firearm identification easy with real-world samples, actual crime lab procedures, and instructional support with high-quality images, videos, case studies, and more! The **Basic Kit** is designed for a class of 30 working in pairs, and it includes 3 lab exercises that have students analyzing fired bullets, barrels, and cartridge cases using included calipers to determine if a particular gun was used for a crime. Our Advanced Kit is designed for 24 students working in pairs and expands upon the Basic Kit by examining gunpowder and shotgun ammunition in depth with 3 unique lab exercises. **Advanced Kit** does not include, but strongly recommends calipers (item #702647 or #702651). All materials in both kits are safe. Visit **Carolina. com** for a complete list of kit materials. **Note:** *Not for use by children 12 and under.*

212151 Basic Kit Each **\$285.00 212162** Advanced Kit Each **\$265.00**

Serial Number Restoration Kits

Identifying serial numbers or markings are often destroyed by criminals so this information cannot be traced. As a result, serial number restoration has become an important part of forensic science. The **Serial Number Restoration Kit** includes 8 reusable samples, each of stainless steel and hot-rolled steel, with the original numbers obliterated, plus other materials for 24 students working in pairs; instructions; and a PowerPoint® presentation with high-quality photographs and video clips of serial number restoration. Ferric chloride, cupric chloride, hydrochloric acid, and nitric acid are chemicals that are needed but not included. The **Serial Number Restoration Expansion Pack** supplies 16 carbon steel pieces, letting you extend the use of the kit to larger classes, in multiple class periods, or to demonstrate a positive control. The **Magnetic Serial Number Restoration Kit** allows students working in groups of 3 or 4 to use magnetic particle solution to reveal obliterated serial numbers without the need of acids or a fume hood. Visit **Carolina.com** for complete lists of kit materials.

212158Serial Number Restoration KitEach\$340.00212159Serial Number Restoration Expansion PackEach\$77.00212165Magnetic Serial Number Restoration KitEach\$317.00

Accessories



212152 Bullet Display Set

Bullet Display Set A

These 14 unfired bullets include 2 each of jacketed, semi-jacketed hollow point, semi-jacketed soft point, lead round nose, semi-wadcutter, wadcutter, and boat tail bullets. Makes a great addition to the Basic Firearm Identification Kit (item #212151) and can be used as part of a practical exam sample. **Note:** *Not for use by children 12 and under.*

212152 Per set \$38.50



212153 Large Cutaway Barrel

Cutaway Barrel

In a cutaway barrel, you can easily see the imperfections created during the rifling and machining process. This oversized aluminum barrel (1" diam \times 5" L) has been cut in half to expose easy-to-see characteristics and markings. Makes a great addition to the Basic Firearm Identification Kit (item #212151). **Note:** *This barrel is safe for classroom use.*

212153 Each \$72.75



212155 Inert Display Cartridges

Inert Display Cartridges 🔥

This display set is just what you need to demonstrate the various parts of unfired cartridges. Each cartridge has been drilled through both sides and the primer has been drilled out, making them very safe for classroom use. Additionally, the holes through the side make them recognizably inert. This 6-pack includes a .308, .223, .38 Special, .45, .40, and 9-mm cartridge. Use these cartridges in a mock crime scene for a realistic effect. **Note:** *Not for use by children 12 and under.*

212155 Per set \$39.95

Forensic Science

Footwear Impression Analysis Kit

Can you identify the suspect by his or her footprints? This kit includes everything needed to introduce your class to the techniques of footwear impression analysis.

Using the same casting material that professional forensic scientists use, your students cast 12 classmates' shoes to see which matches the shoe print left at the scene of the crime. Includes casting material, Bio-Foam® Impression Foam, mixing bags, and instructions. With tire tread, 2-dimensional shoe print, and fingerprintlifting extension activities.

212112

Per kit **\$183.50**



212160 Toolmark Identification Kit



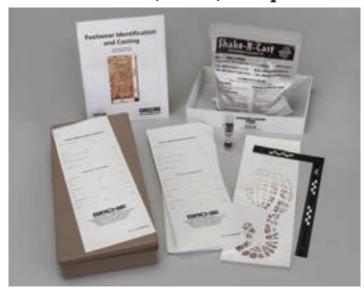
212161 Toolmark Identification Poster

Toolmark Identification Kit

The manufacturing process of toolmaking leaves patterns embedded in each tool's surface. These unique patterns become evidence when criminals use tools to commit a crime. Toolmark identification determines if a particular tool produced a mark. The Complete Kit has everything your students need to become expert analysts of tools and the marks made by them. With 4 lab exercises based on actual cases encountered in crime laboratories and a detailed PowerPoint® lecture on the manufacturing of tools, students can experience the same type of training given to forensic scientists. Kit also includes enough materials for 30 students and a test bank of questions based on the lecture. The Toolmark Identification Poster, which explores different tools and their respective marks, enhances your lesson.

212160 Complete Kit \$339.00 Fach 212161 Toolmark Identification Poster Each \$17.95

Ballistics, Tools, & Impressions



211855 Footwear Identification and Casting Kit

SIRCHIE Footwear Identification and Casting Kit

Give your students an opportunity to become crime scene technicians as they discover the science of footwear identification and casting. Utilizing the same materials and tools as crime scene technicians worldwide, your students get authentic firsthand experience with this activity. First, students make prints of their own shoes, using a special no-mess inkless shoe-print technology, to learn about pattern recognition. You then demonstrate the process of creating, cleaning, and handling a footwear cast using a no-mess, self-contained casting product designed specifically for crime scene field technicians. Kit activities and materials were developed in partnership with the forensics experts at Sirchie®, giving you a real-life forensics experience. Kit is designed for a class of 32 students working in 8 groups of 4. Visit Carolina.com for a complete list of kit materials.

211855 Per kit \$130.95



212199 Forensic Dental Analysis Kit

New! Forensic Dental Analysis Kit A

Introduce forensic odontology or dentistry with 8 different activities that engage students in learning a variety of forensic techniques to identify the suspect in a case. Students create a dental chart, dental castings, and bite impressions; identify a patient from dental records; and perform metric analysis of castings and bite marks. Upon completing this kit, students will walk away with an understanding of forensic identification through teeth, dental apparatuses, and markings that is sure to leave a lasting impression. Kit includes teacher's manual, student study guide copy masters, and materials sufficient for 30 students. Refill replaces consumable components. Visit Carolina.com for complete lists of kit materials.

212199 Each \$395.95 212199R Refill Each **\$257.95**

Fingerprinting & DNA Analysis

Fingerprinting & DNA Analysis



212050 Carolina Basic Fingerprinting Kit

Carolina® Basic Fingerprinting Kit ▲³ Put your print on your next classroom activity

- · Perfect introductory fingerprinting activity
- Introduce concepts such as pattern recognition, structure and function, and data analysis
- Engage your students with realistic forensics materials

Make your next classroom activity truly unique by having your students uncover their fingerprint patterns. A great introductory lesson for students of all backgrounds, this kit teaches about basic fingerprint patterns, minutiae, and the Henry system of classification. It includes enough materials for 30 students and is designed to be completed in a 45-min classroom period.

212050 Per kit **\$79.25**



699854 Forensic Chemistry of Fuming for Fingerprints Kit

Forensic Chemistry of Fuming for Fingerprints Kit

Students lift latent fingerprints using the iodine and cyanoacrylate fuming techniques employed by forensic scientists. They then learn how to analyze and identify those fingerprints through various distinguishing characteristics. Materials are sufficient for a class of 30 working in pairs or small groups. **Note:** *Sold only to schools.*

15 Sheets Black Plastic

Teacher's Manual

Student Guide Copy Masters

Kit includes:

Super Bonding Glue lodine Crystals Fingerprint Fixative 30 Fuming Trays

699854 Per kit \$76.95

alth Pleaders

Forensic Science

211850 Latent Print Development with Powders Kit

Latent Print Development with Powders Kit

Developed in partnership with the forensics experts at Sirchie®

Grade 9–College. Give your students a real-life forensics experience as they discover the science of finger-print development with powders. Kit is fully correlated to the Next Generation Science Standards* (NGSS) and includes a digital teacher's manual and student guide download. Activity is designed for a class of 32 students working in 8 groups of 4 and requires about 60 min of class time. Students will:

- Develop latent prints using black and fluorescent magnetic powders
- . Observe prints using an alternate light source
- Lift prints using hinge lifters
- Analyze and compare their lifted prints

211850 Per kit \$130.00

© SIRCHIE Chemical Development of Latent Prints Kit Develop excitement during your next forensics lesson!

Grade 9-College. Give your students the opportunity to become crime scene technicians as they discover the science of latent fingerprint development. Kit is fully correlated to the Next Generation Science Standards* (NGSS) and includes 1-year access to a digital teacher's manual and student guide download. Activity is designed for a class of 32 students working in 8 groups of 4. Students will:

- Develop fingerprints using ninhydrin and DFO
- Observe fingerprints developed by DFO with an alternate light source
- Compare running and non-running solvents for development of prints on a document
- Document the evidence collection process

211875 Per kit \$143.50





New! Carolina® Fingerprinting Bundle A

Teach your forensics students how to perform fingerprinting with ink, powder, and chemicals—using one bundle! This convenient, affordable bundle contains 3 different fingerprinting kits. It's perfect for a CTE or advanced forensics course. Each kit provides enough materials for a class of 30 students.

Bundle includes:

Carolina® Basic Fingerprinting Kit (item #212050) Latent Print Development with Powders Kit (item #211850) Chemical Development of Latent Prints Kit (item #211875)

212502 Per bundle \$309.95

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Forensic Science



212015 Caught by a Kiss Kit

Caught by a Kiss

Beginning—Easy to perform; requires little or no prior knowledge.

Students act as crime scene technicians to figure out which pieces of evidence from multiple crime scenes contain potentially useful DNA information. By detecting amylase activity, students infer the presence/absence of saliva on the evidence. Students learn why the detection of saliva is important at a crime scene, as well as how the amylase enzyme works. Materials supplied are for 6 groups of 4 students each to examine 4 different pieces of evidence. The **Refill** contains starch agar, petri dishes, and IKI solution.

Kit includes:

Melt 'n Pour Starch Agar Cotton Swabs and Plastic Cups Straws, Envelopes, and Toothpicks

212015 Kit Each \$70.75 Each \$45.00 212017 Refill

Petri Dishes and IKI Solution Teacher and Student Instructions

For our selection of DNA extraction kits, see page 229. From 211338

Strawberry DNA Extraction Kit



Fingerprinting & DNA Analysis



Results of 211205 Forensic DNA Fingerprinting Carolina BLU Kit

Forensic DNA Fingerprinting Kit

Advanced—For experienced high school and college classes; requires some technical skill.

Developed in cooperation with the DNA Learning Center, this advanced lab uses plasmid isolation and restriction analysis to illustrate forensic DNA typing. Students are provided with 2 samples of E. coli cells to represent blood samples from 2 suspects. Plasmid DNA is extracted using a miniprep procedure and cut with restriction enzymes, along with a DNA sample representing the evidence from a crime scene. The resulting "DNA fingerprints" of the suspects are compared for a match with the evidence. Materials are sufficient for 8 teams of students or 8 teacher demonstrations and include 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Foreign orders require special handling.



CarolinaBLU Kit (with voucher) Each \$176.75 CarolinaBLU Kit (with perishables) Each \$176.75 CarolinaBLU Kit Perishables Refill \$108.00 Each GelGreen Kit (with voucher) \$186.00 Each GelGreen Kit (with perishables) Each \$186.00 GelGreen Kit Perishables Refill \$118.04 Each

Exploring Electrophoresis Using Forensic DNA Evidence Kit

Intermediate—Easy to perform; requires some background knowledge.

- . Introduces students to the use of DNA analysis in forensic investigations
- Perform a technically simple, hands-on experiment in 45 minutes with 9-V batteries
- . Discuss advanced topics of PCR and DNA fingerprinting

Solve a forensic mystery using the tools of biotechnology and the concept of DNA fingerprinting. Students cast agarose gels, load predigested DNA samples, and perform electrophoresis. They stain the gels and analyze the banding patterns of DNA collected from the suspects and the crime scene. Includes beautifully illustrated instructions as well as needed materials and equipment. Demonstration Kit contains 1 set of apparatus and sufficient supplies for 1 instructor to demonstrate the lab twice to a classroom. Classroom Kit contains 5 sets of apparatus and sufficient supplies for 5 groups to perform the lab twice. Materials are durable and reusable with replacement parts available. Replacement Kit contains enough CarolinaBLU® stain, agarose, 20× TBE buffer, DNA evidence samples, and pipet tips for 5 groups of students to perform the lab twice. All kits include 1-year subscription to digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Distilled or deionized water, batteries or power supply, and hot water bath are needed but not supplied.

211033 Demonstration Kit \$82.00 Fach 211034 Classroom Kit \$309.00 Each 211038 Replacement Kit Each \$216.50







Blood & Blood Spatter

Blood & Blood Spatter



700113 Carolina Forensics Mystery with Synthetic Blood Kit

Carolina® Forensics Mystery with Synthetic Blood Kit

Students perform a simulated test for the presence of blood on evidence collected from 2 suspects in a murder case. They then use synthetic blood typing to test whether either suspect can be linked to the crime. Kit contains enough materials for a class of 30. Refill contains synthetic blood, antisera replacements, stained cloths, and phenolphthalein solution. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

700113 Kit Each \$55.75 700114 Refill Each \$32.25

Forensic Science



211860 Bloodstain Pattern Analysis Kit (in use)

SIRCHIE Bloodstain Pattern Analysis Kit Make an impact by showing your students how to interpret bloodstain patterns

Grade 9-College. Give your students the opportunity to become crime scene technicians as they analyze bloodstain patterns. Kit is fully correlated to the Next Generation Science Standards* (NGSS) and includes 1-year access to a digital teacher's manual and student guide download. Activity is designed for a class of 32 students working in 8 groups of 4. Students will:

- · Identify bloodstain patterns
- Use trigonometry to determine the angle of incidence
- · Document evidence collection

211860 Per kit \$109.95

- · Photograph bloodstain patterns
- Determine the point of origin for a blood pattern



212100 Where's the Victim? Blood Spatter Analysis Kit

Where's the Victim? Blood Spatter **Analysis Kit**

Learn how forensic scientists utilize blood spatter evidence found at a crime scene. With this kit, you and your students determine the angle of impact and point of origin of a simulated blood spatter from a crime scene. The simulated blood supplied with the kit is nontoxic, nonstaining, and looks and dries just like the real thing. This multidisciplinary kit is a great way to tie geometry, physics, and biology into one intriguing activity. Additional Carolina® Simulated Spatter Blood can be purchased separately to extend the use of this kit.

212100 Kit \$69.75 Each 212101 Simulated Spatter Blood 250 mL \$10.25



840582 Presumptive Blood Test Kit

Presumptive Blood Test Kit A

Perform the classic 3-step Kastle-Meyer test for blood using the premixed solutions in this convenient kit. In the test's final step, the sample is treated with hydrogen peroxide, which reacts with hemoglobin and phenolphthalein to produce a bright pink color. The test detects both human and animal blood. Includes instructions and materials sufficient for 30 tests.

840582 Per kit \$36.00



212103 Carolina Forensic Luminol Detection of Simulated Blood Kit

New! Carolina® Forensic Luminol **Detection of Simulated Blood Kit**

Use luminol to perform a presumptive blood test just like real life forensic investigators do without the need to stretch your budget! With this kit, students are presented with blood-like stains and challenged to use qualitative observation and luminol spray to identify which stains are, and are not, human blood. Confirmation of blood with luminol spray causes a brilliant blue glow that does not appear when treating non-blood substances. The included teacher and student guide also features suggested inquiry investigations that can additionally be performed with the kit materials, providing versatility and extended use for your classroom investigations. Visit Carolina.com for a complete list of kit materials. Carolina® Luminol Reactive Forensic Blood available separately. Designed for 4 groups of 2 to 4 students.

212103 Each \$39.95 212102 Carolina Luminol Reactive Forensic Blood 250 mL **\$14.95**

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Trace Evidence

Forensic Science Trace Evidence

Trace evidence is the material transferred between people, objects, and the environment during a crime such as hairs, fibers, plant material, glass, and powders. Carolina offers an assortment of trace evidence kits with forensic contexts and case studies to help make your next forensic investigation hands-on and engaging.



699871 His Hair. Her Hair. Whose Hair? Kit



699870 Hair Analysis Kit



291114 Hair Comparison Set

His Hair, Her Hair, Whose Hair? Kit

Beginning—Easy to perform: requires little or no prior knowledae.

"Who done it?" This inquiry-based kit lets students analyze suspects' hair samples to determine the culprit in a murder mystery. Materials are sufficient for 6 groups of students working cooperatively and include 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

4 Hair Samples (from suspects) Hair Sample (from crime scene) Blank Microscope Slides and Coverslips Latex, Mountant, and Slide Labels Teacher's Manual and Student Guide

699871 Per kit \$83.25

699880 Microscopic Forensics Kit

699875 Fiber Identification Kit

Fiber Identification Kit A

For a class of up to 30 students. Students identify an unknown fiber by performing identical tests on the unknown and on several reference fibers. Introduces students to basic investigative techniques. Identity of unknown is included with kit. With instructions.

Kit includes:

Sodium Hypochlorite Solution Unknown Fabric Multifiber Fabric Fiber Identification Stain Acetone Mountant Hydrochloric Acid Microscope Slides Acetic Acid Coverslips

Needed but not included:

Microscope

699875 Per kit \$102.00

Hair Analysis Kit

Students use techniques similar to those used by forensic scientists to examine hair from various species. Information gathered during the examinations is then used to identify a hair of unknown origin. With instructions.

Kit includes:

Cat Hair Unknown Hair Slide Labels Human Hair Microscope Slides Latex Mountant Coverslips Rat Hair

699870 Per kit \$68.75

Microscopic Forensics Kit

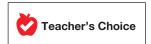
Grades 6-12. For a class of 30. Students go through forensic "training" by observing labeled slides of materials typically found by forensic investigators at a crime scene, including hair, blood, and textiles. After studying the known slides, students are presented with a mock murder mystery and "evidence" found at the crime scene. Students then examine the evidence, compare it to the testimonies of the suspects, and pinpoint the culprit. Kit includes a forensic slide set with accompanying descriptive text, mystery story, evidence, and teacher instructions. Kit Refill replenishes kit consumables or lets you use the kit in an additional class period. Visit Carolina.com for complete lists of kit materials.

\$122.00 699880 Each 699880R Kit Refill Each \$38.50

Hair Comparison Set

Fifteen slides representing rat, bat, cat, dog. goat, pig, cow, horse, opossum, muskrat, rabbit, and sheep hair. Human gray, straight, and curly hair are also included.

291114 Per set \$83.50







595570 Swift M3-F-BTW1 Digital Screen Forensic-Comparison Microscope

Visit Carolina.com and search "forensic comparison microscope."

Trace Evidence



699885 Trace Powder Evidence Inquiry Kit

Trace Powder Evidence Inquiry Kit

Grades 6–12. For a class of 32. Acting as members of a medical diagnostic team, students examine trace powder evidence collected from a fictitious scene, make observations, and construct diagrams of prepared slides of known powder samples. They then prepare slides with evidence collected from the scene. Students compare and contrast samples to make a supportable hypothesis regarding the type and source of the evidence. Students continue with an inquiry-based exercise, designing and conducting tests to determine other properties of the substance. The synthesis of their results with outside research either supports or refutes their hypothesis. These activities are designed for a class working cooperatively in 8 groups of 3 or 4 students each.

699885 Per kit \$109.95

Forensic Science



699852 Physical Properties of Glass Kit

Physical Properties of Glass Kit

Every piece of evidence provides a clue about a crime. This kit shows the physical and chemical characteristics of different types of glass to illustrate how forensic scientists assemble evidence to solve crimes. Materials are sufficient for 15 groups of students. Includes teacher's manual and student guide copy masters.

Kit includes:

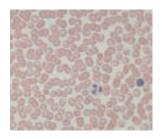
Borosilicate Glass Beads Soda-Lime Glass Beads 15 Magnifiers Flint Glass Beads Set of Refractive Index Solutions

TIL GIASS DEAUS SEL OF NETFACTIVE HIGEX SOLUT

699852 Per kit \$140.00

Forensics Body Fluid Slide Set

Enhance students' understanding of basic techniques applied in forensic science with this inquiry-centered activity set. Based on 3 forensic scenarios, students study prepared microscope slides of unknown body fluid samples and compare them to a visual database of known samples in order to identify the evidence found at a crime scene. Then they examine the morphology of spermatozoa and red blood cells



in various species, and distinguish gender based on chromosome analysis and the presence of Barr bodies. Contains a set of 11 prepared microscope slides, divided between 3 activity stations, and a teacher's manual with reproducible student sheets.

311962 Per set \$119.00

Cracking the Case with Botany

"Flowers for Freddy" Forensics Kit At

Beginning—Easy to perform; requires little or no prior knowledge.

Who murdered Freddy? Was it the florist in the flower bed, the vegetable supplier in the garden, or the fruit grower in the orchard? Students learn flower structure and how to use a dichotomous key as they pinpoint the murder site and narrow the list of suspects. Kit equips 6 groups of students and includes free 1-year access to digital resources that support 3-dimensional instruction.

Kit includes:

2 Kinds of Preserved Flowers (2 jars of 25 each) 24 Hand Lenses and 24 Forceps

6 Razor Blades, 6 Rulers, 12 Weigh Boats

Digital Resource Instruction Card Teacher's Manual and Reproducible Student Guide

223434 Per kit \$139.95

Customer Review

"My general biology for non-majors students enjoyed this kit. We used it as a review for flower anatomy, and they learned how to use a dichotomous key with the kit. In an evaluation given to the students after the assignment, 76% of the students found the assignment interesting, and 92% said the assignment kept them actively engaged in the lesson."

University Biology Professor



223434 Flowers for Freddy Forensics Kit

Forensic Science Forensic Anthropology & Death Forensic Anthropology & Death



From 246732 Who Owns These Bones? Kit

Who Owns These Bones? Kit

Students become forensic detectives in this real-life mystery

Beginning—Easy to perform; requires little or no prior knowledge.

- · Forensic bone activity kit stimulates student enthusiasm
- Hands-on activity for students of all ages
- · Enhances the science curriculum

How much can you learn about individuals by simply examining their bones? That's what students find out as they become forensic detectives in a local missing persons case. The kit comes with a set of 3 plastic bones (skull [with 3 removable teeth], arm bone, and leg bone) that were recently unearthed from a field near the school. After examining and identifying the bones, students use skeletal characteristics to determine as much information as possible about the person—including race, gender, and height. This forensics education kit includes instructions, the *Carolina® Guide to Bone Forensics*, and a 1-year subscription to digital resources.

246732 Per kit \$194.00



246735 Forensic Geographic Ancestry Human Skulls Set

New! Forensic Geographic Ancestry Human Skulls Set

Featuring ¹/₂-scale human skulls cast in fine detail, this set can engage students in authentic forensic anthropology investigations right out of the box. The 3 male and 3 female skulls present the key traits of African, Asian, or European ancestry, including eye orbit shape, palate shape, maxillary incisor shape, nasal aperture shape, presence or absence of a nasal spine, and nasal sill shape. Students use vernier calipers and detailed diagrams and reference tables in the *Carolina*® *Guide to Bone Forensics* to identify skeletal morphological differences by ancestry and sex. Convenient ¹/₂-scale size makes this set easy to store and handle.

Set includes:

- 3 Male Skulls (1/2 scale; separate cranium, jaw, and base)
- 3 Female Skulls (1/2 scale; separate cranium, jaw, and base)
- 6 Vernier Calipers
- 6 Copies of the *Carolina*® *Guide to Bone Forensics*

246735 Per set \$1,100.00



246734 Identifying Skeletal Remains Kit

Identifying Skeletal Remains Kit

Students use basic science process skills to solve a mystery in this investigation-based introduction to skeletal anatomy and forensic anthropology. Students act as forensic scientists as they examine and identify a variety of bones, predict their origins, and make inferences based on observations and evidence collected at the crime scene. Kit includes replica humerus, tibia, male and female pelvises, and a teacher's manual including blackline masters for reproducible student guides.

246734 Per kit \$193.50





Carolina® Osteometric Board

Economically priced and easy to use, the Carolina® Osteometric Board is a helpful addition to any forensic science lab. Constructed of lightweight, durable styrene, this anthropometric tool is uniquely designed for making linear measurements of long bones—such as the femur or humerus—where a caliper will not do. A linear scale (60 cm in 1-mm increments) is affixed directly onto the base of the measuring surface for reliable, high-precision results. With instructions. Size, 70 cm L \times 13 cm W \times 11 cm H.

249800 Each \$188.00

Forensic Anthropology & Death

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Carolina® Forensic Dissection Kit ▲¹ Featuring Carolina's Perfect Solution® specimens

- . A fresh, new approach to a classic mammalian dissection
- · Forensic education that really engages students
- Provides a "real-world" link

Capitalize on the current popularity of crime scene investigation TV with this unique forensic lab activity. Students conduct a pig dissection by modeling the protocols used by a pathologist for a human autopsy. They carefully record the external features and use a typical "Y" incision to open the body cavity for a detailed examination. Then they remove all the organ systems. When students complete the forensic dissection, they return the organs to the body cavity and suture the incisions. A Carolina's Perfect Solution® adult pig heart and pig kidney are also included for comparison with the dissected specimen. A set of 7 prepared slides allows students to extend and enhance the dissection by examining some of the tissue types found within each system.

The detailed teacher's manual includes a reproducible student guide with autopsy instructions, background information, color photographs and diagrams, an autopsy report, analysis questions, and a glossary of terms. Both kits include FREE 1-year access to digital resources. The **Student Kit** is for a small group of students working together at 1 station. The **Classroom Kit** is for a class of 32. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Classroom Kit includes:

8 Carolina's Perfect Solution® Pigs Carolina's Perfect Solution® Pig Heart Carolina's Perfect Solution® Pig Kidney 7 Prepared Microscope Slides (mammal artery and vein, fundic stomach, liver, lung, kidney, epididymis, and graafian follicles)

221488 Student Kit Each **\$92.50 221489** Classroom Kit Each **\$299.00**

8 Hand Lenses 40 Large Weigh Boats 8 Absorbent Pads 8 Sponges 8 Suture Needles Nylon Line





221489 Carolina Forensic Dissection Classroom Kit



267895 Forensic Insects

Forensic Insects

Biorama™ preparation. Certain insects offer a lot of clues for forensic scientists trying to determine the time of death. This hands-on exhibit features several of these insects and presents students with a visual understanding of just how insect life cycles serve as biological timers. The display shows the life stages of the blowfly using examples of eggs, larva, pupa, and adult with a description of the timing for each stage. The rove or hister beetle is similarly featured with examples of the egg, larva, and adult stages. Other general indicators included are the dermestid beetle and the clothes moth larva. All specimens, stored in vials, are fully labeled and housed in a 6 × 8" display case that brings crime scene science to the classroom.

267895 Each \$80.00



454403 Forensic Insect Identification Cards

Forensic Insect Identification Cards

Grades 6–12. James Castner and Jason Byrd. 2005. Your students can explore the world of forensic investigation with this unique set of 52 color photographs detailing the insect and other arthropod fauna most commonly encountered on human remains. In addition to the color photograph, each card contains a life-sized silhouette of the insect depicted and provides information on species distribution and identification. The set also includes an information card on the collection and preservation of the insects. Each card is laminated for durability, and the deck is held together by a grommet in one corner, which allows for quick and easy reference.

454403 Per set \$62.25





211880 Ötzi the Iceman-Pollen Tells a Story Kit

Ötzi the Iceman – Pollen Tells a Story Kit

Acting as forensic investigators, students use pollen as a forensic tool to piece together a timeline showing where Ötzi the Iceman, one of the world's oldest known natural mummies, may have traveled for the last 36 hours of his life. Through microscopy, they observe a variety of pollens from different geographic locations. Students then compare them with pollen samples from Ötzi's digestive tract to construct a map of his travels in the Ötzal Mountains, where he died. Kit is designed for 8 groups of 3 to 4 students. Includes teacher's manual with reproducible student guide and FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for complete list of kit materials.

211880 Per kit \$74.00

Forensic Science Toxicology & Drugs



New! Forensic Analysis of Narcotics Kit A

This kit gives students hands-on experience with an authentic simulation that challenges them to identify and analyze controlled or illicit substances just like forensic chemists do. Presented with unknown substances discovered at a crime scene, students perform a variety of presumptive tests alongside known controls to determine the most likely composition of the discovered substances. Focusing on narcotics with included simulated oxycodone and simulated Ecstasy, this kit is perfect for CTE and forensic courses seeking genuine activities with real-world connections. Includes teacher's manual and student study guide copy masters along with everything needed to perform the lab. Visit Carolina.com for complete list of kit materials. Designed for 15 groups of 2 students.

699886 Per kit \$99.95



699887 Forensic Urine Drug Test Kit

For a class of 30 students. This kit gives your students hands-on practice with different lab techniques to determine the presence of alcohol, illicit drugs, and pain medications present in the simulated urine samples of suspected criminals. It provides students with an experience similar to how investigations such as these are actually performed. Includes teacher's manual and student study guide copy masters along with everything needed to perform the lab. Visit Carolina.com for more information.

699887 Per kit \$150.00

Drug Analysis Kit

All materials necessary for 30 students to test for harmful contaminants in unknown over-the-counter simulated drugs (State Bureau of Investigation formulations). With instructions and background information.

Kit includes:

Simulated Cough Syrup Simulated Cold Medicine Simulated Sleep Aid Simulated Mouthwash 120 Plastic Cups Dilute Sodium Hydroxide Iron Sulfate Dilute Hydrochloric Acid Black Marker

699750 Per kit \$69.95



699750 Drug Analysis Kit



California Proposition 65

WARNING: Cancer – www.P65Warnings.ca.gov





Toxicology & Drugs





Blood Alcohol Determination Kit 1

Contains all materials necessary for 30 students to check the blood alcohol content of simulated blood samples (State Bureau of Investigation formulations). Includes alcohol indicator reagent, simulated blood samples, petri dishes, marking pen, instructions, and background information. **Note:** *Kit has a 4-month shelf life.*

699772 Per kit \$93.25



699837 Forensic Chemistry: Drug Detection Kit

Forensic Chemistry: Drug Detection Kit \triangle^2

All of the students who ate the chili in the school cafeteria became ill. As forensic toxicologists, your students are directed to perform a series of chemical tests to determine whether aspirin, stolen from the nurse's office, has been substituted for one of the chili ingredients. Materials are sufficient for 15 groups of students. Includes teacher's manual and student guide copy masters.

Kit includes:

Control Acetylsalicylic Acid 3 Bottles Chili Ingredients Ferric Nitrate, 0.2 M Solution Sodium Hydroxide, 1 M Solution Dilute Lugol's Iodine 15 Microreaction Plates Toothnicks

699837 Per kit **\$56.00**

Toxicology & Drugs

Forensic Science



699764 Introduction to Toxicology Kit

Introduction to Toxicology Kit

Kemtec®. Thin-layer chromatography is used to demonstrate state-of-the-art drugscreening techniques. Certain drugs included in this kit are weak concentrations of legal, but commonly abused, drugs. Illegal drugs are simulated by legal medicines which yield similar chromatographic results. Materials are sufficient for 24 students working in 6 groups of 4 students. Note: Sold only to schools and businesses.

699764 Per kit \$380.00



212145 Detection of an Art Forgery Kit

Detection of an Art Forgery Kit

Kemtec®. For centuries individuals have studied and copied paintings created by master artists. While forgery detection techniques have become more sophisticated. many forgeries escape detection. Through this activity, your students will learn techniques to help them distinguish authentic paintings from counterfeit. The kit provides "real" and "forged" paintings in the styles of Monet, Van Gogh, and Pollock. Materials sufficient for 24 students working in 6 groups of 4.

Magnifying Lenses

Instructor's Manual

Pipettes

Material Safety Data Sheets

Plastic Bottles with Caps

Kit	incl	lud	es

Lead Nitrate Potassium Chromate Paraffin Cubes **Original Paintings** Forged Paintings Single-Edge Razor Blades

212145 Kit Fach \$182.00 212146 Refill Each \$143.00

Needed but not included: Distilled Water 30 Small Test Tubes 30 Small Stoppers for Test Tubes 6 Matchbooks 6 Spatulas Ultraviolet Light

One Bite Out of Crime™ Kit

Kemtec®. Every human has a unique dental pattern. One Bite Out of Crime™ equips students with the skills that have helped forensic odontologists assess bite marks, identify individuals in mass disasters, and ID remains. Using the information provided, students make a cast of their own upper jaw, learn to identify teeth placement, make dental charts, learn the metric analysis of a bite mark, and match dental charts to identify a body. The kit includes enough materials for 24 students working in 6 groups of 4, as well as teacher, student, and assessment manuals.

212149 Kit Each \$515.00 212150 Each \$345.00 Refill



699768 Drugs and Poisons Analysis Kit

Drugs and Poisons Analysis Kit

Kemtec®. Chemical analytical techniques are used to identify over-the-counter drugs and to detect heavy metals in a simulated poisoning. Simulated controlled substances are tested. Students are introduced to qualitative analysis in the interesting context of criminal investigation. Materials are sufficient for 24 students working in 6 groups of 4 students. Note: Sold only to schools and businesses.

699768 Per kit \$289.00



699868 Document Analysis Kit

Document Analysis Kit

Investigations are performed that analyze various types of paper, inks, typewriting, and handwriting. Wet chemistry and chromatography are used in these analyses. Materials are sufficient for 24 students working in 6 groups of 4 students.

699868 Per kit \$275.00



212149 One Bite Out of Crime Kit

Forensic Science



699835 Crime Scene Investigation Lab

Crime Scene Investigation Lab 113

Students use standard forensic techniques to solve the Crime of the Missing Frogs from the Biology Classroom. Examination of fingerprints, hair samples, and the chemistry of ink—using thin-layer chromatography—reveal which of 4 possible suspects is the culprit. Kit equips a class of 24 students working in 6 groups. Teacher's manual and student guide copy masters are included.

4 Felt-Tip Markers

5 Evidence Envelopes

Capillary Tubes

Chromatography Solvent UN1170

6 Silica Gel Chromatography Sheets

Kit includes:

Fingerprinting Powder UN1361 6 Fingerprinting Brushes 6 Acetate Sheets

6 Hand Magnifiers

6 Forceps

699835 Per kit \$223.75

Trackers Manual Foreness Chemistry of Unidenan Substances 4-100

Toxicology & Drugs/ Crime Scene Mapping & Documentation

699850 Forensic Chemistry of Unknown Substances Kit

Forensic Chemistry of Unknown Substances Kit At

Forensic investigators collect samples of substances they cannot identify on site and send them to the forensic laboratory for analysis. In this activity, your students become forensic investigators as they use their observational skills, senses, and chemical tests on a series of known substances as well as 2 unknown substances. Then they attempt to identify the unknowns based upon their observations and recorded data. Materials are sufficient for 15 groups of students. Includes teacher's manual and student guide copy masters.

Kit includes:

Baking Powder Salt
Baking Soda Gelatin
Corn Starch Biuret Reagent
699850 Per kit \$121.75

Mystery Substance #1 Mystery Substance #2 Dilute Lugol's lodine Acetic Acid 30 Reaction Plates

Crime Scene Mapping & Documentation

Ink Pad

Coverslips

Microscope Slides



212280 Diablo Highway Crime Scene Mapping Lab Kit

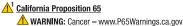
Diablo Highway™ Crime Scene Mapping Lab Kit

Grades 6–12. Students learn how to map physical space just like a forensic science investigator in this lab, including how to properly document a crime scene with photos, create a field sketch, and create a refined map to scale using the rectangular or coordinate system, compass point system, baseline system, or triangulation system. They learn how to use a microscope and their unaided eyes to master these techniques. This activity includes all the tools teachers and students need to conduct the lab (except for microscope, not included). Based on details from the Diablo Highway™ Kit (item #212188) crime scene, this lab can also be used as a stand-alone activity. Visit Carolina.com for complete list of kit materials.

212280 Per kit \$169.00



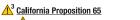
211845 Crime Scene Documentation Kit



SIRCHIE Crime Scene Documentation Kit

Grade 6–College. A serious crime has been committed. What's the first step in solving what happened and identifying the perpetrator? Proper documentation of the crime scene. Show your class the importance of gathering information from the crime scene while preserving the evidence. Students work in teams to reconstruct crime scenes—locating, sketching, and photographing the evidence, then reconstructing another team's crime scene using data collected by the other team. The skills your students learn from these activities stress the importance of meticulous documentation in order to build a case. Your students will easily connect with this hands-on, interactive kit. Kit materials equip a class of 30 students and include teacher's manual, student guide, and digital resources. Visit Carolina.com for a complete list of kit materials.

211845 Per kit \$119.25





Crime Scene Supplies

Forensic Science

Secure the Scene with These Actual **Crime Scene Supplies**



212123 Carolina Crime Scene Bundle

Carolina® Crime Scene Bundle

This set combines all of our most popular classroom crime scene supplies in one easy-to-store travel bag. Includes Magnetic Fingerprint Powder, Magnetic Fingerprint Powder Applicator, Crime Scene Tape with Dispenser, Crime Scene Evidence Markers, Chain of Custody Evidence Envelopes, and Travel Bag.

212123 Per set \$179.00

Use this 6" (15-mm) vinyl scale from Sirchie® for precise measurement when photographing evidence. The scale is 0.02" thick and is calibrated in both inches and millimeters with crosshairs at each end. The scale also features a flat finish designed to eliminate reflections.

211910 Pack of 10 \$21.25

211910 Photo Evidence Scale





SIRCHIE Mark-n-Doc Evidence Numbers

Mark items of interest and measure them at the same time using the metric scale on this 2-in-1 device. The plastic A-frame markers, numbered 1 to 20, are bright yellow with bold black lettering and have a 4.5-cm scale printed on the base. Multiple holes allow you to secure each plastic sign firmly on vertical surfaces. Set of 20.

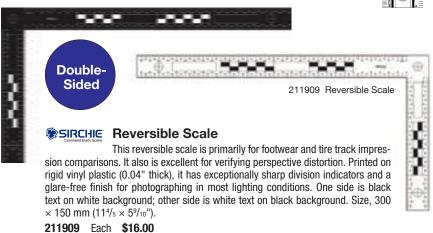
211922 Per set \$67.75



SIRCHIE Photo Evidence Numbers

These crime scene photo evidence indicators for forensic and identification photography allow your students to organize and begin to catalog evidence location. The plastic signs, numbered 1 to 15, are used at crime scenes to indicate the location of relevant evidence. They feature a matte finish to reduce reflections and are approximately 26/10" tall. Set of 15.

211920 Per set \$40.00



MARNING: Cancer – www.P65Warnings.ca.gov

SIRCHIE Yellow **Evidence**

Marking Flags A

Make evidence easy to relocate or photograph by marking it with these brightly colored evidence flags from Sirchie®. Flags are 21" tall and come in bright yellow with "EVIDENCE DO NOT TOUCH" printed in black. Pack of 100.

211917 Per pack \$27.00

211917 Yellow Evidence Marking Flags



MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

Forensic Science



Chain of Custody Evidence Envelope

Teach your budding forensic scientists the importance

of maintaining a proper chain of custody when processing a crime scene. These manila evidence envelopes include spaces for item description, case number, suspect, victim, type of offense, and chain of custody. Each measures 9×12 ". Pack of 100.

212122 Per pack **\$65.00**



211918 Evidence Identification Label

SIRCHIE Evidence Identification Label

This standard format "EVIDENCE" label has red lettering printed on white tape. It provides an authentic experience labeling and cataloging evidence for forensic activities. Label size, $1^{1}/_{2} \times 3^{\shortparallel}$. Dispenser box holds a roll of 100 labels.

211918 Each \$20.25

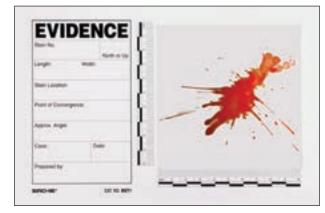


SIRCHIE Crime Scene Barrier Tape

Absolutely essential at the outset of any investigation is the securing of the integrity of the crime scene. Teach your students how to quickly and efficiently establish and maintain tight control over crime scene perimeters with this brilliant yellow warning tape. Box dispenser holds one 3" × 1,000-ft roll.

211919 Each \$25.95

Crime Scene Supplies



211921 Blood Stain/Evidence Template

SIRCHIE Blood Stain/Evidence Template

When it isn't possible or practical to analyze blood stains at the crime scene, this handy template lets you record the evidence in a format acceptable in most jurisdictions. Use this 1 template to document blood spatters, bullet holes, tool marks, and many other kinds of physical evidence. Template is die-cut and features a preprinted scale, information blanks, and a 10 \times 10-cm evidence area. Printed on pressure sensitive, removable adhesive paper that will hold fast to walls, floors, and ceilings. Pack of 15.

211921 Per pack \$12.25

Carolina® Simulated Spatter Blood

Use this "blood" to simulate the real thing with your forensics class. Nontoxic and nonstaining, it's ideal for blood spatter drop test, spatter pattern analysis, or as part of your mock crime scenes. Also can be a refill for Where's the Victim? Blood Spatter Analysis Kit (item #212100). 250-mL bottle.

212101 Per bottle \$10.25



212101 Carolina Simulated Spatter Blood

New! Carolina® Luminol Reactive Forensic Blood

This simulated spatter blood is formulated to react with luminol by glowing a brilliant blue hue when treated with your favorite luminol solution. Perfect for simulating presumptive blood tests. Apply traces or smears of this simulated blood on your mock crime scene, and have students use luminol to "confirm" the presence of blood—just like it is done in an actual crime scene! 250-mL bottle.

212102 Per bottle \$14.95



212102 Carolina Luminol Reactive Forensic Blood

New! Carolina® Forensic Luminol Spray

This luminol-solution spray for forensic blood detection is simple to prepare—just add water, and you're ready to spray! Simply add 250 mL of distilled water to the dry luminol reagent inside the spray bottle to produce a hydrated solution good for up to 2 days if kept refrigerated. No hydrogen peroxide catalyst needed. It will produce a bright blue glow when applied to luminol reactive substances; perfect for presumptive blood tests, just as they are done at crime scenes. Bottle contains 15 g of luminol reagent powder. For simulated blood that will react with Carolina® Forensic Luminol Spray, consider Carolina® Luminol Reactive Forensic Blood (item #212102), and for a non-reactive control, consider Carolina® Simulated Spatter Blood (item #212101).

212105 Per bottle \$12.95



212105 Carolina Forensic Luminol Spray

Crime Scene Supplies



SIRCHIE Bio-Foam® **Impression Foam**

Simply press any object into the Bio-Foam® block to create a permanent and accurate 3-dimensional impression. Castings can be made directly from the impression. The high-density foam provides extremely fine detail and comes packaged in a self-storing cardboard container. Available in Single or Double version. Impression area size, $13^3/4$ " L \times $5^7/8$ " W \times $2^1/4$ " H.

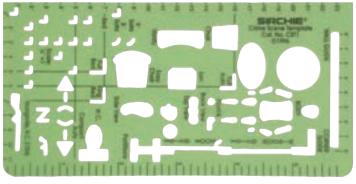
211944 Single Each \$13.95 211945 Each \$23.50 Double



SIRCHIE Aerosol Dust and Dirt Hardener A

Used to prepare footprints and tire tracks found in loose or sandy soil. This aerosolized method features a quick-drying, clear acrylic formula that adds superior strength to impressions, lessening the chance of detail damage due to the weight of the casting material. One can is enough for up to 30 full-size adult shoe impression applications. Use with Shake-N-Cast™ materials (items #211940 and #211942). 15-oz can.

211946 Each \$25.75



211912 Crime Scene Sketching Template

Sketching Templates

Re-create any crime scene in sketch form, without the burden of being an artist. These templates give you unmatched flexibility for drawing a variety of items quickly and accurately. Each Sirchie® sketching template offers a uniquely realistic experience, designed for law enforcement while meeting all of the durability needs of a classroom. The Crime Scene, Office Plan, and House Furnishings templates offer a 1/4" scale (1/4" = 1') and feature built-in rulers for accurate recreations. The Latent Print Evidence template is designed for documenting the location of lifted latent prints and is a perfect complement to our lifted print backing cards (item #211962), sold separately. Visit Carolina.com for more details about these products.

211912 Crime Scene \$21.25 Fach 211914 Office Plan Each \$41.75 Latent Print Evidence \$21.25 211916 Each

Visit Carolina.com for new products and current pricing.

Forensic Science



211941 Disposable Casting Tray (in use)

Shake-N-Cast™ **Impression System**

The no-mess, Sirchie®-designed Shake-N-Cast[™] is a self-contained, premeasured impression system ideal for classroom or field usage. The Shake-N-Cast™ Pouch contains proprietary gypsum casting material with an internal premeasured water capsule. To use, just break the water capsule, knead, and pour-no measuring required. Each pouch contains sufficient casting material for a full-sized adult shoe



211940 Shake-N-Cast Pouch

print. Disposable Casting Trays, sold in sets of 4, are made of durable Correx® that can be easily removed and discarded after use. The Shake-N-Cast™ Kit includes 4 Shake-N-Cast™ Pouches and 2 sets of Disposable Casting Trays, making the kit an economical option for casting either 1 large tire tread impression or 2 large footwear impressions.

211940 Shake-N-Cast Pouch Each \$32.75 211941 Disposable Casting Trays Set of 4 \$21.25 Shake-N-Cast Kit 211942 \$156.00 Each



211947 EZID Footwear Impression System

INCHIE EZID™ Footwear Impression System Create an impression in your classroom without leaving a mark

EZID™ Footwear Impression System from Sirchie® is the ideal classroom tool because it requires no cleanup. Simple to use, the system can record even the smallest details of wear and tear found on footwear. EZID™ Footwear Impression System consists of a pre-impregnated stain-free pad, pre-sensitized impression cards, and carrying case. A single EZID™ stain-free pad gives up to 250 footwear impressions. Since no ink is visible on the surface it is applied to, no cleanup is necessary. The reverse side of the impression cards is printed with an impression evidence report for recording all pertinent information. Additional Impression Cards and Refill Ink are available separately.

211947 **EZID Impression System** \$148.00 Each 211948 Impression Cards \$86.95 Pack of 200 211949 Refill Ink Fach \$26.25

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³ California Proposition 65</u>

Forensic Science

Fingerprinting Supplies



211930 Flawless Fingerprint Ink Pad

SIRCHIE Flawless Fingerprint Ink Pad ▲

This revolutionary new concept from Sirchie® for recording fingerprints features a specially designed microporous membrane that affords a much higher degree of detail in the fingerprint impression than conventional ink pads. Ink Pad provides just the right amount of ink on its surface—not too much and not too little. Size, $6^{1/4} \times 3^{4/10}$ "; wt, 3 oz. A **Replacement Ink Pad** is also available.

211930 Ink Pad Each \$32.50 \$23.95 Replacement Ink Pad Each 211931



This 5× flashlight magnifier is a handy tool that features optically ground and polished lenses. Perfect for classifying fingerprints and examining evidence. Operates on 2 C batteries (not included).

Each \$87.00 211939

Crime Scene Supplies

SIRCHIE Pocket Fingerprint Pad A

The Pocket Fingerprint Pad by Sirchie® is a portable ceramic fingerprint pad that doesn't compromise on quality. The pad provides exceptional contrast and is fully functional despite its easy-to-transport packaging. The small size also makes it perfect for use and storage in any classroom. Size, 15/8" diam.

211933 Each \$14.95



211933 Pocket Fingerprint Pad

AT NO MB245F

211937 Magic Orange Waterless Hand Cleaner

SIRCHIE Magic Orange Waterless **Hand Cleaner**

Sirchie's Magic Orange Waterless Hand Cleaner removes qun oils, powdered inks, glue, tar, adhesives, mechanic's grease, and, of course, fingerprint ink without the use of water. The 500-mL squeeze bottle is easy to use and ideal for classrooms after a fingerprinting activity. An economical option for any forensics classroom on a budget.

211937 Each \$14.00



211936 Super Cleaner Towelettes

Super Cleaner Towelettes

Super Cleaner Towelettes are individual, disposable ink-cleaning towels. Napkin-sized and saturated with ink solvent that is easy on skin and mildly fragrant, they guickly remove fingerprint ink or grime from hands and are excellent for field or classroom use. The towelettes feature Sirchie's special formulation; they are not the same as ones sold in retail stores. Pack of 100 individually wrapped towelettes.

211936 Per pack \$20.00



211935 Fingerprint Record Card

SIRCHIE Fingerprint Record Card

The standard 8 × 8" fingerprint record card features a super-smooth, brilliant white finish and fast ink absorption. Printed on tough 110-lb index card stock with nonfading ink and designed to federal law enforcement specifications. Pack of 100 cards.

211935 Per pack \$28.00

SIRCHIE Professional Fingerprint **Magnifier**

This professional magnifier enables viewers to examine fingerprints with great clarity and minimal distortion. It offers 4.5× magnification, 2-element glass optics, and easy height adjustment. Constructed of precision-machined aluminum with an optical black-anodized finish. The base is designed for use with PF series classification discs and features spring-loaded ball bearings, allowing viewers to rotate the classification discs a full 360°. Size, $7.6 \times 7.6 \times 9.5$ cm; wt, 213 g.

211938 Each \$99.25

211987



211938 Professional Fingerprint Magnifier

SIRCHIE Classification Discs

Use these classification discs with the Professional Fingerprint Magnifier (item #211938). The optical-quality glass with silk-screened lines is set in tempered aluminum that has an optical

black-anodized finish. 211981 **Battley Classification Disc** \$68.25 Each 211983 Henry Classification Disc Each \$36.50 211985 Henry/Battley Classification Disc \$72.00 Each

Miracode Palm Classification Disc

211981 Battlev Classification



\$72.75

Each

Crime Scene Supplies

Latent Fingerprinting Supplies



Fingerprint

Powder



211951 Megawand Magnetic Fingerprint Powder Applicator

211956 Orange Magnetic Latent Fingerprint Powder

SIRCHIE Magnetic Latent Fingerprinting Supplies

Combining years of fingerprinting expertise, the folks at Sirchie® have developed an easier way to dust for latent prints. Using specially designed applicators and magnetic powder, forensic investigators can quickly and easily dust for fingerprints on almost any surface. The Standard Applicator is designed for precision dusting on small to medium surfaces; the Megawand Applicator gives expanded coverage for large surfaces. Pairing these applicators with the specially formulated Black Magnetic Powder or Orange Magnetic Powder (1 oz each) can make teaching dusting for fingerprints exciting and fun, while keeping cleanup to a minimum. The orange powder is also fluorescent, adding another level of analysis to your evidence collection activities.

	211950 211951	Standard Applicator Megawand Applicator	\$26.75 \$39.50
<u>^</u> 1	211955 211956	Black Magnetic Powder Orange Magnetic Powder	 \$11.50 \$11.25



211950

Standard

Magnetic Fingerprint

Powder Applicator

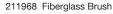
211973 Silver/Grav FLUOROMAG Latent Print Powder

INCHIE Silver/Gray FLUOROMAG Latent **Print Powder**

Combines the "no contact" advantage of magnetic powder with a highly fluorescent compound for use on multicolored backgrounds. The silver/gray powder appears bright yellow/green when illuminated by ultraviolet light. 2 oz.

211973 Each \$16.95







211972 Fluorescent Orange Fingerprint Powder

SIRCHIE Latent Fingerprinting Supplies

Combining years of fingerprinting expertise, the folks at Sirchie® have become experts in developing latent prints. These high-quality brushes and powders are designed to meet the needs of crime scene experts globally, making them the most realistic option for your forensics classroom. The Camel Hair Brush is a great option for a general-purpose dusting, while the Fiberglass Brush has the advantage of retaining the applied powder, which eliminates the need for replenishment. Black Powder, an industry standard, is the most versatile, while Fluorescent Orange Powder gives a contrast on dark surfaces and fluoresces under UV or blue light (254 to 525 nm). Using these brushes and powders will give your students the tools to dust for latent fingerprints just like the pros. Powders come in 2-oz containers.

211968	Fiberglass Brush	Each	\$16.95
211969	Camel Hair Brush	Each	\$8.50
211971	Black Powder, 2 oz	Each	\$12.25
211972	Fluorescent Orange Powder, 2 oz	Each	\$19.75



Forensic Science



211963 Hinge Fingerprint Lifter, White, $1^{1}/_{2} \times 2^{"}$



211964 Hinge Fingerprint Lifter, Transparent, 11/2 x 2"



211965 Hinge Fingerprint Lifter, White, 2 x 4"



211966 Hinge Fingerprint Lifter, Transparent, 2 x 4"

INCHIE Hinge Fingerprint Lifters

Sirchie® Hinge Fingerprint Lifters let vou quickly and easily lift fingerprints in the field or classroom. Available in 2 colors and 2 sizes to adapt to a variety of activities. The 11/2 \times 2" size is perfect for single fingerprint lifts; use the 2 \times 4" size for multiple prints or partial palm print analysis. The color options offer viewing versatility (white for increased contrast and transparent for 2-sided observation). Whatever size and color you choose, each lifter keeps the print in pristine condition.

211963	White, $1^{1}/_{2} \times 2^{"}$	Pack of 24	\$12.50
211964	Transparent, 11/2 × 2"	Pack of 24	\$12.50
211965	White, 2×4 "	Pack of 12	\$10.50
211966	Transparent, 2 × 4"	Pack of 12	\$10.25

SIRCHIE Fingerprint Lifting **Tape**

Professional-level latent fingerprint tape made by Sirchie®. Tape is pressure wound, heat treated, and "fish-eye" free, making it easy to analyze and lift your fingerprint evidence. After lifting powdered prints, easily mount the tape on the cast-coated, highgloss back side of Lifted Print Cards (item #211962), sold separately.

211960 2" × 30-ft Roll Each \$11.25 211961 11/2" × 30-ft Roll Each \$10.50



211960 Fingerprint Lifting Tape. 2" x 30-ft Roll

SIRCHIE Lifted Print Cards

After latent prints are devel-

oped, lift and mount them on the castcoated, high-gloss back side of the Sirchie® Lifted Print Cards. Use the card's front side to record case information, including a rough sketch of the location of the latent prints. Perfect for use with Fingerprint Lifting Tape (items #211960 and #211961) and Latent Print Evidence Template (item #211916). Card background is white for dark-colorpowder lifts. Card size, 3 × 5". Pack of 100.

211962 Per pack \$12.75



211962 Lifted Print Cards

Forensic Science

Kit-in-a-Can Compact **Fingerprint Kit**

This kit is loaded with the latest in fluorescent fingerprint technology.

Kit includes:

MicroBlue™ Light Source

- 2 Bottles PowderJet™ (no-waste, no-mess fingerprint powder)
- 2 Fiber Duster Brushes (flying filament-free brushes)
- 24 Fingerprint Lifters (2 × 2", clear)
- 12 Fingerprint Lifters (2 × 4", clear)

212135 Per kit \$168.00



699810 Fingerprint Kit

SIRCHIE Fingerprint Kit

Professional kit contains all materials needed to teach FBI fingerprint searching techniques. Students get handson experience in fingerprint detection. With instructions and carrying case.

212135

Kit-in-a-Can Compact

Fingerprint Kit

Kit includes: Black Print Powder Fingerprint Brush **Print Backing Sheets**

699810 Per kit \$130.00

Chemical Development of Prints

SIRCHIE Fuming Tray

Use with the Sirchie® Fuming Hot Plate (item #211980). Aluminum tray is designed for fuming with cyanoacrylate liquid fuming compounds. Pack of 25.

211982 Per pack \$6.50



211984 OMEGA-PRINT Fuming Compound



211982 Furning Tray

SIRCHIE OMEGA-PRINT™ Fuming Compound

This economically sized container is ideal for classrooms and labs. Container has a drop-dispensing cap that is resealable to ensure the integrity of the cyanoacrylate solution while in storage, 20 g (.70 fl oz).

211984 Each \$8.25

SIRCHIE Fuming Hot Plate ▲

An essential for chemical latent print development, this Fuming Hot Plate accelerates cyanoacrylate vaporization. Simply place it into your fuming chamber and add fuming compound. Recommended for use with OMEGA-PRINT™ cyanoacrylate fuming compound (item #211984) and aluminum Fuming Trays (item #211982). Prints develop in minutes-not hours. Operates on 110-V AC.

211980 Each \$29.00

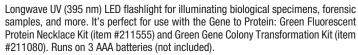
↑3 California Proposition 65

Crime Scene Supplies Alternative Light Sources



211902 Carolina UV LED Flashlight

Carolina® UV LED **Flashlight**



211902 Each \$28.50



SIRCHIE Longwave Mini UV Light

The Longwave UV Mini Light is a fully portable, battery-operated longwave UV light source for use in crime scene search and forensic teaching applications. The light is ideal for viewing invisible stains, powders, and pastes. Featuring a compact design (2" W \times 6¹/₄" H \times ³/₄" D), it is the ideal tool for field or classroom forensics activities. The unit has a peak wavelength of 365 nm and is powered by 4 AA alkaline batteries (not included). A Replacement Bulb is available for separate purchase.

211900 Mini UV Light Each \$53.50 211901 Replacement Bulb Each \$29.75



211905 Micro BlueMAXX

Micro BlueMAXX™

Sirchie's Micro BLUEMAXX™ is ready to go when you need it

Micro BLUEMAXX™ provides just the right amount of illumination for searching small areas, and its compact size makes it ideal for use in a small classroom. The unit includes a powerful LED blue light source housed in a durable metal body, plus an orange barrier filter. The filter slips easily onto the body of the light for added eye protection; when not in use, store the filter in the provided carrying case. The additional orange Barrier Filter Goggles offer extra protection from the Micro BLUE-MAXX™ light source, easily fit over prescription eyewear, and are necessary eye protection for conducting crime scene searches. Micro BLUEMAXX™ is powered by 3 AAAA batteries (included).

211905 Micro BLUEMAXX \$77.50 Each 211907 Barrier Filter Goggles Each \$39.50



3-Dimensional Learning

728 Overview

730 Life Science Kits

732 From Molecules to Organisms: Structures & Processes

737 Ecosystems: Interactions, Energy, & Dynamics

741 Heredity: Inheritance & Variation of Traits

743 Biological Evolution: Unity & Diversity

746 Chemistry Kits

748 Structure & Properties of Matter

752 Chemical & Nuclear Reactions

757 Energy in Chemical Processes

760 Physics Kits

762 Forces & Motion

763 Types of Interactions

765 Energy

767 Waves & Electromagnetic Radiation

770 Earth & Space Science Kits

772 Space Systems

773 History of Earth

774 Earth's Systems

776 Human Sustainability

777 Weather & Climate

3-Dimensional Learning



Solutions for the NGSS and 3-Dimensional Instruction

Carolina Kits 3D[®] investigations are built from the ground up to engage students in scientific and engineering practices while applying core ideas and crosscutting concepts—experiences that are key to thriving with the NGSS and phenomena-based learning.

Carolina's kit development team is aware of the many challenges facing teachers because they, too, have faced such issues.

- Time constraints
- Budget constraints
- Standards alignment
- Student engagement

Our team of scientist-teachers hones each kit so it is easy to implement and use, engages students, walks them toward success, and eases teacher workload.

Solutions for the NGSS and 3-Dimensional Instruction

3-Dimensional Learning

Carolina Kits 3D® also incorporate the 3 dimensions of NGSS into every learning opportunity to ensure a robust, effective lab experience. Three-dimensional learning combines what scientists and engineers do with what students need to know and understand, forming a learning progression.

Three Dimensions of Learning

Practices
Science and Engineering Practices that describe what scientists do to investigate the natural world and what engineers do to design
and build systems.

Science and

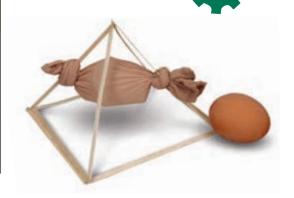
Engineering

Disciplinary Core Ideas

Disciplinary Core Ideas with broad importance in one or across multiple science or engineering disciplines.

Crosscutting Concepts

Crosscutting Concepts that help students explore connections across Physical Science, Life Science, Earth/Space Science, and Engineering and Technology Design.



With each Carolina Kits 3D® lab kit, we've done the legwork for you.

- Every kit teacher's manual clearly identifies NGSS performance expectations and learning objectives.
- The manual features tables, tips, and support to identify and reinforce the specific dimensions addressed in the activities.
- Investigative phenomena and driving questions help shape the lab experience to enhance student understanding.
- The materials you need for a successful, safe lab experience are included in the kit.
- Digital tools facilitate and supplement the lab.



For more than 90 years, Carolina has supported educators like you facing classroom challenges, and this time is no different. These are lab kits that you can trust and that can make your job easier as you implement new standards.



Learn more at Carolina.com/3D.

Instructional Segments and Hands-On Kits for High School Life Science



From Molecules to Organisms:

Structures and Processes

Structure and Function

Gene to Protein: 211555 Green Fluorescent Protein Necklace Modeling DNA to 211183 Protein Homeostasis in 206210 Animals Carolina® Forensic 221489 Dissection Modeling Kidney 695801 Function with

Growth and Development of Organisms

Concentration

Gradients and

Selective Permeability

KIT	
Planaria Regeneration	132900
Chromosome Simulation	171100

Organization for Matter and Energy Flow in Organisms

KIT	
Algae Bead Photosynthesis	206100
Food Nutrient Analysis	202500
Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads	202208
Carolina STEM Challenge®: Biofuels	180950

Ecosystems:

Interactions, Energy, and Dynamics

Interdependent Relationships in Ecosystems

Climate Patterns 187202
and Species
Distribution

Carrying Capacity
and Algal Blooms
with Spectroscopy
Chambers

Cycles of Matter and Energy Flows in Ecosystems

Matter Cycling and Energy Transfer in Lake Ecosystems
Food Chains and Energy Flow

Ecosystem Dynamics, Functioning, and Resilience

KIT

Changing Ecosystems	187222
Investigating Ecological Succession	187224
Oil Spill Bioremediation	181324
Human Impacts on Water Quality	187220

Social Interactions and Group Behavior

KIT	
Group Behavior	143725
and Social Insects	

Heredity:

Inheritance and Variation of Traits

Inheritance of Traits

Exploring 211034
Electrophoresis
Using Forensic
DNA Evidence

Variation of Traits

Genetics

KIT

DNA Damage: 173608
Studying the Impact
of UV Light

Wisconsin Fast 158940
Plants® 72-Hour
Monohybrid

Biological Evolution:

Unity and Diversity

Evidence of Common Ancestry and Diversity

Genetic Kinship: 211105
Following the Globin
Gene Through Time
Cladograms and 221042

Natural Selection

Evolution

Exploring Selection 158778 with Wisconsin Fast Plants® and Cotyledons

Modeling Population Genetics and Evolution

Adaptation and Biodiversity

Evolution in Real 171206
Time: Bacteria and
Antibiotic Resistance
Antibiotic Sensitivity 154740
Endangered Species 187206

Ready to explore our kits?

Here we've organized labs by core idea (topic) and instructional segment (unit). Don't miss our week-by-week lab activity guide on the next page.

Your Life Science Pacing Guide for 3-Dimensional Teaching

Successfully address phenomena throughout the school year with this week-by-week lab activity guide.

Planning Made Simple

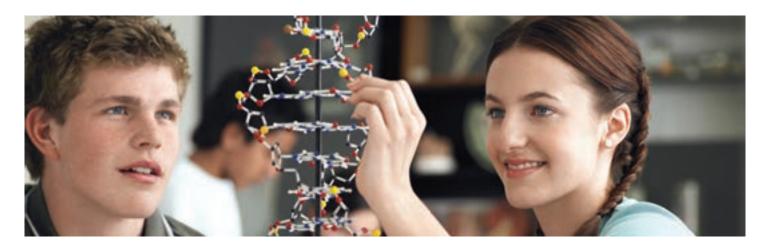
Week	PE		Lab Activity
1			Administrative, Safety, and Lab Skills
2	HS- LS1-1		Gene to Protein: Green Fluorescent Protein Necklace
3	HS- LS1-1	From I	Modeling DNA to Protein
4	HS- LS1-3	Molecule	Homeostasis in Animals
5	HS- LS1-2	es to Org	Carolina® Forensic Dissection
6	HS- LS1-2	From Molecules to Organisms	Modeling Kidney Function with Concentration Gradients and Selective Permeability
7	HS- LS1-4		Planaria Regeneration
8	HS- LS1-4		Chromosome Simulation
9	HS- LS3-5		Algae Bead Photosynthesis

Week	PE	Fro	Lab Activity
10	HS- LS1-6	m Mole	Food Nutrient Analysis
11	HS- LS1-7	cules to	Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads
12	HS- LS2-3	From Molecules to Organisms	Carolina STEM Challenge®: Biofuels
13		isms	Review/Evaluation/Remediation
14	HS- LS2-2	ŭ.	Climate Patterns and Species Distribution
15	HS- LS2-1	cosyste	Carrying Capacity and Algal Blooms with Spectroscopy Chambers
16	HS-LS2-3 HS-LS2-4 HS-LS2-5	Ecosystems and Interactions	Matter Cycling and Energy Transfer in Lake Ecosystems
17	HS- LS2-4	teractio	Food Chains and Energy Flow
18	HS- LS2-6	ns	Changing Ecosystems

Week	PE		Lab Activity
19	HS- LS2-6	Ecosy	Investigating Ecological Succession
20	HS- LS4-6	stems a	Oil Spill Bioremediation
21	HS- LS2-7	Ecosystems and Interactions	Human Impacts on Water Quality
22	HS- LS2-8	actions	Group Behavior and Social Insects
23			Review/Evaluation/Remediation
24	HS- LS3-1	He and	Exploring Electrophoresis Using Forensic DNA Evidence
25	HS- LS3-2	Heredity: Inheritance and Variation of Traits	DNA Damage: Studying the Impact of UV Light
26	HS- LS3-3	nheritar on of Tr	Wisconsin Fast Plants® 72-Hour Monohybrid Genetics
27		nce aits	Review/Evaluation/Remediation

Week	PE		Lab Activity
28	HS- LS4-1		Genetic Kinship: Following the Globin Gene Through Time
29	HS- LS4-1	Biologic	Cladograms and Evolution
30	HS-LS4-3 HS-LS4-4	al Evolu	Exploring Selection with Wisconsin Fast Plants® and Cotyledons
31	HS-LS3-3 HS-LS4-2	rtion: Un	Modeling Population Genetics and Evolution
32	HS- LS4-2	Biological Evolution: Unity and Diversity	Evolution in Real Time: Bacteria and Antibiotic Resistance
33	HS- LS4-4	Diversity	Antibiotic Sensitivity
34	HS- LS4-5		Endangered Species
35			Review/Evaluation/Remediation
36			Review and Final Exams

From Molecules to Organisms: Structure and Processes



Structure and Function

Structure and function begins at the molecular level and establishes patterns and models for organs, organ systems, and organisms. At the molecular level, genetic information in the form of deoxyribonucleic acid (DNA) molecules is the blueprint for protein synthesis, which allows cells to function. Groups of functioning cells then act as living organisms to carry out specific tasks. Organs and organ systems work together to form a complex organism.

Gene to Protein: Green Fluorescent Protein Necklace Kit

Illuminate the dark corners of your students' curiosity by teaching them about proteins. This simple classroom exercise enables students to isolate the green fluorescent protein (GFP) found in jellyfish, while teaching them about recombinant proteins and genetic engineering. After students isolate the GFP, they expose their samples to ultraviolet (UV) or blue LED light and watch them glow. Students then create necklaces with their glowing GFP and wear them proudly. With this beginner's activity, you can show your students that protein science can be approachable and engaging, but not overwhelming. Kits equip 32 students and include teacher's manual with reproducible student guide and 1-year access to digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

 211555
 Kit (with voucher)
 Each
 \$84.00

 211555P
 Kit (with perishables)
 Each
 \$84.00

 211902
 Carolina UV LED Flashlight
 Each
 \$28.50



211555P Gene to Protein: Green Fluorescent Protein Necklace Kit (with perishables)

Modeling DNA to Protein Kit

Students follow a hypothetical scenario of an infant, "Baby Terra," diagnosed with sickle cell disease. As they do, they are introduced to the process of translation by modeling the flow of genetic information on a region of the beta hemoglobin gene. The kit investigations allow students to model transcription and translation using unique magnetic nucleotide bases, develop their own protein translation model, and use clay to demonstrate the physiological effects of the sickle cell mutation. Have your students explore the question "Why did Baby Terra get sick?" through Mendelian and molecular modeling. The **1-Station Kit** equips 1 group of 4 students; the

8-Station Kit equips 32 students working in groups of 4. Both kits include digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

211181 1-Station Kit Each **\$47.50 211183** 8-Station Kit Each **\$189.95**





211181 Modeling DNA to Protein 1-Station Kit

3-Dimensional Learning

Homeostasis in Animals Kit

For a class of 32 working in groups. Maintaining homeostasis is one of the most important functions that animals perform for their own survival. While animals maintain some processes through behavioral changes, many are handled through physiological changes such as changing heart rate, sweating, or muscle contractions. In this 4-part lesson students first examine their own heart rate, then design their own experiment to test external stimuli on *Daphnia*'s cardiovascular system.

The activities address the following Next Generation Science Standards*: HS-LS1-3, Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. Includes digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable material included or with a voucher to request perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of material.

206210 Kit (with voucher) Each **\$56.75 206210P** Kit (with perishable) Each **\$56.75**



From 206210P Homeostasis in Animals Kit (with perishable)

Ö

Carolina® Forensic Dissection Kit △¹ Featuring Carolina's Perfect Solution® specimens

- A fresh, new approach to a classic mammalian dissection
- · Forensic education that really engages students
- · Provides a "real-world" link

Capitalize on the current popularity of crime scene investigation TV with this unique forensic lab activity. Students conduct a pig dissection by modeling the protocols used by a pathologist for a human autopsy. They carefully record the external features and use a typical "Y" incision to open the body cavity for a detailed examination. Then they remove all the organ systems. When students complete the forensic dissection, they return the organs to the body cavity and suture the incisions. A Carolina's Perfect Solution® adult pig heart and pig kidney are also included for comparison with the dissected specimen. A set of 7 prepared slides allows students to extend and enhance the dissection by examining some of the tissue types found within each system.

The detailed teacher's manual includes a reproducible student guide with autopsy instructions, background information, color photographs and diagrams, an autopsy report, analysis questions, and a glossary of terms. Both kits include FREE 1-year access to digital resources. The **Student Kit** is for a small group of students working together at 1 station. The **Classroom Kit** is for a class of 32. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits $3D^{\oplus}$ labs at **Carolina.com/3D**.

Classroom Kit includes:

8 Carolina's Perfect Solution® Pigs Carolina's Perfect Solution® Pig Heart Carolina's Perfect Solution® Pig Kidney 7 Prepared Microscope Slides (mammal artery and vein, fundic stomach, liver, lung, kidney, epididymis, and graafian follicles)

221488 Student Kit Each **\$92.50 221489** Classroom Kit Each **\$299.00**

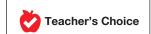
8 Hand Lenses 40 Large Weigh Boats 8 Absorbent Pads 8 Sponges 8 Suture Needles Nylon Line

Modeling Kidney Function with Concentration Gradients and Selective Permeability Kit ▲³

Students construct a model of a kidney and observe filtration of simulated kidney blood. Using a semipermeable membrane, students filter simulated kidney blood and test the solutions with simulated salt test strips. The simulated kidney blood contains microscopic, simulated red blood cells that cannot pass through the membrane but are easily observable under a microscope. Kit contains materials sufficient for 15 groups of students and includes a 1-year teacher subscription to digital resources; visit Carolina.com for a complete list of kit materials. Replacement 250-mL bottle of Carolina® Simulated Kidney Blood, which contains no real blood or blood products, is available. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

695801 Kit Each **\$73.55 695804** Carolina Simulated Kidney Blood Each **\$18.00**

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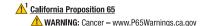




221489 Carolina Forensic Dissection Classroom Kit

695801 Modeling Kidney Function with Concentration Gradients and Selective Permeability Kit







Growth and Development of Organisms

Growth and development are characteristics of living organisms. For organisms to develop, parent cells must pass their genetic information to daughter cells during cell division, either asexually or sexually. Cell division through mitosis and gamete production through meiosis result in cells that can be differentiated into specific cell types, allowing for the complexity and diversity of living organisms.

Planaria Regeneration Kit

Regeneration—right in your lab! Allow your students to explore planarian regeneration over the course of a 2- to 6-week period. Students learn invertebrate laboratory techniques and concepts of polarity and microscopy, along with anatomical terms. Kit includes culture of planaria, enough lab materials for a class of 30 students working in groups of 3, detailed teacher and student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

132900 Kit (with perishable) Each **\$88.00 132902** Kit (with voucher) Each **\$88.00**







132900 Planaria Regeneration Kit (with perishable)



Chromosome Simulation Kit Chromosomes on the move

- · Modeling mitosis and meiosis has never been easier
- · Perfect classroom tool for assessment and reinforcement
- · Hands-on activity students are sure to remember
- Durable and long-lasting construction

Learning the phases of mitosis and meiosis isn't always easy for students. This chromosome simulation activity removes some of the confusion by taking chromosomes off the page and putting them in students' hands. Students get an opportunity to gain a deep understanding of mitosis and meiosis as they build their own chromosomes using pop beads and magnetic centromere connectors. Not only does the activity allow students to manipulate chromosomes through various stages of cellular division, it adds a layer of complexity by including events such as crossing over and chromosome aberrations. Both kits include teacher's manual and reproducible student guide. For replacement or bulk beads order **Pop-It Beads Set** and **Magnetic Centromeres**. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

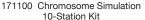
 171100
 10-Station Kit
 Each
 \$240.00

 171110
 1-Station Kit
 Each
 \$75.25

 171112
 Pop-It Beads Set
 Each
 \$117.50

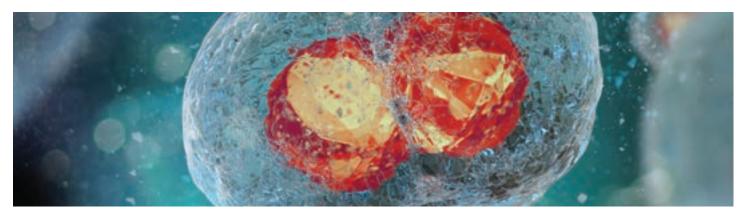
 171115
 Magnetic Centromeres
 Pack of 10
 \$45.75











3-Dimensional Learning

Organization for Matter and Energy Flow in Organisms

Energy for all living things comes from the sun. Plants convert matter and energy into sugar through photosynthesis. The sugar is used by plants and the animals that eat the plants as fuel for cellular respiration. The flow of matter and energy can be tracked from the cellular level using chemical equations to the ecosystem level using food webs.

Algae Bead Photosynthesis Kit A2

For a class of 30 students working in groups of 3. Looking for a way to brighten your photosynthesis lessons? Use algae beads! In this activity, students learn how to make their own algae beads and get hands-on experience developing and testing a hypothesis. They begin by learning about the correlation between light wavelength and photosynthesis. From there, student groups form hypotheses about how different colored light filters affect photosynthesis rate. Finally, they test their hypotheses using colored filters, their algae beads, and a bicarbonate indicator solution. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. This lab activity addresses the following Next Generation Science Standards*: HS-LS1-5 and HS-LS1-6. Visit Carolina.com for complete lists of kit materials. **Note:** Order the kit with the perishable material included or with a voucher to request perishables later at your convenience. Contact us or

return the voucher to request delivery of perishable material.

206100 Kit (with voucher) Each \$119.00

206100P Kit (with perishable) Each \$119.00



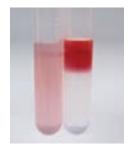
Food Nutrient Analysis Kit 🗥

In this introduction to food chemistry, students perform qualitative tests for sugar, starch, lipid, protein, and vitamin C on standards and control samples. Students then use these tests to determine the identity of 2 unknown substances. Instructional material describes the function of these nutrients in the body, their importance, and how the qualitative tests work. Materials are sufficient for a class of 30 working in pairs and include digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202500 Kit Each \$115.75 202501 Refill Each \$91.90







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202500 Food Nutrient Analysis Kit (above); in use (left)



3-Dimensional Learning

Life Science Kits



Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads Kit

For 32 students working in groups of 4. This kit introduces students to the cycling of carbon from glucose to carbon dioxide in aerobic and anaerobic conditions. Students develop a model based on initial observations in an open system. After measuring the volume of carbon dioxide evolution over time in a closed system, and observing an indicator for the presence of oxygen, they graph the rate of carbon dioxide evolution and revise their models. Kit provides enough consumable materials for 2 class sections and includes a 1-year single teacher subscription to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

202208 Per kit \$72.60



202208 Investigating Cellular Respiration and Anaerobic Processes in Yeast Beads Kit (left); in use (right)

Carolina STEM Challenge®: Biofuels Kit

This exciting STEM challenge will allow students to investigate the entire ethanol production process while learning about alcohol fermentation and exploring the role of enzymes. Students develop valuable engineering and critical thinking skills by competing to design an apparatus for measuring gas production during yeast fermentation. This lab is designed for a class of 32 students working in 8 groups of 4 and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

180950 Per kit \$87.50



180950 Carolina STEM Challenge: Biofuels Kit (left); in use (right)



3-Dimensional Learning

Ecosystems: Interactions, Energy, and Dynamics



Interdependent Relationships in Ecosystems

Within an ecosystem, relationships exist among organisms and the resources of that ecosystem. The kind and amount of resources determine the carrying capacity of populations within the ecosystem. Changes in biotic or abiotic factors can alter resource availability and affect population dynamics.

Climate Patterns and Species Distribution Kit

Grades 9-12. Students experimentally observe and evaluate the influence of climate patterns on the distribution of species. To do this, students expose cultures of mixed protists to different temperatures for a period of 3 days, making daily temperature recordings and assessing the taxonomic diversity. Kit accommodates a class of up to 30 students working in groups of 3. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable material included or with a voucher to request the perishable material later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to

ensure prompt arrival of material.

187202 Kit (with voucher)

Each **\$98.50**

187202P

Kit (with perishable) Each **\$98.50**



187202P Climate Patterns and Species Distribution Kit (with perishable)

Carrying Capacity and Algal Blooms Kit

Grades 9-12. Students investigate an algal bloom scenario and, in the process, explore factors that affect the carrying capacity of ecosystems. To do this, students use a spectroscopy chamber to monitor the growth of populations of algae in different concentrations of nutrient solutions. Kit accommodates 10 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with or without Carolina® Spectroscopy Chambers, and with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return

the voucher	at least 2 weeks prior to requested delivery date to ensure promp	t arrivai ot m
187014	Kit without Carolina Spectroscopy Chambers (with voucher)	Each
187014P	Kit without Carolina Spectroscopy Chambers (with perishables)	Each
187015	Kit with Carolina Spectroscopy Chambers (with voucher)	Each
187015P	Kit with Carolina Spectroscopy Chambers (with perishables)	Each
653355	Carolina Spectroscopy Chamber	Each
		5+ Each



187015P Carrying Capacity and Algal Blooms Kit with Carolina Spectroscopy Chambers (with perishables)

Cycles of Matter and Energy Flows in Ecosystems

As matter cycles through an ecosystem, raw materials are processed through chemical reactions to produce food. Food is consumed, producing waste materials, and waste materials decompose. At all phases, energy is transferred and transformed. The carbon and nitrogen cycles are particularly important because most living organisms require both elements. The cycles also have components found in the atmosphere, hydrosphere, geosphere, and biosphere.

Matter Cycling and Energy Transfer in Lake Ecosystems Kit

Students begin with the phenomenon of a fish kill that occurred in Lake Erie in late summer. Students strive to make sense of this phenomenon by gathering evidence through investigations, readings, and digital resources. As students move through the lesson, they conduct investigations where they use system models to collect evidence about the roles of producers and consumers in an ecosystem; they learn how abiotic factors, such as nutrient levels and temperature, can cause changes in the ecosystem; and they explore the relationships between ecosystem components. Throughout the investigations, students develop and revise their claim surrounding the causes of the fish kill. At the conclusion of the lesson students will use the evidence gathered to construct a final explanation for how changes in the lake ecosystem caused changes in matter cycling and energy transfer that, in turn, lead to the fish kill. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Visit Carolina.com for complete lists of kit materials. Note: Order the kit with perishable materials included or with a voucher to request delivery of perishables later at your convenience. Contact Carolina or return the voucher to request delivery of perishables. Residents of AK must apply for a permit from your state game and fish department to receive pond snails.

187114 Kit (with voucher) Each **\$70.80 187114P** Kit (with perishables) Each **\$70.80**

Food Chains and Energy Flow Kit A

Grades 9–12. Students examine microorganisms and create a food chain based on observed feeding patterns. Students explore energy transfer through different trophic levels of a food chain using a simulation activity. Using their finding that all energy is not transferred, students calculate the energy flow through the food chain they created. Kit accommodates 30 students working in pairs. Note: Order the kit with the perishable materials included or with a voucher to request the perishables later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials. Be sure to carefully plan the arrival of your perishables; Didinium will starve to death if not used within 1 day of receiving the culture.

 187104
 Kit (with voucher)
 Each
 \$98.50

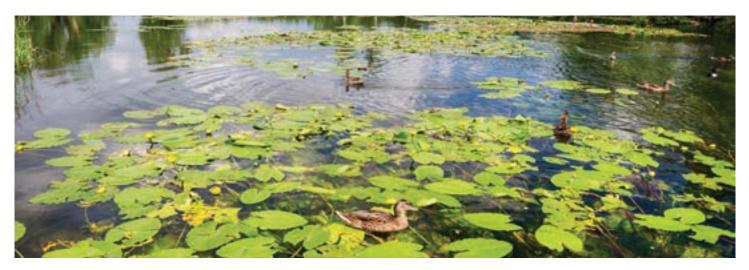
 187104P
 Kit (with perishables)
 Each
 \$98.50



187114P Matter Cycling and Energy Transfer in Lake Ecosystems Kit (with perishables)



187104P Food Chains and Energy Flow Kit (with perishables)



3-Dimensional Learning

Ecosystem Dynamics, Functioning, and Resilience

All ecosystems exist in a state of dynamic equilibrium with finite resources. When the ecosystem is disturbed through natural or man-made actions, organisms in the ecosystem must adjust to the disruption. Examining ways to restore ecosystems to their original balance is the role of conservation biologists.

Changing Ecosystems Kit

Students use a card game to model population changes in a temperate forest community as they explore how changes in ecosystems can lead to a loss of biodiversity. Students then evaluate the card game as a model and develop their own version to simulate population changes in a different community. Kit contains enough materials for 8 groups and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187222 Per kit \$71.50



181324 Oil Spill Bioremediation Kit

Oil Spill Bioremediation Kit

Grades 9–12. Students conduct and analyze a simulated bioremediation of an oil spill, then use their observations to attempt to improve the simulation. Finally, they explore data from the Deepwater Horizon oil spill and consider the role of bioremediation and the impacts of oil spills on ecosystems. Kit materials are sufficient for 32 students working in pairs and include digital resources. Kit Refill replenishes all kit consumable items. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

181324 Kit Each **\$96.00 181325** Kit Refill Each **\$22.25**



187222 Changing Ecosystems Kit



Investigating Ecological Succession Kit

Investigating Ecological Succession Kit 🕰

Grades 9–12. Students gather evidence over time as they observe and describe patterns in the relationships among populations within a hay infusion, a model pond. They explore how this model ecosystem changes over time and how these changes follow a general pattern called succession. Accommodates up to 8 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Kit includes a voucher to request perishable materials later at your convenience. Contact us or return the voucher at least 2 weeks prior to requested delivery date to ensure prompt arrival of materials.

187224 Per kit \$96.50



Human Impacts on Water Quality Kit

Grades 9–12. Students use a chromogenic medium to quantify any coliforms in water sources of their choosing and compare the results to local water regulations. They also analyze water samples from a fictitious location, attempting to determine a source of contamination. Then they propose design solutions that might reduce the environmental impacts of human activities linked to bacterial contamination of water. Kit accommodates up to 10 groups of students and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables.

187220 Kit (with voucher) Each **\$144.50 187220P** Kit (with perishables) Each **\$144.50**

187220P Human Impacts on Water Quality Kit (with perishabes)

3-Dimensional Learning

Social Interactions and Group Behavior

For a population of organisms to be successful, its offspring must live to reproduce and pass on the group's pool of genes. Social interactions and group behaviors like colonies and herds, communication techniques, and caste systems are tools organisms use to increase the likelihood of individuals surviving to reproduce.

Group Behavior and Social Insects Kit

It might take a village to raise a child, but in the case of social insects, it takes a colony to find food, raise young, and defend against threats. While humans can write down directions and instructions, bees and termites must use other means to communicate their needs and where best to find food. In this activity, students first examine cooperative foraging behavior in bees and model bee communication. Next, they identify how termites communicate with members of their colony and explore how cooperative behavior enhances individual survival. Students then assess their hypotheses and share results between groups. Kit supports a class of 30 students working in groups of 3 and includes free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs

at Carolina.com/3D. Note: Due to termites' natural life cycle, they are often fragile in early fall and may not ship well. Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials. Cannot be shipped into AZ or OR. Canadian customers must apply for a Canada Dept. of Agriculture permit.

 143725
 Kit (with voucher)
 Each
 \$63.55

 143725P
 Kit (with perishables)
 Each
 \$63.55



Group Behavior







3-Dimensional Learning

Heredity: Inheritance and Variation of Traits



Inheritance of Traits

Deoxyribonucleic acid (DNA) codes for the structure and function of every cell. That code is transcribed into RNA (ribonucleic acid) and translated into the proteins that form the cell structure and dictate the function of the cell. DNA replication is the mechanism for inheritance of traits.

Exploring Electrophoresis Using Forensic DNA Evidence Kit

Intermediate—Easy to perform; requires some background knowledge.

- Introduces students to the use of DNA analysis in forensic investigations
- Perform a technically simple, hands-on experiment in 45 minutes with 9-V batteries
- · Discuss advanced topics of PCR and DNA fingerprinting

Solve a forensic mystery using the tools of biotechnology and the concept of DNA fingerprinting. Students cast agarose gels, load predigested DNA samples, and perform electrophoresis. They stain the gels and analyze the banding patterns of DNA collected from the suspects and the crime scene. Includes beautifully illustrated instructions as well as needed materials and equipment. **Demonstration Kit** contains 1 set of apparatus and sufficient supplies for 1 instructor to demonstrate the lab twice to a classroom. **Classroom Kit** contains 5 sets of apparatus and sufficient supplies for 5 groups to perform the lab twice. Materials are durable and reusable with replacement parts available. **Replacement Kit** contains enough *Carolina*BLU® stain, agarose, 20× TBE buffer, DNA evidence samples, and pipet tips for 5 groups of students to perform the lab twice. All kits include 1-year subscription to digital resources; visit **Carolina.com** for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**. **Note:** *Distilled or deionized water, batteries or power supply, and hot water bath are needed but not supplied*.





To run the gel without batteries, use the USB-C Electrical Leads w/Insulated Alligator Clips (#211027); just plug them into the USB-C port! Visit Carolina.com for more details.

3-Dimensional LearningVariation of Traits

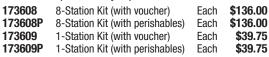
According to classical Mendelian genetics, parents pass traits to children in an ordered and predictable fashion. When the phenotype and associated genotype of the parents are known, the offspring's probable genotype can be predicted using Punnett squares. The reverse is also true. If the phenotypes and genotypes of the offspring in a generation are known, parent genotypes can be predicted. If predicted ratios of offspring do not match actual offspring, evidence of genetic mutations may be present.

DNA Damage: Studying the Impact of UV Light Kit

A fresh inquiry update to our popular Sunscreen for Yeast—and People Too! kit

- Directly demonstrate the importance of DNA repair systems
- . Meaningful real-world connection for students
- Learn how to best prevent/minimize exposure to ultraviolet (UV) light

Using a UV-sensitive mutant strain of the yeast *Saccharomyces cerevisiae*, students investigate the impact of UV light on living organisms. The *S. cerevisiae* mutant strain is extremely sensitive to UV light because it lacks an effective method for repairing damaged DNA. In the first activity, students determine the impact of UV light on 2 strains of yeast, wild-type and UV-sensitive. After understanding the true impact of UV light, students then have the opportunity to design their own inquiry investigation to determine how to best prevent UV damage to the UV-sensitive yeast strain. In the second activity, these investigations can have students testing various sunscreens, cloth samples, or myriad other options of their own choosing. This entire activity is accomplished in 3 to 4 class periods and will truly give you a great starting point for discussing DNA repair systems and the impact of UV light on the human body. The **8-Station Kit** includes enough materials for 32 students working in groups of 4; the **1-Station Kit** includes materials for 1 group of 4. Both kits include digital resources; visit **Carolina.com** for complete lists of materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D. Note:** *Order the kit with perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.*





173609P DNA Damage: Studying the Impact of UV Light 1-Station Kit (with perishables)

Wisconsin Fast Plants® 72-Hour Monohybrid Genetics Kit

Grades 8–12. For a class of up to 32 students. If you need a quick monohybrid genetics lab, this is it. Activities can be completed in as little as 3 days. By germinating Wisconsin Fast Plants® seeds, students working in groups of 4 study the inheritance of purple color through 3 generations of plants. Students also study a monohybrid cross that begins with a homozygous purple stem plant and a homozygous non-purple stem plant. In the 1st activity students prepare seed disks for germination in petri dishes. In the 2nd activity they observe the seedlings and collect and analyze data. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158940 Per kit \$105.00



158940 Wisconsin Fast Plants 72-Hour Monohybrid Genetics Kit





3-Dimensional Learning

Biological Evolution: Unity and Diversity



Evidence of Common Ancestry and Diversity

Different lines of evidence such as fossil records, skeletons, homologous structures, and analogous structures provide examples of commonalities and differences between organisms. They can be used to make a claim that organisms share a common ancestor. The development of an

evidence-based argument requires students to consider whether to present evidence of homology, analogy, both, or neither. Evidence can help students decipher differences between common ancestry, divergent evolution, and convergent evolution.

Genetic Kinship: Following the Globin Gene Through Time Kit

Intermediate—Easy to perform; requires some background knowledge.

This kit introduces genetic similarity and variation by evolutionary processes. Students can examine the evolution of the globin gene family with 3 dynamic activities. In the first activity, students use magnetic nucleotide bases to model DNA and RNA structure. They generate a mutation in the sequence and investigate subsequent changes in the amino acid sequence. In the second activity, students focus on gene duplication by making cladograms. In the final activity, students model biotechnology techniques including restriction enzyme digestion, polymerase chain reaction, and gel electrophoresis to diagnose an individual with sickle-cell anemia. The **1-Station Kit** equips up to 4 students; the **8-Station Kit** equips up to 32 students. Both kits include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Kit includes:

Nucleotide Magnet Set(s)
Magnet-Receptive Whiteboard
Container(s) with Lids
Teacher's Manual and Student Guide

211105 8-Station Kit Each **\$179.00 211108** 1-Station Kit Each **\$31.95**





Following the Globin Gene Through Time 1-Station Kit

Cladograms and Evolution Kit 🛕

In this classroom kit, students use 2 lines of evidence to model evolutionary relationships. First, students examine the external anatomy of 5 preserved specimens, note external morphological similarities between the animals, then create a cladogram based on anatomical similarities. Next, students compare the amino acid sequence of the cytochrome c protein of each specimen to this amino acid sequence in humans. Students then construct a second cladogram based on these molecular similarities. Using information from both exercises, they then create a revised cladogram that considers both morphological characteristics and genetic information. Kit is designed for a class of 32 students working in groups of 4 and includes 2 of each preserved specimen (grasshopper, crayfish, perch, frog, and rat), comprehensive teacher's manual with reproducible student guide, and FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

221042 Per kit \$84.00



California Proposition 65

WARNING: Cancer – www.P65Warnings.ca.gov

3-Dimensional LearningNatural Selection

All living systems (plants, animals, and prokaryotes) exhibit evolution. Charles Darwin concluded from his observations that natural selection is a cornerstone of evolution. He hypothesized that organisms with traits that give the individuals greater potential to out-compete others for resources have a better chance for survival and reproduction.

Selective breeding is an application of natural selection that manipulates the frequency of a trait that already exists in the population. Through selective breeding, individuals with a desired heritable trait breed, enhancing the frequency of the desirable trait within the population.



Exploring Selection with Wisconsin Fast Plants® and Cotyledons Kit

Grades 9–12. For a class of 30 students. Students grow Wisconsin Fast Plants® seedlings that can be dicots (having 2 cotyledons) or polycots (having more than 2 cotyledons). They are asked to develop an experiment to help determine why the seedlings vary in cotyledon number. Is the trait genetically or environmentally determined? In the second investigation, students germinate second generation seeds that were produced by a cross of 2 parents that both exhibited the polycot trait. Students then observe whether the percentage of polycots in the 2 generations differs and determine the statistical significance of any observed difference. Includes digital resources. Supports NGSS and 3-dimensional instruction. Visit Carolina.com for complete list of materials. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

158778 Per kit \$95.00

158778 Exploring Selection with Wisconsin Fast Plants and Cotyledons Kit

Modeling Population Genetics and Evolution Kit

Grades 9–12. Cichlid speciation in Lake Victoria introduces the investigative phenomenon of variation and distribution of expressed traits in a population and how this might lead to evolution. Over the course of 2 investigations, students use a card set and genetic corn to gather data about allelic frequencies and phenotypes in a stable population. In a third investigation, students plan, model, and present the results of genetic exchanges that disrupt genetic equilibrium. Students work toward answering the driving question, "How do scientists recognize that a population is evolving?" Kit accommodates 16 student groups and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

187016 Per kit \$152.00



187016 Modeling Population Genetics and Evolution Kit

Adaptation and Biodiversity

Adaptation drives evolution. When a specific adaptation builds up with great enough frequency within a population that the individuals with the adaptation can no longer breed with individuals without the adaptation, speciation has taken place. Where there was one species, now there are two. The biodiversity of the ecosystem is increased.

As alterations to ecosystems occur and selective pressures change, organisms adapt or die off. Understanding how variation in traits of offspring, from generation to generation, impacts survival is the basis for establishing the relationship between adaptation and biodiversity.

Evolution in Real Time: Bacteria and Antibiotic Resistance Kit

Looking for an engaging activity that blends the topic of evolution with the real-world issue of antibiotic resistance? In this experiment, students observe firsthand the evolution of a bacterial population's resistance to antibiotics over generations. It gives students the opportunity to use sterile technique, perform serial dilutions, plate bacteria, and understand the process of natural selection. The **8-Station Kit** is designed for 8 groups of 2 to 4 students each. The **1-Station Kit** is designed for 1 group of 2 to 4 students. All kits included digital resources; visit Carolina.com for complete lists of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishable materials.

171205 1-Station Kit (with voucher) Each \$73.00 171205P 1-Station Kit (with perishables) Each \$73.00 171206 8-Station Kit (with voucher) Each \$149.95 171206P 8-Station Kit (with perishables) Each \$149.95



171206P Evolution in Real Time: Bacteria and Antibiotic Resistance 8-Station Kit (with perishables)

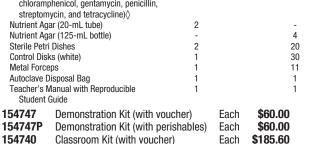
3-Dimensional Learning

Antibiotic Sensitivity Kit A2

Beginning—Easy to perform; requires no experience in microbiology.

Antibiotics are chemicals produced by one microbe that inhibit other microbes. Students study the effect of 6 different antibiotics on a Gram-positive bacterium and a Gram-negative bacterium. Exercise requires 3 consecutive days to complete Perfect for introducing beginner students to microbiology and antibiotic production. Demonstration Kit is for individual use by the teacher or a student; Classroom Kit is designed for a class of 30 students working in groups of 3. Both kits include comprehensive teacher's manual with reproducible student guide, as well as FREE 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Order the kit with the perishable materials (all \(\) items) included or with a voucher to request perishables later at your convenience. Contact us or return the voucher to request delivery of perishables. Keep bacteria cultures at room temperature; do not incubate or

refrigerate. Refrigerate antibiotic disk	ks until use; do not fre	eze.
Kits include:	Demonstration Kit	Classroom Kit
Bacillus cereus Broth Culture⟨>	1	1
Escherichia coli Broth Culture()	1	1
Antibiotic Disk Magazines (ampicillin,	2 disks of each	50 disks of each
chloramphenicol, gentamycin, penicillin	,	
streptomycin, and tetracycline)		
Nutrient Agar (20-mL tube)	2	-
Nutrient Agar (125-mL bottle)	-	4
Sterile Petri Dishes	2	20
Control Disks (white)	1	30
Metal Forceps	1	11
Autoclave Disposal Bag	1	1
Teacher's Manual with Reproducible	1	1
Student Guide		
4E4747 Demonstration I/H (with	Гааһ	ቀ ርር በር



Classroom Kit (with perishables)





Antibiotic Sensitivity

From 154740P Antibiotic Sensitivity Classroom Kit (with perishables)

Endangered Species Kit

Grades 9-12. Students explore how environmental changes affect species populations through a population modeling game, Struggle for Survival. After reflecting on what that model shows, students revise it by proposing "Game Changers" to make it more closely mimic natural systems. Accommodates a class of up to 40 student players. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Each

Kit includes:

154740P

40 Species Cards

200 Threat Cards (67 habitat loss, 54 overharvesting, 24 pollution, 17 disease, 15 invasive species,

13 climate change, 5 loss of prey, and 5 predation)

Needed but not included:

Several Large Plastic Cups (or similar containers)

187206 Per kit \$91.80



\$185.60

Teacher's Manual and Reproducible Student Guide





187206 Endangered Species Kit (above); in use (left)









Instructional Segments and Hands-On Kits for High School Chemistry



Structure and Properties of Matter

Periodic Table

KIT	
Periodic Table Inquiry	840074
Metal Activity Series	840319

Structure of Matter

KIT	
Energy Transformations with Irradiated Salt	840357
Chemical Bonding	840835
Patterns in Electrons and Chemical Bonding	841182
Like a Salt to a Flame	840307
Molecular Structure and Design	841174

Properties of Matter

KIT	
Super Water- Absorbent Polymers	840303
Making Sense of Solubility	841176
Modeling Phase Change	841168

Chemical and Nuclear Reactions

Understanding Chemical Reactions

KIT	
Balancing Chemical Equations	840656
Mystery Chemical Reactions	840660
Crystal Garden	820107
Petri Dish Electrolysis	840830

Stoichiometry

KIT	
Balloon Stoichiometry	840366
Introduction to Stoichiometry	840717
Carolina STEM Challenge®: Chemical Reaction Rockets	820103

Chemical Reaction Rates

KIT	
lodine Clock Reaction	840325
Reaction Rate of an Antacid	841166

Chemical Equilibrium

KIT	
Blue Bottle	840321
Under Pressure	840364
Chemical Equilibrium and Le Châtelier's Principle	840709

Nuclear Reactions

KIT	
Observing Ionizing Radiation Using a Cloud Chamber	840374
Radioactive Decay and Half-Life Simulations	840715

Energy in Chemical Processes

Energy and Kinetic Molecular Theory

KIT	
Combined Gas Laws	840289
Gas Laws	840375

Energy Transfer

KIT	
Endothermic Reaction: Beaker Freezer	840378
Carolina STEM Challenge®: Keep It Hot	750054
Heat of Combustion	841170

Thermodynamics

KIT	
Energy in Chemical Reactions	840744

Ready to explore our kits?

Here we've organized labs by core idea (topic) and instructional segment (unit). Don't miss our week-by-week lab activity guide on the next page.

3-Dimensional Learning

Your Chemistry Pacing Guide for 3-Dimensional Teaching

Successfully address phenomena throughout the school year with this week-by-week lab activity guide.

Planning Made Simple

Week	PE		Lab Activity
1			Administrative, Safety, and Lab Skills
2			Review algebra, atomic structure (MS-PS1-1), and chemical nomenclature
3	HS- PS1-1	Stru	Periodic Table Inquiry
4	HS- PS1-2	cture an	Metal Activity Series
5	HS- PS1-1	nd Prope	Like a Salt to a Flame
6	HS-PS1-2 HS-PS1-3	Structure and Properties of Matter	Chemical Bonding
7	HS-PS2-4 HS-PS1-1	Matter	Patterns in Electrons and Chemical Bonding
8	HS- PS2-4		Energy Transformations with Irradiated Salt
9	HS- PS2-6		Molecular Structure and Design
10	HS-PS1-3 HS-PS2-6		Making Sense of Solubility

Week	PE	P	Lab Activity
11	HS- PS2-6	Structure and Properties of Matter	Super Water-Absorbent Polymers
12	HS-PS1-3 HS-PS3-2		Modeling Phase Change
13			Review/Evaluation/Remediation
14	HS- PS1-7	Che	Balancing Chemical Equations
15	HS-PS1-7 HS-PS1-2	mical an	Mystery Chemical Reactions
16	HS- PS1-2	Chemical and Nuclear Reactions	Crystal Garden
17	HS- PS1-2		Petri Dish Electrolysis
18	HS- PS1-7		Balloon Stoichiometry

Week	PE		Lab Activity
19	HS-PS1-2 HS-PS1-7		Introduction to Stoichiometry
20	HS-PS1-6 HS-PS3-3		Carolina STEM Challenge®: Chemical Reaction Rockets
21	HS-PS1-4 HS-PS1-5	Che	lodine Clock Reaction
22	HS- PS1-5	Chemical and Nuclear Reactions	Reaction Rate of an Antacid
23	HS- PS1-5	nd Nucle	Blue Bottle
24	HS- PS1-6	ar Reac	Under Pressure
25	HS-PS1-5 HS-PS1-6	tions	Chemical Equilibrium and Le Châtelier's Principle
26	HS- PS1-8		Observing Ionizing Radiation Using a Cloud Chamber
27	HS- PS1-8		Radioactive Decay and Half-Life Simulations
28			Review/Evaluation/Remediation

Week	PE		Lab Activity
29	HS-PS3-2 HS-PS3-4	Energy in Chemical Processes	Combined Gas Laws
30	HS- PS3-2		Gas Laws
31	HS- PS1-4		Endothermic Reaction: Beaker Freezer
32	HS- PS3-4		Carolina STEM Challenge®: Keep It Hot
33	HS- PS3-1	ocesses	Heat of Combustion
34	HS-PS3-1 HS-PS1-4	U.	Energy in Chemical Reactions
35			Review/Evaluation/Remediation
36			Review and Final Exams

Structure and Properties of Matter



Periodic Table

Patterns in atomic structure and properties culminate in the development of an organizational and predictive model, the periodic table, which serves as a framework for additional concept development. Students analyze and interpret data on atomic structure and interactions of matter, and they construct a predictive and organizational model of elements that applies the principle of cause and effect.

Periodic Table Inquiry Kit

Students investigate periodicity by exploring and manipulating periodic table element cards. Through guided inquiry, they organize the element cards based on physical and chemical properties and identify trends for atomic radius, electronegativity, and ionization energy, then investigate periodicity. Materials support 10 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840074 Per kit \$25.30





840074 Periodic Table Inquiry Kit

Metal Activity Series Kit

Students use a series of experiments and logic exercises to build a mini activity series. After observing which metals replace ions of another metal compound in solution, students write balanced equations for each single-replacement reaction that occurs and determine a relative ranking of the metals. This kit is a great introduction or reinforcement of reaction types, redox reactions, and the metal activity series. Materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840319 Per kit \$44.70

(test tubes and rack not included)

Chemistry Kits

Structure of Matter

3-Dimensional Learning

The structure of matter, whether on the atomic scale or bulk scale, determines observable properties of matter. Students investigate atomic and molecular structure to recognize patterns among elements and between elements. They learn about these model atoms and how they interact through electrical attractions to bond together, modeling more complex structure of ionic and molecular compounds.



Patterns in Electrons and Chemical Bonding Kit

Go beyond the traditional pen-and-paper experience to help students explore electron configuration and ionic bonding as reflected in patterns found in the periodic table. Using the provided manipulatives, students model how electrons fill the sublevels (part 1) and how ions form compounds (part 2). These hands-on activities challenge students to think about chemical bonding on a particulate level while reinforcing the arrangement of the periodic table. Materials support 15 student groups; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

841182 Per kit \$75.00

Energy Transformations with Irradiated Salt Kit

Spark your students' interest in atomic theory and structure. Students observe thermoluminescence from irradiated salts on a hot plate and learn about excited states of electrons. Two different irradiated salts are included to allow students to compare released energy. This demonstration requires approximately 10 minutes, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840357 Per kit \$55.00

Chemical Bonding Kit A3

In this guided investigation, students learn the difference between ionic, covalent, and polar covalent bonds and use electronegativity data to classify bonds by type. Students also learn to draw Lewis structures and test water solubility, melting point, and conductivity of 6 compounds to determine whether their bonds are covalent or ionic. Materials are sufficient for 8 groups of 4 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840835 Per kit \$92.25



3-Dimensional Learning

Like a Salt to a Flame Kit

Generate excitement in your classroom and strengthen students' understanding of atomic structure and emission spectroscopy. Students observe the flames of 6 metal salts in this colorful demonstration, then relate flame test colors to concepts of electron excitation and quantum theory. This demonstration requires approximately 15 minutes, and materials support 10 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840307 Per kit \$47.95



840307 Like a Salt to a Flame Kit (above); in use (inset) (burner not included)

Chemistry Kits

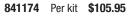


841174 Molecular Structure and Design Kit

Molecular Structure and Design Kit

Students design, produce, and test bioplastics to learn how the characteristics of plastics at the bulk scale are derived from their molecular structures. Combining their bioplastics analysis with prior knowledge of structural formulas, intermolecular forces, and polymers, students design a bioplastic film that meets an outlined set of requirements. Materials support 12 student groups and include digital resources; visit Carolina.com for a complete list of kit materials. For best results, the bio-

plastic samples should dry in an open, low-humidity area with good airflow. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: This lab requires a total of 6 days for sample drying: Investigation 1, the bioplastic preparation, requires 4 days; Investigation 2, the bioplastic film preparation, 2.







Chemistry Kits

Properties of Matter

3-Dimensional Learning

Students observe and quantify the bulk properties of matter and how atomic and molecular properties are related to structure. They also investigate patterns of properties as they change during physical processes like phase changes and chemical reactions.

Super Water-Absorbent Polymers Kit

Students make predictions about the behavior of 2 water-absorbent polymers, sodium polyacrylate and polyacrylamide, then observe their extraordinary absorbency. Next, they illustrate how the polymers form hydrogen bonds with water and brainstorm practical applications. This demonstration requires approximately 25 minutes, and materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840303 Per kit \$35.00



840303 Super Water-Absorbent Polymers Kit (right); in use (above)



Making Sense of Solubility Kit A

Students develop a general model of solubility based on their own empirical data collected by reacting aqueous solutions of ionic compounds. The final investigation guides students through the effect of pH on calcium carbonate solubility. Students combine their knowledge from the hands-on activities with their analysis of the provided graphs (solubility vs. pH, solubility vs. temperature, and solubility vs. pressure) to make sense of the phenomenon of how cave speleothems form. Kit materials support 10 groups and include digital resources; visit Carolina.com for a complete list of kit materials. General lab equipment and a mild acid such as 0.1-M hydrochloric acid or vinegar are needed but not supplied. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Hot plates and beakers are required for an optional hands-on investigation of how temperature affects solubility.

841176 Per kit \$97.85



Modeling Phase Change Kit ▲

Students create, analyze, and interpret thermal curve models and use the colligative property freezing-point depression to determine sample purity and the identity of an unknown. They connect prior knowledge about states of matter with intermolecular forces to better understand what happens on a molecular level during phase changes. General lab equipment, including forty-five 100-mL beakers, is needed but not included. Materials support 15 student pairs and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 30® labs at Carolina.com/3D. Note: Finely crushed ice (needed but not included) is recommended for optimal results.

841168 Per kit \$39.85





841168 Modeling Phase Change Kit (left); in use (above) (beaker, thermometer, and test tube clamp not included)



Chemical and Nuclear Reactions



Understanding Chemical Reactions

Students build upon their newly acquired understanding of the properties and structure of matter to learn about how elements combine to form new compounds, the forces that hold them together, the forces between particles and molecules, and the energy needed to break or form bonds. Students develop a conceptual model of chemical bonding, apply that model to identify types of chemical reactions, and use the law of conservation of mass to justify balancing chemical equations.



840656 Balancing Chemical Equations Kit



840660 Mystery Chemical Reactions Kit



820107 Crystal Garden Kit

Balancing Chemical Equations Kit

Introduce and reinforce balancing chemical equations with this model-based kit. Students use colorful manipulatives and a unique mat work surface to understand the law of conservation of mass and to visualize the number of atoms participating in each side of a chemical reaction. This activity also helps students understand the difference between coefficients and subscripts in chemical equations. The Expansion Pack extends the number and variety of equations students can balance using the Kit, enabling learners to gain practice with more challenging reactions. Kit and Expansion Pack combined provide fully reusable materials for 10 groups, pairs, or individual students. Both include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840656 Kit Each **\$65.95 840675** Expansion Pack Each **\$37.50**

Mystery Chemical Reactions Kit A3

Introduce students to a method of identifying unknown chemicals by their reaction types. Students investigate 45 different chemical reactions in this guided-inquiry microscale chemistry experiment. Using a unique reaction mat, students look for signs of chemical reaction, including formation of a precipitate, formation of a gas, and changes in color. They then use their data to identify 8 unknown chemicals, identifying the reactions' products, and practice writing chemical formulas from compound names. Microscale procedure makes setup and cleanup easy. **Kit** materials support 1 class working in 10 groups of 3 and include digital resources. **Value Kit** includes materials for 4 to 5 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

840660 Kit Each **\$85.50 840661** Value Kit Each **\$200.00**

Crystal Garden Kit

Grades 9–12. A garden in chemistry class? Yes! Thrill your students with colorful stalagmite-like columns of silicate precipitates forming in test tubes. Students observe how transition metal salts dissolve in an aqueous solution of sodium silicate, write balanced equations for the metallic silicates formed, and see how the osmotic pressure of water helps to create and lengthen the silicate columns. This is a great demo for lessons on solubility, reaction types, and osmosis. This support 5 gardens. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

820107 Per kit \$49.95

Chemistry Kits

Petri Dish Electrolysis Kit A3

Explore the fundamentals of electrolysis and redox reactions with this colorful, intuitive, multipart activity. First, students observe the electrolysis of water using a universal indicator solution and connect their observations to the chemical changes occurring at each electrode. Next, they investigate the differences between electrolytes in distilled and tap water. In the final activity, students study the electrolysis of aqueous potassium iodide and extend their learning to predict the half-reactions of similar halogen-containing compounds. Materials support 15 pairs. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840830 Per kit \$65.85

3-Dimensional Learning





840830 Petri Dish Electrolysis Kit

Stoichiometry

After mastering balancing chemical equations, students employ proportional reasoning to develop the concept of stoichiometry and stoichiometric ratios. Students use stoichiometric principles as evidence of, and examples of, the conservation of matter. Students use models and laboratory experiences to develop the relationship between the mathematics of chemical equations and the conservation of matter.

Balloon Stoichiometry Kit

Bring some clarity to the topic of limiting and excess reagents with this demonstration that's both quick and memorable. Students watch balloons fill with carbon dioxide gas from the reaction of sodium bicarbonate and hydrochloric acid. The acid and base will vary between limiting and excess in 3 flasks, resulting in differently sized balloons and a pH indicator color change in the solution. Students will write a bal-

anced equation for the reaction occurring in each flask and identify limiting reagents based on the mole ratios of reactants and products. This demo requires approximately 20 minutes, and materials support 4 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

840366 Per kit **\$31.50**

Balloon stoichiometry ide and al-



840366 Balloon Stoichiometry Kit (left); in use (above)

Introduction to Stoichiometry Kit

Remove stoichiometric confusion with this multi-activity kit. After predicting the mass or volume of reaction products, students use their observations and data collected during the experiments to calculate percent yield and percent error. The activities require approximately 90 minutes to complete. **Kit** materials support 1 class of 10 groups of 3 and include digital resources. **Value Kit** supports 4 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840717 Kit Each **\$79.95 840718** Value Kit Each **\$184.85**

Introduction to Stoichiometry DANIAN DANIAN

840718 Introduction to Stoichiometry Value Kit

Carolina STEM Challenge®: Chemical Reaction Rockets Kit 🔥

Grades 6–12. With this kit students learn about gas-forming chemical reactions by creating gas-powered rockets. After creating a simple rocket powered by the reaction between acetic acid and calcium carbonate, students modify the reaction and the design of the rocket tube to maximize altitude. In a classroom competition, student teams learn the real-world implications of the engineering design process. Kit materials include digital resources and support 15 student teams; the challenge requires 1 to 2 class periods. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D.

820103 Per kit \$78.00

820103 Carolina STEM Challenge: Chemical Reaction Rockets Kit (above); in use (left)

3-Dimensional Learning

Chemistry Kits

Chemical Reaction Rates

Through inquiry activities, students develop a model of the factors that affect the rate at which reactants become products. After identifying pertinent factors, students use their model of the inner working of the atom to explain the rates of chemical reactions, how those rates may be controlled, and whether energy is stored or released during interactions between atoms. Reaction kinetics draws upon several student-developed models, including atomic structure, atomic properties, chemical bonding, and conservation of mass/balanced chemical reactions.

Iodine Clock Reaction Kit

Timing is everything in this engaging demonstration of the classic iodine clock reaction! Students observe how temperature, concentration, and the addition of a catalyst affect the rate at which a colorless solution changes to a deep blue color. This demonstration requires approximately 15 minutes of prep time and 30 minutes of classroom

time. Materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina

Reaction Rate

of an Antacid

Kits 3D[®] labs at Carolina.com/3D.

840325 Per kit \$41.00



Iodine Clock

Reaction

Reaction Rate of an Antacid Kit

The acid-base neutralization in this lab simulates what happens when antacids are taken to alleviate indigestion. Students collect the carbon dioxide produced from the reaction, using the water displacement method. Through graphical analysis of the volume of gas collected over time, students determine the effect that changing the concentration of hydrochloric acid has on the reaction rate. Materials are sufficient for 15 student pairs.

General lab equipment and labware (ring stands, clamps, beakers, graduated cylinders) are needed but not supplied. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

841166 Per kit \$46.95





Chemistry Kits

3-Dimensional Learning

Chemical Equilibrium

Building upon the forces that drive chemical reactions, students develop a model of reversible reactions that leads to the development of the concept of chemical equilibrium. Students investigate dynamic and condition-dependent balanced systems and apply the results to a forward reaction and the reverse reaction. Mathematical models are generated to determine the numbers of all types of molecules present under a given set of conditions.



840321 Blue Bottle Kit (above); in use (inset) (bottles with lids not included)



840709 Chemical Equilibrium and Le Châtelier's Principle Kit

Blue Bottle Kit

Introduce your students to redox indicators and astonish them with a display of reaction kinetics by performing the classic blue bottle demonstration. Students discuss real-world and career applications of indicators and reaction kinetics, then draw upon prior knowledge to predict what will happen when you combine and shake a solution of dextrose, potassium hydroxide, and methylene blue. This demonstration requires approximately 5 minutes, and the kit contains materials to prepare 5 bottles. Each bottle can be used to perform the demonstration multiple times. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840321 Per kit \$46.75

Chemical Equilibrium and Le Châtelier's Principle Kit

Observe a dynamic equilibrium and Le Châtelier's principle in action while studying 4 different reactions. By adding acid or base, or by changing the temperature of a substance, students see how the equilibrium shifts to reactants or products. Common materials such as tea, starch, and milk of magnesia make this lab safer than most Le Châtelier activities. Materials support 10 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840709 Per kit \$75.00

Under Pressure Kit A2

Bring a dynamic example of Le Châtelier's principle to your classroom with this teacher-led, student-engaged demonstration kit. Students observe a shift in the solubility of carbon dioxide in seltzer water in action as pressure is applied to the system. A pH indicator gives visual clues to the equilibrium change. This demonstration requires approximately 10 minutes, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840364 Per kit \$19.00



840364 Under Pressure Kit



3-Dimensional Learning

Chemistry Kits

Nuclear Reactions

Students revise and enlarge their model of the atom to include nuclear structure, nuclear forces, and nuclear decay. They revise their early model of the atom to include nuclear changes such as alpha, beta, and gamma decay, and positron emission. Students also build on the law of conservation of mass to construct a model for the processes of fission and fusion by balancing nuclear equations and quantify changes in energy occurring during the processes.

Observing Ionizing Radiation Using a Cloud Chamber Kit

Expand your nuclear chemistry demos beyond simulations with this unique cloud chamber activity. Students observe the contrails formed as ionizing radiation travels through a cooled, supersaturated vapor. They illustrate and explain what is happening in the cloud chamber on a particulate level while learning about nuclear processes and nuclear equations. Students are challenged to connect their observations with the occurrences and uses of radioactive isotopes in the world. This demonstration requires approximately

20 minutes of classroom time, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.





840374 Observing Ionizing Radiation Using a Cloud Chamber Kit (right) and in use (left) (dry ice not included)

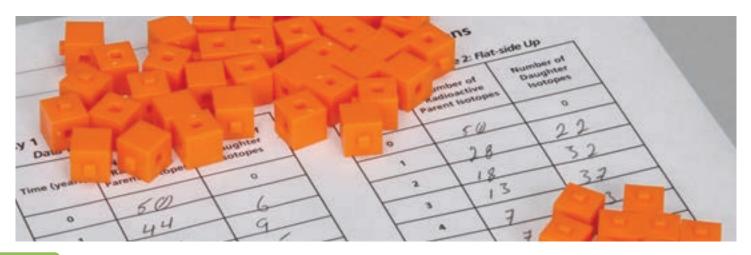


840715 Radioactive Decay and Half-Life Simulations Kit

Radioactive Decay and Half-Life Simulations Kit

Grades 9–12. Strengthen students' grasp of nuclear decay and half-lives with this 3-activity kit. Students simulate radioactive decay using both multi-faced cubes and water flow. Students then perform a radioactive decay series simulation of a "newly discovered" radio-isotope from an unstable nucleus to a stable nucleus. The card set for this activity allows students to mimic alpha, beta, gamma, and positron decay as their isotope forms daughter nuclei. The kit activities require approximately 2 hours of classroom time; complete the activities on separate days as needed. Materials support 10 groups of 1 to 4 students and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840715 Per kit \$76.95



3-Dimensional Learning

Energy in Chemical Processes



Energy and Kinetic Molecular Theory

Students develop an understanding that energy at both the macroscopic and the atomic scale can be accounted for as either motions of particles or energy associated with the configuration (relative positions) of particles. They use that understanding of kinetic and potential energy to construct an explanation for phase changes and gas behavior on the particle level leading to the development and computation of the gas laws.

Combined Gas Laws Kit

Along with the ideal gas law, students explore Avogadro's, Boyle's, Charles's, and Dalton's gas laws. They rotate through 11 activities and observe the relationships between volume, temperature, and pressure of a gas. In a separate activity, students construct a model of 1 mole of a gas at STP. Kit activities require 80 minutes. Materials support 11 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 30® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

840289 Per kit \$81.85





Gas Laws Kit A

In this 4-demonstration kit (which includes mystery flame, Charles's fountain, ideal sports ball, and Gay-Lussac's cooler), students observe the behavior of gases and apply the gas laws to explain their observations. Performing all demonstrations together requires approximately 40 minutes, but each may be performed individually in less time. Kit materials support 5 performances each of the 4 demonstrations and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840375 Per kit \$68.95

840375 Gas Laws Kit (left); in use (right) (football and electronic balance not included)



3-Dimensional Learning Energy Transfer

Chemistry Kits

Applying the concept of kinetic energy to chemical systems, students model energy transfer between components of a system. When 2 components of a system, at different temperatures, are combined in a closed system, the system reaches thermal equilibrium. Students generate data to construct mathematical models that are used to predict temperature changes and equilibrium temperatures, confirming energy flow through the system.

Endothermic Reaction: Beaker Freezer Kit A

Don't leave endothermic reactions out in the cold—showcase them with this impressive demonstration! Students observe how a reaction between 2 solid compounds absorbs heat from its surroundings and freezes a beaker to a wooden block. Students participate in the demo by making predictions based on prior knowledge and

creating particulate-level representations of the reaction. This demo requires approximately 10 minutes of classroom time, and materials support 6 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Sold only to schools and businesses.

840378 Per kit \$49.30





840378 Endothermic Reaction: Beaker Freezer Kit (above); in use (left) (temperature-resistant glove not included)



750054 Carolina STEM Challenge: Keep It Hot Kit (above); in use (right)

Carolina STEM Challenge®: Keep It Hot Kit

Grades 6–12. Explore energy transfer, specific heat, heat capacity, temperature, and insulation while designing a device that limits heat transfer. Materials support 15 design teams and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750054 Per kit \$88.95



Heat of Combustion Kit A

Grades 9–12. Calorimetry provides firsthand experience with the transformation of chemical energy to thermal energy. This lab is based on the phenomenon of the diesel engine as a thermal system. Students calculate the heat of combustion for prepared biodiesel, corn oil, and canola oil. Those values and the provided data for traditional petrodiesel fuels allow students to support their claims about the relative functionality of each fuel. Materials support 16 pairs and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: The biodiesel sample preparation process that is required before students begin the activity takes a minimum of 6 calendar days from start to finish.

841170 Per kit \$47.80



841170 Heat of Combustion Kit

Chemistry Kits

3-Dimensional Learning

Thermodynamics

Using laboratory data, students develop the concept of the first and second law of thermodynamics and then apply thermodynamic principles to explain energy changes accompanying chemical reactions. Students analyze and interpret data to classify endothermic and exothermic reactions and calculate thermodynamic values for enthalpy and entropy. They also verify that in a chemical reaction, the energy stored in chemical bonds may be converted into other forms of energy such as light and heat, reinforcing the law of conservation of energy.

Energy in Chemical Reactions Kit A

Grades 9–12. Heat up your study of thermodynamics with this 2-activity kit. Investigate the thermodynamics of physical and chemical changes that absorb and release heat energy. Using a coffee cup calorimeter, students calculate the heats of a solution of 2 salt compounds. In the second activity, students determine the heat of combustion of a hydrocarbon using a soda can calorimeter. Requires approximately 45 minutes. Kit materials support 1 class of 10 groups of 3 and include digital resources. Value Kit supports 4 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840744 Kit Each **\$42.85 840746** Value Kit Each **\$104.85**





840744 Energy in Chemical Reactions Kit (above); in use (left)



Instructional Segments and Hands-On Kits for High School Physics



Forces and Motion

Newton's Laws of Motion

KIT

Carolina® 751463 Introduction to Force and Motion

Momentum

KIT

Carolina STEM 750046 Challenge®: Egg Drop

Forces and Collisions

KIT

Carolina® 751664 Introduction to Momentum and Collisions

Types of Interactions

Gravitational and Electrostatic Forces

KIT

Carolina® 756020
Coulomb's Law
Carolina® Mapping 756010
Electric Fields

Electricity and Magnetism

KIT

Carolina® 758661 Introduction to Electromagnetism

Carolina® 758231 Introduction to Magnetism

Carolina® Ohm's 754034 Law and Kirchhoff's Rules

Materials Design

KIT

Molecular Structure 841174 and Design

Energy

Nuclear Energy and Processes

KIT

Observing Ionizing 840374
Radiation Using a
Cloud Chamber

Radioactive Decay 840715 and Half-Life Simulations

Energy and Energy Transformations

KIT

Carolina® First and 753720 Second Laws of Thermodynamics

Carolina STEM 180952 Challenge®: Hydroelectric Power

Energy in Everyday Life

KIT

Carolina STEM 180962 Challenge®: Passive Solar Design

Waves and Electromagnetic Radiation

Wave Properties

KIT

Carolina® 754086
Introduction to
Waves
Carolina STEM 750049

Carolina STEM Challenge®: Wave Machine

Electromagnetic Radiation

KIT

Determining 754030
Planck's Constant
with LEDs: Investigating
the Photoelectric Effect
and Electronic Light
Sensors

Information Technologies and Instrumentation

KIT

Carolina® AM 754010 Crystal Radio

Ready to explore our kits?

Here we've organized labs by core idea (topic) and instructional segment (unit).

Don't miss our week-by-week lab activity guide on the next page.

760 CAROLINA®

3-Dimensional Learning

Your Physics Pacing Guide for 3-Dimensional Teaching

Successfully address phenomena throughout the school year with this week-by-week lab activity guide.

Planning Made Simple

Week	PE		Lab Activity
1			Administrative, Safety, and Lab Skills
2	HS- PS2-1		Carolina® Introduction to Force and Motion
3	HS- PS2-1	For	Carolina® Introduction to Force and Motion
4	HS- PS2-2	Forces and Motion	Carolina® Introduction to Force and Motion
5	HS-PS2-2 HS-PS2-3	Motion	Carolina STEM Challenge®: Egg Drop
6	HS- PS2-2		Carolina® Introduction to Momentum and Collisions
7	HS- PS2-2		Carolina® Introduction to Momentum and Collisions
8			Review/Evaluation/Remediation

Week	PE	Types of nteractions	Lab Activity		
19		s of tions	Review/Evaluation/Remediation		
20	HS- PS1-8		Observing Ionizing Radiation Using a Cloud Chamber		
21	HS- PS1-8		Radioactive Decay and Half-Life Simulations		
22	HS-PS3-1 HS-PS3-2 HS-PS3-4		Carolina® First and Second Laws of Thermodynamics		
23	HS-PS3-1 HS-PS3-2 HS-PS3-4	Energy	Carolina® First and Second Laws of Thermodynamics		
24	HS-PS2-5 HS-PS3-3		Carolina STEM Challenge®: Hydroelectric Power		
25	HS-PS3-3 HS-PS4-4		Carolina STEM Challenge®: Passive Solar Design		
26			Review/Evaluation/Remediation		

Week	PE		Lab Activity
9	HS-PS3-2 HS-PS2-4		Carolina® Coulomb's Law
10	HS-PS3-2 HS-PS2-4		Carolina® Coulomb's Law
11	HS-PS2-4 HS-PS3-2 HS-PS3-5		Carolina® Mapping Electric Fields
12	HS-PS2-5 HS-PS3-1 HS-PS3-5 HS-PS4-2	Тур	Carolina® Introduction to Electromagnetism
13	HS-PS2-5 HS-PS3-1 HS-PS3-5 HS-PS4-2	Types of Interactions	Carolina® Introduction to Electromagnetism
14	HS-PS2-5 HS-PS3-1 HS-PS3-5 HS-PS4-2	ctions	Carolina® Introduction to Electromagnetism
15	HS- PS3-5		Carolina® Introduction to Magnetism
16	HS- PS3-5		Carolina® Introduction to Magnetism
17	HS-PS3-1 HS-PS3-2 HS-PS3-3		Carolina® Ohm's Law and Kirchhoff's Rules
18	HS- PS2-6		Molecular Structure and Design

Week	PE		Lab Activity
27	HS- PS4-1		Carolina® Introduction to Waves
28	HS- PS4-1		Carolina® Introduction to Waves
29	HS- PS4-1	Waves	Carolina® Introduction to Waves
30	HS-PS4-1 HS-PS4-3 HS-PS4-5	and Electr	Carolina STEM Challenge®: Wave Machine
31	HS-PS3-3 HS-PS4-3	Waves and Electromagnetic Radiation	Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors
32	HS-PS3-3 HS-PS4-3	adiation	Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors
33	HS-PS3-3 HS-PS4-3 HS-PS4-5		Carolina® AM Crystal Radio
34			Review/Evaluation/Remediation
35			Review and Final Exams

3-Dimensional Learning

Forces and Motion



Newton's Laws of Motion

Through a series of experiments on linear motion, students gather data to determine the relationship among the variables used to describe motion. They make predictions about how changes in motion are proportional to force, generating the mathematical relationships in Newton's laws of motion. Students are expected to generate mathematical and graphical models; use computational and proportional reasoning; design investigations to study forces, speed, and acceleration; and apply Newton's laws to solve engineering problems.

Carolina® Introduction to Force and Motion Kit

Introduce students to Newton's laws and explore the important force and motion concepts of friction, velocity, acceleration, collision, and momentum through engaging hands-on activities. Test surfaces for friction. Investigate how an incline affects the force needed to move an object. Crash

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dynamic carts and pull Hall's cars to study collision, momentum, and acceleration. Kit supports 12 groups of 3 students using multiple stations and includes free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

751463 Per kit \$285.00



751463 Carolina Introduction to Force and Motion Kit (above); in use (left)

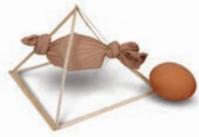
Momentum

Students apply the relationships among force, mass, and velocity to construct an explanation for momentum. Through experimentation they discover that the momentum of an object is conserved when there are no net forces applied to the object. Students are expected to quantify and interpret a single object's momentum in preparation for examining a system of objects and their interactions.

Carolina STEM Challenge®: Egg Drop Kit

Grades 6–12. Protect the falling egg while exploring energy conservation, collision forces, momentum, and Newton's laws. Create a device to absorb the force from an initial 1-m drop, then design a final model that achieves the highest drop distance. Materials support 15 design teams and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750046 Per kit \$51.80





750046 Carolina STEM Challenge: Egg Drop Kit (above); in use (left)

3-Dimensional Learning

Forces and Collisions

Students expand their concept of momentum for a single object to include a system of objects and their interactions. They generate data and then propose a mathematical model that explains a collision between 2 objects. The model is further refined to explain how momentum is conserved within a system and differentiate between elastic and inelastic collisions.

Carolina® Introduction to Momentum and Collisions Kit

Investigate one of the fundamental laws of physics: conservation of momentum. Use the swinging spheres of Newton's cradle (included) as a pre-lab demonstration to explore class knowledge of conservation laws. Students conduct experiments to calculate the momentum of 2 bodies both before and after an elastic

collision and determine if results are consistent with linear momentum conservation. Kit supports 8 student groups and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

751664 Per kit \$149.00



751664 Carolina Introduction to Momentum and Collisions Kit (above); in use (left) (books, support stands, clamp holders, and probeware not included)

Types of Interactions

Gravitational and Electrostatic Forces

Students build upon and expand their concept of forces by investigating gravitational and electromagnetic forces. They gather data on gravitational force to establish the mathematical relationship between mass and distance between objects and quantify how gravity influences how objects interact. Electrostatic forces are investigated in a similar fashion, establishing the mathematical relationship between electric charge and the distance between charges. Building a model of how electric charges interact with each other and other objects serves as the foundation for explanations of electricity.



756020 Carolina Coulomb's Law Kit

Mapping Electric Fields

756010 Carolina Mapping Electric Fields Kit

Carolina® Coulomb's Law Kit

Grades 9–12. Introduce electrostatic force using charged materials such as fur, silk, and glass. Students construct 2 types of electroscopes and measure attractive force as a function of distance with the more sensitive electroscopes. Then they model the mathematical relationship, confirming the 1/r² relationship between electrostatic force and distance by measuring angular deflection. Kit contains enough materials for 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

756020 Per kit **\$100.80**

Carolina® Mapping Electric Fields Kit A

Grades 9–12. Help students master the concept of electric fields and their relationship with electrostatic forces and potential energy. By mapping the electric fields with equipotential lines, students visualize the field lines and explore how electrostatic forces operate as non-contact or action-at-a-distance forces. In addition, students distinguish the use of electric fields in performing calculations from mathematical models such as Coulomb's Law. Kit supports 15 student groups or 30 students and includes free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

756010 Per kit \$162.75

Electricity and Magnetism

Based on their study of electromagnetic forces, students investigate the interrelationship of electricity and magnetism. They conduct investigations to provide evidence that electric current can produce a magnetic field and alternately, a changing magnetic field can produce an electric current. Students explain the relationship between current and magnetic fields as applied to many of the common devices that students are familiar with, like electric motors, generators, and audio speakers.

Carolina® Introduction to Electromagnetism Kit A3

Grades 9–12. With this comprehensive kit, students build and experiment with 3 different types of electromagnets: coiled wire, metal core, and solenoid. Through 6 activities, students see that an electric current creates a magnetic field and learn how to increase the field's strength by changing the length of wire, number of coils, and amount of electric current. Students learn how electromagnets power everyday devices and get to build a simple motor and even their own working audio speaker. Materials are sufficient for 32 students working in 8 groups and

include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D.

758661 Per kit \$168.00



758661 Carolina Introduction to Electromagnetism Kit (above); in use (left)



758231 Carolina Introduction to Magnetism Kit (above); in use (inset)

Carolina® Introduction to Magnetism Kit A3

Study the nature of magnetism and its relationship to electricity by investigating magnetism, magnetic fields, and magnetic lines of force. Students learn about magnetic domains and how temporary and permanent magnets differ. They build

a circuit, observe current creating its own magnetic field, then use the circuit to make an electromagnet. Supports 30 students working in teams of 3 and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

758231 Per kit \$185.00





754034 Carolina Ohm's Law and Kirchhoff's Rules Kit

Carolina® Ohm's Law and Kirchhoff's Rules Kit ▲3

Grades 9–12. Using breadboards and multimeters, students explore the relationship between voltage, current, and resistance. Circuit diagram mats provide a visual guide to build series and parallel circuits. Students also learn about Kirchhoff's junction and loop rules. Integrate these activities into a larger unit on wave mechanics, electricity, magnetism, and electromagnetism. Includes

an extension that allows teachers to adapt the kit for AP® Physics and introductory college courses. Materials support 5 workstations and include free 1-year access to digital resources; visit Carolina.com for a complete list of materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

754034 Per kit \$161.00

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Materials Design

3-Dimensional Learning

After developing an explanation for electromagnetism and investigating real-world applications, students link macroscopic properties of materials to microscopic electromagnetic attractions. They participate in design challenges that illustrate the way a material functions is determined by the attractive and repulsive forces within the material. Students apply the concept of structure influencing function on the microscopic and macroscopic scale.

Molecular Structure and Design Kit

Students design, produce, and test bioplastics to learn how the characteristics of plastics at the bulk scale are derived from their molecular structures. Combining their bioplastics analysis with prior knowledge of structural formulas, intermolecular forces, and polymers, students design a bioplastic film that meets an outlined set of requirements. Materials support 12 student groups and include digital resources; visit Carolina.com for a complete list of kit materials. For best results, the bioplastic samples should dry in an open, low-humidity area with good airflow. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: This lab requires a total of 6 days for sample drying: Investigation 1, the bioplastic preparation, requires 4 days; Investigation 2, the bioplastic film preparation, 2.

841174 Per kit \$105.95



841174 Molecular Structure and Design Kit

Energy

Nuclear Energy and Processes

Students revise and enlarge their model of the atom to include nuclear structure, nuclear forces, and nuclear decay. They revise their early model of the atom to include nuclear changes such as alpha, beta, and gamma decay, and positron emission. Students also build on the Law of Conservation of Mass to construct a model for the processes of fission and fusion by balancing nuclear equations and quantifying changes in energy occurring during the processes.

Observing Ionizing Radiation Using a Cloud Chamber Kit

Expand your nuclear chemistry demos beyond simulations with this unique cloud chamber activity. Students observe the contrails formed as ionizing radiation travels through a cooled, supersaturated vapor. They illustrate and explain what is happening in the cloud chamber on a particulate level while learning about nuclear processes and nuclear equations. Students are challenged to connect their observations with the occurrences and uses of radioactive isotopes in the world. This demonstration requires approximately 20 minutes of classroom time, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840374 Per kit \$57.00



840374 Observing Ionizing Radiation Using a Cloud Chamber Kit (right) and in use (left) (dry ice not included)





Radioactive Decay and Half-Life Simulations Kit

Grades 9–12. Strengthen students' grasp of nuclear decay and half-lives with this 3-activity kit. Students simulate radioactive decay using both multi-faced cubes and water flow. Students then perform a radioactive decay series simulation of a "newly discovered" radioisotope from an unstable nucleus to a stable nucleus. The card set for this activity allows students to mimic alpha, beta, gamma, and positron decay as their isotope forms daughter nuclei. The kit activities require approximately 2 hours of classroom time; complete the activities on separate days as needed. Materials support 10 groups of 1 to 4 students and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840715 Per kit \$76.95

840715 Radioactive Decay and Half-Life Simulations Kit

3-Dimensional Learning Energy and Energy Transformations

Students develop an understanding that energy at both the macroscopic and the atomic scale can be accounted for as either motions of particles or energy associated with the configuration (relative positions) of particles. They model energy transfer between components of a system and generate data to construct mathematical models.

Carolina® First and Second Laws of Thermodynamics Kit

Grades 9–12. Introduce your students to the first and second laws of thermodynamics by exploring the relationships between internal energy, heat transfer, mechanical work, and entropy. By studying those relationships, students trace the footsteps of prominent 19th-century engineers and scientists who applied the laws of thermodynamics to develop steam engines, railroads, and locomotives. Kit includes sufficient materials for a single-station demonstration for small and large classes, as well as digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

753720 Per kit \$41.50



Carolina STEM Challenge®: Hydroelectric Power Kit 🔥

Do your students understand hydroelectric power? With this hands-on, engaging STEM kit, they discover how emerging energies can change the way we develop and convert electric energy. Students observe a hand generator that converts mechanical energy into electrical energy. Student groups then design their own water wheel and compete with other groups to implement the most effective design. Materials are sufficient for 32 students working in 8 groups of 4 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

180952 Per kit **\$134.80**



180952 Carolina STEM Challenge: Hydroelectric Power Kit (above); in use (left) (ring stand with clamp and beaker not included)

Energy in Everyday Life

Students apply the concepts of energy, energy transformations, and energy transfer to analyze and explain everyday processes. In addition, they should apply these concepts to design, construct, and evaluate their own energy conversion device. Students should understand the scope of all types of energy use in living systems, chemical systems, and physical systems and evaluate the consequences of "wasted" energy.

Carolina STEM Challenge®: Passive Solar Design Kit

Design and construct your own scale model vacation home to explore passive solar building and design techniques. Learn about the effects of insulation on heating, cooling, and thermal mass for regulating temperatures. Determine and experience types of real-world modifications to simulate optimal seasonal home heating and cooling requirements. This kit is designed for 12 lab stations of students working cooperatively in groups of 2 or 3 and includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

180962 Per kit \$104.80



180962 Carolina STEM Challenge: Passive Solar Design Kit (above); in use (left) (thermometer not included)

3-Dimensional Learning

Waves and Electromagnetic Radiation



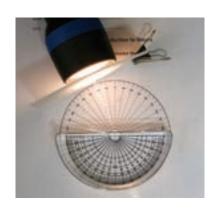
Wave Properties

With a grasp of energy concepts, students investigate waves as a vehicle for energy transport. They explore wave properties for transverse and compressional waves, collecting data that facilitates the development of the wave equation. Additional investigations of wave-matter interactions result in students generating models for reflection, refraction, diffraction, and interference.

Carolina® Introduction to Waves Kit \triangle^3

Grades 9–12. Students model seismic waves with gelatin, calculate the refractive index of water, and use tuning forks to calculate the speed of sound and determine frequency from resonance. Through these engaging activities students explore electromagnetic, mechanical, and seismic waves to learn what all waves have in common. Materials support 8 teams rotating through stations and include free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

754086 Per kit **\$159.00**





754086 Carolina Introduction to Waves Kit (right); in use (above)

Carolina STEM Challenge®: Wave Machine Kit

Grades 6–12. Students learn about wave properties and encoding and decoding information in a wave with signal modulation/demodulation. Students initially build wave machines with clay, skewers, and duct tape to transmit messages using Morse code. They measure wave speed, employing several methods, then apply engineering processes in refining and optimizing their design for reliability and efficiency, dismantling and rebuilding the machine. Designed for 30 students working in groups of 3 and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more

750049 Per kit \$83.00

about Carolina Kits 3D® labs at Carolina.com/3D.



750049 Carolina STEM Challenge: Wave Machine Kit

3-Dimensional Learning Electromagnetic Radiation

Building on fundamental wave properties, students focus on electromagnetic waves and specific interactions between electromagnetic waves and matter. In addition, students investigate the health hazards associated with electromagnetic wave interactions. Examination of human health risks may include exposure to gamma waves, X-rays, ultraviolet waves, and microwaves.

Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors Kit ⚠³

Grades 9–12. Take a smartphone selfie, walk through an automatic door, or turn on your television with a remote, and you're using light sensors based on the photoelectric effect. In this comprehensive kit students:

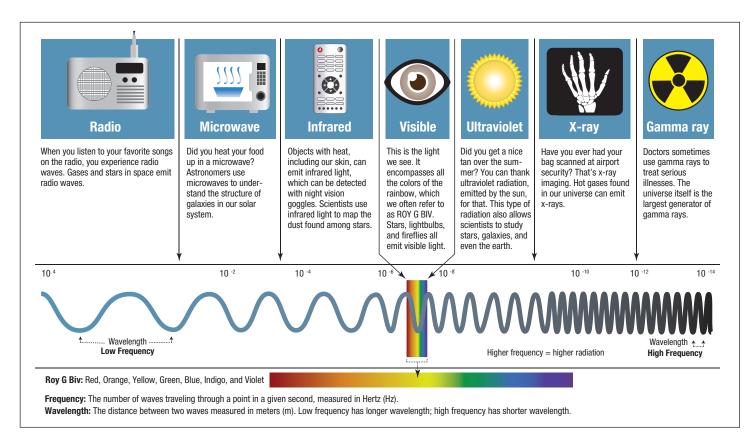
- · Investigate light sensors and the photoelectric effect
- · Build circuits to determine Planck's constant
- · Learn how light-emitting diodes (LEDs) and transistors function

Students establish relationships among light frequency, wavelength, and energy for LEDs while collecting data to calculate Planck's constant. Investigate the wave and particle models of light as students calculate threshold voltages to turn on LEDs (photoelectric effect) and calculate wavelength using a diffraction grating. The photoelectric effect and the discrete nature of quantum mechanics are addressed, laying the foundation for this lab. **Determining Planck's Constant with LEDs Kit** activities are designed for 4 group workstations and include free 1-year access to digital resources; visit **Carolina.com** for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D. Building a Dark Detector Kit** enables students to further explore the photoelectric effect and light sensors through building a functional night-light (dark detector); the materials support 1 to 3 students.

754030 Determining Planck's Constant with LEDs Kit Each **\$174.00 754032** Building a Dark Detector Kit Each **\$22.00**



754030 Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors Kit



3-Dimensional Learning

AM Crystal Radio

Information Technologies and Instrumentation

Students build upon basic wave properties, electromagnetic wave interactions, and electromagnetism to construct models of information transfer via waves. Models may include radio waves, light, or microwaves as information carrier waves. Students also provide evidence for the wave-particle duality of nature.

Carolina® AM Crystal Radio Kit

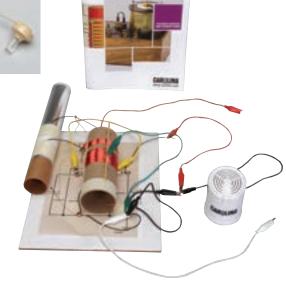
Grades 9–12. Using kit materials, students construct a working AM crystal radio, popular in the early days of broadcasting, to tune into local stations. They build circuit components with aluminum foil, copper wire, and cardboard tubes. Students learn how modern communication systems transmit information using electromagnetic radiation to encode a signal. A battery-powered speaker (with internal rechargeable battery) is included to amplify the radio signal for testing and listening. Designed for a class of 30 students, the kit contains materials

to construct 10 functioning crystal radios and includes free 1-year access to digital resources; visit **Carolina.com** for a complete list of kit materials. A high-impedance piezoelectric **Earphone**, similar to the ones used with WWII-era foxhole radios, can be purchased separately. It, too, is powered solely by radio waves. Kit is designed to integrate into a larger unit

with lessons addressing wave mechanics, electricity, magnetism, and electromagnetism. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

↑ 754010 Radio Kit Each \$165.00 754012 Earphone Each \$6.50





754010 Carolina AM Crystal Radio Kit in use (above) 754012 Earphone (inset)

Carolina Biological Supply Company received top honors in 2 categories in the 2022 Best of STEM™ Awards!

- Winner of Bridging the Gap: Webinar Series Exemplar for Integrating Science and Engineering Practices Webinar Series
- Winner of Trailblazer: Immersive Reality for VR Pig Dissection: Hoggin' the Scalpel

Carolina continues to strive to be a leader in the science education industry with innovative technology, products, and services. Visit bestofstemawards.com for more details.



Instructional Segments and Hands-On Kits for High School Earth and Space Science



EARTH AND SPACE SCIENCE

Space Systems

Evidence of the 331102 Big Bang Stellar Origin of the Elements Planetary Motion 331106

Earth's Systems

NII	
Plate Tectonics and Island Formation	331128
Transformative Properties of Water	331130
Modeling the Carbon Cycle	331132
Coevolution of Earth's Systems	331134

Human Sustainability

KIT	
Earthquake Simulation	331142
Hydroponics and Sustainability	331146
Analyzing Wind Power Potential	331148
Earth Systems and Climate Change	331150

Weather and Climate

KIT	
Climate Variation	331158
Analyzing Patterns in Climate Change	331160

History of Earth

KIT	
Seafloor Spreading and Age of Crustal Rocks	331114
Modeling Radiometric Dating	331116
Modeling Earth Processes: Destructive Forces	331118
Modeling Earth Processes: Constructive Forces	331120

Ready to explore our kits?

Here we've organized labs by core idea (topic) and instructional segment (unit). Don't miss our week-by-week lab activity guide on the next page.

3-Dimensional Learning

Your Earth and Space Science Pacing Guide for 3-Dimensional Teaching

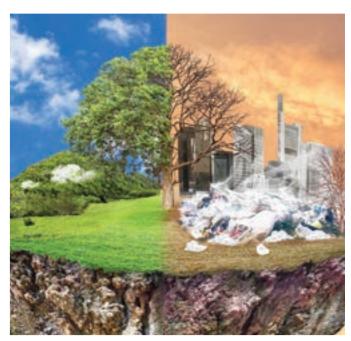
Successfully address phenomena throughout the school year with this week-by-week lab activity guide.

Planning Made Simple

Week	PE		Lab Activity
1			Administrative, Safety, and Lab Skills
2	HS- ESS1-2	Space	Evidence of the Big Bang
3	HS- ESS1-3	Space Systems	Stellar Origin of the Elements
4	HS- ESS1-4	.	Planetary Motion
5			Review, Evaluation, Remediation
6	HS- ESS1-5		Seafloor Spreading and Age of Crustal Rocks
7	HS- ESS1-6	History	Modeling Radiometric Dating
8	HS- ESS2-1	History of Earth	Modeling Earth Processes: Destructive Forces
9	HS- ESS2-1		Modeling Earth Processes: Destructive Forces

Week	PE	His	Lab Activity
10	HS- ESS2-1	History of Earth	Modeling Earth Processes: Constructive Forces
11		Earth	Review, Evaluation, Remediation
12	HS- ESS2-3		Plate Tectonics and Island Formation
13	HS- ESS2-5		Transformative Properties of Water
14	HS- ESS2-5	Eart	Transformative Properties of Water
15	HS- ESS2-6	Earth's Systems	Modeling the Carbon Cycle
16	HS- ESS2-6	ems	Modeling the Carbon Cycle
17	HS- ESS2-7		Coevolution of Earth's Systems
18			Review, Evaluation, Remediation

Week	PE		Lab Activity
19	HS- ESS3-1		Earthquake Simulation
20	HS- ESS3-3	Huma	Hydroponics and Sustainability
21	HS- ESS3-3	Human Sustainability	Hydroponics and Sustainability
22	HS- ESS3-4	inability	Analyzing Wind Power Potential
23	HS- ESS3-6		Earth Systems and Climate Change
24			Review, Evaluation, Remediation
25	HS- ESS2-4	We	Climate Variation
26	HS- ESS2-4	Weather and Climate	Climate Variation
27	HS- ESS3-5	nd Clim	Analyzing Patterns in Climate Change
28		ate	Review, Evaluation, Remediation



3-Dimensional Learning

Space Systems

Earth and Space Science Kits



Students gather evidence to construct an argument about the creation of the universe. Then they use models to explain the formation and abundance of the diverse elements found in the universe. Using mathematics and computational thinking, students explain the motion of objects in the solar system.

Evidence of the Big Bang Kit A3

Use evidence to support the formation of the universe through the Big Bang theory in the class-room. In this series of 5 investigations, students collect pieces of evidence that each provide part of the story. They explore the spectra of different elements and light sources, analyze star spectrographs, investigate the Doppler effect for sound and light, model the expansion of the universe, and digitally observe the remnants of the Big Bang. Kit accommodates 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331102 Per kit \$108.80



Planetary Motion Kit A

Grades 9–12. Model Kepler's laws of planetary motion in the classroom. In this series of 6 investigations, students use mathematical and computational thinking to describe the motions of the planets. They investigate ellipses, calculate eccentricity, use data to determine the orbit of a planet, collect evidence about the speed of a planet during its orbit, and calculate centripetal force to further understand planetary motion. Kit contains enough materials for 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARN-ING: CHOKING HAZARD. Toy contains a marble. Not for children under 3 yrs.

331106 Per kit \$117.80

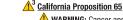


Stellar Origin of the Elements Kit

Students model the process of nucleosynthesis in the classroom by playing, and then evaluating, a game. In this series of 2 investigations, they explain how elements are formed in stars. Then students play a game following the nucleosynthesis pathway, review an infographic, and analyze the game as a model. Kit accommodates 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

From 331104 Stellar Origin of the Elements Kit

331104 Per kit \$63.80





3-Dimensional Learning

History of Earth



Earth was formed approximately 13.4 billion years ago. During this set of lessons students explore its formation. They model seafloor spreading and identify patterns that provide evidence for where Earth's oldest rocks are found. Then students use mathematics and computational thinking to understand how scientists date samples and consider why the oldest rocks found on Earth are not Earth rocks. Students also model constructive and destructive forces that shape Earth.



331114 Seafloor Spreading and Age of Crustal Rocks Kit (in use)

6

331118 Modeling Earth Processes: Destructive Forces Kit (in use)

Seafloor Spreading and Age of Crustal Rocks Kit

Students use different types of evidence to support the idea of seafloor spreading and to explain the relative ages of oceanic and crustal rocks. In this series of 4 investigations, they explain how the age of crustal rocks provides evidence of seafloor spreading. Students also model core sampling, identify patterns in data on the age of the ocean floor, use magnetic data to model seafloor spreading, and explore the density of oceanic and continental crust. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331114 Per kit \$125.80

Modeling Earth Processes: Destructive Forces Kit ▲

Use models to explore destructive Earth processes such as sinkholes, landslides, and glaciers in the classroom. In this series of 3 investigations, students discover mechanisms that cause changes in Earth's features. They observe different landscapes and think about the forces that may have caused them, model sinkholes and identify the conditions necessary for their formation, explore how glaciers affect the surface of Earth, and collect data on the formation of landslides. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331118 Per kit \$100.50



Modeling Radiometric Dating Kit A

Model radiometric dating and explain how evidence from radiometric dating can help construct an account of Earth's history. In this series of 3 investigations, students explain how scientists know the ages of rocks and why the oldest rocks on Earth are not as old as Earth. They model half-life, explore how elements have different half-lives, and calculate the age of simulated samples. Kit accommodates 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331116 Per kit \$119.80

Modeling Earth Processes: Constructive Forces Kit ▲3

Use models to explore constructive Earth processes such as convergent plate boundaries, volcanoes, and river deposition in the classroom. In this series of 3 investigations, students discover mechanisms that cause changes in Earth's features. They observe different landscapes and think about the forces that may have caused them, model the formation of mountains at convergent plate boundaries, explore how volcanos affect the surface of Earth, and collect data on the formation of river deltas. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331120 Per kit \$132.50

331120 Modeling Earth Processes: Constructive Forces Kit



3-Dimensional Learning Earth's Systems



Earth is a dynamic system in which interactions in and between different systems can cause immense changes. Students model the mechanisms of plate tectonics and the motion of Earth's interior material to explain changes in Earth's surface. Students discover how water causes changes in Earth's surface as they collect evidence from investigations on weathering. Through analysis of information, students construct models of the carbon cycle and analyze data on the rise of photosynthesizers, showing that matter on Earth moves between and affects the different systems.



331128 Plate Tectonics and Island Formation Kit

Transformative Properties of Water Kit 🗥

Investigate the properties of water and how they affect Earth's materials and processes. In this series of 3 investigations, students seek to understand how water can change rock. They determine how chemical weathering impacts different rock types by exposing rock samples to vinegar and observing changes in both mass and appearance. Then they model mechanical weathering through frost wedging, the movement of water over rocks, and measuring and observing changes in the rock materials. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

331130 Per kit \$119.80

Plate Tectonics and Island Formation Kit

Students construct an explanation of how matter cycles in Earth's interior and apply it to the movement of Earth's plates. In this series of 4 investigations, they use models to describe the formation of the Hawaiian Islands. Students digitally explore data to find patterns in seismic activity, determine how temperature impacts density, and model convection currents and the formation of a volcano. Kit accommodates 8 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331128 Per kit \$104.80



331130 Transformative Properties of Water Kit

3-Dimensional Learning



331132 Modeling the Carbon Cycle Kit



331134 Coevolution of Earth's Systems Kit

Modeling the Carbon Cycle Kit A3

Develop models showing the biological, geological, and anthropogenic impacts to the carbon cycle in the classroom. In this series of 4 activities, students explain the patterns in atmospheric carbon dioxide data over the past 800,000 years. They describe biogeochemical cycles; analyze atmospheric carbon dioxide data; explore biological, geological, and anthropogenic processes dealing with the carbon cycle; conduct an activity to explore a method of carbon sequestration; then play a game to model some of the anthropogenic impacts on the carbon cycle. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 30® labs at Carolina.com/3D.

331132 Per kit \$82.50

Coevolution of Earth's Systems Kit

Collect evidence on how feedback between the biosphere and other Earth systems causes a continuous co-evolution of Earth's surface in your classroom. In this series of 5 investigations, students construct an explanation describing why banded iron formations developed. They investigate precipitation reactions, the conditions necessary for rusting, the relationship between aquatic photosynthetic organisms and dissolved oxygen concentrations, and saturated solutions, and analyze patterns in the concentration of oxygen in the atmosphere over time. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331134 Per kit \$72.50

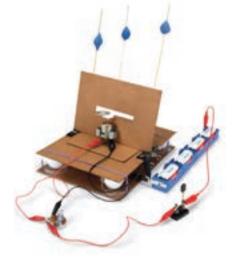


3-Dimensional Learning Human Sustainability

Earth and Space Science Kits



Human activity plays a role in Earth's systems. Students explore the causes and effects of human impacts on the Earth and how those impacts can be reduced. Students investigate hydroponic crops as a solution for growing food in smaller agricultural areas. Through the design and greater optimization of a wind turbine, students investigate a reduction in reliance on fossil fuels. Students also examine causes and effects of ocean acidification.



331142 Earthquake Simulation Kit (in use)

Earthquake Simulation Kit A

Build a shake table in the classroom and explore how technological advances allow scientists to gather data on earthquakes to work to mitigate the damage. In this series of 3 investigations, students explain why some buildings are impacted in earthquakes, but others remain intact. They collect evidence on how buildings respond to different frequencies of shaking, build a model shake table and building, and build a dampener to improve the stability of their buildings. Kit accommodates 10 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D.

331142 Per kit \$119.80



Hydroponics and Sustainability Kit

Explore hydroponics and explain its uses and limitations as a tool to help sustain human populations and manage natural resources. In this investigation, students design a solution for producing enough food for growing populations and the shift from rural to urban communities. They grow plants hydroponically in a modified ebb and flow system, analyze data from their hydroponic systems, and make recommendations about using hydroponics. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331146 Per kit \$89.80



331150 Earth Systems and Climate Change Kit

Analyzing Wind Power Potential Kit

Build and refine a design for a wind turbine in the classroom and analyze constraints while evaluating sites for a proposed wind turbine. In this series of 3 investigations, students investigate a solution to reduce the environmental impacts of current energy production techniques, like burning fossil fuels. They build a model wind turbine, refine the design to improve function, analyze data about proposed sites and turbines, then use the evidence to prepare an argument about whether the specific wind turbine should be installed at the site. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331148 Per kit \$84.80



Power Potential Kit

Earth Systems and Climate Change Kit A

Explain how the ocean, the atmosphere, and the biosphere interact while investigating climate change in the classroom. In this series of 3 investigations, students describe why pteropods, marine organisms, have calcium carbonate shells that are degrading. They describe the effect of acid on calcium carbonate shells, model the interaction of atmospheric carbon dioxide and ocean water, analyze data, and look for patterns in atmospheric carbon dioxide concentration, oceanic carbon dioxide concentration, oceanic carbonate ion concentration, and oceanic pH. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331150 Per kit \$94.80

3-Dimensional Learning

Weather and Climate



Students consider cause and effect as they investigate mechanisms that control weather patterns and climate on Earth. They then analyze data to find patterns that provide evidence for how climate changes over time in a specific region.

Climate Variation Kit A

Describe the major processes that lead to Earth's climate variation. In this series of 4 investigations, students explore the mechanisms that produce the patterns seen on a Köppen-Geiger climate map. They model how the tilt of Earth impacts light intensity, how different surfaces store and transmit solar energy, convection currents, and the Coriolis effect. Kit accommodates 8 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331158 Per kit \$72.80





From 331160 Analyzing Patterns in Climate Change Kit

Analyzing Patterns in Climate Change Kit

Analyze tree ring data to collect indirect evidence about how the climate of a region has changed over time. In this series of 3 investigations, students identify patterns and differences in tree rings, compare climate data with tree formation, analyze data from tree rings in an area, and construct an argument about what is happening with the climate in the region. Kit accommodates 15 lab groups and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

331160 Per kit \$94.80



Carolina Kits 3D® Bundles

The kits in these bundles were built from the ground up to engage students in scientific and engineering practices while they apply core ideas and crosscutting concepts—experiences that are key to thriving with the NGSS and phenomena-based learning.

Each of the kits contains sets of investigations, assessments, and digital resources to help your students make sense of phenomena as they build understanding of core concepts. Students think like scientists as they apply evidence gathered during the investigations to make claims surrounding driving questions, refining their claims, and understanding as they progress.

The bundles contain instructional and lab materials to complete the sets of investigations, excluding common classroom materials, like glassware, pencils, water, and balances. The digital resources include the

complete teacher's manual, student guides, and supplementary digital resources.

Digital resources may include:

- Set-up, phenomena, or activity videos
- Student pre-lab activities
- Interactive digital lessons and simulations
- Downloadable resources
- Lab materials spreadsheet

Visit Carolina.com for the kit titles included in each Carolina Kits 3D® Bundle.

		Sampler	Basic	Advanced	Deluxe
Description of Bundle		One kit from each instructional segment	Multiple kits from each instructional segment	Multiple kits from each instructional segment	One kit for each NGSS Performance Expectation
Approximate Frequency for Lab Investigations*		One per 9 weeks	One per month	One every other week	One per week
Digital Resources		Digital resources for bundled kits	Digital resources for bundled kits	Full set of digital resources for subject area	Full set of digital resources for subject area
	Life Science	4 Kits	10 Kits	18 Kits	30 Kits
Number of Kits Included by	Chemistry	4 Kits	10 Kits	18 Kits	30 Kits
Subject	Physics	4 Kits	10 Kits		18 Kits
	Earth and Space Science	4 Kits**	10 Kits	17 Kits	

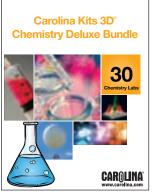
^{*}Based on a traditional schedule of 4 9-week quarters.

^{**}The four kits in the Earth and Space Science Sampler only represent 4 of the 5 instructional segments present in our Carolina Kits 3D® program.

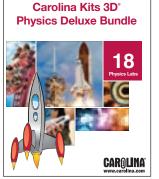
Carolina Kits 3D

Carolina Kits 3D° Life Science Deluxe Bundle

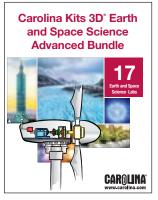
187902 Carolina Kits 3D Life Science Deluxe Bundle



847902 Carolina Kits 3D Chemistry Deluxe Bundle



757902 Carolina Kits 3D Physics Deluxe Bundle



311903 Carolina Kits 3D Earth and Space Science Advanced Bundle

3-Dimensional Learning

Carolina Kits 3D® Bundles

Built to support 3-dimensional instruction for science. The lab programs are appropriate for a high school life science, chemistry, earth and space science, or physical science course. Each bundle contains the necessary digital resources and hands-on materials (excluding common classroom items) for a class of 32. Bundle Add-Ons provide the materials necessary for another section of the same course to complete the activities at the same time. Bundle Add-Ons are unique to the life sciences program, for the other programs, purchase a Refill for each additional section. Bundle Refills replace all of the consumables included in original kit.

Carolina Kits 3D® Life Science Bundles

These lab programs allow your students to explore a variety of different topics from 4 instructional segments: From Molecules to Organisms, Ecosystems, Heredity, and Biological Evolution. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

	187905	Sample Bundle	Each	\$423.50
	187915	Sample Bundle Refill	Each	\$142.50
	187925	Sample Bundle Add-On	Each	\$162.50
Λ^3	187904	Basic Bundle	Each	\$1,118.50
	187914	Basic Bundle Refill	Each	\$379.50
	187924	Basic Bundle Add-On	Each	\$489.50
Λ^3	187903	Advanced Bundle	Each	\$2,055.50
Λ^3	187913	Advanced Bundle Refill	Each	\$1,123.50
	187923	Advanced Bundle Add-On	Each	\$1,249.50
<u></u>	187902	Deluxe Bundle	Each	\$3,450.50
	187912	Deluxe Bundle Refill	Each	\$2,086.50
Λ^3	187922	Deluxe Bundle Add-On	Each	\$2,482.50

Carolina Kits 3D® Chemistry Bundles A3

These lab programs allow your students to explore topics from 3 instructional segments: Structure and Properties of Matter, Chemical Reactions, and Energy in Chemical Processes. /I\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

847905	Sample Bundle	Each	\$209.65
847915	Sample Bundle Refill	Each	\$108.00
847904	Basic Bundle	Each	\$579.25
847914	Basic Bundle Refill	Each	\$305.00
847903	Advanced Bundle	Each	\$1,001.05
847913	Advanced Bundle Refill	Each	\$530.00
847902	Deluxe Bundle	Each	\$1,661.70
847912	Deluxe Bundle Refill	Each	\$899.00

Carolina Kits 3D® Physics Bundles A3

These lab programs allow your students to explore topics from 4 instructional segments: Forces and Motion, Types of Interactions, Energy and Waves, and Electromagnetic Radiation. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

757905	Sample Bundle	Each	\$619.50
757904	Basic Bundle	Each	\$1,465.00
757914	Basic Bundle Refill	Each	\$205.00
757902	Deluxe Bundle	Each	\$2,233.20
757912	Deluxe Bundle Refill	Each	\$561.35

Carolina Kits 3D® Earth and Space Science Bundles 43

These lab programs allow your students to explore topics from 5 instructional segments: Space Systems, History of Earth, Earth's Systems, Weather and Climate, and Human Sustainability. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once. /!\ WARNING: CHOKING HAZARD—Toy contains a marble. Not for children under 3 yrs.

311905	Sample Bundle	Each	\$380.00
311915	Sample Bundle Refill	Each	\$268.80
311904	Basic Bundle	Each	\$888.50
311914	Basic Bundle Refill	Each	\$388.80
311903	Advanced Bundle	Each	\$1,585.20
311913	Advanced Bundle Refill	Each	\$698.80

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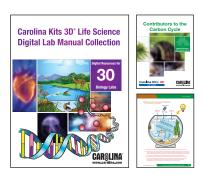
Carolina Kits 3D® Digital Lab Manual Collections

Each NGSS Digital Lab Manual Collection provides 1-year access to a yearlong set of labs that builds toward NGSS performance expectations. The collections contain time-saving digital resources (no physical materials) for hands-on labs that use phenomena to support NGSS and 3-dimensional instruction. Each lab's digital resources may include the following time savers:

- · Digital teacher's manual
- · Student guide PDF
- · Interactive lessons and
- Simulations
- · Downloadable resources
- · Set-up, phenomena, or activity videos
- · Lab materials spreadsheet

Review all the labs in a collection and choose which ones will work best in your classroom. You will get a single use with a 12-month license, giving you and up to 150 students online access to all digital resources in the subject bundle.





Carolina Kits 3D[®] Life Science Digital Lab Manual Collection

Contains the digital resources (but no physical materials) for 30 sets of biology investigations.

187900 Per bundle **\$300.00**



Carolina Kits 3D[®] Physics Digital Lab Manual Collection

Contains the digital resources (but no physical materials) for 18 sets of physics investigations.

757900 Per bundle **\$150.00**



Carolina Kits 3D[®] Chemistry Digital Lab Manual Collection

Contains the digital resources (but no physical materials) for 30 sets of chemistry investigations.

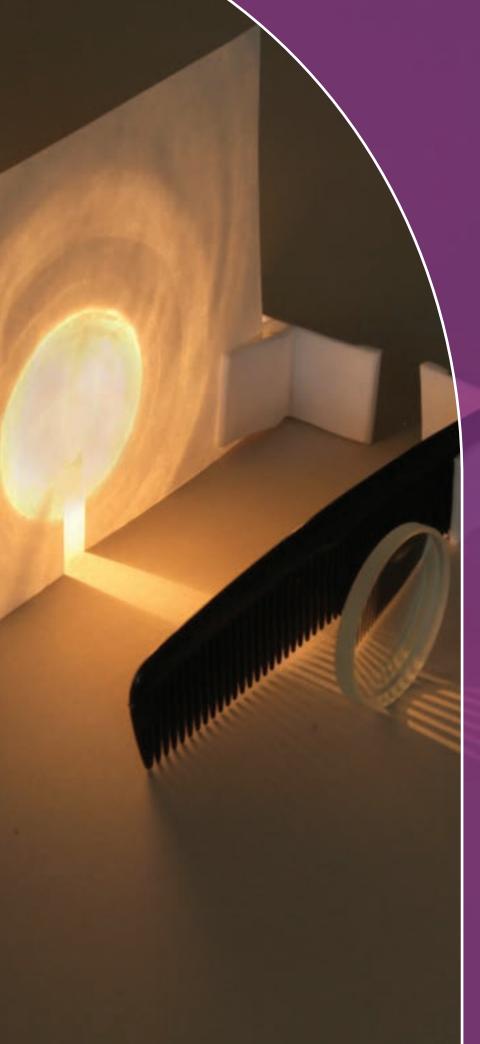
847900 Per bundle \$300.00



Carolina Kits 3D[®] Earth and Space Science Digital Lab Manual Collection

Contains the digital resources (but no physical materials) for 17 sets of earth and space science investigations.

331900 Per bundle \$150.00



Physical Science

782	Carolina STEM Challenge® Physical Science Series
787	Carolina® High School

791 Carolina® Middle School

791 Carolina® Middle School Physical Science Program

793 Demonstrations

794 Coding & Robotics

795 Sensors
795 Go Direct®

796 Alternative Energy Sources

801 Electricity 805 Squishy Circuits®

812 Heat & Thermodynamics

817 Light & Optics

829 Magnetism

837 Mechanics
850 Eisco® Garage Physics™
851 Eisco® Simple Machines
852 Visual Scientifics

859 Properties of Matter

864 Waves & Sound

869 Rocketry & Flight

871 Instruments & Equipment

878 Maker Education

Physical Science







Engineer excitement with Carolina STEM Challenge® kits for middle and high school

Carolina STEM Challenge® kits engage and inspire students with fun, real-world design challenges in an exciting tournament-style format. Integrating STEM (science, technology, engineering, and math) into your physical science, environmental science, life science, or chemistry curriculum has never been more exciting or easier.

- Incorporate STEM concepts
- · Strengthen critical thinking and creative problem-solving skills
- Encourage interest in science
- · Promote creativity, team building, and fun
- Aligned with Next Generation Science Standards* (NGSS) engineering concepts
- Carolina STEM Challenge® kits are easy to use, even if you are new to STEM. We designed each kit to include everything you need for classroom success:
 - Warm-up activity with background information
 - STEM design template and challenge
 - Notebooking and literacy extensions
 - Grading rubrics

Every Carolina STEM Challenge® activity teaches the engineering cycle.



And every Carolina STEM Challenge® kit includes FREE 1-year access to digital resources that support 3-dimensional instruction.

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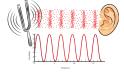


750048 Sound Off Kit (above) and in use (below left); illustration from the teacher's manual (below right)

Sound Off Kit

Grades 6-12. Not all technology plugs into the wall. Design teams must get creative to get loud as they transform cardboard tubes and items commonly found at home or school into a nonelectrical device to amplify smartphone sound. Engage and excite students as they explore how sound waves are transmitted, reflected, and amplified by different shapes and materials. Teams modify designs and then compete to produce the best device to increase the volume and clarity of music or tones. Addresses Next Generation Science Standards*: MS-PS4-2, HS-PS4-1. Materials support 15

> design teams. Needed but not supplied: sound meter or tone generator, smartphone, and metric ruler or measur-



ing tape. Smart device apps may be used for music and tones. Includes teacher's manual, student guide, and digital resources.

750048 Per kit \$68.00

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Carolina STEM Challenge

Physical Science





Grades 6–12. Have good clean fun in the lab investigating surface tension, solutions, hydrogen bonds, and the properties of matter. Bubble over with excitement and explore ways to win challenges such as most bubbles, largest bubble, and bubble longevity. Addresses Next Generation Science Standards*: HS-PS2-6. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

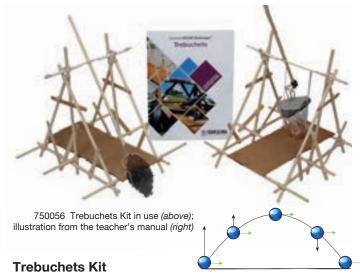
750052 Per kit \$91.25



Keep It Hot Kit

Grades 6–12. Explore energy transfer, specific heat, heat capacity, temperature, and insulation while designing a device that limits heat transfer. Materials support 15 design teams and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750054 Per kit **\$88.95**



Grades 6–12. Go medieval in your science classroom while converting potential energy into kinetic energy! Build functional desktop-sized trebuchets to launch corks for accuracy or distance. Learn about levers and explore characteristics that perfect trebuchet performance. Addresses Next Generation Science Standards*: MS-PS3-5, MS-ETS1-4, HS-PS3-1, HS-PS3-3. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750056 Per kit \$169.00

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Wave Machine Kit

Grades 6–12. Students learn about wave properties and encoding and decoding information in a wave with signal modulation/demodulation. Students initially build wave machines with clay, skewers, and duct tape to transmit messages using Morse code. They measure wave speed, employing several methods, then apply engineering processes in refining and optimizing their design for reliability and efficiency, dismantling and rebuilding the machine. Designed for 30 students working in groups of 3 and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750049 Per kit \$83.00

Physical Science

Carolina STEM Challenge





Grades 6-12. Race to the finish with balloon-powered race cars and Newton's laws of motion. Design, build, and test a prototype race car, then explore how changes to the wheels, body, and balloon alter performance. Kit provides a handson activity in how to design to overcome friction and stabilizing forces. Addresses Next Generation Science Standards*: MS-PS2-2, HS-PS2-1. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

750040 Per kit **\$72.50**



edge of geometric shapes and load-bearing forces to create a structure that holds the most weight. Addresses Next Generation Science Standards*: MS-ETS1-3. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750044 Per kit \$73.45



Grades 6-12. Protect the falling egg while exploring energy conservation, collision forces, momen-

tum, and Newton's laws. Create a device to absorb the force from an initial 1-m drop, then design a final model that achieves the highest drop distance. Materials support 15 design teams and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750046 Per kit \$51.80



Mousetrap Cars Kit

Grades 6-12. Speed to excitement with a car powered by a mousetrap. Improve

car performance by accounting for friction, mechanical advantage, and mass while learning about potential and kinetic energy, conservation of energy, torque, and inertia. Addresses Next Generation Science Standards*: MS-PS3-1, MS-PS3-2, MS-ETS1-2, HS-PS2-3, HS-PS3-1, HS-PS3-3. Materials support 15 design teams. Includes teacher's manual, student quide, and digital resources.

750042 Per kit \$85.20

Carolina STEM Challenge

Physical Science



Grades 6-12. Explore roller coaster physics for a hands-on experience in energy transformation. Teams evaluate the descent of a sphere through loops, turns, and hills on a foam insulation track and then extend that knowledge to engineer the best structure for class challenges of highest hill, largest loop, or max velocity. Addresses Next Generation Science Standards*: MS-PS3-2, MS-PS3-5, HS-PS3-1, HS-PS3-2, HS-PS3-3. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.



750030 Projectile Launcher Kit (above); illustration from the teacher's manual (below)

Projectile Launcher Kit

Grades 6-12. Investigate projectile motion and apply real-world engineering problem solving. Student teams each



construct a desktop launcher from a swing-arm protractor and then experiment with launch angles, launch mechanism, and types of projectiles. Addresses Next Generation Science Standards*: HS-PS2-1. Materials support 15 design teams. Includes teacher's manual, student quide, and digital resources.

750030 Per kit \$97.85

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Grades 6-12. Launch projectiles and learn about levers. Build a paint stirrer catapult and conduct trials to explore how fulcrum size and position,

plank length, effort force, and load impact trajectory and distance. Addresses Next Generation Science Standards*: MS-ETS1-2. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750028 Per kit \$75.00



Build It Write Kit

Grades 6-12. Reinforce the importance of technical writing and following directions with an engaging activity that stimulates creativity and higher order thinking. Design teams create a structure, then explain how to build a replica

by writing a set of instructions for other classmates to follow. Addresses Next Generation Science Standards*: MS-ETS1-1. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750038 Per kit \$71.00

Physical Science

Carolina STEM Challenge





Grades 6-12. Newton's third law of motion takes off as design teams launch balloon-powered rockets to explore the forces behind movement. Simple horizontal or vertical tasks develop problem-solving and engineering skills as students modify a basic balloon rocket to meet challenges such as farthest distance or highest payload lift. Addresses Next Generation Science Standards*: MS-PS2-1, HS-PS2-1. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources. /!\ WARNING: CHOKING HAZARD-Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

750050 Per kit \$42.00



750024 Cartesian Divers Kit (above) and in use (upper right); illustration from the teacher's manual (below)

Cartesian Divers Kit

Grades 6-12. Experience the ups and downs of science, technology, engineering, and

mathematics (STEM) with Cartesian divers. The pressure is on to produce the best divers for the classroom challenges such as fastest descent or fastest round trip. Reinforces concepts such as gas laws, density, pressure, and floating and sinking. Addresses Next Generation Science Standards*: MS-PS2-2. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750024 Per kit \$73.00

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Boats and Buoyancy Kit Grades 6-12. "Anchors aweigh" as design teams work to build a better boat

starting with the classic aluminum foil model. Discover whether shape, size, or material (foil, clay, or wood) is the key to success for supporting maximum load. This simple yet challenging lab activity invokes critical thinking and problem solving while reinforcing engineering, buoyancy, and density principles. Addresses Next Generation Science Standards*: MS-PS2-2, MS-ETS1-3. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

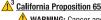
750032 Per kit \$69.00



Motors Kit A3

Grades 6-12. Get charged up about motors and electrical engineering. Design teams assemble a simple motor from a D-cell battery, wire, and a magnet. After experimenting with wire type (gauge and metal), number of wire coils, and magnets (quantity and type), designers enter their best models in the fastest motor challenge. Materials support 10 design teams and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. WARNING: Contains neodymium magnets. Neodymium magnets have a very strong magnetic field. Use with caution. Seek immediate medical attention if magnets are swallowed.

750034 Per kit \$120.00



High School Physical Science Kits

Physical Science

Carolina® High School Physical Science Program

- · Cover the essential physics topics taught in a physical science course
- Reuse year after year—our kits contain quality, durable components
- · Align with national standards



Carolina® Introduction to Electricity Kit A3

This kit allows students to study the properties of electricity firsthand. Students build batteries from different combinations of metals, learn about current and voltage, and use ammeters and voltmeters to measure the properties of the circuits they build. Students learn the relationship between electrical current, resistance, and voltage and explain their measurements in series and parallel circuits. Materials are sufficient for 32 students working in 4 groups and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

755961 Per kit \$224.35



Carolina® Introduction to Simple Machines Kit

Simple machines make doing work easier, and this introductory kit helps your students understand how. Designed for use in a class of up to 32 students, the handson activities and materials help your students gain an understanding of concepts such as work, power, efficiency, and mechanical advantage through the exploration of pulleys, inclined planes, and levers. Instructions included.

751131 Per kit \$425.00

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Buy a bundle, save a bundle!

Our 13-kit Carolina® High School Physical Science Program Set (item #751115) provides the materials needed for a first-year course at a low price.

Carolina® High School Physical Science Program Set Λ^3

Imagine your students enjoying physical science. Now imagine a great value and the convenience of ordering just 1 comprehensive set.

Visualize in your classroom the Carolina® High School Physical Science Program Set, which covers 13 essential topics: simple machines (item #751131), light and optics (item #755019), electricity (item #755961), magnetism (item #758231), density (item #752463), heat and temperature (item #753545), sound (item #754113), electromagnetism (item #758661), force and motion (item #751463), gravity (item #75180), pendulums (item #751648), waves (item #754086), and momentum (item #751664). Let Carolina help you teach a comprehensive, hands-on physical science curriculum with this 1 all-inclusive set. See individual kit descriptions here and at Carolina.com for additional information. Supports 30 to 32 students working in various team combinations.

751115 Per set \$2,373.60



751463 Carolina Introduction to Force and Motion Kit (above); in use (right)

Carolina® Introduction to Force and Motion Kit

Introduce students to Newton's laws

and explore the important force and motion concepts of friction, velocity, acceleration, collision, and momentum through engaging hands-on activities. Test surfaces for friction. Investigate how an incline affects the force needed to move an object. Crash dynamic carts and pull Hall's cars to study collision, momentum, and acceleration. Kit supports 12 groups of 3 students using multiple stations and includes free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

751463 Per kit \$285.00

See more Carolina® High School Physical Science Program kits on the next page.



production of this product, and do not endorse it.

Physical Science



Carolina® Introduction to Light and Optics Kit

Grades 9–12. Bring physical science to light with our comprehensive kit. Measure angles of incidence and refraction, calculate refractive index, determine focal length, study concave and convex lenses and mirrors, compare real and virtual images, draw ray diagrams, polarize light, perform color additions and subtractions, split white light into the visible spectrum, and more. Materials support 8 groups of 4 students each. Instructions include an extension for students to build their own spectroscope (materials not included).

755019 Per kit **\$229.95**

High School Physical Science Kits



Carolina® Introduction to Waves Kit A3

Grades 9–12. Students model seismic waves with gelatin, calculate the refractive index of water, and use tuning forks to calculate the speed of sound and determine frequency from resonance. Through these engaging activities students explore electromagnetic, mechanical, and seismic waves to learn what all waves have in common. Materials support 8 teams rotating through stations and include free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

754086 Per kit \$159.00



Carolina® Introduction to Magnetism Kit 113

Study the nature of magnetism and its relationship to electricity by investigating magnetism, magnetic fields, and magnetic lines of force. Students learn about magnetic domains and how temporary and permanent magnets differ. They build a circuit, observe current creating its own magnetic field, then use the circuit to make an electromagnet. Supports 30 students working in teams of 3 and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

758231 Per kit \$185.00



Carolina® Introduction to Electromagnetism Kit ⚠³

Grades 9–12. With this comprehensive kit, students build and experiment with 3 different types of electromagnets: coiled wire, metal core, and solenoid. Through 6 activities, students see that an electric current creates a magnetic field and learn how to increase the field's strength by changing the length of wire, number of coils, and amount of electric current. Students learn how electromagnets power everyday devices and get to build a simple motor and even their own working audio speaker. Materials are sufficient for 32 students working in 8 groups and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

758661 Per kit **\$168.00**



Carolina® Introduction to Momentum and Collisions Kit

Investigate one of the fundamental laws of physics: conservation of momentum. Use the swinging spheres of Newton's cradle (included) as a pre-lab demonstration to explore class knowledge of conservation laws. Students conduct experiments to calculate the momentum of 2 bodies both before and after an elastic collision and determine if results are consistent with linear momentum conservation. Kit supports 8 student groups and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

751664 Per kit \$149.00

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High School Physical Science Kits Additional High School Kits

Physical Science



Carolina® Mapping Electric Fields Kit 🗥 3

Grades 9–12. Help students master the concept of electric fields and their relationship with electrostatic forces and potential energy. By mapping the electric fields with equipotential lines, students visualize the field lines and explore how electrostatic forces operate as non-contact or action-at-a-distance forces. In addition, students distinguish the use of electric fields in performing calculations from mathematical models such as Coulomb's Law. Kit supports 15 student groups or 30 students and includes free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

756010 Per kit \$162.75



Carolina® First and Second Laws of Thermodynamics Kit

Grades 9–12. Introduce your students to the first and second laws of thermodynamics by exploring the relationships between internal energy, heat transfer, mechanical work, and entropy. By studying those relationships, students trace the footsteps of prominent 19th-century engineers and scientists who applied the laws of thermodynamics to develop steam engines, railroads, and locomotives. Kit includes sufficient materials for a single-station demonstration for small and large classes, as well as digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

753720 Per kit \$41.50



Carolina® Coulomb's Law Kit

Grades 9-12. Introduce electrostatic force using charged materials such as fur, silk, and glass. Students construct 2 types of electroscopes and measure attractive force as a function of distance with the more sensitive electroscopes. Then they model the mathematical relationship, confirming the 1/r2 relationship between electrostatic force and distance by measuring angular deflection. Kit contains enough materials for 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D[®] labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

756020 Per kit **\$100.80**

Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors Kit A³

Grades 9–12. Take a smartphone selfie, walk through an automatic door, or turn on your television with a remote, and you're using light sensors based on the photoelectric effect. In this comprehensive kit students:

- Investigate light sensors and the photoelectric effect
- . Build circuits to determine Planck's constant
- · Learn how light-emitting diodes (LEDs) and transistors function

Students establish relationships among light frequency, wavelength, and energy for LEDs while collecting data to calculate Planck's constant. Investigate the wave and particle models of light as students calculate threshold voltages to turn on LEDs (photoelectric effect) and calculate wavelength using a diffraction grating. The photoelectric effect and the discrete nature of quantum mechanics are addressed, laying the foundation for this lab. **Determining Planck's Constant with LEDs Kit** activities are designed for 4 group workstations and include free 1-year access to digital resources; visit **Carolina.com** for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D. Building a Dark Detector Kit** enables students to further explore the photoelectric effect and light sensors through building a functional night-light (dark detector); the materials support 1 to 3 students.

754030 Determining Planck's Constant with LEDs Kit Each \$174.00 754032 Building a Dark Detector Kit Each \$22.00

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754030 Determining Planck's Constant with LEDs: Investigating the Photoelectric Effect and Electronic Light Sensors Kit



Physical Science



Carolina® Ohm's Law and Kirchhoff's Rules Kit A3

Grades 9–12. Using breadboards and multimeters, students explore the relationship between voltage, current, and resistance. Circuit diagram mats provide a visual guide to build series and parallel circuits. Students also learn about Kirchhoff's junction and loop rules. Integrate these activities into a larger unit on wave mechanics, electricity, magnetism, and electromagnetism. Includes an extension that allows teachers to adapt the kit for AP® Physics and introductory college courses. Materials support 5 workstations and include free 1-year access to digital resources; visit Carolina.com for a complete list of materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

754034 Per kit \$161.00



Carolina® AM Crystal Radio Kit

Grades 9–12. Using kit materials, students construct a working AM crystal radio, popular in the early days of broadcasting, to tune into local stations. They build circuit components with aluminum foil, copper wire, and cardboard tubes. Students learn how modern communication systems transmit information using electromagnetic radiation to encode a signal. A battery-powered speaker (with internal rechargeable battery) is included to amplify the radio signal for testing and listening. Designed for a class of 30 students, the kit contains materials to construct 10 functioning crystal radios and includes free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. A high-impedance piezoelectric Earphone, similar to the ones used with WWII-era foxhole radios, can be purchased separately. It, too, is powered solely by radio waves. Kit is designed to integrate into a larger unit with lessons addressing wave mechanics, electricity, magnetism, and electromagnetism. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

↑ 754010 Radio Kit Each \$165.00 754012 Earphone Each \$6.50

High School Physical Science Kits



750049 Carolina STEM Challenge: Wave Machine Kit, one of the kits in 754020 Waves and Communications (Information Transfer) Kit Bundle

For a comprehensive overview of waves and their properties, try this 3-kit bundle. Students build an AM radio, study seismic waves, build a wave machine while sending Morse code signals, and more. They study electromagnetic, seismic, and mechanical waves, exploring wave properties such as speed, amplitude, and frequency; energy transfer; and how information is modulated as a signal and demodulated. Each kit comes with free 1-year access to digital resources, including an activity to calculate the speed of light with gummy bears and a microwave. For complete lists of kit components, visit Carolina.com. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

Bundle includes:

Carolina® Introduction to Waves Kit (item #754086) Carolina STEM Challenge®: Wave Machine Kit (item #750049) Carolina® AM Crystal Radio Kit (item #754010)

754020 Per bundle **\$435.00**

Empower Your Students with Go Direct® Sensors



Go Direct® sensors make it easier than ever for students to investigate scientific concepts through hands-on, real-time data collection. The sensors:

- Simplify lab setup
- Foster learning
- Maximize lab time
- · Let you focus on teaching
- Include free software

See all of our Go Direct[®] products at Carolina.com.



AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, this product.

Middle School Physical Science Kits

Physical Science

Middle School Physical Science Kits

Carolina® Middle School Physical Science Program



Exploring Cartesian Divers Kit

A little pressure goes a long way as the rise and fall of Cartesian divers connects Archimedes' principle, Pascal's principle, Boyle's law, and density. After viewing a teacher-led demonstration, students build open and closed Cartesian diver systems to explore, learn, and explain how the demonstration worked. Great for teaching engineering design. Bottles are provided so you can dive right in when the kit arrives. Materials support 15 student groups. Includes instructions.

753115 Per kit \$41.00



Exploring Household Acids and Bases Kit A

Grades 6–8. Astonish and engage students with Alka-Seltzer® and milk of magnesia chemical rainbow demonstrations. Through measuring the pH of 10 common household substances with litmus paper, pH test strips, and universal indicator, students learn about pH and when to use each pH measurement tool. After they explore pH, challenge them to explain the 2 demonstrations. Instructions included. Supports 10 groups.

751914 Per kit \$97.50



Exploring Work and Mechanical Advantage Kit

Investigate how machines make work much easier. Examine and calculate the mechanical advantage of 4 simple machines (pulley, lever, inclined plane, and wheel/axle). After learning about mechanical advantage, students then compare their calculations to ideal mechanical advantage to calculate efficiency. Supports 8 groups of 4 students working at stations. Needed but not supplied: balances, ring stands, and right-angle clamps.

751465 Per kit \$112.00



Exploring Density Kit A

Grades 6–8. Engage students with an intriguing demonstration—pieces of a candle float and sink in 2 seemingly identical liquids. Students explore the density of the solids and liquids, evaluate their findings by creating a colorful column, then explain the mystery behind the demonstration. They extend their knowledge to understand what materials float and sink. Includes concepts such as buoyancy, intensive/extensive properties, and testing predictions. Instructions included. Materials support 15 teams.

751916 Per kit **\$130.50**



Middle School Physical Science Kits

Exploring Specific Heat Capacity and Thermal Conductivity Kit A²

Engage students with the discrepant events of catching money on fire without it burning and boiling water in a paper cup. Four groups investigate thermal conductivity using conductometers, 4 different groups calculate the specific heat of copper and aluminum shot, and then the groups switch tasks. With this knowledge, challenge your students to explain these discrepant events. Includes demonstration materials, lab materials, and instructions. Thermometers and common lab equipment are needed but not supplied.

753485 Per kit **\$121.00**



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Find everything from our print catalogs and more

- Expanded product information, additional photo views, and zoom-in feature
- · Web exclusive items
- Order history and shipment tracking at your fingertips
- Free teacher resources, such as classroom activities and projects

Exploring the Scientific Method Kit

Skip the lecture and cover the scientific method with an engaging hands-on activity about modeling dough. Students base their question on the dough-making process or ingredients, identify variables, design an experiment, then explore the steps of the scientific method. The possibilities are endless! Activity contains instructions that offer the flexibility of a student-selected or teacher-guided topic. Both options foster creativity, critical thinking, and problem-solving skills. Materials support 10 groups. Needed but not supplied: water, hot plates, and general lab equipment. Instructions included.

751918 Per kit \$84.80



Carolina® Middle School Science Program 6-Kit Set 🗥 3

Grades 6–8. Introduce the fundamentals of physical science. Our hands-on activity kits cover essential topics and are aligned with National Science Education Standards and Next Generation Science Standards*.

Set includes:

Exploring Cartesian Divers Kit (item #753115) Exploring Work and Mechanical Advantage Kit (item #751465)

Exploring Density Kit (item #751916)
Exploring Specific Heat Capacity and Thermal
Conductivity Kit (item #753485)
Exploring the Scientific Method Kit (item #751918)
Exploring Household Acids and Bases Kit
(item #751914)

751910 Per set **\$549.95**



*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.







Demonstrations

Demonstrations

Physical Science



Drinking Bird

A classic toy that is really a heat engine. Operating on the cooling process of evaporation, the bird will continue to drink as long as there is water in the cup and the room temperature is above 65° F.

753605 Each \$13.15



Hand Boiler

Heat from your hand increases the vapor pressure of the liquid in the lower bulb, forcing it into the upper bulb. An impressive display of vapor pressure and the force gases exert.

753606 Each \$11.40

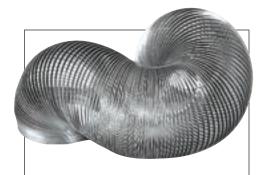




Balancing Bird

Use this simple device to demonstrate gravitational force, center of gravity, and force equilibrium. By perfectly distributing the bird's weight on the tips of its wings and placing its mass near the tip of its beak, the bird's equilibrium is stabilized. Balance the bird on your fingertip, the included pyramid, or the top of a pen! Size, $6 \times 6 \times 2^{1/2}$ "; wt, 0.1 lb.

753604 Each \$4.80



Giant Metal Spring

For demonstrating transverse and longitudinal waves. Measures 31/2" in diameter and 3" long (when compressed). Stretches up to 30 ft. Instructions included.

754095 Each **\$14.35** 6+ Each **\$13.50**



Seismic Accelerator

Drop the accelerator straight down on the floor and watch as the smallest red ball at the top of the post rockets up to 5× higher than the height of the original drop! Use this ingenious demonstration to help students learn about potential and kinetic energy and conservation of energy. Includes 3 small red balls (about 2 cm diam), post containing 3 balls of varying sizes (about 2.5 cm diam, about 3.5 cm diam, and about 4.5 cm diam), safety glasses, and teacher's guide. To maintain stability, only the 3 small red balls are removable from the accelerator post.

751529 Each \$18.60



Magnetic Field Cube

View magnetic fields without the messiness of iron filings! Vigorously shake this handy acrylic cube to disperse the iron filings suspended in solution within it. Then easily view the created magnetic fields using the included magnets marked "N" (north) and "S" (south), which can be removed from the cube's hollow center. Cube is 3" square.

758529 Each \$53.80

Collapsible Can

Used to demonstrate atmospheric pressure. When a small amount of water is boiled in the can and the cap is screwed on, a vacuum forms as the can cools, and air pressure causes the can to collapse.

752900 Each \$28.30

Physical ScienceCoding & Robotics



Scottie Go! Coding Game

Grades K–8. No prior coding experience required! Students learn key coding concepts and algorithm design through game play as they help Scottie and other characters recover the pieces to his spaceship that crash landed on Earth. After using the provided coding puzzle tiles to create a movement sequence, students scan the tiles to check the success of their program as they watch Scottie move on screen. The downloadable educational Scottie Go! app provides 91 problems divided into 10 modules. Materials support 1–3 students. A Windows®, Android®, or iOS® smart device with a rear camera is needed but not supplied. Visit Carolina.com for complete list of materials.

759030 Each \$94.50

Hummingbird™ Robotics

Grades 4–12. Hummingbird[™] Robotics kits are designed to grow with students. Projects span elementary to high school levels, enabling students to create beautiful electronic art, intricate cardboard mechatronics, and scientific models, or to design cleverly programmed robots. The kits allow students to use block- or text-based languages (including Snap!, Bird-Blox, MakeCode, Python[™], and Java[™]) to learn coding. Programming tutorials are available online, making these kits excellent choices for robotics or programming courses, or for makerspaces. The hardware was designed and validated through National Science Foundation-funded research at Carnegie Mellon University. Windows®, Macintosh®, Linux® (Ubuntu®), Chrome[™], and Raspberry Pi[®] are supported, depending on programming language. BirdBlox also supports iOS®, Amazon® Kindle®, and Android®. The Base Kit and Premium Kit are designed for 2 and 3 students, respectively. The Classroom Flock is a class bundle of 4 Premium Kits. Visit Carolina.com for complete lists of kit and bundle materials. Note: Each Hummingbird™ Bit kit requires a Micro:bit Microcontroller (sold separately), which can be used for many additional programming and sensing projects. For age 9+; adult supervision recommended for age 13 and under.

759101 Base Kit

Each **\$141.75**

759100 Premium Kit

Each **\$249.50 759104** Classroom Flock

Each \$963.90
759102 BBC Micro:bit Microcontroller

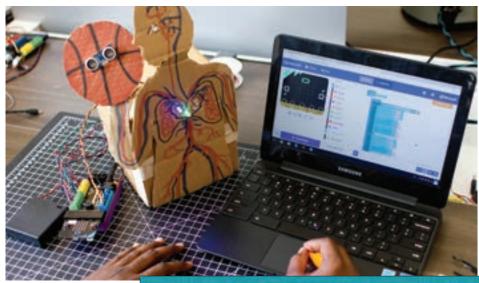
Each **\$40.70**



Micro:bot

Learn about coding and robotics with Micro:bot, a small programmable robot built upon the BBC Micro:bit that uses Microsoft MakeCode® (a block programming language) and Javascript®. Block code offers an excellent introduction to programming, as it uses shape blocks that snap into place. Comes with BBC Micro:bit, 6 LEDs, ultrasonic distance sensor, line tracking sensor, infrared sensor that enables remote control, Bluetooth® module, and activity guide with step-by-step coding activities and instructions. The lessons and Micro:bot- and Micro:bit-based projects align with computer science standards. A computer is needed but not supplied.

759120 Each \$162.75



Project from 759100 Hummingbird Robotics Premium Kit (in use; computer not included)



Sensors

118013

118014

Sensors

Go Direct®

Simplify your lab setup. Foster learning.

Empower students to investigate scientific concepts with hands-on, real-time data collection.

New! Go Direct® Sensors

With more than 50 sensors to choose from, the Go Direct® family of sensors offers an affordable solution to collecting experimental data. Go Direct® sensors are easy to use—just connect and start collecting data with your device. Includes free software that is intuitive and user-friendly. Visit Carolina.com for individual sensor descriptions and warranty information. Note: Vernier products are designed for educational use only. They are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

a manufacturing process or industr	ial tactio	na of any kind			118	011 Go Direc
a manuracturing process, or muusti	ıaı töstii	0				
3-Axis Magnetic Field Sensor	Each	\$75.00	118020	Force and Acceleration Sensor	Each	\$119.00
Acceleration Sensor	Each	\$109.00	118021	Light and Color Sensor	Each	\$89.00
Centripetal Force Apparatus	Each	\$325.00	118022	Motion Detector	Each	\$114.00
Centripetal Force Apparatus			118023	Photogate	Each	\$95.00
Motor Accessory Kit	Each	\$199.00	118025	Projectile Launcher	Each	\$489.00
Current Probe	Each	\$119.00	<u>^</u> 3118027	Rotary Motion Sensor	Each	\$189.00
Dynamics Cart and Track System			118028	Sound Sensor	Each	\$95.00
with Sensor Carts, 1.2-m Track	Each	\$619.00	118029	Static Charge	Each	\$109.00
Dynamics Cart and Track System			118030	Structures and Materials Tester	Each	\$1,199.00
with Sensor Carts, 2.2-m Track	Each	\$728.00	118033	Voltage Probe	Each	\$79.00
Sensor Cart, Yellow	Each	\$189.00	118000	300 mAh Replacement Battery	Each	\$10.00
Sensor Cart, Green	Each	\$189.00	118002	650 mAh Replacement Battery	Each	\$11.00
	3-Axis Magnetic Field Sensor Acceleration Sensor Centripetal Force Apparatus Centripetal Force Apparatus Motor Accessory Kit Current Probe Dynamics Cart and Track System with Sensor Carts, 1.2-m Track Dynamics Cart and Track System with Sensor Carts, 2.2-m Track Sensor Cart, Yellow	3-Axis Magnetic Field Sensor Each Acceleration Sensor Each Centripetal Force Apparatus Motor Accessory Kit Each Current Probe Each Dynamics Cart and Track System with Sensor Carts, 1.2-m Track Dynamics Cart and Track System with Sensor Carts, 2.2-m Track Sensor Cart, Yellow Each	Acceleration Sensor Each \$109.00 Centripetal Force Apparatus Centripetal Force Apparatus Motor Accessory Kit Each \$199.00 Current Probe Each \$119.00 Dynamics Cart and Track System with Sensor Carts, 1.2-m Track Dynamics Cart and Track System with Sensor Carts, 2.2-m Track Sensor Cart, Yellow Each \$189.00	3-Axis Magnetic Field Sensor	3-Axis Magnetic Field Sensor Acceleration Sensor Each \$109.00 118021 Light and Color Sensor Light and Color Sensor Centripetal Force Apparatus Motor Accessory Kit Each \$199.00 118022 Motion Detector Current Probe Each \$119.00 118025 Projectile Launcher Current Probe Each \$119.00 118026 Projectile Launcher Current Probe Each \$119.00 118028 Sound Sensor With Sensor Carts, 1.2-m Track Dynamics Cart and Track System with Sensor Carts, 2.2-m Track Each \$728.00 118030 Structures and Materials Tester With Sensor Cart, Yellow Each \$189.00 118000 300 mAh Replacement Battery	a manutacturing process, or industrial testing of any kind. 3-Axis Magnetic Field Sensor Each \$75.00 118020 Force and Acceleration Sensor Each \$109.00 118021 Light and Color Sensor Each Centripetal Force Apparatus Each \$325.00 118022 Motion Detector Each Centripetal Force Apparatus 118023 Photogate Each Motor Accessory Kit Each \$199.00 118025 Projectile Launcher Each Current Probe Each \$119.00 A3 118027 Rotary Motion Sensor Each Dynamics Cart and Track System with Sensor Carts, 1.2-m Track Each Dynamics Cart and Track System with Sensor Carts, 2.2-m Track Each Sensor Carts, Yellow Each \$189.00 118030 Voltage Probe Each Sensor Cart, Yellow Each \$189.00 300 mAh Replacement Battery Each



Sensor Cart Accessory Kit

Sensor Cart Charge Station

118022 Go Direct Motion Detector



118004 Charge Station



Physical Science

118011 Go Direct Sensor Cart, Yellow



118025 Go Direct Projectile Launcher

Learn More About Go Direct® Sensors

Each

Each

\$58.00

\$149.00

View Carolina's entire selection of Go Direct® sensors and sensor accessories for biology, chemistry, environmental science, physics, and physical science at Carolina.com (type "Go Direct" in the search field).



118024 Go Direct Platinum-Cell Conductivity Probe

Need a quote?

Send your request by fax (336.538.6330) or email (quotations@carolina.com), or call us (800.334.5551).



Each

\$89.00

Alternative Energy Sources

Energy Conversion Kit

Energy Conversion Set

Demonstrate energy transformations or conversions with this affordable 7-piece set. Generate electrical energy from mechanical motion (hand generator), chemical energy (batteries), light (solar cell), and wind (windmill). Includes LED, motor, and buzzer to provide evidence for electrical energy. Also includes instructions and a set of leads to connect the devices in various combinations. Requires 2 AA batteries (item #756316; not included).

759236 Per set \$83.95



Alternative Energy Sources

Fuel Cells

H-Racer 2.0 Fuel Cell Car

Create fuel with sun and water! The new generation H-Racer is an amazing way to demonstrate cutting edge alternative energy and automotive technologies. It runs faster and longer than the original hydrogen fuel cell-powered car while keeping its familiar H-Racer signature style. New features include remote control steering and lights. A transparent top allows students to see clean technology in action. Size, $6^1/2^n \text{ L} \times 2^1/2^n \text{ W} \times 1^1/2^n \text{ H}$. Includes instructions. Assembly required.

759947 Each \$236.50



Are you ready to teach green energy technologies and help students develop their environmental awareness? Construct an entire miniature renewable energy system for experimentation and demonstration, including a working miniature wind turbine, a solar photovoltaic panel, an electrolyzer, a Proton Exchange Membrane (PEM) fuel cell, and a hydrogen storage system. The set encourages students to learn the system step by step, configure it in different ways, and visualize the workings of clean energy principles from start to finish. Provides 40+ hours of activities as part of your science, engineering, design, or technology course. Contains enough hardware, software, and curriculum for 4 to 5 students to share. Includes instructions; PC and distilled water are needed but not supplied.

759250 Per set \$434.00



Alternative Energy Sources



759260 Horizon Energy Box

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Solar Hydrogen Generation Set

Students develop their own applications using a zero-carbon fuel as they investigate clean energy using fuel cells and renewable hydrogen created with solar energy and water. An optimal tool for engagement, exploration, and then explanation of clean energy, the set combines lessons on solar energy, hydrogen fuel cells, electrolysis, and basic electronics to encourage understanding of this real-world issue. The set may be used with the Energy Monitor (item #759251). Includes an instructional CD-ROM and complete curriculum on renewable energy; 1 AA battery and distilled water are needed but not supplied.

759953 Per set \$141.50

Physical Science

Horizon Energy Box

The Horizon Energy Box provides more than 100 possible experiments, grouped in multiple kits, that give students a complete understanding of fuel cell technologies for renewable energy applications. The included CD-ROM contains curriculum content for 40 hours of classroom activities. The **Energy Box** contains a comprehensive mix of alternative energy applications, including:

Fuel Cell & Hydrogen

- Ethanol Fuel Cell
- Salt-Water Fuel Cell Kit
- Micro Fuel-Cell Science Kit

Wind & Solar

- · Solar Hydrogen Generation Set
- · Wind Energy Kit

Other Kits

- Horizon Energy Monitor
- . Thermal Power Science Kit
- Super Capacitor Science Kit
- Electric Mobility Science Kit

The fuel cell science experiments, designed by fuel cell experts, include the PEM hydrogen fuel cell, direct ethanol fuel cell, salt-water fuel cell, and reversible fuel cell. Renewable energy is introduced with a solar panel, a wind turbine, a temperature cell, and a hand crank generator. A super capacitor is also included, illustrating the latest in energy storage technology. The kits can be used to address Next Generation Science Standards*: MS-PS3-2, HS-PS3-3, HS-PS3-4. Visit Carolina.com for more information and a complete list of kit materials. The <code>Hydrofill® Pro</code> recharges the Hydrostik Pro, a kit component.

759260 Energy Box Each **\$2,109.00 759262** Hydrofill Pro Each **\$1,299.00**



Energy Monitor

Horizon. Avoid using multimeters, confusing setups, and cumbersome computations with the renewable Energy Monitor. Obtain quantifiable real-time voltage, current, power, joules, resistance, and even RPM speed with the push of a button on a 2-line LCD screen. This durable unit is compatible with all Horizon science education kits and suitable for indoor and outdoor use, with or without a computer. Includes USB cable, software, renewable energy curriculum, 2-mm banana leads, and instructions. Additional specifications are available at Carolina.com.

759251 Each \$289.00

Physical Science Alternative Energy Sources

Solar Energy





Explore nuclear fusion, daily and seasonal changes in the sun's angle, the sun's scale and output, and methods of capturing solar energy. Examine the sun's role to introduce topics such as energy conversion, chemical changes, light waves, alternative energy, radiant energy, and photovoltaic cells. Materials support 16 student pairs. Includes instructions and a review of right triangle math. Black light, scientific calculators, and empty aluminum cans needed but not supplied.

759848 Per kit \$89.25



Radiometer **A**²

Demonstration radiometer spins up to 2,900 rpm from heat of the sun or a lightbulb. Instructions included.

747130 Each \$19.15



Solar Electricity Demonstration Kit

Harness the power of the sun! A powerful solar cell and motor convert solar energy into electrical energy, then into mechanical energy. The motor spindle turns immediately after you place the cell in direct sunlight. Attach the propeller to create a solar fan; use the colorful disc for a fun visual effect. Students study variables that affect power output, such as light intensity, light angle, and cell surface area. Includes propeller, reflective disc, spiral disc, and instructions.

747026 Per kit \$22.95



Solar Energy Demonstrator

Place this disk in sunlight and watch it rotate with surprising speed. The 4 solar cells on the disk convert light energy into electrical energy. The electrical energy powers a motor that turns the disk at a rapid rate. A great demonstration of energy conversion. Instructions included.

761010 Each \$47.65

Alternative Energy Sources

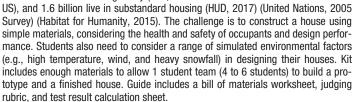
Physical Science



Eisco Science Fair Kits: Eco-Structure Building Kit (right); in use (above)

Eisco® Science Fair Kits: Eco-Structure Building Kit

Grades 6–12. Give budding engineers a challenge to address the worldwide problems of homelessness and substandard housing by designing houses for safety, affordability, and eco-efficiency. There is a housing and homelessness crisis where 100 million are homeless globally (550,000 in the



751619 Per kit **\$140.70**



Solar Car Assembly Kit

An adjustable solar panel powers the motor of this lightweight car. The panel has epoxy-coated solar cells, making it less vulnerable to breakage when dropped. Adjust the motor and output to produce different combinations of power and speed. Illustrate concepts of solar energy used in real solar racing vehicles. Easily snap or screw pieces together; no gluing required. Simple wiring (no soldering) completes the assembly. Hobby knife, small screwdriver, and a cutter are needed but not supplied. Includes instructions.

761449 Per kit \$76.65



747024 SunArt Paper (in use)

SunArt Paper

Harness the energy of the sun to create beautiful and unique shadow prints on sun-sensitive paper. Includes a clear acrylic sheet to hold your art in place. Pack contains 15 sheets of $8\times 10^\circ$ paper.

747024 Per pack \$17.60

Nuclear Energy



Alpha Particle Scattering Analogue

Grade 9–College. Ernest Rutherford's landmark experiment (Rutherford scattering) confirmed the existence of an incredibly compact, positively charged atomic nucleus and led to the Rutherford and Bohr models of the atom. This experiment enables students to study Rutherford scattering using a gravitational analogue to model the inverse square Coulomb interaction (repulsion). In lieu of a radioactive source, an aluminum hill, steel balls, and a wooden launching ramp are used. The launching ramp is $300 \times 48 \times 105$ mm with a guide groove down its curved front face. It has index marks at 40, 60, 80 and 100 mm above its base to provide a variety of known launching heights. Kit includes an instruction manual and enough materials for a small lab group or demonstration.

759122 Per kit **\$102.90**

See more nuclear energy products on the next page.



Smart Geiger Pro

The Smart Geiger Pro plugs directly into an Android® or iOS® smartphone and detects environmental gamma/x-ray radiation using a free downloadable app. Easy to carry and requires no batteries. Device size, $2^1/2 \times 9/10 \times 4/10$ " (64 × 24 × 9.9 mm); wt, 13.5 g (0.03 lb). Comes with instructions.

Specifications:

Radiation Measurement: Gamma, x-ray Sensor Type: Semiconductor Case Material: Plastic

User Interface: Smartphone (headphone port)

Range: $0.05-200 \,\mu \text{Sv/hr}$

Measurement Error: <±15%

Wedsulement Littl. <=1370

Linearity: 98% at 30–70 µSv/hr

Manufacturing Country: China

759471 Each \$87.15

Alternative Energy Sources





Geiger Counter

Handheld unit is easy to use, accurate, reliable, and weighs less than 9 oz. Operates on one 9-V alkaline battery for up to 2,000 hr at normal background radiation levels. Equipped with a Geiger-Mueller tube with thin mica end window, analog meter ($^{7}/_{8} \times 1^{3}/_{4}$ "), LED count light, 3 ranges, and an internally mounted beeper. Includes carrying case, instructions, and 1-year warranty. Visit Carolina.com for more specifications.

759470 Each \$535.50



Radioactive Decay and Half-Life Simulations Kit

Grades 9–12. Strengthen students' grasp of nuclear decay and half-lives with this 3-activity kit. Students simulate radioactive decay using both multi-faced cubes and water flow. Students then perform a radioactive decay series simulation of a "newly discovered" radioisotope from an unstable nucleus to a stable nucleus. The card set for this activity allows students to mimic alpha, beta, gamma, and positron decay as their isotope forms daughter nuclei. The kier activities require approximately 2 hours of classroom time; complete the activities on separate days as needed. Materials support 10 groups of 1 to 4 students and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840715 Per kit \$76.95



Radioactive Source Set

Safe for classroom use. Consists of 1 each of alpha (Po-210), beta (Sr-90), and gamma (Co-60) sources. Each is embedded in a color-coded clear epoxy material that seals the radioactivity inside. Packaged in a clear plastic box. FOB Oak Ridge, TN. **Note:** *Sold only to schools and businesses.*

759105 Per set **\$388.50**



Observing Ionizing Radiation Using a Cloud Chamber Kit

Expand your nuclear chemistry demos beyond simulations with this unique cloud chamber activity. Students observe the contrails formed as ionizing radiation travels through a cooled, supersaturated vapor. They illustrate and explain what is happening in the cloud chamber on a particulate level while learning about nuclear processes and nuclear equations. Students are challenged to connect their observations with the occurrences and uses of radioactive isotopes in the world. This demonstration requires approximately 20 minutes of classroom time, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840374 Per kit \$57.00

Electricity

Van de Graaff Generators & Accessories



756214 Van de Graaff Generator, 400 kV, with 10 Electrostatic Attachments



756208 Hand-Driven Van de Graaff Generator



756209 Van de Graaff Generator, 200 kV

Van de Graaff Generator, 400 kV, with 10 Electrostatic Attachments

The 400-kV Van de Graaff unit generates 200,000–400,000 V, depending on humidity, and has 3 variable settings. The typical electrostatic demonstrations described in the included experiment guide can test concepts such as charge conservation, charge transfer, triboelectric effect, conductors, insulators, ionization, and more. Unit overall height is 33"; dome diameter is 9". The unit also comes with a power cord, a dust cover, and an electrostatics set with 10 attachments. **Replacement Belt** sold separately.

756214 Van de Graaff Generator

Each **\$652.60**

756214A Replacement Belt Each **\$25.15**

Hand-Driven Van de Graaff Generator

Crank up the potential—and the fun! Affordable and portable, this model sets it up anywhere in the classroom. Instead of the fixed belt speed of traditional models, you control the speed with the hand crank. Demonstrate the conversion of mechanical to electrical energy, and show whether crank speed affects spark production. The 71/2"-diam spherical metal globe allows for continuous charge buildup (75 to 200 kV). Measures 22" H. Includes 4" discharging sphere and instructions. **Replacement Belt** sold separately.

1 756208

Van de Graaff Generator

Each **\$330.75**

756208A Replacement Belt

Each **\$23.40**

Van de Graaff Generator, 200 kV

A small but powerful Van de Graaff generator. Generates potentials as high as 200,000 V and sparks up to 8" L. The unit, about 18" H with 7"-diam aluminum dome, has a ground terminal for discharge electrode (included) and a 110-V standard US grounded plug. Comes with an experiment book.

756209 Complete Unit Each **\$360.00 756209A** Replacement Belt Each **\$27.85**

Customer Review

"I got this for my basic electricity class and [the students] went nuts over it!"

University General Science Professor

Physical Science Electrostatics

From 755808 Van de Graaff Generator Accessories Kit (above); in use (inset) Van de Graaff Generator Accessories Kit

Spark excitement and enhance electrostatics instruction with this Van de Graaff generator accessories kit. Demonstrate charge repulsion, show the charge-discharge cycle, create visible sparks, make hair stand on end, and even light a fluorescent bulb. Needed but not supplied are an electric Van de Graaff generator (200 kV and up; we recommend item #756209), heavy work gloves, ruler, meterstick (no metal ends), step stool, and string. Kit materials may be used indefinitely. Includes instructions. /I\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

755808 Per kit **\$38.65**



Electrostatics Kit

Materials for demonstrating the generation of electrostatic charges with a friction rod. Includes a hollow glass rod, half ground solid glass rod, hard rubber rod, silk friction pad, flannel friction pad, animal fur friction pad, 3 balloons, 10 ft of string, and instructions. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

755811 Per kit \$36.55



Metal Case Electroscope ▲*

Completely assembled. Constructed of heavy metal with front and rear removable glass windows to permit easy observation of leaves. Measures 5 \times 3 $^1\!/_2$ \times 3 $^{"}$ D. Instructions included.

756165 Each \$62.80



Flask-Type Electroscope

When a charge enters the flask through the ball on top of the unit, the leaves separate. The greater the charge, the greater the separation. Reinforce concepts of electrical charge, transfer of charge, induction, and conduction. Consists of 250-mL flask, rubber stopper, alligator clip, and rod with ball top. Instructions included.

756160 Each \$28.15



Friction Rod Set

A set of friction rods and friction pads for use in electrostatic experiments. Includes hollow glass rod, Lucite® rod, 2 hard rubber rods, flannel pad, silk pad, fur pad, and instructions.

755819A Per set **\$41.85**

Electricity



Wimshurst Machine

Generate a static electric charge to create a spark or a source of static charge for your experiments. As the handle turns, 2 discs rotate in opposite directions. Brushes contact metal strips on the discs and store the developed charge in 2 capacitors. Bring the metal spheres together to see and hear a spark jump the gap. High-quality construction guarantees success every time. Instructions included.

756201 Each \$232.05

Physical Science



Leyden Jar 🗥

Spark your students' interest in physical science! Charge the jar with a Van de Graaff generator or Wimshurst machine for a surprising yet simple demonstration of how a capacitor works. Use to introduce static electricity, capacitors, electrical induction, and the storage of positive and negative charges.

756237 Each \$32.80



Carolina® Coulomb's Law Kit

Grades 9–12. Introduce electrostatic force using charged materials such as fur, silk, and glass. Students construct 2 types of electroscopes and measure attractive force as a function of distance with the more sensitive electroscopes. Then they model the mathematical relationship, confirming the 1/r² relationship between electrostatic force and distance by measuring angular deflection. Kit contains enough materials for 10 groups of students and includes digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

756020 Per kit **\$100.80**

Circuits



964600 Snap Circuits Green

Snap Circuits® Green

Think green. Snap green. Build over 125 projects while learning about environmentally friendly energy and how electricity works in the home. **Kit** includes a hand crank, solar cell, FM radio, energy compartment, rechargeable battery, windmill, clock, analog meter, and instructions. **AC Adapter** is 120 V/60 MHz. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

964600 Kit Each **\$96.60 964501** AC Adapter Each **\$29.20**



964512 Electronic Snap Circuits Jr.

Electronic Snap Circuits®

Make learning electronics easy and fun! Each set of building blocks with snaps enables young experimenters to build a variety of electrical and electronic circuits. Sets include switch, lamp, and battery blocks, and varying length wire blocks, all in different colors and numbered for easy identification. With instructions. All sets need AA batteries (not included). /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

 964512
 Snap Circuits Jr., SC100
 Each
 \$52.90

 964513
 Snap Circuits, SC300
 Each
 \$99.75

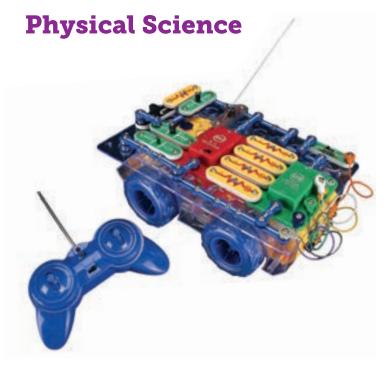
 964514
 Snap Circuits Pro, SC500
 Each
 \$120.60

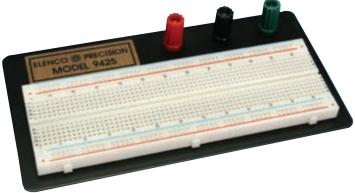
 964501
 AC Adapter
 Each
 \$29.20

<u>
↑

³ California Proposition 65</u>

WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov





RC Snap Rover®

Pieces snap easily—no soldering! Build a remote-controlled car that moves forward, backward, and even turns. Color-coded pieces and clear instructions make construction fast, not frustrating. The included instruction manual describes common electronic circuit topics, such as circuits in parallel and series, capacitors, resistors, and how remote-controlled transmitters work. Requires 6 AA batteries and one 9-V battery (items #756316 and #756318; not included). Not compatible with Snap Circuits® AC Adapter (item #964501). /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

964511 Each \$116.35

Solderless Breadboard

This breadboard offers 830 tie points, 126 separate 5-point terminals, 4 horizontal bus lines of 50 test points each, and 3 color-coded binding posts. Board is black, anodized aluminum and measures 7" W × 4" L. Requires #22 AWG solid hook-up wire. With skid-resistant rubber feet.

755918 Each \$53.40



Mega Resistor Assortment Case

An assortment of 1,280 resistors—20 each of 64 different values, from 1 Ω to 10 M Ω , with a ±1% tolerance and a power rating of 1/4 W. The sturdy plastic case displays a resistor color code chart for easy reference.

751677 Each \$19.80



Fundamentals of Electronics Kit

This kit requires no electronics background. Introduces students to a breadboard, and covers Ohm's law, resistance and capacitance, and semiconductors and transistors. Includes solderless breadboard mounted on a Plexiglas® base, switch, red and green LEDs, capacitors, resistors, connector wires, transistors (NPN and PNP), diode, photoresistor, and manual.

755909 Per kit \$170.10

Electricity

Squishy Circuits

Squishy Circuits®

Grade 3 and up. Transform STEM into STEAM and get the electricity and students' creative juices flowing! Squishy Circuits® use conductive and insulating dough to teach students about electrical circuits, without the need for breadboards or soldering. Just add batteries and let the fun begin. There's no limit to the inventions students can create using colorful Squishy Circuits® dough and components—colorful LEDs, buzzers, switches, and motors. The Group Kit is packed in a sturdy plastic case and includes materials for up to 30 students working in groups (except for AA batteries and dough, which are needed but not supplied). The Deluxe Kit and Standard Kit include everything you need to get started (except for AA batteries, which are needed but not supplied). The Dough Kit includes 7 containers of conductive dough and 1 container of insulating dough. Visit Carolina.com for complete lists of kit materials. Purchase additional dough and components to expand or replenish any kit.

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756408	Group Kit	Each	\$329.70
756410	Deluxe Kit	Each	\$89.90
756411	Standard Kit	Each	\$42.60
756413	Dough Kit	Each	\$25.20
756414	White Insulating Dough, 7 oz	Each	\$7.35
756415	Battery Holder	Each	\$8.85
756416	Motor	Each	\$11.75
756417	Switch	Each	\$10.45
756418	Piezoelectric Buzzer	Each	\$9.10
756419	Mechanical Buzzer	Each	\$8.95
756423	Blue LED	Pack of 5	\$4.35
756424	Blue LED	Pack of 50	\$15.10
756425	Green LED	Pack of 5	\$4.35
756426	Green LED	Pack of 50	\$15.10
756427	White LED	Pack of 5	\$4.35
756428	White LED	Pack of 50	\$15.10
756429	Red LED	Pack of 5	\$4.35
756430	Red LED	Pack of 50	\$15.10
756431	Yellow LED	Pack of 5	\$4.35
756432	Yellow LED	Pack of 50	\$15.10
756433	Purple LED	Pack of 5	\$4.35
756434	Purple LED	Pack of 50	\$15.10
756435	Orange LED	Pack of 5	\$4.35
756436	Orange LED	Pack of 50	\$15.10
756437	Color-Changing LED	Pack of 5	\$4.35
756439	Color-Changing LED	Pack of 50	\$15.10
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756413 Squishy Circuits Dough Kit



756423 Squishy Circuits Blue LED



756415 Squishy Circuits Battery Holder

Physical Science



756408 Squishy Circuites Group Kit



756410 Squishy Circuits Deluxe Kit



756411 Squishy Circuits Deluxe Kit



Bare Conductive® Touch Board® Starter Kit

Connect any surface, object, or space to the digital world. No technical ability or programming required to start. Create 12 unique sensors with any conductive material, including Electric Paint® (item #756468). The Touch Board® and Electric Paint® are essential parts of every maker's toolbox, every educator's top drawer, and every engineer's lab to make projects interactive, responsive, smart, or just fun. Kit includes guidebook, board, paint, and starter project supplies. Arduino compatible.

756466 Per kit \$325.50



Bare Conductive® Electric Paint® Pen

Blend design, inquiry, and engineering while drawing a "liquid wire" circuit. Non-toxic, water-soluble paint provides a new way to engage students in electronics. They can enjoy being creative while designing circuits to learn about resistance, polarity, or voltage. Works with traditional electrical components, prototyping materials, PCBs, microcontrollers, e-textiles, and conductive thread. Paint dries at room temperature and is suitable for cold-solder projects. Includes application and storage instructions, but not lab activities or lessons. Circuit components such as LEDs, alligator leads, transistors, meters, batteries, or a power source (up to 12-V DC) are needed but not supplied. Pen contains 10 mL of paint.

756468 Each \$24.15

Chibitronics®

Blend electronics with traditional arts and crafts media to create personally meaningful technology and new media for self-expression. Chibitronics® Circuit Stickers allow you to easily incorporate STEAM (science, technology, engineering, art, and math) or a makerspace into your science classroom.



755966 Chibitronics Circuit Stickers Class Set





755964 Chibitronics Circuit Stickers Starter Set

Chibitronics® Circuit Stickers

Combine science and art to create simple circuits that work without wires or special paint. Using conductive tape, LED stickers, and batteries, you can add creative technology to your curriculum and empower students to transform classroom knowledge about circuits into meaningful real-world projects. **Starter Set** (for 1 to 2 students) includes LEDs, tape, batteries, and instructional sketchbook. **Class Set** (for 30 students) contains LEDs and tape only. CR2032 **Coin Batteries** are needed but not included. Instructional material is online at Chibitronics.com.

 755964
 Starter Set
 Each
 \$44.80

 755966
 Class Set
 Each
 \$152.25

 756327
 Coin Batteries
 Pack of 4
 \$12.30

Electricity

Banana/Alligator Cords, 24" A

These banana/alligator cords easily connect to a variety of terminals. They feature a stacking banana plug on one end and an alligator clip on the other. Insulated 18-SWG copper wire construction. Length, 24". Pack of 6 (3 red and 3 black).

756526 Per pack \$15.10

756521 Connector Cords, 24", with Insulated Alligator Clips on Both Ends

Connector Cords, 24" A

Plastic-covered wire with the following selection of ends. Available in packages of 6 (3 red and 3 black).

Insulated Alligator Clips on Both Ends Pack of 6 \$20.55

Stacking Banana Plugs on Both Ends 756523

Pack of 6 \$25.85

Physical Science



756516 Clip Leads, 24"

Clip Leads 113

Color-coded test leads with an insulated alligator clip at each end to provide secure connections, Includes 2 leads of each color: red, black, green, yellow, and white. Available in 2 lengths.

756515 14" Pack of 10 \$13.65 **756516** 24" Pack of 10 \$22.95



Decade Resistance Box A

Eliminate the need to store multiple resistor values. Quickly and easily select each decade with a rotary dial-without reconnecting wires. Provides 6 decade ranges and a total value of 0 to 1,111,110 ohm with a 1-ohm resolution. All resistance values have ±1% tolerance and 2-W maximum ratings. Includes instructions.

756754 Each \$126.25



Low-Voltage DC Motor A

An excellent motor for all low-voltage applications. Includes leads with alligator clips for easy connections. Input voltage is 4.5 to 6 V.

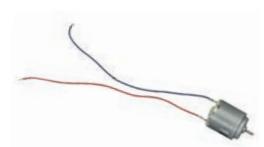
755992 Each \$7.35



Electric Bell

Operates on 3- to 6-V DC battery or 6- to 10-V AC transformer. The coils and terminals are enclosed under a snap-on metal cover.

757010 Each \$21.75



DC Motor A

Choose this motor when working with 1.5-V batteries (AAA, AA, C, and D). Motor delivers 6,900 rpm (without a load) over its operating range of 1.5 to 4.5 V. Leads measure 6" L and ends are stripped for easy connection.

755990 Each \$4.95



Wire Stripper 🕰

Cuts and strips wire from 10 to 24 gauge. Equipped with vinyl-covered handles.

756525 Each \$15.75

Hook-Up Wire

PVC-coated, stranded, 18-gauge wire. Insulation prevents short-circuits while color-coding makes building circuits easy and fast. Flexible and easy to handle. Available in 100-ft spools in 2 colors.

756390 Red Each **\$18.50** 756392 Black Each \$17.85



Alligator Clips A

Constructed of cadmium-plated steel with screw connection. Each clip measures 21/8" L with a jaw spread of 5/16".

756500 Pack of 10 \$9.20



756481 Lamp Receptacle, Plastic

Lamp Receptacles

Good-quality miniature lamp socket with screw-type binding post. Available with Plastic or Porcelain base.

1 756481 Plastic Each \$3.20 **756483** Porcelain Each \$5.00



Knife Switches

Used for low-voltage experiments. Equipped with brass blade and contact mounted on plastic base, and screwtype binding post for easy connection. Base size, 11/2

756470 756472	Single Pole, Single Throw Single Pole, Double Throw	Each Each	\$5.55 \$5.20
756475	Double Pole, Single Throw	Each	\$8.25
756479	Double Pole, Double Throw	Each	\$6.20



Electricity

Lamp Board

Designed to be used with a maximum of 6 V for safety. Use the lamp board to construct a simple electrical circuit to demonstrate how current depends on resistance and voltage, and also to demonstrate simple parallel and series circuits. Five miniature lamp receptacles mounted on a clear acrylic base. Includes bulbs and instructions.

757476 Lamp Board Each \$35.70 **756488E** Miniature Lamps, 6.3 V; 0.5 A Pack of 10 **\$18.60**



Economy Bulb Holder

Designed to hold miniature bulbs. Constructed of plastic with 2 Fahnestock clips for connecting wire. Bulb not included.

756485 Each \$2.30



756488 Miniature Lamp, 1.5 V; 0.3 A

Miniature Lamps

An incandescent lamp designed to fit a miniature screw-base socket.

756488	1.5 V; 0.3 A	Pack of 10	\$16.80
756488A	2.5 V; 0.3 A	Pack of 10	\$17.70
756488B	3.2 V; 0.3 A	Unit of 10	\$18.40
756488E	6.3 V: 0.5 A	Pack of 10	\$18.60



Miniature LED Lamp

A white LED lamp designed to fit a miniature screwbase socket. 3.2 V, 25 mA.

756490 Pack of 10 \$11.70



Economy Switch

Constructed of durable plastic with metal Fahnestock clips for wire attachments.

756487 Each **\$2.55**



Contact Key

Sturdy and durable with a large button to demonstrate how an electrical circuit can be momentarily opened or closed with the press of a button. Mounted on a 3 × 41/2" solid black acrylic base with 2 binding posts.

757106 Each **\$8.30**



Electricity



Battery Holder Set A3

Load up to 4 D-cell batteries side by side at one time in this fully assembled unit. Five binding posts provide easy, safe, and reliable connections to supply 1.5 V, 3 V, 4.5 V, or 6 V. Made from break-resistant plastic. Dimensions: $19.8 \times 11.9 \times 4.2$ cm. D-cell batteries (item #756317) sold separately.

756607 Per set **\$19.25**



Single D Battery Holder A3

Designed to teach both series and parallel circuits. Made of plastic and holds 1 standard D battery (item #756317; not included). Unit has male and female button snaps to allow instant connections with additional battery holders, in series or in parallel, without using leads.

756505 Each \$3.10



Magnetic Leads

Equipped with a tiny yet powerful permanent magnet on each end to create an instant connection. Length, 113/4" (295 mm); magnet diameter, 4 mm. Available in 2 colors.

756533 Black Pack of 10 **\$32.20 756535** Red Pack of 10 **\$32.85**



9-V Lead with Alligator Clips A

Simplify 9-V battery experiments. Just snap 1 end onto the battery, clip the red and black leads to the experiment, and electricity flows. Each wire has an insulated alligator clip at the end. 12" L. Requires 9-V battery (item #756318; not included).

756498 Each \$5.65



Physical Science

Single AA Battery Holder with 2 Wires ▲3

Great for projects requiring 1.5 V in a smaller footprint. This sturdy plastic battery holder has 2 color-coded 12" lead wires with stripped ends. Quickly connect leads, motors, alligator clips, or other circuit components. AA battery (item #756316) sold separately.

756509 Each **\$2.15**

Energizer® Industrial Strength Alkaline Batteries

High-energy, long-lasting, industrial strength Energizer® alkaline batteries.

756315	AAA Battery	Each	\$2.50
756330	AAA Battery	Pack of 4	\$4.00
756331	AAA Battery	Pack of 8	\$7.90
756332	AAA Battery	Pack of12	\$11.65
756316	AA Battery	Each	\$3.05
756328	AA Battery	Pack of 8	\$7.65
756329	AA Battery	Pack of 12	\$11.35
756313	C Battery	Each	\$3.30
756333	C Battery	Pack of 4	\$8.05
756334	C Battery	Pack of 8	\$14.70
756335	C Battery	Pack of 12	\$24.40
756317	D Battery	Each	\$4.55
756336	D Battery	Pack of 4	\$10.10
756337	D Battery	Pack of 8	\$19.95
756338	D Battery	Pack of 12	\$30.45
756318	9-V Battery	Each	\$6.60
756339	9-V Battery	Pack of 2	\$8.00
756340	9-V Battery	Pack of 4	\$15.60
756341	9-V Battery	Pack of 8	\$28.90

Lithium Coin Battery

This 3-V type 2032 lithium coin battery is a commonly used button battery. Holds its power for 8 yr in storage. Measures 0.70" diam \times 0.004" H. Replacement for: 5004LC, BR2032, DL2032, ECR2032, and ST-T15.

756327 Pack of 4 **\$12.30**

Energizer® Specialty Batteries

The 389 Coin Cell Battery is 1.5 V; the A23 Battery is 12 V.

756342 389 Coin Cell Battery

Each **\$4.20**

756343 A23 Battery

Pack of 2 **\$4.15**

Energizer® Rechargeable NiMH Batteries

Save time, money, and the earth by vowing never to use disposable batteries again. Get the best power, cycle life, and charge retention with Energizer® NiMH rechargeable batteries. Requires either the **Fast Charger** or **Universal Charger** (neither included). We highly recommend the Fast Charger since it only takes 15 min to recharge AA and AAA NiMH batteries—3 charges during 1 class period. Fast Charger also includes 4 AA batteries and car adapter, making it a great deal. Charging C, D, or 9-V NiMH batteries requires the Universal Charger (also charges AA and AAA batteries).

	AA Battery AAA Battery				9-V Battery Universal Charger		\$22.40 \$60.90
756314R	C Battery	Pack of 2	\$29.10	756322	Fast Charger	Each	\$79.60
756317R	D Battery	Pack of 2	\$29.60				

Physical Science Conductivity & Electrolysis



Conductivity of Solutions Apparatus 🛕

Used to demonstrate the relative conductivity of various solutions. Consists of a miniature lamp receptacle mounted on a PVC base, a bulb, and a clear glass tumbler. Requires a 3-V DC power source (not included). Includes instructions.

757482 Each \$25.30



Electrolysis Apparatus, Brownlee 🗥

Designed for simplicity and economy. Ideal for lecture table or student laboratory work. Consists of nonconducting support equipped with binding posts connected to 2 insulated platinum electrodes, 2 inverted 6" test tubes, and a $4^{1/2} \times 5^{"}$ battery jar. Includes instructions.

757492 Per set \$125.00



Micro Electrolysis Apparatus

Economical and compact design allows students to observe the electrolysis of water and even collect small volumes of hydrogen and oxygen gases. Consists of a stand assembly, electrodes, 2 attached wires with alligator clips, 2 test tubes, trough, electrolyte solution, acid/base indicator solution, and instructions. Requires a 6- or 9-V battery (not included).

757510 Each \$36.00





757502 Brownlee Apparatus Set (no jar)

Bring Our FREE Online Resources to Your Classroom

Carolina offers additional free online resources (such as lab activities, kit component lists, care sheets, standards correlations, streaming videos, and more). Simply go to Carolina.com and type the product's item number in the search field.

Brownlee Apparatus Set (no jar)

Quickly set up and demonstrate electrolysis, passing current through a solution to drive a non-spontaneous reaction. A non-conductive support securely holds 2 inverted 20 × 150-mm gas collection tubes and has 2 attached insulated platinum electrodes. The support rests on a battery jar or beaker (not included). Battery jar or beaker (1 L or larger) and a 6-V battery or a 10-V DC power supply are needed but not supplied. Includes instructions.

757504

¹ **757502** Brownlee Apparatus Set

Each

\$94.55

20 × 150-mm Graduated Glass Test Tubes

Pack of 2

\$8.85

↑ California Proposition 65

Electricity



757480 10-Level Conductivity Meter (in use; beaker not included)

10-Level Conductivity Meter ▲3

Test conductivity in the classroom or field with this portable battery-powered meter. For a quick visual comparison of conductivity, press and hold the side button, and then touch both brass prongs to a solid or submerge them at least 1" into a liquid. Easily read conductivity, from 1 (low) to 10 (high), on the green LEDs. Release the button, clean the probes with water, and you are ready to test again. Includes battery and operating instructions. A small Phillips screwdriver is needed but not supplied.

757480 Each **\$37.15** 8+ Each **\$36.95**

Student Voltaic Cell Set

Used to demonstrate the characteristics of simple and primary cells. Consists of an 8-oz plastic jar with a screw-on plastic rim containing 2 adjustable brass electrode holders, 8 electrodes of 7 different metals, and a porous ceramic cup. Instructions included.

757486 Per set **\$58.95**

Physical Science





Electrodes

Sets of metal electrodes. Each electrode is stamped with the name of the element from which it is made. Each copper electrode measures $^3/_4\times5^1/_2";$ zinc, $^3/_4\times5^5/_{16}".$

757488A Copper Pack of 12 **\$27.95 757488C** Zinc Pack of 12 **\$23.10**



Metal Strips Set

One each of the following metals: aluminum, brass, copper, steel, and zinc. Each strip measures $^{3}/_{4} \times 5^{1}/_{4}$ ". **874850** Per set **\$11.65**



Electrode Set

Replacement electrodes for Student Voltaic Cell Set (item #757486). Consists of 10 electrodes: 1 carbon, 1 nickel, 2 aluminum, 2 copper, 2 iron, and 2 zinc. Electrodes are about $4\times ^3/_4$ ".

757487 Per set \$28.35

Customer Review

"These electrodes made it so easy for my students to learn about batteries and electric current. They are reusable, so my future students will learn from using them as well. They shipped quickly and were just great."

High School Chemistry Teacher

Physical ScienceHeat & Thermodynamics

Heat & Thermodynamics



Exploring Specific Heat Capacity and Thermal Conductivity Kit <a>L

Engage students with the discrepant events of catching money on fire without it burning and boiling water in a paper cup. Four groups investigate thermal conductivity using conductometers, 4 different groups calculate the specific heat of copper and aluminum shot, and then the groups switch tasks. With this knowledge, challenge your students to explain these discrepant events. Includes demonstration materials, lab materials, and instructions. Thermometers and common lab equipment are needed but not supplied.

753485 Per kit \$121.00



Carolina® Introduction to Heat and Temperature Kit ▲²

Grades 9–12. The 7 activities in this kit explore the law of conservation of energy. Students learn the difference between heat and temperature; measure the heat of fusion of ice; observe convection, conduction, and radiation; calibrate an unmarked thermometer; and determine the heat of combustion of paraffin. Provides experience using compound bars, radiometers, and calorimeters. Includes instructions. Materials are sufficient for 30 students working in pairs.

753545 Per kit \$188.50



Heat Transfer Kit

Used to observe and measure heat transfer. Consists of 2 insulated containers with lids, an aluminum transfer bar, thermometers, and instructions.

753700 Per kit \$35.40



Radiation Kit A3

Examine heat absorption of light versus dark surfaces. Consists of 6-oz black metal can, 6-oz shiny metal can, 2 insulating lids, 2 thermometers (–20 to 50° C), 110-V AC clamp lamp with reflector, and instructions. **Note:** *Lightbulb not included.*

753710 Per kit \$75.95





Heat & Thermodynamics

Physical Science







Hand Boiler

Heat from your hand increases the vapor pressure of the liquid in the lower bulb, forcing it into the upper bulb. An impressive display of vapor pressure and the force gases exert.

753606 Each \$11.40

Specific Heat Specimen Set

Consists of five 1/2"-diameter hooked cylinders, precision machined to equal mass. Metal identifications stamped on 1 end. Includes aluminum, copper, stainless steel, tin, and zinc.

753490 Per set **\$36.35**

Energy Transfer Balls

When 2 steel balls collide, the impact generates enough heat to burn a hole in a piece of paper. Your students will not forget this spectacular transformation of mechanical energy into heat energy. Instructions included.

753609 Per pair **\$49.75**



Radiation Can Set

Study absorption, emission, and Newton's law of cooling. Cans are identical except for color: one is black and the other is bright tin. Insert a thermometer (not included) in the hole at the top of each can to measure changes in water temperature.

753708 Per set \$26.00



Leslie's Cube

Measure thermal radiation properties as a function of temperature, color, and surface texture. Includes instructions. Dimensions: 4×4 ". Needed but not included: water, thermometer, and light source.

753715 Each \$41.85



Drinking Bird

A classic toy that is really a heat engine. Operating on the cooling process of evaporation, the bird will continue to drink as long as there is water in the cup and the room temperature is above 65° F.

753605 Each \$13.15



Heat & Thermodynamics



Compound Bar Set

Study thermal expansion quickly and easily with this set of brass/aluminum, brass/iron, copper/iron, and brass/copper bimetallic bars. When heated, the bars form unique shapes due to their distinct coefficients of linear thermal expansion. The included activity guide features background information discussing applications, an activity, and the coefficients of linear thermal expansion for the different metals. Metal bars (except the brass one) are stamped for identification: aluminum (AI), iron (Fe), and copper (Cu).

753383 Per set **\$34.30**



Compound Bar

When heated, the bar bends sharply. Demonstrates the unequal expansion of 2 different metals. Size, 10" L \times 1" W.

753380 Each **\$11.00**



Ball and Ring Apparatus A

Demonstrates thermo-expansion of metals. When the ball and ring are at the same temperature, the ball passes freely through the ring (the ball *will not pass through* the ring when heated). Instructions included.

753370 Each \$20.95



Thermal Conductivity Bars

Test the conductivity of 4 metals at once. Steel, brass, aluminum, and copper strips are connected to a strip thermometer and mounted on a plastic base. Dip the ends into a temperature water bath and teach heat conduction. Dimensions: metal strips, $5^1/4^{\text{\tiny II}}$ L × $^3/8^{\text{\tiny II}}$ W × $^3/8^{\text{\tiny II}}$ D; plastic base, 7" L. Includes instructions.

753385 Each **\$55.65**

See the Carolina® First and Second Laws of Thermodynamics Kit (item #753720) on page 789.

Heat & Thermodynamics

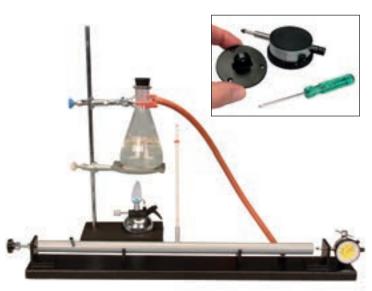




Stirling Engine 🗥

The little Stirling engine that could—without fuel. Simply place the engine over a cup of hot coffee or water and watch it go. To reverse the engine's direction, use ice water. Crafted from durable stainless steel, this stylish and affordable low-temperature differential unit demonstrates how heat engines convert heat energy into mechanical work. It is a classic demonstration of thermodynamics for middle school. Overall height, $5^7/10^{\circ}$. Includes instructions; hot and cold source and cup are needed but not supplied.

753554 Each \$155.40



753576 Precision Linear Expansion Apparatus (in use)

Precision Linear Expansion Apparatus ▲3

Determine the coefficient of expansion of steel, brass, aluminum, and copper rods (included) quickly and easily. Features include a high-contrast dial sensitive to 0.01 mm, heat shield between tube and base to ensure accurate readings, and tight water-jacket around rods for precise temperature control. Unit ships ready-to-use.

753576 Each \$283.50

Physical Science



Thermoelectric Generator Demo

Convert a temperature difference directly into electricity. Immerse 1 aluminum leg into a hot water bath and the other leg into a cold water bath. At least 10° temperature difference between the baths produces sufficient electricity to turn a turbine. Introduce students to thermodynamics, thermoelectric devices, and the Peltier-Seebeck effect. Unit is equipped with banana plugs and jacks. Includes instructions.

753698 Each \$47.25



Heat Conductometer

Demonstrates the rate of heat conduction in 5 different metals. Unit is equipped with 5 rods, 15 mm in diameter and 95 mm L, each of different metals equally spaced on a brass disk and mounted on an insulated handle. The rods are aluminum, brass, copper, nickel, and steel, and each has a cavity in the outer end for holding paraffin. Instructions included.

753418 Each \$24.55



Double-Wall Calorimeter

Aluminum construction. Consists of a 200-mL inner vessel and a 750-mL outer vessel with transparent molded cover, rubber stopper, and stirrer. Styrofoam® insulates inner vessel from outer vessel for accurate readings. Instructions included.

753518 Each \$38.75



Foam Calorimeter

This foam calorimeter cup has excellent insulating properties! Investigate thermal energy with minimal loss to the environment. Cup includes a molded-in pouring spout for easy transfer of liquids. Cup lid has a hole for thermometer or temperature probe insertion. Max capacity (with lid on), 400 mL; see more specifications at Carolina.com. Pack of 10.

753516 Per pack \$46.95



Heat & Thermodynamics

Food Calorimeter

Quickly and easily measure the calories in solid foods with this unique device. Pin the food on the stand under a flask of water and measure the temperature change of the water as the food burns. Then calculate the heat evolved per gram of food burned, comparing the result to food labels or other burned samples. The simple procedure lets students test multiple samples within 1 class period. Instructions included.

753526 Each \$52.80



Electric Calorimeter

Similar to item #753518, Double-Wall Calorimeter, except the molded cover of this device contains a 1.5-ohm heating coil with standard binding posts for electrical connections. The supporting posts and coil are coated to prevent electrolysis. Operates at 4 A. Comes with insulated stirrer, single-hole rubber stopper, and instructions. Requires 6-V lantern battery (not included).

753524 Each \$44.95



Convection of Liquid Apparatus

Used to study convection currents in liquids. Fill the tube with water and add 1 drop of food coloring. When a bottom corner of the tube is heated, a convection current forms and disperses the coloring. Tube measures 15 cm W \times 20 cm H. Includes instructions. Food Coloring (item #898030, set of 4 colors) needed but not included.

753445 Each \$42.75



Convection of Gas Apparatus

Used to study convection currents in the air. Consists of a metal box 9" W \times 4" D \times 4" H with a removable glass front, 2 chimneys, and touch paper. With instructions.

753449 Each \$63.00

Light & Optics Light & Optics

Kits & Sets



Economy Optics Kit A3

Includes everything you need to demonstrate basic principles of light and color. This valuable kit contains double-convex lens (38 mm, glass), double-concave lens (38 mm, glass), plain lens (38 mm, glass), clear glass screen, mirror (glass), white plastic screen, 4 cellophane squares (4 colors), 3 lens/mirror supports, equilateral prism (25 \times 50 mm, acrylic), graduated plastic beaker, candle, and flashlight (2 AAA batteries included). Kit comes in a reusable storage case complete with instructions.

754617 Per kit \$58.75

Hodson Light Box and Optical Set

- Timeless classic provides consistent results
- Complete with all the equipment needed to perform 30 experiments on reflection, refraction, and color
- · Sturdy, foam box for safe, convenient storage

A favorite of teachers and students for years, the classic Hodson Light Box and Optical Set includes the equipment needed to perform 30 experiments on reflection, refraction, and color. The durable light box has an adjustable lens that can project a parallel, convergent, or divergent beam. The front face accommodates slit plates or color filters and the rear hinged mirrors allow mixing of all 3 beams. Lenses and mirrors are equipped with handles to prevent smears and scratches and all supplies fit securely in a thick foam box for safe storage.

- 5 Acrylic Prisms (rectangular, semicircular, triangular $60 \times 60 \times 60^\circ$, triangular $30 \times 60 \times 90^\circ$, and triangular $45 \times 45 \times 90^\circ$)
- 3 Cylindrical Lenses (thick double convex, thin double convex, and thin double concave)
- Mirrors (curved parabolic, curved semicircular, and plane mirror on stand)
- 3 Slit Plates (for creating 1, 2, 3, or 4 narrow rays or 1 wide ray of light)
- Kolor Filters and 8 Color Plates (red, blue, green, yellow, orange, cyan, magenta, and violet)
 Spare Light Bulb

30-Page Instruction Manual

755160 Complete Set Each **\$224.70 755161** Replacement Bulb Each **\$21.00**

Physical Science



Carolina® Introduction to Light and Optics Kit

Grades 9–12. Bring physical science to light with our comprehensive kit. Measure angles of incidence and refraction, calculate refractive index, determine focal length, study concave and convex lenses and mirrors, compare real and virtual images, draw ray diagrams, polarize light, perform color additions and subtractions, split white light into the visible spectrum, and more. Materials support 8 groups of 4 students each. Instructions include an extension for students to build their own spectroscope (materials not included).

755019 Per kit **\$229.95**



755160 Hodson Light Box and Optical Set

Looking for light meters?

See page 873.



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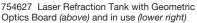
Whiteboard Optics Set ^{⚠³}

Make it easy for students to observe ray optics and color experiments on a white-board using this magnetic-back set. Contains a double-ended light box and comprehensive set of lenses, all with heavy-duty magnets for use on a whiteboard. The light box has a strong 12-V, 20-W halogen lamp powered by a wall-mount AC adapter. Includes instructions and comes with or without whiteboard. **Set with Board** (whiteboard is $23 \times 15^{1/2}$ ") ships in 2 boxes; **Set without Board** ships in 1 box.

755194 Set with Board Each **\$352.80 755196** Set without Board Each **\$297.95**







Laser Refraction Tank with Geometric Optics Board

Two essential light and optics teaching tools in 1 easy-to-convert desktop unit. A laser refraction tank and geometric optics board combination unit is an engaging teach-

ing tool for reflection and refraction effects. Easily set up as a station for small group work or use for tabletop demonstrations. Compact, lightweight, and easy to store. Includes mirror, lenses, beam splitter, and instructions. Built-in laser (<5mW, 630–680 nm) operates on 2 AA batteries (needed but not supplied).

754627 Each **\$121.80**

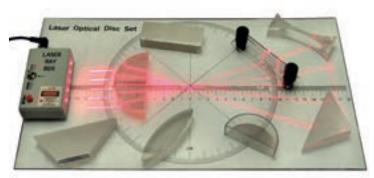


754621 Laser Refraction Tank (in use)

Laser Refraction Tank

Grades 9–12. No external power source required. Leveling is quick and easy with screws on tank's base. Adjust the removable, pivot-arm-mounted laser to any angle along the full 360° range; then measure the angle of reflection or refraction using the circular scale (in 5° increments). Rotate the laser and observe (sequentially) a reflected ray, a reflected and refracted ray, and a refracted ray. Includes laser, battery, and instructions.

754621 Each \$215.00



754608 Laser Prism Set (in use)

Laser Prism Set

Study refraction and reflection using the laser ray box and 7 prisms in this economical set. Laser light is bright enough to see even in a well-lighted room, so there is no need to darken your classroom while students work. The ray box plugs directly into an AC outlet and is ready to use immediately. Use the graduated circle printed on the set's mat to measure angles of reflection and refraction. Mat is magnetic, perfect for working on metal desks, tables, or boards. Set features double-convex, double-concave, trapezoid, rectangular, semicircular, and right-angle prisms. Also included are a mirror and a hollow semicircular prism to measure the optical properties of liquids. Parts store neatly in sturdy container. Includes a sheet of 14 light ray diagrams for reference.

754608 Per set **\$149.65**



964604 Snap Circuits Light

Snap Circuits® Light

Watch and be amazed at what your music can do with Snap Circuits® Light—it makes learning about light and its properties easy and fun. Connect any MP3 player to enjoy your music and a light show. Explore and experiment with color-changing LEDs, strobe lights, and fiber optics. All parts are mounted on plastic modules and snap together with ease. No tools required. Just follow the colorful pictures in the manual to build over 175 exciting projects. Requires 4 AA batteries (not supplied). /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

964604 Snap Circuits Light Each **\$110.25 964501** AC Adapter Each **\$29.20**



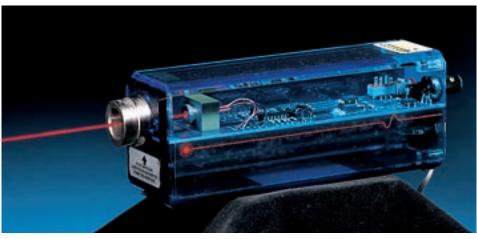


Optics Set A

Includes 2 acrylic lenses (double convex and double concave) and 3 mirrors (convex, concave, and plane) packaged in a reusable, cushioned storage box.

754611 Per set **\$47.00**





Laser Pointer Holder and Momentary Toggle Clip

Perform repeatable and more precise optics experiments by keeping the laser steady with the Laser Pointer Holder. Features 2 built-in holders for diffraction gratings. Combine with the Momentary Toggle Clip for hands-free optics experiments and to easily turn your laser on and off.

755451 Laser Pointer Holder \$23.85 Each 755457 Momentary Toggle Clip \$7.35 Each

Diode Laser, Class II, 0.8 mW 🛕

Diode laser emits 635-nm light and is ideal for conducting laser and optical experiments including voice and audio optical transmissions. Features include externally adjustable internal electronic amplifier suitable for low-voltage microphone inputs and higher amplitude AM/FM radio signals, analog (1 to 500 kHz) and digital (1 to 500 kHz) modulation capabilities, fool-proof beam stop, impact-resistant case, tamper-resistant screws, tripod mount, skidproof rubber feet, full-color operator's manual, and 4-year manufacturer's warranty. Case dimensions are 5.6 \times 7.5×22 cm.

755436 Each \$889.35



and in use (upper right)

tion (double-slit experiments) and compare results with the equations' predictions. Includes a laser pointer holder and a toggle clip to turn the laser on and

off. Each laser requires 2 AAA batteries (not included).

755237 Per set \$119.95

Light & Optics Lenses & Prisms



Acrylic Prism Set

Set of 6 high-quality acrylic prisms made from clear acrylic with all sides polished. Supplied in a reusable storage container. Includes instructions.

Rectangular Block (75 \times 50 \times 15 mm) Semicircular Block (90 mm base \times 15 mm thick) Equilateral Prism (75 mm sides \times 15 mm thick) Double-Convex Lens (90 mm long \times 23 mm at center) 2 Double-Concave Lenses (90 mm long \times 10 mm at center)

754930 Per set \$60.90



Water Prism

Extra-large prism constructed of high optical clarity acrylic. Prism can be filled with various fluids for many lab experiments. Includes a set of experimental graphic cards; wooden card holder; and booklet of experiments based on the works of Boyle, Newton, and Goethe. Dimensions, $4\times4\times8"$ H.

754935 Each \$56.70

Physical Science



Equilateral Acrylic Prism Set

Constructed of a special acrylic composition with fine surfaces that project a clear, sharp spectrum comparable to glass prisms. Contains 1 each of 25-mm-, 50-mm-, and 100-mm-long prisms. Face measures 25 mm on each prism.

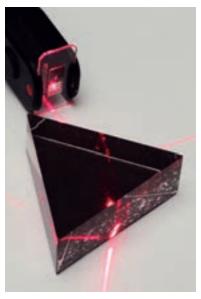
754940 Per set \$29.40



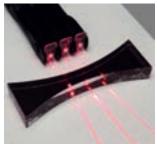
Semicircular Refraction Dish A

Investigate how light paths bend at surfaces between 2 different transparent materials. Use this low-cost tool to create an engaging hands-on experience about wave properties and refraction. Fill the easy-to-clean dish with a liquid such as water, olive oil, or ethanol. Have students calculate the refractive index of each, compare their results, then check their data against known values for accuracy. Plastic semicircular dish measures 12 cm across and 2 cm deep. Materials needed but not included are test liquids, straight pins or lasers, and protractors.

754619 Each \$4.25







Large Acrylic Lens and Prism Demonstration Set

These super large, mountable lenses and prism for your whiteboard optimize class-room viewing of your optics demonstrations. The strong, pre-attached magnets keep lenses in place while allowing ease of movement on the board. High-quality acrylic lenses and prism are break resistant and provide excellent refraction. The lenses (double convex, double concave, single convex, single concave, and semicircular) are about 8" L each, and the equilateral prism has 3" sides. Easily view ray diagrams, lenses (converging and diverging), and refraction demonstrations from anywhere in your classroom. This 6-piece set comes in a sturdy wooden storage case and includes instructions. A ray box or laser pointers are needed but not supplied.

754919 Per set \$183.00



Includes 1 each of double-convex, plano-convex, concavo-convex, double-concave, plano-concave, and convexo-concave lenses. Focal length of each lens is 50 mm.

754921 Per set \$36.00



Set of 6 acrylic demonstration lenses includes 1 each of double convex, double concave, plano convex, plano concave, concavo convex, and convexo concave. Focal length of each lens is 50 mm. Set includes activity guide and storage box.

754900 38-mm-diam Set Each \$21.55 \$24.15 754901 50-mm-diam Set Each

Light & Optics



Plastic Lens Set

Set of 3 optically worked plastic lenses 37 mm in diameter. Includes 2 double-convex lenses: 1 with 50-mm focal length, the other with 91-mm focal length. Also includes double-concave lens with 150-mm focal length.

754915 Per set \$13.50



Equilateral Acrylic Prism

Split a beam of light into a multicolored rainbow or look through the top beveled edge to reflect images into wonderful kaleidoscopic patterns. Bottom face measures 34 mm and top beveled edges measure 37 mm. Prism is 44 mm long in front, 60 mm long in back. Instructions included.

754929 Each \$17.55



754934 Equilateral Prism

Equilateral Prisms

Quality glass prisms for experiments in index of refraction, dispersion, and spectrum formation.

Item No.	Face	Length	Each
754932	25 mm	50 mm	\$10.80
754933	25 mm	75 mm	\$13.20
754934	25 mm	100 mm	\$14.50



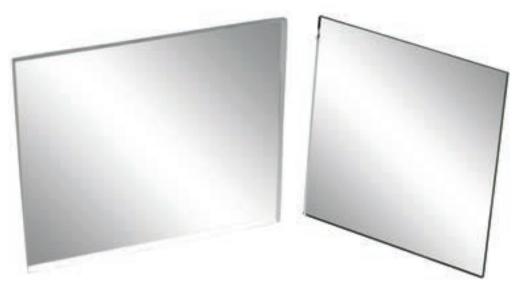
Right-Angled Acrylic Prism Set

Constructed of a special acrylic composition with fine surfaces that project a clear, sharp spectrum comparable to glass prisms. Contains 1 each of 25-mm-, 50-mm-, and 75-mm-L, right-angled prisms.

754928 Per set **\$24.90**

Light & Optics Mirrors

Physical Science



Unbreakable Mirrors A

Constructed of acrylic with an aluminum coating for reflecting. Available in 2 sizes.

754992 $3 \times 2^{1}/2^{"}$ Each **\$11.25 754993** $7 \times 5^{"}$ Each **\$16.30**

Plate-Glass Mirror

Good-quality mirror for experimental use. Size, 4×4 ". **754997** Each **\$5.05**



Flexible Mirrors

Flexible, double-sided, highly reflective acrylic mirrors are great for light and optics labs. Image quality is equivalent to glass without the worry of breakage and sharp edges. Available in 2 sizes.

755044 2 × 3" Pack of 15 **\$19.90 755046** 4 × 6" Pack of 3 **\$18.50**

Mirror Supports

Constructed of plastic and designed to hold square or rectangular mirrors in a vertical position on any flat surface.

754998A Pack of 6 \$8.80

Optical Bench & Accessories



755106 Optics Kit (above); in use (right)

Optics Kit

Perform 20 basic light and optics experiments with this affordable optics kit. Lenses are premounted and easily attach to the bench. LED light source produces the light power needed—without the heat. Includes comprehesive student manual and plastic storage case with lid.

755106 Per kit \$349.65





755071 Meterstick Optical Bench Set Without Meterstick

Meterstick Optical Bench Set A3

Sufficient for optical experiments in high school physics. Set includes 2 end supports, 2 lens holders (for a 38-mm and a 75-mm lens), object marker, screen support, screen with millimeter scale, and instructions. Available with or without meterstick.

755071 Set without Meterstick

Each \$23.95 Set with Meterstick

Each \$36.75



Designed to securely hold a meterstick as a base for the optical bench. Sold in pairs.

755075

Per pair \$5.70

755073







THERESE, AUG.

Candle Holder

Holds 1 candle as a light source on a meterstick optical bench.

755092 Each \$4.55



Object and Marker

Use as an image for lens and mirror experiments on a meterstick optical bench. Metal.

755096 Each \$4.45



Metal Screen Support

Supports cardboard or lightweight metal screens on a meterstick optical bench with a small pair of convex metal springs back to back.

755097 Each \$3.15



Light & Optics

Optical Bench & Accessories (in use)

Lens and Mirror Support

Used to hold lenses and circular mirrors on a meterstick optical bench. Size, 3.5 to 4 cm diam.

755078 Each \$4.25





Light & Optics Properties of Light



Advanced LED Array (Planck's Constant)

Discuss diffraction and the relationship between wavelength and color in light, and introduce several of the underlying principles of semiconductors. Use the activation voltage (V_a) of each LED and each LED's wavelength to calculate Planck's constant. For AP® Physics 2, use this LED array to supplement the Particle Model of Light investigation. Features 11 vertically stacked LED lights attached to a base with power switch, 2 power inputs, and LED common terminal input. The included instructions provide the LED wavelengths, or use a spectroscope to determine. DC power supply is needed but not supplied.

755152 Each \$159.60



Newton Color Wheel

Easily demonstrate how white light is composed of the colors of the visible spectrum. Just turn the handle manually and watch the colors disappear! Apparatus comes already assembled and with instruction sheet. Disc diameter is 17.5 cm, metal base is approximately 15.2 cm square, and overall height is approximately 30.5 cm.

755232 Each \$50.35

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Physical Science



LED Array

Demonstrate color diffraction and the relationship between color and wavelength. The array has 11 separate LED light colors (violet, deep blue, blue, turquoise, bright green, green, yellow, orange, red, deep red, and white) that can be turned on individually or at the same time with a rotary switch. Each LED bulb is identified by color and associated wavelength, which is printed on the 12" metal tube. On/off switch is on the back. Uses a 110-V adapter (included).

755150 Each **\$97.65**



Subtractive Color Theory Demonstration Kit

Make the exploration and experimentation of color mixing accessible and fun! The challenge is to create specific color designs on the back-lit board and predict how colors of the filter tiles will mix, either by experimentation or by previous knowledge. Then strategically slide the squares into correct configurations. This demonstration is like a game, which also develops memory retention while promoting logical thinking. An extensive guide provides teachers with a variety of activities and a puzzle to introduce the phenomena of subtractive color mixing in the classroom while exploring color theory through the games. Visit Carolina.com for a complete list of kit materials.

755155 Per kit **\$116.55**



Linear Polarized Film Slides

Pack of 16 linear polarized film slides for studying the nature of light. Each slide is 2.5×2.5 cm.

755249 Per pack **\$38.15**



Color Filter Set

Ideal for light experiments, this 5-color filter set (red, yellow, orange, blue, and green) made from flexible material is easy to cut and easy to use. Each filter measures 4×4 ".

754628 Per set \$7.15

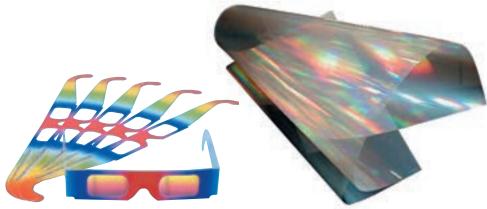
Spectroscopy Diffraction Grating



Diffraction Grating

Inexpensive grating used in introductory work with spectra. Splits white light into its components cleanly and, unlike glass prisms, will not break if dropped. This linear diffraction grating has 1,000 lines/mm and is mounted in a standard 2 \times 2" holder.

755230 Pack of 12 **\$15.00**



Rainbow Glasses

Colorful cardboard eyeframe holds 2 double-axis diffraction gratings (each 13,500 lines/inch) which split light from any source into its spectral components. Interesting information on frame adds to the fun.

755225 Pack of 6 \$13.05

Diffraction Grating Film

Great for studying the properties of light or building a basic spectroscope. This linear diffraction grating film has 500 lines/mm and is provided as a 6×12 " sheet.

755227 Each **\$25.00**

Light & Optics Spectrum Tubes

Physical Science

Explore the universe in your classroom!

When viewed through a spectroscope, spectrum tubes reveal the characteristic spectral lines of elements. Like a fingerprint, these lines identify elements and enable astronomers to study the composition of stars, galaxies, and even the universe.

Because the lines originate from the excitation of electrons, they also reveal an element's atomic structure. Spectral lines inspired Bohr's model of the atom and will inspire your students, too. These lines can even lead to a discussion of quantum theory, letting you teach both chemistry and physics concepts with the same materials.

Spectrum Tubes

Use these tubes to teach physics and chemistry concepts at the same time

Examine the spectrum of gases and learn their characteristic colors. Wavelengths can be demonstrated with diffraction grating spectrometers. The tube design is such that the gases are concentrated in the center for better brilliance. Tubes are 25 cm long with termination caps at each end. Requires Spectrum Tube Power Supply (item #755400).

			A 00
755382	Air	Each	\$57.30
755360	Argon	Each	\$55.65
755384	Carbon Dioxide	Each	\$57.15
755367	Deuterium	Each	\$57.25
755366	Helium	Each	\$55.65
755368	Hydrogen	Each	\$56.70
755381	Hydrogen and Helium	Each	\$58.95
755386	Krypton	Each	\$59.85
755372	Mercury Vapor	Each	\$103.80
755374	Neon	Each	\$56.55
755376	Nitrogen	Each	\$56.70
755378	Oxygen	Each	\$55.65
755380	Water Vapor	Each	\$65.00
755388	Xenon	Each	\$70.35



755360 Argon Spectrum Tube



755400 Spectrum Tube Power Supply (in use, spectrum tube not included)

Spectrum Tube Power Supply ▲3

A compact, self-contained power supply used to operate spectrum tubes approximately 25 cm L. Designed to extend life of spectrum tubes. The tubes are recessed for protection. Features an on/off switch and reliable mounting clips.

755400 Each \$338.00

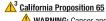


755407 Spectrum Tube Power Supply

Spectrum Tube Power Supply

Safely runs spectrum discharge tubes that are approximately $10^{1}/4$ " L (250 mm). Spring-loaded clips securely connect tubes. Power supply is encased in a metal body and has dual 110-V and 220-V capability with the flip of a switch. RoHs and CE certified.

755407 Each **\$278.65**





Spectrum Tube Set

A complete set for studying spectral lines. Includes a Helium Spectrum Tube (item #755366); a Hydrogen Spectrum Tube (item #755368); a Neon Spectrum Tube (item #755374); a Spectrum Tube Power Supply, 110/220-V compatible (item #755407, photo available online); a Spectrum Analysis wall chart (item #579760); and an Economy Quantitative Spectroscope (item #755319).

755406 Per set **\$479.85**

Safe Spectrum System

The safer, more convenient alternative to conventional spectrum tube systems

Don't buy another glass spectrum tube or expose your students to a potential safety hazard. Upgrade now to the safer, more convenient Safe Spectrum System. This innovative system offers considerable improvements in safety, convenience, and tube life over conventional spectrum tube systems. Improvements include:

- Sleek, modern design with magnetic switches eliminates exposure to high voltage
- Safe function—no voltage moves through the tube unless it is correctly inserted
- Automatic supply voltage disconnects when the tube is lifted for removal
- Small, break-resistant, polymer-encased tubes replace traditional fragile glass tubes

Safe Spectrum Tubes

Improved safety for viewing gas spectra in your classroom. Break-resistant, polymer-encased Safe Spectrum Tubes offer extended life because they have hard polymer shells and no internal electrodes. Tubes run continuously for hours, allowing more time to view and analyze spectra. Each tube measures $15.5 \times 4.0 \times 3.0$ cm. Requires Safe Spectrum System Single-Tube Power Supply (item #755500). Up to 100 hr burn time except for the Hydrogen Safe Spectrum Tube (item #755568), which features up to 40 hr burn time.

755582	Air	Each	\$56.70	755568	Hydrogen	Each	\$56.70
755560	Argon	Each	\$56.70	755574	Neon	Each	\$56.70
755584	Carbon Dioxide	Each	\$56.70	755576	Nitrogen	Each	\$56.70
755566	Helium	Fach	\$56.70	755580	Water Vanor	Fach	\$56.70

755574 Neon Safe Spectrum Tube



755500 Safe Spectrum System Power Supply with Safe Spectrum Tube (in use); insertion of Safe Spectrum Tube (inset)

Safe Spectrum System Power Supply

Experience the safer, longer-lasting, and more convenient alternative to traditional spectrum tube power supplies. The single-tube power supply features adjustable height and storage for 6 tubes. Unit is only for use with break-resistant, polymer-encased Safe Spectrum Tubes and includes instructions.

755500 Each \$309.75

Spectroscopes



Economy Quantitative Spectroscope

This inexpensive but durable handheld spectroscope lets you measure the wavelengths of light over the range of 350 to 750 nm with 5-nm accuracy. Construction eliminates internal reflections to provide the sharpest, clearest spectrum possible. Comes with instructions and an introduction to the nature of light.

755319 Each \$14.35



Spectroscope

A direct-reading replica diffraction grating instrument used for viewing visible line and absorption spectra. A scale, illuminated by an adjustable white-faced reflector, indicates approximate wavelengths. Constructed of a single piece of aluminum casting mounted on a nickel-plated steel post and cast-iron tripod. Complete with instructions.

755330 Each **\$653.10**



RSpec Explorer

Teach spectroscopy with live video! The RSpec Explorer provides real-time spectroscopy, displaying video of spectral signatures from gas tubes or light sources. Help students really understand diffraction and spectroscopy by analyzing unique signatures displaying intensity vs. wavelength. Using an overhead projector, the entire class can see the demonstration and observe changes in real time. Intuitive software allows students to view the full spectrum live then export to Excel® for analysis. Features a built-in reference library for elements. Setup takes 5 minutes or less in most cases. Includes spectrometer with internal video camera, table-top tripod, and license for the RSpec Explorer software (which is Windows® and Macintosh® compatible).

755340 Each **\$523.95**

Light & Optics/Magnetism



Periodic Table of Spectra

 $24\times36".$ Each element displays a unique signature or "fingerprint" of emission spectra that help scientists distinguish its identity. In each atom, photons are emitted at discrete frequencies (and thus wavelengths) resulting from electrons transitioning from higher to lower energy states. This high-resolution, brilliantly-colored poster is an excellent resource for students and scientists to explore emission spectra and the field of spectroscopy with elements from hydrogen (H) to einsteinium (Es). Laminated.

755342 Each \$44.10



Flame Test Kit A

Students observe the colors of light emitted by 6 different metals placed in a flame, and view their bright-line emission spectra using a spectroscope. Then, they use their data to identify an unknown metal by its flame test and bright-line emission spectrum. This activity covers concepts such as the quantum nature of light, ground and excited states of electrons, fluorescence, continuous spectra, and bright-line spectra. Materials are sufficient for 30 students working in 6 groups and include 1-year access to digital resources.

840936 Per kit \$74.90

Physical Science



Spectroscope Kit

Assemble 24 spectroscopes, each measuring about 1" diam \times 10" L with a fixed slit at 1 end and a mounted diffraction grating (13,500 lines per inch) at the other. Includes instructions and several suggested activities.

755310 Per kit \$116.00

Magnetism



Magnet Probe

Map magnetic fields in 3 dimensions (x, y, and z coordinates) with the Magnet Probe. The probe is composed of a small, 1.9-cm-L alnico magnet, which is mounted in a rotating gimbal that spins freely. The result is an intuitive tool used to visualize the magnetic fields around magnets, electromagnets, and other sources. The bar magnet is painted blue on one pole and red on the other pole, making the poles easily distinguishable. Durable plastic construction. Size, $4^3/4^{"}$ L.

758915 Each \$39.85



Alnico Magnet Set A

Use this set to compare magnet strengths, e.g., bar to horseshoe and short horseshoe to long horseshoe. Set also contains a vial of iron filings to visualize magnetic fields and a vial of steel pieces to compare magnet strength.

758206 Per set \$39.90

Economy Magnet Kit

Kit includes a variety of magnets and accessories for teaching the basics of magnetism. This valuable set includes 1 steel horseshoe magnet, 2 ceramic bar magnets, 3 ceramic donut magnets, 4 metal squares (iron, copper, aluminum, and zinc), pack of iron fillings, natural lodestone, and 2 magnetic compasses. Kit includes instructions and storage case.

758204 Per kit **\$47.25**



Alnico Magnet Set A

This set of 4 powerful magnets includes 1 pair of bar magnets (item #758404) and 2 horseshoe magnets (1 each of items #758525 and #758526).

758527 Per set \$42.90



Ferrofluid



Ferrofluid

When placed in a magnetic field, the fluid takes on the shape of the field passing through it. Ferrofluids make it easy to see magnetic lines of force in 3 dimensions; study interactions of magnetic fields; and create magnetic art. Note: Sold only to schools and businesses.

758210 50 mL Each \$54.05 758212 1 L Each \$357.00

Ferrofluid Display Bottle

Grade 5 and up. Bottle contains a small amount of ferrofluid, allowing students to manipulate the magnetic fluid cleanly using neodymium magnets. Comes with 2 neodymium magnets and 2 magnetic knobs. Bottle size, 2" W \times 1" D \times 3 $^{1}/_{2}$ " H. WARN-ING: Neodymium magnets have a very strong magnetic field. Use with caution. Seek immediate medical attention if magnets are swallowed.

758208 Each \$39.15



Gaussian Demonstrator

Teach magnetism and Newton's laws of motion with this fun experiment that uses neodymium magnets, a lowfriction linear rail, and steel balls. The steel balls are aligned and accelerated at 3-4 times their original speed due to the magnetic force from the strong neodymium magnets. Energy is transferred through the steel balls in a successive chain repeating 4 times, like Newton's cradle, using multiple neodymium magnet stops. The result is a high-velocity ball with sufficient energy to shoot across the room! Visit Carolina.com for a complete list of kit materials. WARNING: Neodymium magnets have a very strong magnetic field. Use with caution. Not for use by children under 14 yrs.

751662 Per kit \$69.30

Magnets

Wondering what type of magnet to purchase? Use this chart to help you decide.

Magnet Buving Guide

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Magnet Type	Benefits	Limitations
Steel	InexpensiveEasy to remagnetize	Loses magnetism quickly
Alnico	Stronger than steel magnetsMagnetism lasts for years	Chips easilyMay break if dropped
Ceramic	Stronger than alnico magnetsUsually costs less than alnicoMagnetism lasts for years	Chips easilyMay break if dropped
Neodymium*	Strongest type of magnet Great for showing magnetic properties of paper currency and for extracting solid iron from fortified breakfast cereals Magnetism lasts forever	 A pair of these magnets will collide with strong force, so keep fingers out of the way Difficult to separate a pair

*WARNING: Neodymium magnets have a very strong magnetic field. Use with caution. Seek immediate medical attention if magnets are swallowed.



Lenz's Law Loop Demo

Demonstrate both Faraday's and Lenz's laws in the easiest and most efficient way. The apparatus moves when a magnet passes through the closed loop and does not move when the loop is open, proving Lenz's law. Magnet not included.

758574 Each \$25.50



Magnetic Field Cube

View magnetic fields without the messiness of iron filings! Vigorously shake this handy acrylic cube to disperse the iron filings suspended in solution within it. Then easily view the created magnetic fields using the included magnets marked "N" (north) and "S" (south), which can be removed from the cube's hollow center. Cube is 3" square.

758529 Each \$53.80

Magnetism Bar Magnets





Painted Bar Magnets with Keepers

Consists of two 6 \times $^{3}/_{4}$ \times $^{1}/_{4}$ " steel bar magnets with poles stamped and north pole ends painted red. Includes keepers, allowing magnets to be stored without losing their strength, and handy storage box.

758412 Per pair \$33.85



758402 Economy



758404 Economy Alnico Bar Magnets, $3 \times \frac{1}{2} \times \frac{1}{4}$

Alnico Bar Magnets, Unpainted

These magnets are the perfect size and strength for use with our Magnetic Field Demonstrator (item #758609) to show magnetic lines of force. Poles are stamped for easy identification. Sold in pairs and available in 2 sizes.

758406 Alnico Bar Magnets, Unpainted

Physical Science

758406 $2 \times \frac{1}{2} \times \frac{1}{4}$ Per pair **\$14.45 758407** 3 × ¹/₂ × ¹/₄" Per pair **\$24.15**

Alnico Bar Magnets, $2 \times \frac{1}{2} \times \frac{1}{4}$

Economy Alnico Bar Magnets A

Painted alnico magnets sold in pairs with separator and keepers. Available in 2 sizes.

758402 $2 \times \frac{1}{2} \times \frac{1}{4}$ " Per pair **\$14.30 758404** $3 \times \frac{1}{2} \times \frac{1}{4}$ " Per pair \$22.50





Painted Steel Bar Magnet A

High-grade, polished steel with poles stamped and north pole painted red. Size, $6 \times \frac{3}{4} \times \frac{1}{4}$ ".

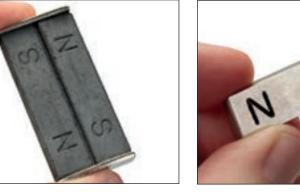
758413 Each \$23.00



Economy Ceramic Magnets A

Magnets with poles stamped. Sold in pairs with separator and keepers. Size, $2 \times \frac{1}{2}$ ".

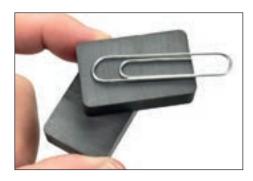
758452 Per pair **\$7.60**



Alnico Bar Magnet A

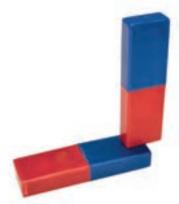
Powerful magnet made of an alloy of aluminum, nickel, iron, and cobalt that retains magnetic strength. North and south pole ends are marked. Size, $2 \times \frac{1}{2} \times \frac{1}{4}$ ".

758398 Each \$13.65



Ceramic Magnets A

Extremely powerful. Size, $1^{1}/_{2} \times 1 \times {}^{3}/_{8}$ ". Sold in pairs. **758450** Per pair **\$9.10**



Plastic-Covered Ceramic Magnets

The plastic cover lets you wipe dirt right off these powerful ceramic magnets. Colorful plastic provides a strong contrast to metal filings when used to demonstrate magnetic lines of force. Size, $3 \times 3/5 \times 2/5$ ".

758415 Per pair \$14.70



Long Alnico Bar Magnets A

Powerful magnet made of an alloy of aluminum, nickel, iron, and cobalt that retains magnetic strength. North and south pole ends are marked. Size, $6 \times \frac{1}{2} \times \frac{1}{4}$ ". Pack of 2.

758401 Per pack \$43.60

Physical Science Horseshoe Magnets



Steel Horseshoe Magnet, 3" Painted red with silver poles. Includes keeper. 758510 Each \$8.80



758526 Alnico Horseshoe Magnet, 2 x 11/8"



758525 Alnico Horseshoe Magnet, 1 x 11/8"

Alnico Horseshoe Magnets

High-quality, extremely powerful magnets made of an alloy of aluminum, nickel, iron, and cobalt. Supplied with keeper and available in 2 sizes.

Item No.	Dimensions	Distance Between Poles		Each
758525	1 × 1 ¹ / ₈ "	1/4"	2 lb	\$10.20
758526	2 × 1 ¹ / ₈ "	3/8"	4 lb	\$15.70

Neodymium **Magnets**



Neodymium Magnets

Grade 5 and up. World's most powerful permanent magnets, possessing many times the strength of ordinary or rare-earth magnets and more durable than ceramic magnets. Neodymium magnets are made of neodymium, iron, and boron; see the exact percentages in each magnet at Carolina.com. Round Magnet size, $^{1}/_{2} \times ^{1}/_{4}$ "; comes with instruction sheet of suggested experiments. Ring Magnet size, 1" OD × 3/4" ID × 1/4" thick. WARNING: Neodymium magnets have a very strong magnetic field. Use with caution. Seek immediate medical attention if magnet is swallowed.

758310A **⚠**³ **758314**

Round Magnet Each \$18.45 Ring Magnet

Each \$9.70

Ring/Disc Magnets



Ring Magnets

A set of 16 ceramic ring magnets, perfect for floating magnet sets. Each magnet measures 27 mm in diameter, has a 10-mm hole, and is 5 mm thick.

758555 Pack of 16 \$7.30



Super Floating Magnet Set

Suspend 6 magnets in midair to demonstrate that like poles repel. Flip the magnets to show that opposite poles attract. Includes a 6"-H stand and 6 magnets (38 mm diam × 5 mm thick) encased in colorful plastic.

758571 Per set **\$18.75**

Magnetism



758563 Ceramic Ring Magnets

Ceramic Ring Magnets A3

Use these 2 strong ceramic magnets to teach the properties of magnets. Thread a pen or pencil through the center hole of the magnets and place 1 ring over the other. Does it float or fall? Turn 1 magnet over and try again. Compare the magnetic properties of these round magnets, which are magnetized on their faces, to bar magnets, which are magnetized on their ends. Each magnet is 38 mm in diameter and 8 mm thick. Includes 1 red and 1 blue magnet.

758563 Pack of 2 \$6.25

Rainbow Disc Ceramic Magnets A

Colorful and strong magnets for studying magnetism. Each magnet is 25 mm in diameter and 5 mm thick.

758535 Pack of 6 \$10.95

Physical Science



758535 Rainbow Disc Ceramic Magnets

Other Magnets



Magnetic Wand

Bright colors make this wand fun to use and hard to lose. The long handle is easy to grip and the hard plastic case tough to break. Assorted colors. Size, 1" W \times 7" L \times $^{1}/_{2}$ " D.

955024 Pack of 12 \$31.35



Magnetic Marbles

Ideal for demonstrating the principle of magnetism. Package of 50 marbles. Each marble is 1/2" in diameter. /!\ WARNING: CHOKING HAZARD—This toy is a marble. Not for children under 3 yrs.

758557 Bag of 50 **\$23.95**



Alnico Cylindrical "Cow" Magnet

Extra-strong, highly polished magnet originally used to protect a cow's stomach from metal. Magnet is $^{1}\!/_{2}"$ in diameter \times 3" L.

758536 Each **\$16.65**

758536 Alnico Cylindrical "Cow" Magnet (in use)



Lodestone A3

Teach magnetism using the natural mineral magnetite, also known as lodestone. Compare with man-made magnets and challenge students to consider how our ancestors may have used this natural material. Each stone measures about 2" L.

758520 Pack of 5 **\$25.45**

Electromagnetism



758668 Liquid-Filled Compass

Liquid-Filled Compass

This liquid-filled compass stabilizes quickly. Clear back makes it perfect for use on an overhead projector. Compass is graduated in 5° increments and measures 47 mm in diameter. Includes lanyard.

758668 Each **\$14.00**

Compasses

Used for studying the characteristics of magnetic fields.

↑ 758670 16 mm Pack of 12 \$14.85 758674 35 mm Pack of 12 \$22.70



758674 Compasses, 35 mm



Magnetism



Ampère's Rule Apparatus A

Grades 9–12. With this apparatus, students can observe the magnetic field generated around current flowing in a wire, learn about the right-hand rule, and characterize how magnetic fields vary with distance. Students can also study magnetic fields created by a current in planes perpendicular and parallel to a wire. Includes a manual, one 45-mm compass, and six 16-mm compasses. Size, about $17.5 \times 7.5 \times 10$ cm. Requires a regulated DC power supply and banana/ alligator cords (not included).

758672 Each **\$24.80**



Electromagnet Kit A3

Designed for students to learn the principles and applications of electromagnets. Includes 2 coils on plastic spools, a U-shaped iron core, a straight iron core, 2 magnetic compasses, and a pair of wires. Students can build a bar and a U-shaped electromagnet and determine the magnitude and polarity of electromagnetic forces. Includes plastic storage case and instructions. Requires one 6-V battery (not included) or DC power supply (not included).

758665 Per kit \$43.50



Iron-Clad Electromagnet

This compact but powerful electromagnet lifts up to 200 lb using 1 D-cell battery (item #756317; not included). Students learn why this magnet is so powerful and what influences the strength of electromagnets. Instructions included.

758664 Each \$97.90



Magnetic Compass with Plastic Case

Our largest compass. Measures 50 mm in diameter with clear directional markings.

758669 Each \$5.85



Field Compass

This compass combines precision and durability. The tungsten steel needle rests on a sapphire-jeweled bearing for high precision. The liquid-filled chamber quickly stabilizes the needle for fast readings and cushions it from impacts. Dial is graduated in 2° increments and is mounted on a clear, scratch-resistant base plate lined with scales in centimeters and inches. Compass diameter measures 45 mm, base plate measures 57×90 mm.

758685 Each \$18.40



Professional Mirrored Compass with Clinometer

Precision, liquid-filled compass that features easy-to-read luminous markings, self-cleaning jeweled bearings, clinometer for measuring the angle of inclination and heights, mirrored cover, and transparent protractor plate. Designed with a locking lid mechanism that can be operated with 1 hand. Supplied with a lanyard, lanyard lock, and declination adjustment tool. Size, $65 \times 101 \times 17.5$ mm. Includes instructions.

758688 Each \$94.50

Magnetism



Snap Circuits® STEM

Exploring electricity and magnetism is a snap with Snap Circuits®

Snap Circuits® use building pieces with snaps that enable students to assemble electronic circuits on a simple rows-and-columns base grid that functions like a printed circuit board. Each component has a distinct function and is easily identified by color. With this hands-on kit, students can learn about the relationship between electricity and magnetism and how switches operate to control the lights in their homes.

- Build over 85 projects with over 45 included parts (lamps, switches, magnets, and more!)
- Inspire students to learn with the included STEM-focused educational manual Requires 4 AA batteries (not included); visit Carolina.com for a complete list of kit materials. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

964529 Per kit \$61.95



758209 Wave Wires Magnet Station Pack (in use)

Wave Wires Magnet Station

Grades 3–8. This exciting demonstration is a great activity to introduce magnetism, visualize magnetic field lines, and even study force and motion through collisions and oscillations from magnetic forces. A clear window and transparent tray give students a unique top-down view to observe magnetic force and kinetic interactions. Students can watch iron filings dance, propel steel balls inside a viewing tray, create a magnet painting, dangle magnet wires upside down to study oscillations, and more. Includes a full-color, 40-page teacher's guide with lesson plans, photos, experiments with guided inquiry, and cross-cutting concepts investigating magnetism and kinetic interactions. The **Station Pack** contains enough materials for up to 4 small groups; the **Station** contains enough materials for 1 small group. Ideal for classrooms, maker-spaces, science fairs, STEM programs (with STEAM activities), and other educational settings. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

758209 Station Pack Each **\$120.60 758211** Station Each **\$60.25**

Physical Science





Primary-Secondary Coils A3

Demonstrate electromagnetic induction and transformer principles with this classic device. Primary coil has 175 turns of #18 AWG insulated copper wire. Secondary coil has 3 different available windings—500; 1,000; and 1,500—with #26 AWG insulated copper wire. Plated iron core is 165 mm L with 19 mm diam. Coils are wound on molded formers fitted with shielded banana jacks.

758976 Each \$95.55



Plasma Globe

Create your own lightning storm with this fascinating plasma globe. High-voltage, high-frequency current ionizes the gas within this glass globe to create colorful arcs of electrons. Place your finger on the surface and the arcs are harmlessly drawn to it. This 8" globe is a safe, captivating tool for demonstrating the excitation of electrons, photon emission, and lightning. Powered by AC adapter (included).

757620 Each \$55.65

Physical ScienceMotors & Generators



Ring Thrower

Demonstrate the power of induction by shooting an aluminum ring up to 12 ft in the air. The ring, placed over a coil of wire wound on an iron core, is propelled into the air by eddy current repulsion when the coil is energized with an alternating current. A changing magnetic field between the coil and ring induces an electromotive force (EMF), resulting in current in the aluminum conductor. This produces opposing magnetic fields propelling the ring, amazing students, while illustrating Faraday's law of induction and Lenz's law. Show your students that a split aluminum ring will not launch, and then challenge them to explain why. Ready to use immediately after plugging into a wall socket. 115-V AC, 60 Hz.

758972 Each \$262.00



Transparent Alternator Kit

Grade 5 and up. Students construct their very own alternator and learn how alternators work. They can view the inner workings of the alternator, watch it produce electricity, and see the LED light up. Alternator can be assembled in less than an hour. Kit provides enough materials (including a neodymium magnet) for a single student or a group of students working together, along with an assembly instruction manual; visit Carolina.com for a complete list of kit materials. Designed to be used alone or in combination with The PowerWheel™ Bundle (item #183264). WARNING: Neodymium magnets have a very strong magnetic field. Use with caution. Seek immediate medical attention if magnets are swallowed.

756756 Per kit **\$24.95**



Thames & Kosmos® Motors and Generators Kit

Grade 3 and up. Using this kit, students can conduct 25 simple experiments to learn how an electric motor converts electricity into motion, how an electric generator converts motion into electricity, how magnetism is related to electric current, and how circuits operate. Electric motor in the kit is made of transparent plastic so students easily can see how it works. Kit contains enough materials for 1 student or 1 group of students working as a team. Color manual contains experiments and step-by-step instructions. Power pack requires 2 AA batteries (not included).

758859 Per kit \$39.25



DC Hand Generator

This pistol grip-style generator can be used with most experiments that require up to 12-V DC current. Unit is housed in a clear acrylic, plastic case. The mounted lamp allows this generator to be used as a flashlight and the binding posts allow for connection to an outside electrical circuit. Instructions included.

758851 Each **\$32.25**



Motor Generator Kit A

Used to demonstrate that the basic structure of a motor and electric generator is the same. All parts of this apparatus are clearly visible. By turning the handcrank, a voltage can be generated that lights up an LED connected to the unit's terminals. By removing the LED and connecting a voltage source to the device, the unit acts as a motor. Mounted on a wooden base. The permanent magnet is removable. Instructions included.

758857 Per kit **\$113.50**

Magnetism/Mechanics



Physical Science

Carolina® Introduction to Electromagnetism Kit ▲3

Grades 9–12. With this comprehensive kit, students build and experiment with 3 different types of electromagnets: coiled wire, metal core, and solenoid. Through 6 activities, students see that an electric current creates a magnetic field and learn how to increase the field's strength by changing the length of wire, number of coils, and amount of electric current. Students learn how electromagnets power everyday devices and get to build a simple motor and even their own working audio speaker. Materials are sufficient for 32 students working in 8 groups and include teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

758661 Per kit \$168.00



Mechanics

Energy & Motion



751467 Carolina Kinematics kit (above); in use (right)

Carolina® Kinematics Kit A

In a series of 3 investigations, students first learn how to graph the motion of an object with constant velocity, then use that graph to generate an equation that describes the motion of the object. They use their models to predict the motion of 2 objects traveling with different constant velocities and to solve the classic chase problem: determining when car B will overtake car A. Students then investigate objects moving with constant acceleration and 2-dimensional motion. Materials are sufficient for 4 lab groups and include free 1-year access to digital resources; visit Carolina.com for a complete list of kit materials. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

751467 Per kit **\$158.00**



Mechanics



Ballistics Car

Demonstrate that the forward velocities of a vertically ejected ball, and the vehicle that ejects it, are the same. The car's hardened cone bearings are so sensitive, the vehicle rolls on an incline as slight as 1°. Includes a vertical spring-loaded barrel. A release pin and cord control the 2-setting ejection mechanism. Includes $2\times 1"$ -diam steel balls and instructions.

751500 Each \$124.95



Ballistics Car with Remote ▲3

Demonstrates that the forward velocity of a ball ejected vertically is the same as the forward velocity of the vehicle from which it is ejected. The ejection mechanism has 1 setting and is controlled by a small handheld wireless remote, which eliminates frustration from bent pins or improper string pulls. Includes a vertical spring-loaded barrel, two $^3/_4$ " steel balls, remote control (with 9-V battery), and instructions.

751502 Each \$135.50



Friction Board

Study the effects of friction using a board of 4 different surface materials: cork, rubber, sandpaper, and fiberboard. Includes surface board, hooks, and wooden blocks. Wooden blocks measure $2^{1}/2 \times 2 \times ^{1}/2^{n}$. Instructions included.

751840 Each \$28.30



Includes a friction block and a friction board (both made of high-quality, smoothly finished wood), three 50-g weights, and a 100-g spring scale. The friction block has a hook for a spring scale and 2 compartments for additional weights. Students can vary the weight or area of contact to see their impact on the friction force. Board dimensions, $20\times 2"$; block measures $4\times 1^1/2\times 1"$. Includes instruction manual.

751842 Each \$50.50

Go to Carolina.com to find new kits that help you teach force and motion concepts.

Mechanics



Hall's Car

Constructed of a durable plastic-molded body (5.26 \times 2.20") with snap-in wheels containing oil-free sleeve bearings. The Hall's Car with Hole allows the user to easily attach string or bumpers for demonstrations. The hole option is beneficial for demonstrations involving Newton's Laws of Motion. Instructions included.

751479 Hall's Car Fach \$15.05 751481 Hall's Car with Hole Each \$12.85



Constant Velocity Vehicle A

Provide a source of uniform velocity at an affordable price! Engage students in dimensional analysis with a 2-speed, battery-operated car. On a flat surface, the car travels at a constant velocity in a straight line long enough to conduct most standard time-and-distance experiments. Car body measures $4 \times 7 \times 3$ ". Requires 2 C or 2 AA batteries (not included). Go to Carolina.com for a corresponding classroom activity (type "a model for constant velocity" in the search field, then click the Resources tab). /!\ WARNING: CHOKING HAZARD-Small parts. Not for children under 3 yrs.

751486 Each **\$19.35** 8+ Each **\$18.55**



Hall's Carriage

Body is constructed of plastic and equipped with 1-piece metal wheels. Carriage has hole in end for attaching cord. Measures 6.5×14 cm.

751480 Each **\$31.50**



Economy Dynamics Cart Set

Contains 2 molded-plastic cars (5 \times 2") with snap-in wheels containing oil-free sleeve bearings, 2 springsteel bumpers, 2 rubber stopper assemblies, and instructions.

Physical Science

751491 Per set **\$48.95**



Fan Cart

Teach dynamics of motion and Newton's third law with this simple fan cart. Demonstrate uniform acceleration with the fan, or allow the cart to remain motionless (without fan) to demonstrate Newton's third law: for every action there is an equal and opposite reaction. Requires 4 AA batteries (item #756316; not included).

751497 Each \$32.00



Dynamic Trolley Pair

Upgrade traditional metal or wooden carts to a more modern pair that runs longer and straighter, and resists damage and corrosion. The single-piece, heavy-duty, plastic body of each trolley is as durable as a metal trolley. Three low-friction, nylon wheels provide a straighter path over longer distances than traditional trolleys. Easily access and activate the top-mounted trigger knob for the spring-loaded plunger. Use the included Velcro® pads on the back of the cart to explore inelastic collisions. Sold as a pair, the stackable carts weigh 1.5 lb each to provide stability. Includes instructions.

751493 Per pair **\$141.50**







Impact Car

This simple car is equipped with a spring-loaded plunger and displacement scale to measure the amount of impact created by a collision of the car against a stationary surface. The displacement scale remains in displaced position until it is reset. Mass can be added to the car to increase the inertia of the mass and car system allowing the student to develop an understanding of collisions in the real world. Instructions included.

751489 Each \$31.80

Mechanics



Collision in 2-D Apparatus

Demonstrates conservation of momentum and energy, and elastic and inelastic collisions. Consists of 2 steel balls, glass ball, plumb bob, and instructions.

751512 Each \$30.75



Inertia Apparatus

Impress your class with a classic, yet memorable demonstration of Newton's first law. Pull—then release—the spring to watch the small metal sheet fly out as the ball remains undisturbed. Measures 51/2" H. Includes instructions.

751525 Each \$24.35



Happy and Sad Balls

Bounce 2 seemingly identical balls. One bounces but the other doesn't. Challenge students to figure out why. Great discrepant event demonstration for momentum, collision, and energy conservation studies. Instructions and activities included.

751640 Per set **\$10.75**





Mini Projectile Launcher

Precisely launch steel balls at 3 spring settings and at a range of launch (elevation) angles, from –45° (downward) to 90° (vertical). The built-in protractor and plumb line make it easy to set the launch angle with ranges of 1 m, 1.5 m, and 2 m. A magnetic piston prevents the ball from touching the sides of the barrel, ensuring a straight launch every time. The cable release smoothly triggers the launch, to prevent jerking. The result is precise, repeatable projectile motion experiments for fun classroom demonstrations. The launcher can stand on its own or may be clamped to a bench (C clamp not included). Comes with two 16-mm-diam steel balls and activity guide.

758585 Each **\$130.50**





Dynamics System ▲ 3

Students explore dynamics as they measure displacement, velocity, acceleration, and elastic and inelastic collisions while studying Newton's second law, conservation of energy, and conservation of momentum. Using a ticker timer, students perform additional calculations to estimate velocity and acceleration, reinforcing kinematic concepts. The system provides a low-friction surface and is an excellent, cost-effective addition for a mechanics lab. Visit Carolina.com for a complete list of set materials.

751555 Per set \$302.40

Newtonian Demonstrator

Dramatically illustrates Newton's third law of motion and works well on an overhead projector. The unit is completely assembled and consists of a walnut frame with five 1"-diam nickel-plated steel balls. Dimensions, $9\times7\times9$ ".

751660 Each \$46.20



Carolina® Introduction to Gravity Kit

Do heavier objects fall faster to Earth than lighter ones? Does the angle of incline affect acceleration? Recreate Galileo's inclined plane experiment to find the answers to these questions. Measure acceleration with simple tools and calculate the rate of acceleration due to Earth's gravity. Teach the concepts of objects in motion, gravity, velocity, and acceleration with just 1 kit. Supports 12 teams of 3 students. Includes instructions.

751580 Per kit \$175.35



Linear Air Track

Help your students visualize Newton's first law with this 1.5-m linear air track. It comes out of the box almost fully assembled, is designed to level easily, and has a nearly frictionless surface. Use the air track in investigations that measure conservation of momentum with elastic and inelastic collisions, average velocities and acceleration, impulse and change in momentum, acceleration of a glider sliding down an inclined plane, and acceleration due to a weight. Additional classic demonstrations include investigating simple harmonic motion with a spring and studying potential and kinetic energy. The Eisco® Linear Air Track comes with accessories; visit Carolina.com for a complete list. The compact Eisco® Air Blower, which supports the air track, has an adjustable speed with maximum pressure output of 6 kPa and operates at less than 60 dB (the sound level of a normal conversation) so it won't distract in the classroom. 110-V AC.

751527 Linear Air Track Each \$698.25 **751526** Air Blower Each \$458.60





751526 Air Blower

Get the Most from Your Linear Air Track Experiments with **Our Photogate Timers**

- Economy Digital Timer and Photogates (item #751831) on page 858
- Visual Scientifics Photogate (item #753168) on page 852



Mechanics

Physical Science



Pendulum Clamp

Connects to any vertical or horizontal rod support. Up to 3 pendulums can be connected on the same horizontal line.

751650 Each **\$34.50**

Ballistic Pendulum Apparatus

Used for demonstrating the laws of conservation of momentum and trajectory. Features a nylon block pendulum with tapered rubber insert, leveling and adjusting screws on both pendulum and base, and a rubber bumper to prevent damage on impact. Unit contains a scale marked in degrees for recording the height and is registered by a counter-weighted needle that remains in place at the height of the pendulum arc. Instructions included.

751694 Each \$88.15



Carolina® Introduction to Pendulums Kit

Swing into physical science with pendulums. Investigate the effects of mass, length, and amplitude on the period of a simple pendulum. Use graphical analysis to calculate an experimental value for gravitational acceleration *(g)* from the collected data. Supports 8 teams.

751648 Per kit \$88.00



Drilled Ball Set A

Grades 9–12. Ideal for collision and pendulum demonstrations. Consists of 12 balls, 2 each of aluminum, brass, cork, lead, steel, and wood. The balls are 1" in diameter and are supplied in a clear plastic storage box.

751600 Per set **\$99.95**

Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.

Mechanics





Measure free-fall acceleration quickly and easily. The electromagnet releases a steel ball; the timer starts recording the ball's passage through 3 photogates over a 1.5-m drop. Instructions contain 3 procedures for determining acceleration due to gravity and a procedure for determining the period of a pendulum. Includes free-fall stand, steel ball, pendulum, 3 photogates, and digital timer.

753066 Per set **\$636.05**



Coin and Feather Tube

Demonstrates that objects fall at the same rate of acceleration in a vacuum despite their relative weights and sizes. Consists of a durable glass tube (81 \times 3.5 cm) equipped with end caps, one of which has a hose cock for evacuating the tube. Includes instructions. Vacuum Pump with Gauge and Vacuum Tubing are needed but not included.

753061 Coin and Feather Tube

Each **\$117.60**

752836 Vacuum Pump with Gauge

Each **\$1,365.00**

711558 Vacuum Tubing, 10 ft

Each **\$22.10**



Pendulum Investigation Kit

Grades 6-12. Using this kit, students investigate pendulums and variables related to period, while also studying conservation of energy and conservation of momentum. The system can hold 3 pendulums, making it easy to see the effect of the same mass on a pendulum at 2 different lengths. Having spheres of identical and different masses enables students to investigate conservation of momentum effectively. They can observe effects due to air resistance using same-diameter spheres of different materials. Finally, students can measure acceleration due to gravity at their location and compare results with tabular data. The spheres are designed for less wobble during periodic motion. Kit includes an instruction manual and enough materials for a 3-student group or for a demonstration.

751691 Per kit \$62.95



The Complete Visual Scientifics System

For an affordable way to teach classical mechanics, check out Visual Scientifics on page 852.

- Integrate physics, technology, engineering, and real-world applications.
- Use the computers, probeware, and video analysis tools you already own.

Get more details at Carolina.com.

Mechanics

Physical Science

Force



Precision Force Table 13

An excellent tool to teach vectors. The 16"-diam lightweight tabletop displays a dual scale marked in $1/2^\circ$ increments; the outer scale has an accurate pulley positioning system and the inner scale accommodates overlays for tracing paper. The pulley clamps have line markings for highly precise measurements; the sturdy cast iron support has leveling screws. The table is quickly assembled/disassembled and stores easily. Comes with an activity guide, 4 weight sets (each with slotted weights, 2×5 g, 4×10 g, 4×20 g, and a 20 g weight hanger), 4 pulleys with clamps, and 2 sets of strings, giving students the option to investigate equilibrium for either 3 or 4 forces.

752117 Each \$229.50

Compact Force Table ▲3

This economical table features a large 360° protractor with 4 easy-to-adjust holders for spring scales. The uniquely designed clamps securely hold spring scales but are easily adjusted to new positions. Suction cups on the feet hold the table in place or allow you to use it on a whiteboard. Comes with 4 clamps and 500-g spring scales, centering ring, protractor, and instructions.

752115 Each \$46.70



Force Table

Students balance multiple forces on the disc, graph these forces as vectors, and calculate the magnitude and direction of force each weight exerts. A terrific way to introduce scalars, vectors, and vector analysis. Table includes a 40-cm protractor disc with dual graduated markings (one in 1° increments, the other in 2° increments) for ease and accuracy, 3 legs with adjustable feet (built-in leveling screws) for leveling the disc, center ring and post, thread, 4 weight hangers, and instructions. The top is made from durable PVC and laminated, allowing students to use erasable markers.

752119 Each **\$194.95**



Bull's Eye Level A

Level both horizontal planes with 1 easy reading. Usable on a flat surface only.

752108 Each \$16.80



Hooke's Law Apparatus

Designed for investigating potential energy and vibrating masses as well as Hooke's law. Includes weights, a 15-cm adjustable mirror scale mounted on a sturdy support, a spring with a weight hanger and pointer attached, and instructions.

751950 Each \$53.55



Hooke's Law Spring Set

Set of 5 springs with different spring constants for supplemental use with Hooke's Law Apparatus (item #751950). Springs stretch by 2 cm with a load of 0.5 N, 1 N, 2 N, 3 N, and 5 N, respectively. Each has a hook to support weight hanger and a red arrow to indicate positions.

751952 Per set **\$28.35**

Circular & Rotational Motion



The Flying Pig

When will students get excited about conical pendulums, tangential velocity, or circular motion? When pigs fly, of course! This 5" long, battery-operated pig has a 12" wingspan and easily attaches to the ceiling with the supplied mounting hardware. Includes operating instructions. Requires 2 AA batteries (not included). A free lab activity is available at Carolina.com/knowledge (type "Flying Pig" in the search field). /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

752222 Each \$19.95



Ring and Disc Set

Same diameter. Same mass. Roll them down a slope to observe the variation in acceleration between the 2. Challenge your students to explain the science behind this classic physics demonstration. Great for teaching the relationship between moment of inertia and distribution of mass. Includes instructions. A free lab activity is available at Carolina.com (type "ring and disc set" in the search field then click the Resources tab).

751898 Per set \$23.10



ZeCar Flywheel Car

Push. Rev. Roll. This simple, compact stainless steel car models how flywheels can be used to store energy. The open design allows students to view the flywheel and the gear system. Use as an engaging demo to introduce conservation of energy, efficiency, rotational inertia, and rotational kinetic energy. No batteries required. Comes in our choice of assorted colors. Size, $2^4/_{10} \times 3^8/_{10} \times 2^1/_2$ ". Free article available at Carolina.com (type "zecar" in the search field, then click the Resources tab).

751523 Each \$24.45



Bicycle Wheel Gyroscope

Provides dramatic demonstrations of angular momentum, torque, and gyroscopic precession. The 20"-diam solid rubber wheel rotates on ball bearings and includes 2 plastic handles equipped with eye bolts so it can be suspended from a string. Additionally, weights can be hung from the handles to investigate gyroscopic precession. Includes instructions.

752198 Each \$154.00



Precision Gyroscope

Tiny ball bearings and near perfect balance keep this gyroscope spinning for several minutes. Use the string or T-handle (included) to operate. Durable enough for class-room demonstration. Includes instructions.

752181 Each \$16.10

FREE Teacher Resources at Carolina.com

Download valuable classroom materials at no cost 24/7

- FREE supplements to your lesson plans
- FREE class activities and projects
- · FREE digital games and videos
- FREE organism care guides, safety information, (M)SDS, and more

Physical Science Simple Machines

Kits



Carolina® Introduction to Simple Machines Kit

Simple machines make doing work easier, and this introductory kit helps your students understand how. Designed for use in a class of up to 32 students, the handson activities and materials help your students gain an understanding of concepts such as work, power, efficiency, and mechanical advantage through the exploration of pulleys, inclined planes, and levers. Instructions included.

751131 Per kit \$425.00



Exploring Work and Mechanical Advantage Kit

Investigate how machines make work much easier. Examine and calculate the mechanical advantage of 4 simple machines (pulley, lever, inclined plane, and wheel/axle). After learning about mechanical advantage, students then compare their calculations to ideal mechanical advantage to calculate efficiency. Supports 8 groups of 4 students working at stations. Needed but not supplied: balances, ring stands, and right-angle clamps.

751465 Per kit \$112.00

Inclined Planes



Eisco® Simple Machines: Inclined Plane Model

Inclined planes increase mechanical advantage by increasing the distance traveled while decreasing the amount of force required. Help students understand the advantages of inclined planes using this model. Includes a triangle-shaped wedge, an inclined plane base, a blue trolley with string attached to a blue mass, and a teacher's manual with student experiment worksheets. A mass set, a ruler, and a protractor are needed to complete the experiments but not included.

751304 Per kit \$42.50



Inclined Plane Set

Students can determine the coefficient of static friction and the coefficient of sliding friction as well as verify the normal and frictional components of the force exerted by the plane. The wooden inclined plane can be set at any angle between 0 and 45° on the metal protractor. Set includes 2 wooden boards of different sizes, a metal plate, weight pan, pulley, string, and instructions. Dimensions, $26 \times 4^{\circ}$; wt, 4 lb.

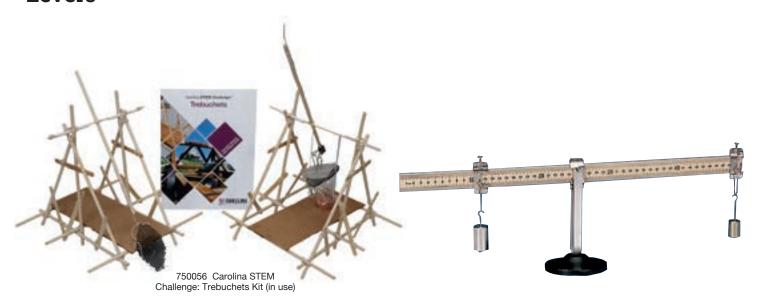
751452 Per set **\$81.15**

Need accessories?

- Cars, carriages, and carts are on page 839. Slotted masses are on page 857.
- · Spring scales are on page 856.

Mechanics Levers

Physical Science



Trebuchets Kit

Grades 6–12. Go medieval in your science classroom while converting potential energy into kinetic energy! Build functional desktop-sized trebuchets to launch corks for accuracy or distance. Learn about levers and explore characteristics that perfect trebuchet performance. Addresses Next Generation Science Standards*: MS-PS3-5, MS-ETS1-4, HS-PS3-1, HS-PS3-3. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750056 Per kit \$169.00



Paint Stirrer Catapult Kit

Grades 6–12. Launch projectiles and learn about levers. Build a paint stirrer catapult and conduct trials to explore how fulcrum size and position, plank length, effort force, and load impact trajectory and distance. Addresses Next Generation Science Standards*: MS-ETS1-2. Materials support 15 design teams. Includes teacher's manual, student guide, and digital resources.

750028 Per kit \$75.00

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

New York Balance Set

Used to demonstrate several basic principles such as torque, levers, center of gravity, and kinetic energy. Consists of a cast-iron stand, 50-cm meterstick, 3 knife-edge lever clamps, 50-g hooked mass, 100-g hooked mass, and instructions.

752100 Per set **\$68.00**

Need accessories?

- · Spring scales are on page 856.
- Hooked masses are on page 857.



Knife-Edge Lever Clamp

Used with a meterstick to demonstrate the principle of balance and laws of levers. Attach the clamp to a meterstick and hang weights on the open loop or put the loop on a stationary base and balance the meterstick.

751780 Each \$9.65



Mechanics

Physical Science Eisco® Garage Physics™

Eisco® Garage Physics™ Kits

Teach students basic physics and engineering concepts using Eisco® Garage Physics™ Kits. This line of kits was designed for elementary and middle school students interested in physics and engineering; however, many kits contain concepts so universal and important that high school students benefit from their use. With these kits students learn general concepts in physics and engineering—from the strength of arches to the usefulness of torque. Each kit contains pre-cut wooden pieces that resemble woodworking projects. Many kits provide a historical context for concept introduction, making real-world examples an integral part of instruction. All kits include enough materials for 1 group of students working as a team and instructions. Visit Carolina.com for individual kit descriptions and lists of kit materials.

751601 Standing Arch Kit \$36.00 Each 751603 Torque Feeler Kit \$67.15 Each 751604 Center of Mass Kit Each \$45.75 751605 Pythagorean Theorem Puzzle Kit Each \$42.10 751606 Spiral of Theodorus Block Kit Each \$42.00 751607 Magic Square Puzzle Kit Each \$33.40 751608 \$64.00 Ping-Pong Catapult Kit Each 751609 Soda Center of Mass Kit \$37.00 Each 751610 Trebuchet Kit Each \$131.25 751616 Ballista Kit Each \$161.90 751614 Projectile Motion Slingshot Kit Each \$117.75 Ball Bearing Roller Coaster Kit \$175.50 751617 Each



751614 Projectile Motion Slingshot Kit



751608 Ping-Pong Catapult Kit



751610 Trebuchet Kit



751601 Standing Arch Kit



Mechanics Eisco® Simple Machines

Physical Science

Eisco® Simple Machines

Pulleys, levers, wedges, inclined planes, screws, and wheels—these 6 simple machines and combinations of them make our lives easier by making work easier. Provide hands-on student demonstrations and allow students to experiment with simple machines using these solidly constructed models. Pre-packaged assembly makes the models easy to use in the classroom. Each model is suitable for 1 student group, is designed for multi-year use, and comes with a teacher's manual and a set of student worksheets. **Set of 12** includes 1 each of the 12 different models. Visit **Carolina.com** for individual model descriptions and lists of materials.

751300 751301	Block and Tacke Model	Each	\$44.60 \$42.50
	Fulcrum Balance Model	Each	
751302	Gear Model	Each	\$51.00
751303	Gear Train Model	Each	\$63.70
751304	Inclined Plane Model	Each	\$42.50
751305	Lever Model	Each	\$33.00
751306	Motion Converter Model	Each	\$65.80
751307	Pulley Model	Each	\$42.35
751308	Rigid Pendulum Model	Each	\$46.00
751309	Screw Model	Each	\$44.55
751310	Wedge Model	Each	\$45.50
751311	Wheel and Axle Model	Each	\$38.00
751312	Set of 12	Each	\$514.50





The Visual Scientifics System

An affordable system that joins video analysis or probeware with core mechanics concepts and lets you blend physics, technology, engineering, and real-world applications

Grade 8-College.

Visual Scientifics enables you to take full advantage of all the technologies available today. It enhances your laboratory experiments with tools to take your physics curriculum to the next level. Plus this cutting-edge system is specifically designed to be platform neutral, so it works with the computers, probeware, and video analysis tools you already own and know how to use.



Visual Scientifics Starter Set with Pendulum

Grade 8–College. The Starter Set with Pendulum includes 1 each of the following: Base (item #753150), Hooke's Law apparatus (item #753156), Collisions in 2D apparatus (item #753158), Inclined Plane and Car (item #753160), Pendulum (item #753164), and Loop (item #753162). Recommended accessories: Back Board (item #753152), video camera for extensions, and graphing software. Instructions included.

753175 Per set **\$368.55**



Visual Scientifics Starter Set with Ballistic Pendulum

Grade 8-College. This Starter Set includes 1 each of the following: Base (item #753150), Hooke's Law apparatus (item #753156), Collisions in 2D apparatus (item #753158), Inclined Plane and Car (item #753160), Ballistic Pendulum (item #753154), and Loop (item #753162). Recommended accessories: Back Board (item #753152), video camera for extensions, and graphing software. Instructions included.

753180 Per set **\$488.25**



753150 Base and 753152 Back Board

Base and Back Board

The heart of the system, the large, robust magnetic **Base** features precise mounting locations. It allows students to quickly set up experiments and generate accurate, repeatable results. Attach the magnetic high-contrast **Back Board** with grid for easy video analysis and data collection. Base measures $25 \times 16 \times 2^1/2^{\shortparallel}$ and may be used with any module. Back Board measures $23^1/2 \times 16^1/2 \times 2^3/4^{\shortparallel}$ and must be attached to the Base. Instructions included with each unit.

753150 Base Each **\$225.75 753152** Back Board Each **\$111.30**

Photogate

This easy-to-use tool has a built-in stopwatch and works with the Visual Scientifics System or any lab requiring a photogate. It has 4 function modes: gate (time of interruption), pulse (time between interruptions), pendulum (time between 1st and 3rd interruptions), and frequency (frequency of interruptions). Includes instructions, 2 photogates, 2 connecting wires, wall charger, 9-V battery, main hub, and control.

753168 Each \$380.00



Visual Scientifics System Modules

Topics Addressed

Item		Forces						Frequency and		
No.	Module	and Motion	Velocity	Acceleration	Energy	Collisions	Friction	Harmonic Motion	Waves	Each
753160	Inclined Plane and Car*+	1	✓	1	✓		✓	_	_	\$93.50
753156	Hooke's Law*+	✓						✓		\$35.10
753158	Collisions in 2D*+	✓	✓			✓	✓			\$35.20
753154	Ballistic Pendulum+	1	✓	1	✓	✓				\$92.55
753162	Loop*+	✓					✓			\$35.40
753164	Pendulum*							✓		\$33.60
753167	Projectile Launcher	1	✓		1					\$98.70
753172	Wave Demonstration	1							1	\$61.00
753174	Atwood Machine	1	1	✓						\$43.25

*With 1 base (item #753150) included in Starter Set with Pendulum (item #753175) +With 1 base (item #753150) included in Starter Set with Ballistic Pendulum (item #753180)

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Mechanics K'NEX Education®



955752 K'NEX Education Maker's Large Kit (in use)

Physical Science

K'NEX Education® Maker's Large Kit

Grade 1 and up. Develop your maker space and allow students to use their imagination and practice their construction and 3D skills while making fun replicas and models of cars, trucks, buildings, simple machines, animals, and more. Kit includes K'NEX® parts, an instruction guide, and a reusable storage tub with a snap-on lid. Visit Carolina.com for a complete list of kit materials. /!\ WARNING: CHOKING HAZ-ARD—Small parts. Not for children under 3 yrs.

955752 Per kit \$100.75



See more makerspace products on page 878.

Wheel & Axle



Carolina® Simple Machines: Wheels, Gears, and Axles Kit A

Grades 6–12. Learn how various gear ratios and combinations affect the speed, direction, and torque of a small student-built electric car. Students calculate mechanical advantage and gear ratios for various combinations of gears. Based upon what they learn about gear train combinations, they design and build a car for speed and for climbing. Kit includes teacher's manual with reproducible student guide and

materials for 10 groups of 2 to 3 students. Common household tools and classroom supplies are needed but not supplied.

751346 Per kit \$197.00

View and download free infographics about simple machines and gears at Carolina.com (type "infographic" in the search field then click "Resources").





Wheel and Axle

Demonstrate mechanical advantage and conservation of energy. Made of break-resistant plastic, this 4"-diam pulley is mounted on a single steel rod. Attach to any standard laboratory right-angle clamp.

750256 Each \$15.05

Mechanics

Physical Science Pulleys



Carolina® Simple Machines: Pulleys Kit

Grades 6–12. Investigate the ability of pulleys (simple machines) to create a mechanical advantage. Students build 3 different pulley systems using fixed and movable pulleys. For each system, they measure the force needed to lift a load, calculate the mechanical advantage, and calculate the percentage of efficiency. Materials support 10 groups of 3 students. A ring stand, ring, hanging mass set, spring scale, and meter stick for each group are needed but not supplied. Includes teacher's manual with reproducible student guide.

751340 Per kit \$124.00





752019 Atwood Machine (in use)

Atwood Machine

Teach classical mechanics concepts, such as equilibrium, conservation of energy, friction, force, and acceleration, with this sturdy Atwood machine. A staple in the physics classroom, it contains 2 low-friction, 50-mm-diameter pulleys so you can accurately calculate the acceleration of the system. The rod that connects the pulleys can be easily attached to a ring stand. Includes instructions; clamp, rod, ring stand, and masses are needed but not supplied.

752019 Each \$38.35



752026 Double Tandem Pulley



752027 Triple Tandem Pulley

752038 Single Sheave Pulley



752040 Double Sheave Pulley



752042 Triple Sheave Pulley

Tandem Pulleys

Constructed of black plastic with pin bearings and hooks on top and bottom for hanging. Available in **Double** and **Triple**.

752026 Double (38- and 50-mm diam) Each **\$10.20 752027** Triple (25-, 38-, and 50-mm diam) Each **\$12.10**

Sheave Pulleys

Consists of strong nylon pulleys, 50 mm in diameter, mounted in an alloy frame with a hook at each end. These pulleys are very durable and have low friction for excellent performance.

752038	Single	Each	\$5.25
752040	Double	Each	\$6.70
752042	Triple	Each	\$8.65

Mechanics

Physical Science



Table Mount Pulley

Cast metal, low friction table mount pulley. Pulley itself has 70 mm diam. Pulley grips well while causing less damage to table/lab bench tops. Table top screw is made of hard plastic and has a hard plastic foot with approximately 18 mm diam. Entire device is approximately 152 mm (6") sq.

752028 Each \$20.20



Clamp Pulley

Low-friction pulley mounted in a molded plastic clamp. Designed to fit tables up to 2" thick.

752023 Each \$17.30



Metal Clamp Pulley

Our best-quality pulley! Single aluminum pulley with a deep groove mounted in a non-adjustable steel bracket bolted to a vertical, steel table clamp. Accommodates tables or inclined boards up to $1^1/2^{\text{II}}$ (38 mm) thick. Has a stamped line for rapid alignment of pulley cord, which is useful when using free-moving carts. The wide, fixed T-bar at the base of the clamp screw makes it easy to tighten or loosen by hand. Pulley diameter, $1^1/2^{\text{II}}$.

752025 Each **\$13.75 752029** Pack of 6 **\$73.45**



Student Pulley Demonstration Set

Used to demonstrate the concepts of force and mechanical equilibrium. Contains a $5^{1/2} \times 9^{3/4}$ " laminated wooden base with a capstan mounted at 1 end and screw eye for hanging pulleys at the other, 24" vertical support rod, 8" crossbar with clamp, 8 single pulleys, 2 double pulleys, wheel and axle, 6 pulley clamps, 90° clamp, 9 hooked masses ranging from 10 to 1,000 g, pulley cord, and instructions.

752095 Per set \$411.95

Accessories

Spring Scales

OHAUS Pull-Spring Class Pack (Grams and Newtons) ABB Buy the class pack and save time and money!

A must in middle school general science labs and high school physics labs. For use in mass activities. The Class Pack includes 1 each of 250 \times 10 g/2.5 \times 0.1 N; 500 \times 20 g/5 \times 0.2 N; 1,000 \times 25 g/10 \times 0.25 N; 2,000 \times 50 g/20 \times 0.5 N; and 5,000 \times 100 g/50 \times 1 N.

702064 Per pack \$102.00



OHAUS Pull-Spring Scales ▲

Scale easily adjusts to zero; accurate readings in any position. Will withstand sudden load releases without breaking. High-contrast markings make readings easy. Each scale is individually calibrated for accuracy. With ring at top and hook at bottom. Scales read in g only or g/N.

702050	100 × 1 g	Each	\$37.00
702056	$250 \times 10 \text{ g/}2.5 \times 0.1 \text{ N}$	Each	\$31.00
702058	$500 \times 20 \text{ g/5} \times 0.2 \text{ N}$	Each	\$31.00
702059	$1,000 \times 25 \text{ g/}10 \times 0.25 \text{ N}$	Each	\$31.00
702061	$2,000 \times 50 \text{ g/}20 \times 0.5 \text{ N}$	Each	\$31.00
702062	5,000 × 100 g/50 × 1 N	Each	\$31.00



Economy Pull-Spring Scales

These spring scales provide accurate measurements in grams (g) or grams and newtons (g/N) to allow your students to easily perform force and mass measurements. Each scale includes a metal pointer, zero adjustment, suspension ring, and load hook.

702070	100 × 2 g	Each	\$7.10
702071	$250 \times 5 \text{ g}$	Each	\$7.10
702072	$500 \times 10 \text{ g/5} \times 0.1 \text{ N}$	Each	\$7.10
702073	$1,000 \times 10 \text{ g/}10 \times 0.2 \text{ N}$	Each	\$7.10
702074	$5,000 \times 100 \text{ g/}50 \times 1 \text{ N}$	Each	\$7.10

Visit Carolina.com to find more individual weights and other spring scales.



(From left to right) 954440, 954441, 954442, 954443, 954444, and 954445 Force Meter/Spring Balances

Force Meter/Spring Balances

The unique design of this instrument means that it not only weighs suspended objects but also, using the extended rod, can measure the force pushing or pulling an object. The devices are color-coded, calibrated in grams and newtons, and have a clear, flat area on the rod so you can use a dry-wipe marker to create your own scales. Includes instructions and ideas sheet.

954440	Blue (250 g)	Each	\$21.15
954441	Green (500 g)	Each	\$20.40
954442	Beige (1 kg)	Each	\$20.40
954443	Red (2 kg)	Each	\$20.40
954444	White (3 kg)	Each	\$20.40
954445	Yellow (5 kg)	Each	\$20.40





Eisco® Economy Dynamometers

These durable, economical dynamometers, which are clearly scaled in newtons (N) and color-coded for fast identification, make force measurements quick and easy.

Item No.	Description	Range	Resolution	Each
751957	5 N	0–5 N	0.1 N	\$10.90
751958	10 N	0-10 N	0.2 N	\$10.90
751959	20 N	0-20 N	0.4 N	\$11.25

Mechanics Mass Sets



Economy Hooked Mass Set

Set of 9 hooked masses constructed of cast iron with a black enamel finish. Each mass has a fixed hook on top and a recessed bottom with hanging bar to hang additional hooked masses. Includes 1,000-g, 500-g, two 200-g, 100-g, 50-g, two 20-g, and 10-g masses.

751448 Per set \$63.50



Double-Hooked Mass Set A3

Set of 9 double-hooked masses constructed of polished brass. Each mass has a sliding, double-hooked rod through the middle for hanging additional hooked masses. Includes 1,000-g, 500-g, two 200-g, 100-g, 50-g, two 20-g, and 10-g masses.

751451 Per set **\$158.35**



Physical Science

751447 Slotted Mass Set with Hanger

Slotted Mass Sets A

These 500×1 -g sets, made of brass and lathe-turned for maximum precision, include a handy weight rack and 12 pieces: 500 g (1), 20 g (2), 100 g (1), 5 g (1), 20 g (2), 10 g (1), 5 g (1), 2 g (2), and 1 g (1). Available with or without a weight hanger.

751446 Set without Hanger Each **\$108.00 751447** Set with Hanger Each **\$115.50**





751435 Eisco Stainless-Steel 20-g Slotted Mass



751431 Eisco Brass 100-g Slotted Mass



751422 Eisco Brass Slotted Mass Set

Eisco® Stainless-Steel Slotted Masses and Mass Set

Durable stainless-steel slotted masses and **Mass Set**. The Mass Set comes with nine 50-g masses and a sturdy **Mass Hanger** with a screw base. Size, about $1^{1}/_4$ " diam \times $5^{1}/_2$ " L. Hanger and base weigh 50 g. Total set weighs 500 g. Individual slotted masses and the hanger can also be purchased separately as spares and replacements.

751421	Mass Hanger	Each	\$7.00	751436	50-g Mass	Each	\$7.35
751432	5-g Mass	Each	\$3.05	751437	100-g Mass	Each	\$11.00
751433	10-g Mass	Each	\$3.70	751438	Mass Set	Each	\$44.10
751435	20-g Mass	Each	\$5.45				

Eisco® Brass Slotted Masses and Mass Set 🔥

Durable brass slotted masses and **Mass Set**. The Mass Set comes with nine 20-g masses, one 10-g mass, two 5-g masses, and a sturdy **Mass Hanger** with a screw base. Size, about $1^{1}/_{4}$ " diam \times $4^{1}/_{4}$ " H. Hanger and base weigh 50 g. Total set weighs 250 g. Individual slotted masses and the hanger can also be purchased separately as spares and replacements.

751422	Mass Hanger	Each	\$7.30	751428	20-g Mass	Each	\$5.15
751424	2-g Mass	Each	\$2.95	751429	50-g Mass	Each	\$8.90
751426	5-g Mass	Each	\$3.20	751431	100-g Mass	Each	\$15.80
751427	10-g Mass	Each	\$3.85	751439	Mass Set	Each	\$37.95



Aluminum Weight Hanger 🔥

Use with slotted masses (not included). Measures 16 cm and weighs 50 g. **751445** Each **\$9.65**

Visit **Carolina.com** for new products and current pricing.

Brass Weight Hanger 🔥

Use with slotted masses (not included). Measures 11.5 cm and weighs 50 g. **751443** Each **\$9.20**



MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov



Timers



Economy Digital Timer and Photogates

Use the 7 modes of operation for measuring time (0 to 999.9 s) or counting cycles (0 to 9,999 cycles). Timer captures the time elapsed as an object travels through 1 photogate, between multiple objects passing through 1 photogate, and as an object passes from 1 photogate to the other. Timer stores up to 20 consecutive data points. Includes 2 photogates and instructions. Timer dimensions, 19.5 cm W \times 18 cm D \times 7 cm H. Photogate opening, 1.5 cm W \times 2 cm D.

751831 Each \$447.95



BeeSpi Speed Meter and Digital Timer

Measure speed, lap time, and cumulative lap time with a single timer. Study the harmonic motion of a pendulum or the speed of a cart down an air track using 1 BeeSpi. Study free-fall acceleration or acceleration down an inclined plane using 2 BeeSpis. Measures speeds from 0.00 to 99.99 km/hr, 0.00 to 99.99 m/s, and 0.00 to 99.99 cm/s and lap time from 0.00 to 99.99 sec. Stores up to 5 measurements. Instructions included. Requires 2 AAA batteries (item #756315; not included).

751827 Each \$96.60



751785 Spark Timer and 751786 Spark Recording Tape

Spark Timer and Spark Recording Tape

Compact design with low-friction, adjustable needle pressure for sharp, accurate readouts. Equipped with 10-Hz and 60-Hz settings that provide clear print, even for a relatively slow-moving dynamic cart. Unit may also be used in a vertical position for falling body experiments. Size, $3^{1}/2 \times 3^{3}/4 \times 1^{1}/2^{"}$. Operates on 120-V AC. Includes 1 roll of recording tape, a padded clamp for attaching the timer to a tabletop, and instructions. Tape measures 1 cm W \times 40 m L.

751785 Spark Timer Each **\$287.70 751786** Spark Recording Tape Pack of 10 **\$145.55**



751375 Recording Timer, 751374 Carbon Discs, and 751378 Recording Tape

Recording Timer

Precisely measure the speed and acceleration of a moving body. No need to calibrate the timer—the striker oscillations are in direct synchronization with the input AC frequency. Single-body construction of high-impact plastic provides shielding for safety and structural strength for classroom use. Features an extra-long cord with 3-prong grounded plug and off/on switch. Includes 24 carbon discs, $1/2" \times 315$ -ft roll of recording tape, and instructions. 110-V AC.

	Recording Timer	Each	\$112.00
1 751374	Carbon Discs	Pack of 24	\$17.05
751378	Recording Tape (315-ft roll)	Each	\$7.95

Properties of Matter

Properties of Matter

Density & Specific Gravity



Exploring Density Kit A2

Grades 6–8. Engage students with an intriguing demonstration—pieces of a candle float and sink in 2 seemingly identical liquids. Students explore the density of the solids and liquids, evaluate their findings by creating a colorful column, then explain the mystery behind the demonstration. They extend their knowledge to understand what materials float and sink. Includes concepts such as buoyancy, intensive/extensive properties, and testing predictions. Instructions included. Materials support 15 teams.

751916 Per kit **\$130.50**



Physical Science

Carolina® Introduction to Density Kit A3

Grades 9–12. Use measurement and graphical analysis skills to calculate the density of solids (regular and irregular) and liquids. Apply that knowledge to create a colorful layered density column and identify 2 mystery objects. Then determine the thickness of a penny and aluminum foil. Includes instructions. Supports 16 teams of 2 students. Needed but not supplied: common laboratory equipment and pennies.

752463 Per kit \$182.35



Density Kit

Used to teach students how to make measurements in the metric system and how to use the formula: density equals mass divided by volume. Consists of 2 aluminum cubes, an aluminum bar, a steel sphere, a glass sphere, 15-cm scales, and instructions.

752465 Per kit \$17.35



Stamped Metal Disc Set

Ideal for hands-on activities about magnetic properties, classifications of metals, or conductivity. Set of 8 includes 1 each of brass, copper, bronze, nickel silver, mild steel, stainless steel, zinc, and aluminum. Discs measure 1" (25 mm) across. One side has the metal name stamped on it for easy identification. Includes a plastic storage case.

752467 Per set **\$16.15**



Floating Density Spheres Set

This density set provides a powerful, visual experience in density. Using their own measurements, students calculate the densities of plastic spheres and different liquids, predict which spheres will float in the liquids, and test their predictions. They also create a liquid density column and identify plastic samples based on their position in the column. Instructions included.

752464 Per set **\$32.20**

Volume Finder Class Set

Use this product to eliminate subtraction errors when you measure an object's volume by displacement. The Volume Finder is a sleeve graduated to 20 mL in 1-mL increments that fits over a graduated cylinder (included). The process is simple: Align the zero line on the Volume Finder with the water level in the cylinder. Submerge your density sample and read the sample's volume directly from the Volume Finder. Includes 36 Volume Finders, 36 100-mL graduated cylinders, and instructions.

752676 Per set \$130.70

Properties of Matter



752468 Density Paradox Set (above); in use (below) (beakers not included)





Density Paradox Set

When placed in hot water, this plastic cylinder sinks. After a minute or 2, it floats. When placed in cold water, the cylinder floats, then sinks. Students test their logic skills and density knowledge to solve this apparent paradox. Includes instructions and 2 cylinders.

752468 Per set \$30.45



Acrylic Overflow Can

Used in density and specific gravity experiments, this overflow can with attached spout is made of clear acrylic and has graduations to 125 mL to facilitate measurements. Can is approximately 7 cm H $(2^3/4^{"})$ with roughly 5.5 cm ID $(2^1/4^{"})$.

752452 Each \$11.95



Overflow Can

Used for experiments in density and specific gravity, Archimedes' principle, and more. Sturdy aluminum construction. The Overflow Can measures 5" H \times 4" diam and includes spout.

752451 Each \$17.00



Alternative Density Block Set ▲3

This set consists of four 3.2-cm cubes, each constructed of a different metal and containing a hook. Set includes aluminum, brass, copper, and steel cubes.

752469 Per set \$74.55

Properties of Matter



Aluminum Density Determination Set

Set includes 12 samples of aluminum. Students measure the mass and volume of each sample and graph their masses as a function of volume. The slope of the resulting line is the density of the substance. Students learn that the density of a substance is constant even as its mass and volume change. Instructions included.

752510 Per set \$65.70



Density Cylinder Set

Set of 15 different cylinders ranging in density from 0.5 to 9 g/mL. Includes acetal, acrylic, aluminum, brass, copper, CPVC, HDPE, maple, nylon, PETG, phenolic resin, polystyrene, PP, PTFE, and PVC. Large cylinder volumes (7 to 18 mL) increase accuracy of density determinations. Cylinder color and size helps teachers identify them easily. Instruction manual provides suggested activities as well as descriptions of each material and its use.

752481 Per set \$80.85





Density Rod Set A

Set of 12 different rods ranging in density from 0.5 to 9 g/mL. Includes copper, brass, Pyrex®, rubber, acrylic, Tekaform®, aluminum, Delrin®, PVC, PTFE, poplar, and oak rods. Rods are 1/2" diam and vary in length from 11/2 to 21/2". A drilled, square block holds rods for convenient storage. Includes instructions.

752480 Per set \$60.25



Specific Gravity Set A

Consists of 4 metal cylinders: aluminum, brass, copper, and steel. Each is about 50 mm L \times 13 mm diam. Includes instructions.

752490 Per set \$20.00



12-Piece Density Cube Set ¹⁄₄

This set of twelve 1" cubes of polypropylene, brass, acrylic, oak, pine, rosewood, steel, aluminum, copper, dense wood (lignum vitae), nylon, and polyvinyl chloride (PVC) allows students to test the density of different materials. Includes a Materials Density Table.

752478 Per set \$47.00



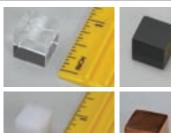
This set of four 1" cubes of acrylic, pine, aluminum, and nylon allows students to test the density of different materials. Includes density and appearance information for each cube.

752477 Per set \$13.15

Build Your Own Density Cubes Set

Individual density cubes available in 1/2" and 1" sizes. Ideal for a variety of density, mass, specific gravity, volume, and buoyancy experiments. Mix and match the individual cubes to customize your own activity.

752483 752484 752485	1/2" Acrylic Cube 1/2" PVC Cube 1/2" Polypropylene	Each Each	\$1.50 \$1.50	752498 752499 752502	1" Acrylic Cube 1" PVC Cube 1" Polypropylene	Each Each	\$2.70 \$3.35
752486 752487 ▲3 752488 752494 752497	Cube 1/2" Nylon Cube 1/2" Steel Cube 1/2" Brass Cube 1/2" Aluminum Cube 1/2" Copper Cube	Each Each Each Each Each Each	\$1.50 \$1.50 \$2.55 \$7.95 \$2.65 \$10.85	752503 752504 13 752505 752506 752507	Cube 1" Nylon Cube 1" Steel Cube 1" Brass Cube 1" Aluminum Cube 1" Copper Cube	Each Each Each Each Each Each	\$2.60 \$3.40 \$6.65 \$8.05 \$4.35 \$20.70





Density Cube Set A

Set of ten 1" cubes in 10 different materials. Includes aluminum, steel, copper, brass, nylon, acrylic, pine, poplar, oak, and PVC cubes and instructions.

752475 Per set \$64.95

Properties of Matter



Equal Mass Density Set A

Demonstrates the inverse relationship between density and length for cylinders of the same mass and diameter. Consists of 5 cylinders (aluminum, brass, nylon, acrylic, and polyvinyl chloride), each 15 g and 1/2" in diameter. Lengths range from 1/2 to 4".

753488 Per set \$17.95

Fluids & Gases



Carolina® Mechanics Systems 2 **Physics Kit**

Kit comes with 36 components, including all tubes and vessels needed to investigate core concepts in introductory fluid mechanics. Students can conduct a series of 14 classic experiments that cover Pascal's principle, Mariotte's bottle, Toricelli's principle, Boyle's law, and more. The activities focus on general concepts of pressure, ideal gases, ideal fluids, and manipulating formulas to calculate pressure and behavior of fluids. The labs also help students become familiar with the Venturi tube and the Ostwald viscometer. Kit materials equip 1 group of 2 to 4 students and include an experiment guide and a metal ballistics case with high-density foam inserts for easy storage and long life. Needed but not supplied: bromic acid, acetone or alcohol, and distilled water for rinsing glassware.

751161 Per kit **\$1,123.75**



Spouting Cylinder

Demonstrate that the pressure of a liquid depends on its depth. The clear plastic cylinder allows students to witness physics and Torricelli's law in action. This unit has 3 equal-size, vertically aligned holes at different heights. Students can easily see how far water flows out of each hole. Perfect for small group work or a class demonstration in fluid dynamics. Includes instructions.

752529 Each \$35.30





Harbottle

How can a balloon remain inflated even with an open end? The Harbottle demonstrates the principle of reduced air pressure and the influence it can have on a balloon. The device gives students hands-on experience in air pressure and can stimulate inquiry for practical aspects of this phenomenon. Includes a 1,000-mL glass Harbottle, rubber stopper, balloon, and instructions. Note: To minimize the spread of germs, be sure that only 1 person inflates the balloon. Also be aware that the balloon is made of latex rubber. Persons with allergies or sensitivities to latex may not be able to work with the balloon. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

753000 Each \$38.85

View the entire Carolina® Comprehensive Physics Series at Carolina.com.

Properties of Matter

Magdeburg Hemispheres, Plastic

Present an air pressure demonstration your students will not soon forget! Put the 2 halves together and evacuate the air. Even your strongest student will not break the seal. Includes instructions with interesting information on the history of the Magdeburg experiment. Hemispheres are $4^1/2^{\circ}$ in diameter. A vacuum pump is needed but not included.

753099 Each \$55.75



Physical Science

What is the best way to inflate an 8-ft-long, 10"-diameter bag? With just 1 breath! Traditional methods used to blow up a balloon or paper bag will leave you winded. Instead, blow 1 long breath straight down the middle and the bag inflates in seconds. Challenge students to apply Bernoulli's principle to explain why a fast breath applied at a distance works best. Includes instructions.

752528 Pack of 4 \$9.20



Pneumatics and Hydraulics Kit

Using syringes, tubing, and special valves, students build models that can lift a car, dig a trench, and pick up objects. Each model is based on the principles of pneumatics and hydraulics. While constructing fun devices, students learn about pneumatic and hydraulic systems, mechanical advantage, and Pascal's law. They also see the real-life applications of these powerful principles in their models. Reusable materials are sufficient for a group of students to build 1 model at a time.

753103 Per kit \$63.90



Fire Syringe

Watch Charles's law really heat up with this exciting demonstration! Rapidly compressing air inside the fire syringe to a smaller volume produces enough heat to ignite a small piece of cotton. Teach gas laws, heat vs. work, adiabatic compression, phases of matter, and combustion. Includes instructions, cotton, and replacement 0-rings.

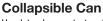
753600 Each **\$24.15**



Elasticity of Gases Apparatus

Students place books one at a time atop a block, increasing air pressure in a calibrated syringe, and measure the new volume after each. Plotting volume versus pressure illustrates Boyle's law. To study Charles's law, students submerge the airtight syringe in water and measure the air's volume at different water temperatures, then plot volume against temperature. The lesson concludes by deriving the Ideal Gas Law from Boyle's and Charles's laws. Instructions included.

753100 Each \$23.10



Used to demonstrate atmospheric pressure. When a small amount of water is boiled in the can and the cap is screwed on, a vacuum forms as the can cools, and air pressure causes the can to collapse.

752900 Each \$28.30



Looking for vacuum pumps and accessories?

Turn to page 874.

Physical Science Waves & Sound

Waves



Mini Ripple Tank ▲

Make waves in a compact and elegant way using this mini ripple tank that shows diffraction, refraction, reflection, and interference. The tank is 4" (100 mm) square and sits on a base that provides a wave generator and lighting. Simply add water. For easy viewing, the wave images are projected upward onto a frosted screen. Unit has on/off switch and comes with 3 acrylic shapes for refraction, 3 aluminum plates for reflection, 3 dippers for plane and circular wave generation, instruction pamphlet, and power adapter (50/60 Hz, 110/220 V with standard US power plug).

754161 Each **\$316.05**



Make waves with this affordable apparatus that demonstrates both longitudinal and transverse waves. The plastic highlighted tips provide easy observation of wave motion. The rotating handle is equipped with a circular scale marked in degrees to indicate rotation. Includes instructions.

754137 Each \$141.95



Basic Ripple Tank

Study reflection, refraction, diffraction, and interference using this tank that will provide years of classroom use. Tank is made of a molded frame with scratch-resistant acrylic window (11³/₄" sq) supported by adjustable legs. Setup is a breeze—no tools required. Just follow the included manual's installation instructions, add water (about 17 oz) and a 12-V AC or DC power source (not included; we suggest item #757101), and you're on your way to conducting the manual's suggested activities or designing your own. Comes with 6-V halogen lamp, motor, and wave-making accessories. Tank dimensions, 15³/₄" sq; overall height, 21".

754171 Each **\$356.65**



Acrylic Pendulum Wave Demonstrator

Create waves of excitement about phase, beats, and frequency with this mesmerizing demo! Simultaneously release 9 pendulums to form a wave that dissipates before cycling back in phase to form the wave again. Each 2-line mount pendulum varies from slightly less to slightly more than 20 swings in 20 seconds. The rigid interlocking acrylic frame with installed offset tubing measures about 22" W \times 19" H. Allow 40 min to assemble. Includes initiator stick and instructions.

751669 Each \$153.30

Waves & Sound Waves & Vibration

Physical Science

754163 Vibration and Waves Kit (above); in use (right)

Vibration and Waves Kit
Introduce transverse and longitudinal waves, resonance, and vibration to your students. Combine a sine wave signal generator and a vibration generator to produce waves illustrating nodes/antinodes, resonance, and standing waves (using the included loop, spring, string, and metal strips). Create intricate nodal patterns using Chladni plates and sand, illustrating 2-D waves and resonance with higher-frequency settings. The sine wave signal generator has a large 3-digit display and is combined with the vibration generator for low- and high-frequency vibrations with a range of 1–400 Hz (1-Hz increments) and 0.01–4.00 kHz (0.01-kHz increments). Visit Carolina.com for complete list of kit materials.

754163 Per kit **\$376.55**



Carolina STEM Challenge®: Wave Machine Kit

Grades 6–12. Students learn about wave properties and encoding and decoding information in a wave with signal modulation/demodulation. Students initially build wave machines with clay, skewers, and duct tape to transmit messages using Morse code. They measure wave speed, employing several methods, then apply engineering processes in refining and optimizing their design for reliability and efficiency, dismantling and rebuilding the machine. Designed for 3 students working in groups of 3 and includes teacher's manual, student guide, and free 1-year access to digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

750049 Per kit \$83.00

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

Make waves with our Waves and Communications (Information Transfer)
Kit Bundle. See it on page 790.

Physical Science

Waves & Sound



Large Plastic Spring in Colors

In addition to being a terrific toy, this plastic spring is an excellent device for demonstrating various properties of physics such as inertia, gravity, potential energy, kinetic energy, and longitudinal waves. Developed for younger students, the larger size (3³/₄" W \times 3" H) is easier to handle and does not tangle. Comes in orange, pink, or blue (our choice).

954497 Each \$8.00



Giant Metal Spring

For demonstrating transverse and longitudinal waves. Measures $3^1/2^n$ in diameter and 3^n long (when compressed). Stretches up to 30 ft. Instructions included.

754095 Each \$14.35 6+ Each \$13.50



Large Metal Spring with Stand

The ultimate spring for demonstrating transverse and longitudinal waves. It is $2^3/4$ " in diameter and 8" L when compressed, but it can be stretched up to 60 ft L! Includes stand for easy, tangle-free storage.

754096 Each \$61.30



Narrow Coiled Spring

For demonstrating transverse and longitudinal waves. Measures 1" in diameter and 6 ft L. Stretches up to 9 ft.

754098 Each \$42.30



Spouting Resonance Bowl

With moist hands, vigorously rub the bowl's handles. The frequency generated causes the water first to ripple around the rim of the bowl, then to shoot up as continuous streams. Inspire student interest in waves, resonance, and dancing water for years to come with this durable, full-size 15"-diam bowl.

754300 Each \$185.85



Wave Demonstration Set

Two springs for demonstrating transverse and longitudinal waves. Wide spring stretches from 4" up to 30 ft and narrow spring stretches from 6 ft up to 9 ft. Tie the 2 springs together with string and observe the effect on a traveling wave as it moves from 1 spring to the next. Includes instructions.

754100 Per set \$59.50

Waves & Sound Sound



Economy Tuning Forks, Set of 8

Consists of 8 steel tuning forks (C-256, D-288, E-320, F-341.3, G-384, A-426.6, B-480, and C-512) packaged in a foam box. Frequency and note are stamped on each fork.

754212 Per set \$37.25



Tuning Forks

Excellent quality. Made of a non-tarnishing, light-weight aluminum alloy. With proper care and handling, the frequency of these forks will remain constant for many years. Each fork is stamped with note and frequency.

Catalog No.	Frequency	Note	Each
754201	256	С	\$17.10
754208	512	С	\$17.80
754214	5,000	-	\$18.80

Physical Science



Major Chords Tuning Fork Set

Includes 4 unmounted tuning forks precision machined from aluminum alloy to sound the major chords (C-256, E-320, G-384, and C-512). Frequency and note are stamped on each fork.

754218 Per set \$62.95



Tuning Fork Set

Consists of 8 aluminum tuning forks (C-256, D-288, E-320, F-341.3, G-384, A-426.6, B-480, C-512) packaged in a wooden box. Includes a mallet with both a hard end (for high-frequency forks) and a soft end (for low-frequency forks). Forks are stamped with frequency and note.

754215 Per set \$124.95

Tuning Forks, Set of 13

Consists of 13 aluminum tuning forks (G-100, C-128, C-256, D-288, E-320, F-341.3, G-384, A-426.6, B-480, C-512, C-1024, C-2048, and C-4096) packaged in a wooden box. Includes a mallet with both a hard end (for high-frequency forks) and soft end (for low-frequency forks). Forks are stamped with frequency and note.

754220 Per set \$78.60



Economical Tuning Forks

Set of 3 die-cast aluminum tuning forks with flattened handles. Consists of C-128 fork with fixed weights and C-256 and C-512, which have no weights.

754250 Per set \$24.15

Physical Science

Waves & Sound



Carolina® Introduction to Sound Kit

Grades 9–12. The 4 lessons in this kit enable students to explore the fundamental properties of sound waves. They measure the speed of sound, calculate wavelength and frequency, observe constructive and destructive wave interference, examine resonance, and demonstrate the Doppler effect. Background information on the limits of human hearing, breaking the sound barrier, and frequency of bat sounds makes the concepts interesting and accessible to students. Materials are sufficient for 32 students working in 8 groups.

754113 Per kit \$149.00



Carolina® Resonance Apparatus

The quantitative measurements of sound waves produced by tuning forks may be easily and accurately obtained with this apparatus. Consists of a 40³/4" graduated acrylic tube connected to a metal reservoir, which moves along an upright to raise the water to any level. The tube is of sufficient length to produce resonances for ¹/4, ³/4, and ⁵/4 wavelengths of a 512-Hz tuning fork. Includes tuning fork, graduated tube, reservoir with tubing, clamps, support stand, and instructions.

754310 Each \$203.50



750048 Sound Off Kit (above) and in use (upper left)

Sound Off Kit

Grades 6–12. Not all technology plugs into the wall. Design teams must get creative to get loud as they transform cardboard tubes and items commonly found at home or school into a nonelectrical device to amplify smartphone sound. Engage and excite students as they explore how sound waves are transmitted, reflected, and amplified by different shapes and materials. Teams modify designs and then compete to produce the best device to increase the volume and clarity of music or tones. Addresses Next Generation Science Standards*: MS-PS4-2, HS-PS4-1. Materials support 15 design teams. Needed but not supplied: sound meter or tone generator, smartphone, and metric ruler or measuring tape. Smart device apps may be used for music and tones. Includes teacher's manual, student guide, and digital resources.

750048 Per kit \$68.00



Rubber Hammer

Used to activate tuning forks. Sphere is mounted on a sturdy, wooden handle. Frequency, 256 to 1,024 Hz. **754276** Each **\$7.05**

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Tuning Fork Activator

Activate your low- or high-frequency tuning fork on this soft rubber wedge. The wide base provides a stable striking surface while the solid rubber protects the fork from scratches. Easier to use than a mallet. Measures $2^1/2^{\circ}$ L and each side measures $1^1/2^{\circ}$ W.

754279 Each **\$18.25**

Rocketry & Flight

Rocketry & Flight



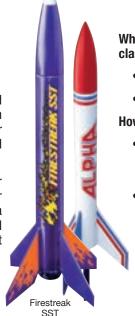
Estes® Model Rockets

Launching model rockets is unforgettable, educational fun!

Estes®, the leader in model rocketry, makes the adventure easy and safe. The major components-rocket, launch controller, and launch pad—are all reusable and designed with safety in mind. Preparing for the next launch is easy. Simply replace the rocket's engine, starter, and recovery wadding—and your students are ready to rock it again!

Start with the Alpha III® Launch Set (item #752264C) and walk your class through the simple instructions for 24 amazing flights. When your students are ready for the next step, choose a launch set featuring a skill level 1 model. This model type can be customized with a special paint job and other modifications, allowing a student to create a rocket uniquely his or hers. Imagine the possibilities!





What do model rockets bring to your classroom?

- A measurable system of force and motion
- A compelling display of kinetic energy

How do model rockets benefit your students?

- Building and launching model rockets give students confidence in themselves and their abilities.
- Using their hands and minds to construct model rockets enables students to gain ownership and interest in their studies.

Alpha

Model	Skill Level ⁱ	Fins	Compatible Engines ²	Descent	Maximum Altitude	Bulk Pack ³	Per Pack	Launch Set ⁴	Per Set
Alpha® A student and teacher favorite for over 35 years!	1	Laser-Cut Balsa	A8-3, B6-4, C6-5	Parachute	1,000 ft	△ ¹ 752268B	\$164.35	△ ³ 752268C	\$435.75
Alpha III® Easy to construct and fly.	E2X®	1-Piece Plastic	A8-3, B6-4, C6-5	Parachute	1,100 ft	752264B	\$167.60	⚠ ³ 752264C	\$442.60
Viking™ Customize with 5 die-cut fins for 3-, 4-, or 5-fin versions.	1	Die-Cut Card Stock	A8-3, B6-4, C6-5	Streamer	1,600 ft	752274B	\$99.75	△ ³ 752274C	\$310.05
Wizard™ High-altitude performance.	1	Laser-Cut Balsa	A8-3, B6-4, C6-5	Streamer	1,600 ft	△¹ 752272B	\$103.95	△ ³ 752272C	\$334.80
Firestreak™ SST Snap-together	E2X®	4-Piece Plastic	¹/₂ A3-2 T	Streamer	350 ft			752262C	\$414.75

¹Skill level E2X® assembly takes about 1 hour or less; requires gluing and applying decals. Skill level 1 assembly takes about 1-2 hours; requires painting, gluing, and sanding.

3Bulk Pack includes 12 model rockets only.

⁴Launch Set includes 24 rockets, 24 A8-3 engines (item #752312B, except for Firestreak™ SST, which contains 1/2A3-2T engines, item #752306B, instead of A8-3 engines) with starters and recovery wadding, Estes® Electron Beam® Launch Controller (item #752333), and Estes® Porta-Pad® Il Launch Pad (item #752334).



Estes® Saturn V Rocket, 1:200 Scale

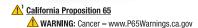
This commemorative rocket is a 1:200 scale model, fully assembled and virtually ready to fly out of the box. With realistic details and markings, the rocket can be displayed with the stand provided, or commemorate "one small step for man, one giant leap for mankind" with a launch. Comes with mail-in card to request free limited-edition poster. Skill level: 1 (beginner). Compatible engine: C6-3. Projected maximum altitude: 200 ft. Descent: 18" parachute. Dimensions: 21.8" L × 1.98" diam.

752278C Each \$65.10





CAR@LINA





²Use A8-3 engine for rocket's first flight (except for Firestreak™ SST, which accepts ¹/₂A3-2T

Physical Science

Rocketry & Flight



752278D Estes Model Rocket Engines, C6-3

Estes® Model Rocket Engines A

Each pack contains starters, starter plugs, and recovery wadding. For an explanation of the letters and numbers, go to Carolina.com. Note: Rocket engines contain flammable solid material; each shipment has an additional hazardous shipping charge. Residents of CA, ND, NJ, and RI may be subject to additional state age or permit requirements when purchasing these items.

306B	¹ / ₂ A3-2T	Pack of 24	\$89.50
310B	1/2A3-4T	Pack of 24	\$86.30
312B	A8-3	Pack of 24	\$98.65
314B	B6-4	Pack of 24	\$98.70
316C	C6-5	Pack of 24	\$121.80
278D	C6-3	Pack of 3	\$12.30
279D	E12-4	Pack of 3	\$29.10



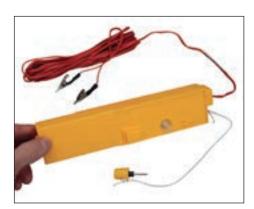
Tripod design offers a secure launch every time. Comes complete with 36" launch rod, 5"-diam blast deflector, streamer to judge wind direction, rod safety cap, and swivel base for angling launches.

752334 Each \$22.05

Launch Pad

Assembles quickly; needs no glue or tools. Comes with a 1/4" (6 mm) launch rod.

752335 Each \$37.60



Estes® Electron Beam® Launch Controller

Provides safe, consistent launches and lets you stay up to 17 ft away. Included safety key prevents accidental launches. Continuity light illuminates when the ignition circuit is activated and ready for launch. Completely assembled and wired—just add 4 AA alkaline batteries (item #756316; not included).

752333 Each \$27.30



Estes® E Launch Controller

An E Launch Controller is required when launching Estes® "E" engine-powered model rockets, but this controller can be used to launch all Estes® rockets. Just add 4 AA alkaline batteries.

752279C Each \$40.15

Estes® AltiTrak™

Measure the maximum altitude of your rocket's flight. Follow the rocket in the sights to apogee and release the trigger to lock the reading. Easy-to-read display gives the altitude in meters along with the elevation angle.

752328 Each \$32.55

Rocketry & Flight/Instruments & Equipment

Physical Science



Estes® Digital Altimeter

Accurately measure model rocket launch altitudes from 0 to 9,999 ft (0 to 3,000 m) and store up to 10 consecutive flights! Features a 4-digit LCD readout and displays in English and metric units. Includes replaceable alkaline battery.

752340 Each \$53.55



Ultra Stomp Rocket

Stomp on the launch pad and generate a blast of air that propels a rocket 200 ft skyward. Rocket features a rounded foam nosecone for safe launches and landings. Kit includes 4 rockets and a launch pad.

762107 Per kit **\$29.75**

Instruments & Equipment

Function Generator



Function Generator, 4 MHz, with 5-Digit LED

An entry-level function generator that offers linear or log sweep with variable sweep rates and widths. Perfect for physical science and introductory physics classes. Generates sine, triangle, and square wave forms (0.5 Hz to 4 MHz) and has a 20-MHz, 5-digit external frequency counter. Features a Kensington Security Slot to help secure your generator and prevent theft. Converts to 220 V with the flip of a switch and a fuse change. Test leads are not supplied. Includes power cord, user's manual, and 1-year manufacturer's warranty.

756900 Each \$466.00

Oscilloscope



Digital Oscilloscope, 2-Channel, 100 MHz, 1 GSa/s

Get reliable performance and essential features with this easy-to-use digital oscilloscope! Update firmware and store/recall data, setups, and screenshots with a USB flash drive. Maximize productivity with the included software to capture, save, and analyze data. Control all oscilloscope parameters via PC (no programming needed). Built-in universal input transformer (100- to 240-V AC, 45 to 440 Hz) auto detects the power source. Includes manual, 2-piece probe set, power cord, USB interface cable, and 1-year warranty. Note: For international use, customer must provide locally sourced plug adapter.

757245 Each \$784.90

Physical Science

Meters

Instruments & Equipment

Economy Student Bench Meters

General-purpose student AC/DC bench meters with full-scale accuracy of $\pm 2.5\%$, large 3" scales, external zero-adjust calibration, and fully enclosed plastic cases with inclined meter face. DC voltmeters and ammeters have overload protection; AC voltmeters and ammeters are not protected against prolonged or significant overload.



757264 DC Voltmeter-Double Range

DC Voltmeter — Double Range ▲3
0-5 V (0.1 V)/0-15 V (0.3 V).
757264 Each \$28.95

DC Ammeter — Double Range ▲3
0-1 A (20 mA)/0-5 A (100 mA).
757280 Each \$28.95



757282 DC Ammeter– Triple Range

DC Ammeter — Triple Range ▲ 0-50 mA (1 mA)/0-500 mA (10 mA)/0-5 A (0.1 A). 757282 Each \$28.95



Galvanometer ¹/₋₅₀₀ -500 μA (20 μA).

757292 Each \$28.50



AC Ammeter — Dual Range ▲3
0-1 A (20 mA)/0-5 A (100 mA).
757295 Each \$30.40





Instruments & Equipment Multimeters



Digital Multimeter

Compact, full-featured unit with 3.5-digit LCD display (1/2" H). Includes test leads, 9-V battery, instructions, and 2-year warranty.

Specifications:

DC Voltage: Ranges = 200 mV; 2 V, 20 V, 200 V, 1,000 V

AC Voltage: Ranges = 200 V; 750 V

DC Current: Ranges = 2 mA, 20 mA, 200 mA; 0 to 10 A

Resistance: Ranges = 200 ohm; 2 kohm, 20 kohm, 200 kohm; 2 Mohm

Dimensions: $5 \times 3 \times 1$ " **757462** Each **\$25.15**

Physical Science



Deluxe Digital Multimeter ▲ 3

This deluxe digital multimeter measures voltage, current, resistance, capacitance, frequency, and temperature. Features include a 3.75-digit display, auto-ranging, and thick plastic shell for protection. Includes test leads, temperature probe, 2 AA batteries, 2-year warranty, and instructions.

Specifications:

DC Voltage: Ranges = 400 mV; 4 V, 40 V, 400 V, 600 V AC Voltage: Ranges = 400 mV; 4 V, 40 V, 400 V, 600 V

DC Current: Ranges = $40 \mu A$, $400 \mu A$; 40 mA, 40 mA, 4 A, 10 A Ranges = $40 \mu A$, $400 \mu A$; 40 mA, 40 mA, 4 A, 10 A Ranges = 400 ohm; 4 kohm, 40 kohm, 400 kohm; 4 Mohm, 4 Mohm,

40 Mohm

Capacitance: Ranges = 40 nF, 400 nF; 4 μ F, 40 μ F, 100 μ F

Frequency: Ranges: 5 Hz to 10 MHz Temperature: Ranges: -58 to 752° F

757471 Each \$82.95

Sound



Sound Level Meter

Small, handheld (5.8 oz) meter can be used to monitor sound levels anywhere. Excellent for studying environmental noise and noise pollution. Scale is "A" weighted to correspond to human hearing. Two scales cover the 40 to 80 dB and 80 to 130 dB ranges. Stable, reliable operation with signal oscillator calibration and a capacitance microphone. Single function selection dial assures ease of operation. Complete with carrying case, instructions, and 9-V battery.

694824 Each \$218.45

Light



LED Stroboscope

"Stop time" with a digital stroboscope for exciting projectile motion, kinematics, or rotary motion (measuring rpm's) experiments. Watch projectiles in still frame motion midair, or freeze a fan blade (to understand frequency). Uses high-powered LEDs to deliver bright flashes at adjustable rates, from 1 to 250 Hz (60 to 15,000 flashes per minute). Frequency can also be displayed in rpm (1–15,000). With instruction manual. Requires 4 AAA batteries (not included), for 3 hours of continuous operation. Dimensions, $18 \times 6 \times 4$ cm.

751559 Each \$307.30



Economy Light Meter

Lightweight and easy to carry, this light meter measures illumination indoors and outdoors up to 200,000 lux shown on a 3.5-digit backlit digital LCD. Features low-battery indicator, auto-ranging, short data rise/fall times, automatic measurement function, and maximum/minimum measurements. Automatic shut-off after 5 min. With instructions. Uses a 9-V battery (not included).

755164 Each **\$64.20**

Physical Science

Instruments & Equipment

Vacuum Equipment & Supplies



Oilless Vacuum Pump and Compressor

No oil required! Maximum vacuum (as pump) is 150 mm of Hg (water then boils at 50° C or warmer). The unit (as compressor) produces maximum pressure of 4.1 atm (60 psi). Equipped with vacuum gauge, pressure gauge, on/off switch, carrying handle, skid-resistant feet, and barbed hose fittings for $^3/\epsilon$ " tubing. Requires vacuum tubing (item #711558 or #711559), not included. Specifications: open air flow of 28 L/min; 1,575 rpm, $^1/\epsilon$ -hp motor; 110-V AC; wt, 16 lb; measures 11" H \times 8" L \times 5" W. Comes with instructions.

752830 Each \$1,100.00



752836 Two-Stage Vacuum Pump with Gauge

Two-Stage Vacuum Pump and Pump Oil

The perfect pump for experiments that demand high vacuum, such as boiling water at room temperature. Two-stage direct-drive vacuum pump reduces pressure down to 0.025 mm of mercury with free air displacement of 3.0 cubic ft per minute (85 L per minute) at 0.25 hp. Model with gauge measures 0 to 30" of mercury. Dimensions, 11" H \times 14" L \times 51/4" W; wt, 30 lb. Includes instructions and 1 qt of vacuum pump oil. Additional oil available in 1-qt bottle. Requires 110-V, 60-Hz AC power source. Vacuum tubing (item #711558) needed but not supplied.

752835	Vacuum Pump	Each	\$1,155.00
752836	Vacuum Pump with Gauge	Each	\$1,365.00
752837	Vacuum Pump Oil, 1 qt	Case of 12	\$206.90
752838	Vacuum Pump Oil, 1 gt	Each	\$20.55



Vacuum Chamber System, PC A2

Unbreakable, transparent, polycarbonate, 1-gal vacuum chamber ($6^5/8$ " OD \times 9 $^3/8$ " H) and vacuum plate ($7^1/2$ " OD). Recommended for use with nonaggressive chemicals only. Accepts $^3/8$ "-ID tubing (item #752840).

752951 Each **\$224.70**



Hand-Operated Vacuum Pump with Gauge

This hand pump features a pressure gauge that displays pressure in centimeters and inches of mercury (Hg) where 1 cm of Hg = 10 torr. Pump displaces 725 mL of air and has a handy pressure-release valve. Includes about 20" (approximately 50 cm) of 9-mm 0D \times 6-mm ID vacuum tubing for ease of use.

752813 Each **\$50.45**



Hand-Operated Vacuum Pump

Demonstrate the effect of a partial vacuum on inflated balloons and other objects with this easy-to-use pump. The pump removes 15 mL of air with each squeeze of its comfort-grip handle and pulls a vacuum down to 50 mm of mercury. A release valve lets you release the vacuum without disconnecting the pump from the line. Includes 12" of $^3/_{16}$ "-ID tubing and instructions.

752812 Each **\$42.90**

Instruments & Equipment



Bell Jar and Vacuum Set

Create a 95 to 98% vacuum in the chamber. Set includes miniature shatter-proof bell jar with plate, 2-piece air pump with Luer-Lok® quick connects, suction cup, balloons, flask, and instructions. Bell jar is 9 cm tall and 7 cm in diameter, with 4-mm-thick walls. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

752910 Per set \$65.35

Customer Review

"This bell jar vacuum was a fabulous, hands-on way to teach the ideal gas laws. The students took turns operating it, results were dramatic, and it is made of very durable construction . . . thrilled with this demonstration tool."

High School Biology Teacher



Vacuum Plate, Metal

Constructed of $^{1}/_{2}$ " cast iron and nickel-plated steel to resist corrosion, this plate is equipped with a $^{3}/_{8}$ " barbed hose connection, vacuum release valve, and rubber gasket to provide a tight seal. Plate measures 11" in diameter and accommodates bell jars up to 9" in diameter.

752960 Each **\$404.25**

Physical Science



Glass Bell Jar

Glass jar has a closed top with knob and finely ground bottom flange. ID is 6"; height is 11".

752970 Each \$128.10



For more lab equipment and supplies, go to the Lab Equipment & Supplies section starting on page 1020 or visit Carolina.com.

Physical Science

Power Supplies



The second secon



Instruments & Equipment

AC/DC Power Supply ▲ 3

This versatile power supply delivers both AC and DC power. Unit offers 3 outputs controlled by a single knob and is fuse-protected from overload or shorting. Front panel meters display voltage output for 0- to 30-V DC and 0- to 40-V AC and current output for 0- to 30-V DC. Instructions and 2-year manufacturer's warranty included.

Specifications:

757213 Each \$295.05

Four-in-One Power Supply A

Four different output voltages—3 fixed and 1 variable—make this a versatile power supply. Fully regulated and protected against short circuits, it offers flexibility and value. Easy-to-read meters display voltage and current. Instructions and 2-year manufacturer's warranty included.

0- to 20-V DC positive @ 2 amps

Specifications:

Input: 120-V or 220-V AC, switchable
Output: 5-V DC positive @ 3 amps
12-V DC positive @ 1 amp
12-V DC negative @ 1 amp

757150 Each \$225.75

High-Voltage Power Supply ▲3

This high-voltage power supply delivers up to 50-V DC at up to 3 A. Coarse and fine controls enable you to precisely adjust voltage and current, and the bright 3-digit LCD makes monitoring the output easy. Instructions and a 2-year manufacturer's warranty included.

Specifications:

Input: 120- or 220-V AC (switchable), 50/60 Hz

Output: 0- to 50-V DC @ 0 to 3 A

757217 Each \$325.50



12-V AC/DC Power Supply 12-V A

This compact entry-level power supply is ideal for low current experiments common to beginner circuits and physics experiments. It offers both AC and DC power up to 0.5 A. The outputs are completely independent of each other and can be loaded simultaneously. Each output is easily selectable using a black knob on the front panel. The power supply also has DC overload/short circuit protection and features an overload indicator light. Dimensions: $18 \times 14 \times 10$ cm. Comes with power cord. CSA approved, CE marked.

Specifications:

Input: 110-V/240-V AC, 50/60Hz

Output: AC: 12 V, 0.5 A max, fixed; DC: 1.5, 3, 4.5, 6, 9, 12 V (regulated,

selectable); 0.5 A max

757221 Each \$181.65



Low-Voltage AC/DC Power Pack ▲3

Simple power pack provides an output of 6 V/12 V AC/DC that can be selected by convenient switches. Ideal for use with the Basic Ripple Tank (item #754171), DC motor experiments, optical benches, and more. 2-A capacity. 110 V.

757101 Each \$105.10

Instruments & Equipment **Measurement Tools**



Digital Caliper

Constructed of hardened stainless steel with a bright LCD display. Easy-access, push-button controls allow metric/English selection and reset readout to zero. Operates on a 1.5-V silver oxide battery (included) and designed with automatic shutoff. Includes instructions and a sturdy, foam-lined case. Specifications: range, 0 to 150 mm (0 to 6"); resolution, 0.01 mm (0.0005"). Scale is marked in both millimeters and inches.

702660 Each \$57.75



Dial Vernier Caliper ▲

Constructed of hardened stainless steel with easy-to-read graduated dial. Equipped with thumb roller and locking lever for accuracy and smoothness. Metric scale measures up to 150 mm with 0.02-mm resolution.

702662 Each \$109.20



Vernier Caliper

Precision molded of high-impact plastic. Upper scale capacity is over 6" with reading accuracy of 1/128". Lower scale capacity is 155 mm with reading accuracy of 0.05 mm. Measures inside and outside dimensions.

702647 Each \$13.70

Physical Science



Measurement Set A3

Introduce your students to the instruments and techniques of measurement with this great set. Through 14 activities, students use 8 instruments to measure depth. volume, diameter, thickness, and length of 5 samples (included). Booklet provides detailed instructions on how to use a caliper, micrometer, graduated cylinder, wire gauge, ruler, protractor, measuring tape, and depth finder.

751475 Per set **\$95.00**



Micrometer Caliper

Constructed of hardened steel and calibrated to read 0 to 25 mm in 0.01-mm divisions. Designed with a ratchet handle and locking lever for accuracy.

751361 Each \$36.45



Double-Scale Vernier Caliper

Constructed of nickel-plated steel with a roller adjustment and packaged in a plastic case. One edge is graduated in inches reading from 0 to 5" in 1/16" divisions. One edge is graduated in the metric scale from 0 to 120 mm in 1-mm divisions.

702651 Each \$12.80



Physical ScienceMaker Education



From 752190 Thames & Kosmos: Big Engineering Makerspace Kit

Maker Education

Lux® STEAM Accelerator Sets

Ideal for STEAM-based classrooms, maker spaces, or after school programs, these sets are designed for smaller groups or classrooms with 12 or 25 students. When snapped into place, Lux Blox® connectors become a strong hinge with 240° of rotation for extreme flexibility. The connectors allow users to create machines, plant and animal structures, molecules, cells, architectural models, geometrical objects, and art. Two color schemes are available for each Accelerator set. Visit Carolina.com for complete lists of set materials. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 vrs.

955510	Introductory Set (Bright Palette)	Each	\$170.10
955512	Introductory Set (Primary Palette)	Each	\$172.20
955514	Deluxe Classroom Set (Bright Palette)	Each	\$343.35
955515	Deluxe Classroom Set (Neutral Palette)	Each	\$339.15
955518	Small Group Set (Bright Palette)	Each	\$225.70
955519	Small Group Set (Neutral Palette)	Fach	\$294.00

Thames & Kosmos®: Big Engineering Makerspace Kit

Grade 3 and up. Build, test, and experiment with over 20 functional models using 250+ building pieces. Explore marine vehicles, wind power, energy conversion, center of gravity, balance, pneumatics, hydraulics, statics, optics, and more. Manual is included. Chapter titles:

- On Land and Sea—Build a jet boat, catamaran, submarine, and pumping station.
- On the Road—Engineer models of a dragster, tricycle, automobile with brake, automobile with pneumatic shock absorber, and tower crane.
- Up in the Air—Construct models of a helicopter, hang glider, windmill, and falling leaf.
- Man versus Machine—Assemble models of a forklift, spinning top, hydraulic lift, surveyor's wheel, and robotic arm.
- Optical Devices (all things camera)—Build models of a camera stabilizer, tripod, selfie stick, and smartphone microscope.

/!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

752190 Per kit **\$120.75**



Bare Conductive® Touch Board® Starter Kit

Connect any surface, object, or space to the digital world. No technical ability or programming required to start. Create 12 unique sensors with any conductive material, including Electric Paint® (item #756468). The Touch Board® and Electric Paint® are essential parts of every maker's toolbox, every educator's top drawer, and every engineer's lab to make projects interactive, responsive, smart, or just fun. Kit includes guidebook, board, paint, and starter project supplies. Arduino compatible.

756466 Per kit \$325.50



Thames & Kosmos® Structural Engineering: Bridges & Skyscrapers Kit

Grade 3 and up. How can bridges span huge distances and tall skyscrapers remaining standing? See these structural (civil) engineering principles in action while building bridges and skyscrapers with this 323-piece kit. Students can learn about basic structural elements, explore forces acting on structural components, experiment with different types of bridges, and build models of towering skyscrapers. Kit includes an experiment manual with step-by-step instructions for building 20 models; visit Carolina.com for a complete list of kit materials. /!\ WARNING: CHOKING HAZARD—Small parts. Not for children under 3 yrs.

752186 Per kit \$60.65

Empower Your Students with Go Direct® Sensors



Go Direct® sensors make it easier than ever for students to investigate scientific concepts through hands-on, real-time data collection. The sensors:

- Simplify lab setup
- Foster learning
- Maximize lab time
- · Let you focus on teaching
- Include free software

See all of our Go Direct® products at Carolina.com.



Chemistry & Laboratory Safety

880 Chemistry

880 Chemistry Kits

880 Chemistry Kits Selection Guide

882 Kits for Use with AP® Chemistry

889 Carolina STEM Challenge®

890 Inquiries in Science®

892 Carolina® Chemistry Topic Bundles

894 Demonstration Kits

902 General Chemistry Kits (arranged by topic)

930 Molecular Models

940 Teacher Resources

940 Periodic Tables (updated with new elements)

943 Sensors 943 Go Direct®

944 Spectrophotometers

946 Chemicals

989 pH Buffers

990 Test Papers

995 Laboratory Safety

Chemistry

Which Chemistry Kit Is Right for You?

Whether you're a new or experienced teacher, look to Carolina for your hands-on chemistry needs. Our kits are designed with your teaching goals in mind. Engage students with activities that allow them to explore science and engineering practices, master challenging concepts, think critically, and solve problems. You'll spend less time preparing for labs—and have more time for doing them.

All Carolina chemistry kits feature:

- Detailed teacher instructions (including background info, student guide, and assessment guestions)
- Prepared solutions in convenient volumes
- Online preview copy of the teacher's manual
- Carolina's world-class technical support

The benefits for you and your students include:

- Reduced lab prep time
- Safe and proven lab activities
- · Engaged students



Carolina Investigations® Kits for Use with AP® Chemistry

We've updated this series to help AP® Chemistry teachers meet the College Board's curriculum and lab requirements. You can teach your lab as a guided activity or as an inquiry activity.

Find these kits on pages 882-888.



840598 Carolina AP Chemistry: Preparation of a Buffered Solution Kit

Investigations for Use with

Inquiries in Science® Chemistry Kits

This modular series supports the 5E learning cycle—engage, explore, explain, extend, and evaluate—to help high school students understand chemistry concepts that are hard to grasp. Use the kits individually, as a multikit topic strand, or collectively as a series.

Find these kits on pages 890-891.

Carolina ChemKits®

Looking for a more traditional lab? Each kit in the Carolina ChemKits® series focuses on a single chemistry topic, and you can complete the activities in 1 class period.

Find these kits, arranged by topic, on pages 902-925.

840665 Carolina ChemKits: Exploring Acids and Bases



Chemistry

Carolina Chemonstrations® Kits

Check your performance anxiety at the door. Each Carolina Chemonstrations® kit works right the first time and includes enough materials to wow your students for at least 4 performances.

Find these kits in the Demonstration Kits section, pages 894-901.



840325 Carolina Chemonstrations: Iodine Clock Reaction Kit in use (flasks not included)



Carolina STEM Challenge® Chemistry Kits

Based on the engineering practices of the Next Generation Science Standards*, this series challenges middle and early high school students to apply chemistry knowledge in a classroom design competition. The kits incorporate STEM concepts, encourage team building, and strengthen creative problem-solving skills.

Find these kits on page 889.

840860 Carolina Chemistry Topic Bundles: Gas Laws

Carolina® Chemistry Topic Bundles

Need a complete solution for hands-on chemistry lessons? Each topic bundle includes a teacher demonstration that introduces a topic and 2 classroom kits that provide a thorough lab experience. Topics include acids, bases, and pH; atomic theory; chemical reactions; gas laws; stoichiometry; thermochemistry; and equilibrium.

Find these bundles on page 892.



Carolina Chemistry Kits at a Glance

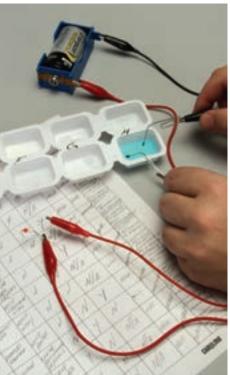
Series Title	Grade Level	Class Periods	AP®	General-Honors Level	Engineering	5E Model	Standards
Carolina Investigations® for Use with AP® Chemistry	High School	1	1				College Board®
Inquiries in Science® Chemistry	High School	3		✓		✓	NGSS
Carolina ChemKits®	High School	1		✓			NGSS
Carolina Chemonstrations®	Middle-High School	0.25		✓			NGSS
Carolina STEM Challenge® Chemistry	Middle-High School	2		✓	✓		NGSS
Carolina® Chemistry Topic Bundles	High School	2		✓			NGSS

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*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of these products, and do not endorse them.

Carolina Kits 3D[®] for high school chemistry support NGSS and 3-dimensional instruction. Learn more about them at Carolina.com/3D.

Chemistry AP Chemistry



Carolina Investigations® for Use with AP® Chemistry

If you are an AP® teacher, you go out of your way to help your students perform successfully on the AP® Exam. Carolina Investigations® kits for use with AP® Chemistry are specifically designed to support your efforts and meet the goals of the AP® Chemistry curriculum.

All Carolina Investigations® kits for use with AP® Chemistry offer:

- Two teaching approaches: a guided activity and an inquiry activity
- Assessment questions modeled on the AP® Chemistry Exam's free-response questions
- Detailed inquiry activity preparation and procedure steps
- Inquiry activity experimental design template based on the scientific method
- Access to digital resources

Carolina is committed to providing up-to-date materials for your AP® Chemistry course. We recently redesigned and updated our offerings. Each kit includes correlations to the course and exam description to help you determine how our labs fit into the unit framework.



Our exclusive approach to laboratory investigations that support the AP® Chemistry curriculum

	Item No.	Kit Title	Unit Connection	Topic	Enduring Understanding
<u></u> 1	840570	Gravimetric Analysis	1	1	SPQ-1
<u>^</u> 3	840576	Types of Chemical Bonds	2	2.1, 2.2, 2.3, 2.4, 2.5, 2.7, 3.1, 3.2, 3.3	SAP-3, SAP-4, SAP-5, SAP-6
<u>^2</u>	840574	Principles of Chromatography	3	3.9	SPQ-3
	840606	Spectrophotometric Analysis of Color	3	3.11, 3.12, 3.13	SAP-8
<u></u> ^3	840586	Investigating Chemical and Physical Changes	4	4.1, 4.2, 4.3, 4.4	TRA-1
	840572	Using a Titration to Determine the Amount of Calcium in Milk	4	4.3, 4.6	SPQ-4, TRA-1
	840578	Stoichiometry of Chemical Reactions	4	4.1, 4.2, 4.5	SPQ-4, TRA-1
	840584	Microscale Titration: How Much Vitamin C Is in Fruit Juices	4	4.2, 4.5, 4.6, 4.7, 4.9	SPQ-4, TRA-1, TRA-2
	840588	Investigating Rate Laws with Malachite Green	5	3.13, 5.1, 5.2, 5.3, 5.4, 5.7, 5.8	SAP-8, TRA-3, TRA-4, TRA-5
<u>^1</u>	840602	Analyzing Reaction Rates with Calcium Carbonate	5	5.1, 5.2, 5.4, 5.5	TRA-3, TRA-4
	840590	Factors Affecting Reaction Rates	5	5.1, 5.5, 5.7	TRA-3, TRA-4, TRA-5
	840592	Investigating Heat Transfer and Enthalpy Using Calorimetry	6	6.1, 6.4, 6.6	ENE-2
3	840594	Le Châtelier's Principle and Equilibrium Shifts	7	7.1, 7.2, 7.9, 7.10, 7.12	SPQ-5, TRA-6, TRA-8,
<u></u>	840596	Concentration of Acetic Acid in Household Vinegar	8	8.5, 8.7, 8.9	SAP-9, SAP-10
	840600	Evaluating the Extent of Buffering Capacity of Various Household Products	8	8.5, 8.8, 8.9, 8.10	SAP-9, SAP-10
Λ^3	840598	Preparation of a Buffered Solution	8	8.8, 8.9, 8.10	SAP-9, SAP-10
	840604	Electrochemical Cells	9	9.3, 9.4, 9.5, 9.7, 9.8, 9.9	ENE-4, ENE-5, ENE-6



With any Carolina Investigations® for Use with AP® Chemistry kit purchase you receive digital resources to use in your classroom. Look for an email after purchase with your access code to get these valuable resources! Digital resource packages can also be purchased separately.

California Proposition 65

MARNING: Cancer – www.P65Warnings.ca.gov



▲ WARNING: Reproductive Harm – www.P65Warnings.ca.gov





Carolina Investigations® for Use with AP® Chemistry: Complete Laboratory Package 🕰

The laboratory component of AP® Chemistry is a significant part of the new curriculum. Help your students succeed, make your teacher prep easier, and save money with a complete set of Carolina Investigations® kits for use with AP® Chemistry. The set includes 17 separate labora-

tory investigations to support the essential knowledge and learning objectives for AP® Chemistry. Each investigation provides 2 options: a guided activity and an inquiry activity where students develop their own procedure that follows the scientific method. Materials in each kit are sufficient for a class of 30 students and include a teacher's manual with reproducible student guide. The package also provides a 1-year subscription to the kits' online digital resources. **Note:** *Sold only to schools and businesses.*

840565 Per pkg \$1,030.00



"Everything I needed for AP® Chem labs in one place! Easy to use and convenient in every way. This cut my lab prep time incredibly this year . . ."

High School Teacher



Classroom Tested, Teacher Approved

Carolina Investigations® kits for use with AP® Chemistry have been reviewed by your peers and field-tested in their classrooms.



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AP Chemistry

Atomic Structure & Properties



840570 Gravimetric Analysis Kit

Gravimetric Analysis Kit

- Aligned with Big Idea 1 and Learning Objective 1.19
- Emphasizes Science Practices 2, 3, 4, 5, 6, and 7

Students determine the identity of 2 unknown Group I metal carbonates using gravimetric analysis. This rigorous laboratory exercise can be taught using either a guided or an inquiry activity. In the guided activity, the first step is to precipitate the carbonates with excess calcium ions. After drying, the mass and moles of the resulting calcium carbonate are determined. From that data, students calculate the formula mass of the unknown Group I metal carbonate and identify the Group I metal. The inquiry activity allows students to design a procedure for precipitating aqueous carbonate ions from 2 unknown Group I metal carbonates and analyze the data to identify the unknown metal.

▲ 840570 Kit Each \$29.95 840570EBK Digital Resources Each \$12.95

Molecular & Ionic Compound Structure & Properties



840576 Types of Chemical Bonds Kit

Types of Chemical Bonds Kit

- Aligned with Big Idea 2 and Learning Objective 2.22
- Emphasizes Science Practices 1, 2, 3, 4, 5, 6, and 7

Explore the 4 types of bonding in solids and learn about intramolecular and intermolecular forces. Teach this activity using either the guided activity or inquiry activity. In the guided activity, students classify 12 solids as ionic solids, covalent network solids, molecular solids, or metallic solids based on properties they test. Students learn about the intramolecular forces and intermolecular forces that affect the strength of attraction between atoms. In the inquiry activity, students test the properties of 4 solids, develop their own set of characteristics to distinguish between each bonding type, then apply their rules to classify 8 additional solids.

▲ 840576 Kit Each \$82.75 840576EBK Digital Resources Each \$12.95

Intermolecular Forces & Properties



840606 Spectrophotometric Analysis of Color Kit

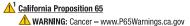
Spectrophotometric Analysis of Color Kit

Introduce students to the mechanics of molecular spectroscopy and how electromagnetic radiation interacts with molecular compounds. Determine the concentration of food dyes in powdered drink mixes using the Beer-Lambert law. Prepare standard solutions of 2 food dyes, plot calibration curves of absorbance as a function of concentration for each dye, then determine the concentration of each dye in its unknown solution. Procedure does not use toxic thiocyanate salts. **Note:** This lab is written to use 100 test tubes. In Investigation 2, students make 10 serial dilutions. If 100 test tubes are not available, students can make one dilution at a time, follow the lab procedure, then rinse out and reuse their available test tubes.

 840606
 Kit
 Each
 \$29.95

 840606EBK
 Digital Resources
 Each
 \$12.95

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AP Chemistry Chemical Reactions

Chemistry



840574 Principles of Chromatography Kit

Principles of Chromatography Kit

Identify 3 food dyes in powdered drink mixes using paper chromatography and identify the components in plant pigment using thin-layer chromatography. Teach this laboratory experience using either the guided activity or inquiry activity. In the guided activity, students separate the components of 3 drink mixes using paper chromatography and identify each food dye by comparison with paper chromatography separations of pure food dyes they prepare. Using thin-layer chromatography, students separate the components of a plant pigment and identify the components by color and $R_{\rm f}$ value. In the inquiry activity, students design an experiment to separate food dyes in drink mixes and must select the proper mobile and stationary phases to effect an efficient separation.

A 840574 Kit Each \$88.00 840574EBK Digital Resources Each \$12.95



840572 Using a Titration to Determine the Amount of Calcium in Milk Kit

Using a Titration to Determine the Amount of Calcium in Milk Kit

Determine the concentration of calcium in milk by complexometric titration. Teach this laboratory experience using either the guided activity or inquiry activity. In the guided activity, students prepare and standardize a solution of EDTA and use it to determine the concentration of calcium in milk. Both the standardization and sample titrations are done 3 times and the average of the values used in the calculations. The inquiry activity allows students to design a procedure to determine the concentration of calcium in milk and requires them to account for interfering substances such as magnesium and other transition metals.

840572 Kit Each **\$66.50 840572EBK** Digital Resources Each **\$12.95**



840584 Microscale Titration: How Much Vitamin C Is in Fruit Juices Kit

Determine the concentration of ascorbic acid in a com-

mercial fruit juice by redox titration. Teach this labo-

ratory experience using either the guided activity or

inquiry activity. In the guided activity, students titrate

solutions of known ascorbic acid concentration to cre-

ate a standard curve, then titrate a sample of fruit juice and determine the concentration of ascorbic acid from

the curve. In the inquiry activity, students design an

experiment to determine the concentration of ascorbic

Each **\$38.95**

Microscale Titration: How Much

Vitamin C Is in Fruit Juices Kit

840578 Stoichiometry of Chemical Reactions Kit

Stoichiometry of Chemical Reactions Kit

Determine the molar ratio of reactants in 2 acid-base reactions using the method of continuous variation. Teach this activity using either the guided activity or inquiry activity. In the guided activity, students react volumes of acid and base in different ratios and graph the temperature changes. The volume ratio that produces the largest temperature change is the correct stoichiometry of the reaction. From their data, students identify their unknown acid from a list of 9 possibilities. In the inquiry activity, students design an experiment to determine the stoichiometry of an acid-base reaction.

840578 Kit Each **\$79.50 840578EBK** Digital Resources Each **\$12.95**



840586 Investigating Chemical and Physical Changes Kit

Investigating Chemical and Physical Changes Kit

In this comprehensive laboratory exercise, students determine whether a process is a chemical or a physical change based on the production of heat, evolution of a gas, formation of a precipitate, or a color change. This exercise can be taught using either a guided or an inquiry activity. In the guided activity, students work at activity stations in rotation and classify each of the 15 processes they observe as either a chemical or a physical change. In the inquiry activity, students observe 5 chemical and 5 physical changes, develop their own set of characteristics for each type of change, then apply their rules to classify 10 additional unclassified processes.

1 840586 Kit Each **\$89.95 840586EBK** Digital Resources Each **\$12.95**

840584EBK Digital Resources Each **\$12.95**

acid in a sample they choose.

840584

Chemistry

Kinetics





840602 Analyzing Reaction Rates with Calcium Carbonate Kit (above) and in use (left) (flask and clamp not included)

Analyzing Reaction Rates with Calcium Carbonate Kit

Investigate how macro factors affect the reaction rate between solid calcium carbonate and hydrochloric acid. Teach this laboratory using the guided activity or the inquiry activity. In the guided activity, students vary the concentration of hydrochloric acid while the mass of calcium carbonate stays the same. In the inquiry activity, teams introduce new variables into their design such as the surface area, temperature change, or a catalyst. By analyzing the volume of reaction product carbon dioxide produced over time, students learn how the changes affected the reaction speed.

Each \$103.70 840602EBK Digital Resources Each \$12.95



840588 Investigating Rate Laws with Malachite Green Kit

Investigating Rate Laws with Malachite Green Kit

Determine orders of reaction, calculate reaction rate constants, and write rate laws. Teach this laboratory experience using either the guided activity or inquiry activity. From their Beer-Lambert graph of absorbance as a function of time, students determine the order of the dye and use the slope to calculate a pseudo rate constant. Students then use their data to determine the overall order of the reaction, write an integrated rate law for the reaction, and calculate the reaction's rate constant.

840588 Each \$47.95 840588EBK Digital Resources Each \$12.95



840590 Factors Affecting Reaction Rates Kit

Factors Affecting Reaction Rates Kit

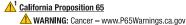
Investigate factors that affect the rate of a reaction using the iodine clock reaction. Teach this laboratory experience using either the guided activity or inquiry activity. In the guided activity, students measure how quickly clear, colorless solutions of reactants turn deep blue when the temperature, concentration, and surface area of solid reactants are changed. The change in reaction time when a catalyst is added is also determined. In the inquiry activity, students design an experiment to determine the effect of changing temperature, concentration, surface area of solid reactants, and the presence of a catalyst on the rate of the iodine clock reaction.

840590 Each \$72.25 Each \$12.95 840590EBK Digital Resources



840590 Factors Affecting Reaction Rates Kit (in use; microplate, beakers, pipets, stopwatches, and hot plate/stirrer not included)

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AP Chemistry

Thermodynamics

Investigating Heat Transfer and Enthalpy Using Calorimetry Kit

Determine the specific heat capacity of a calorimeter and the molar enthalpy of a solution of 2 chloride salts. Teach this laboratory experience using either the guided activity or the inquiry activity. In the guided activity, students determine the specific heat capacity of a calorimeter then use the calorimeter to determine the molar enthalpy of solution of calcium chloride and ammonium chloride. Students perform multiple trials and observe that different masses of salt generate different temperature changes while the molar enthalpy of solution remains constant. In the inquiry activity, students design either a hot pack or a cold pack using the 2 chloride salts.

840592 Kit Each **\$52.00 840592EBK** Digital Resources Each **\$12.95**





Chemistry

840592 Investigating Heat Transfer and Enthalpy Using Calorimetry Kit (above) and in use (left) (equipment and labware not included)

Equilibrium



840594 Le Châtelier's Principle and Equilibrium Shifts Kit

Le Châtelier's Principle and Equilibrium Shifts Kit

Investigate how temperature, concentration, and pressure affect chemical equilibrium in 3 different reactions. Teach this laboratory experience using either the guided activity or inquiry activity. In the guided activity, students perform 3 separate activities to investigate chemical equilibrium. In the first investigation, they react starch and iodine at 3 different temperatures and observe the variation in color. In the second, magnesium hydroxide is reacted with an acid to determine the effect a change in hydroxide-ion concentration has on solubility. For the third investigation, a partial vacuum is pulled on carbonated water to show how pressure changes affect pH. Students also observe how changes in temperature and common ions affect the equilibrium between 2 complex ions. In the inquiry activity, students design experiments to show how temperature, concentration, and pressure affect the equilibria of starch-iodine, magnesium hydroxide, and carbonated water. They also design an experiment to maximize the percent yield of a reaction by adjusting temperature and reactant concentration.

↑ 3 840594 Kit Each \$81.95 840594EBK Digital Resources Each \$12.95

Acids & Bases

Preparation of a Buffered Solution Kit

Prepare buffer solutions of assigned pH values and determine the buffer capacity of these solutions. Teach this laboratory experience using either the guided activity or the inquiry activity. In the guided activity, students calculate the amounts of acid and base they need to prepare their stock acid and base solutions. Then using the Henderson-Hasselbalch equation they determine the volumes of stock acid and base solutions needed to prepare their buffers. Students then test the buffering capacity of these buffer solutions. In the inquiry activity, students choose the best conjugate acid-base pair to attain a buffer solution of desired pH and determine the concentration of the conjugate acid-base solutions needed to attain the required buffer capacity of the final solution. Includes FREE 1-year access to digital resources that support 3-dimensional instruction.

↑ 3 840598 Kit Each \$62.85 840598EBK Digital Resources Each \$12.95



840598 Preparation of a Buffered Solution Kit

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See more acids and bases kits on the next page.



Chemistry



840596 Concentration of Acetic Acid in Household Vinegar Kit

Concentration of Acetic Acid in Household Vinegar Kit

This laboratory exercise combines the traditional skills of titration to determine acid concentration with insightful use of the Henderson-Hasselbalch equation to determine pK_a . It can be taught using either a guided activity or an inquiry activity. In the guided activity, students titrate the acetic acid in vinegar and use their titration data to determine the acid's concentration and pK_a . In the inquiry activity, students develop their own procedure to determine an acid's concentration in a solution and pK_a . Includes FREE 1-year access to digital resources that support 3-dimensional instruction.

▲ 840596 Kit Each \$49.95 840596EBK Digital Resources Each \$12.95

AP Chemistry



840596 Concentration of Acetic Acid in Household Vinegar Kit in use (hot plate/ stirrer, beaker, ring stand, buret, and probeware not included)

Evaluating the Extent of Buffering Capacity of Various Household Products Kit

Students evaluate a buffer solution's buffering capacity and compare the titration curves of a buffer solution and a weak acid. This comparative laboratory exercise can be taught using either a guided activity or an inquiry activity. In the guided activity, students measure the pH of a citric acid solution titrated with a strong base and plot the titration curve. Students repeat the procedure with a solution prepared from a commercial lemonade mix, which behaves as a buffer and whose primary ingredient is citric acid. Students compare the 2 titration curves, make observations, and address the differences in the curves. The inquiry activity allows students to design a procedure to evaluate a commercial lemonade mix's buffering capacity.

 840600
 Kit
 Each
 \$43.95

 840600EBK
 Digital Resources
 Each
 \$12.95



840600 Evaluating the Extent of Buffering Capacity of Various Household Products Kit in use (hot plate/stirrer, beaker, ring stand, buret, and probeware not included)



840600 Evaluating the Extent of Buffering Capacity of Various Household Products Kit

Applications of Thermodynamics



840604 Electrochemical Cells Kit

Electrochemical Cells Kit

Students build galvanic and voltaic cells to determine characteristics of an electrochemical reaction. This hands-on activity connects the principles and calculations of kinetics, thermodynamics, equilibrium, and electrochemistry. Materials are sufficient for 30 students working in pairs. Teacher's manual includes both a guided inquiry and an open inquiry version of this lab. Includes FREE 1-year access to digital resources that support 3-dimensional instruction.

 840604
 Kit
 Each
 \$109.00

 840604EBK
 Digital Resources
 Each
 \$12.95

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MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

Experience Carolina STEM Challenge®



Carolina STEM Challenge® kits for middle and high school classrooms offer students real-world design challenges in an exciting tournament-style format.

Integrating STEM into your current curriculum has never been easier!

All kits focus on the science and engineering practices built upon in the Next Generation Science Standards*. Students engaging in these kits will be able to demonstrate pertinent STEM skills such as:

- Asking Questions and Defining Problems
- Developing and Using Models
- Planning and Carrying Out Investigations
- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Make It Bounce Kit

Grades 6–12. A chemistry lesson that is competitive? Yes! Bring the excitement of a Carolina STEM Challenge® to your chemistry classroom and watch student engagement bounce off the walls. Introduce students to polymer chemistry as they make

bouncy balls using white glue and sodium borate. After testing their cross-linked polymer's properties, student teams are challenged to design a polymer that maximizes bounce. Kit materials support 15 teams and include 1-year access to digital resources; challenge requires 1 to 2 class periods.

820101 Per kit \$62.75



Chemical Reaction Rockets Kit A3

Grades 6–12. With this kit students learn about gas-forming chemical reactions by creating gas-powered rockets. After creating a simple rocket powered by the reaction between acetic acid and calcium carbonate, students modify the reaction and



the design of the rocket tube to maximize altitude. In a classroom competition, student teams learn the real-world implications of the engineering design process. Kit materials include digital resources and support 15 student teams; the challenge requires 1 to 2 class periods. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

820103 Per kit \$78.00

Crystal Growing Kit

Grades 7–12. Watch the engineering design process crystallize in your classroom with this kit! Through a series of hands-on activities that focus on solutions and crystal growing, students learn about physical science and engineering concepts. Students first work through a warmup activity to create a supersaturated sugar solution and grow sugar crystals. They then brainstorm ways



that the sugar solution and crystal growing setup can be modified to meet a specific design challenge. Finally, student teams reengineer their crystal growing solutions and setups and compete to create the best design. Kit materials support 15 design teams of 2 students each and include 1-year access to digital resources.

820105 Per kit \$63.00



Separation of a Mixture Kit A'

Grades 7–12. Students use planning skills, logic, and trial-anderror to construct a flowchart that details how to separate a mixture of sand, iron filings, sodium chloride, and stearic acid. They first perform a warm-up activity to determine the mixture components' physical properties. Students then compete in teams to

successfully separate the mixture and recover the highest percentage by mass of each component. Kit materials support 15 design teams of 2 students each and include 1-year access to digital resources.

820109 Per kit \$71.00

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Inquiries in Science



Inquiries in Science® Chemistry Series

Grades 9-12.

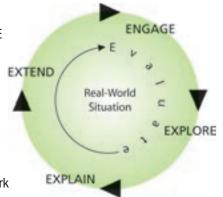
Inquiries in Science® is our exclusive series of hands-on kits specifically designed to help high school students understand abstract, hard-to-grasp science concepts. The series tracks well with most textbooks, and kit topics reflect state science standards and extensive educator input. Since Inquiries in Science® is modular, you can use the kits individually, as a strand, or as a series to teach chemistry.

The 5E Learning Cycle

Field-tested in classrooms nationwide, Inquiries in Science® employs guided inquiry based on the 5E learning cycle of engage, explore, explain, extend, and evaluate. This inquiry-based approach also promotes STEM (science, technology, engineering, and math) practices. It enables students to:

- Consider a real-world question or problem
- Plan and conduct an investigation and gather data
- Understand the science concept by analyzing data and communicating findings

 Apply their findings to the original real-world question or problem and master the science concept



Inquiries in Science® helps students build critical-thinking and problem-solving skills, and encourages creativity, collaboration, and teamwork. It creates an environment in which you and your students work together as active learners.

Inquiries in Science® Components

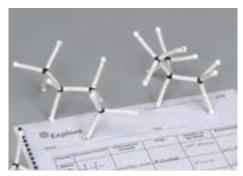
- Kit-Includes lab supplies (enough for at least 30 students working in groups) plus teacher's manual
- Kit Refill—Replenishes consumed materials
- Digital Teacher's Manual—FREE with kit purchase

Get a FREE digital teacher's manual with any Inquiries in Science® kit purchase. Display the digital manual on an interactive whiteboard, print it on demand and to your specifications, and make and save notes. The digital manual is accessed through Carolina's e-learning portal, CarolinaScienceOnline.com. Look for an email after purchase with your access code to this valuable resource!











Inquiries in Science

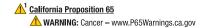
Chemistry

Inquiries in Science® Chemistry Series Kits

View complete kit descriptions at Carolina.com.

Title	Description	Item No.	Each	Refill Item No.	Each
Inquiries in Science®: Complete Chemistry Series Lab Package	Contains all 18 kits in the series	<u> </u>	\$3,335.40		
Inquiries in Science®: Matter Lab Package					
matter Lab Fackage ncluded kits:	Contains all 8 kits in the Matter Strand	^ ³ 251301	\$1,471.00		
Understanding Properties of Matter Kit	Study the classification of matter, intensive and extensive properties, and chemical and physical properties and changes	<u>^</u> ³251200	· ·	251250	\$124.5
Changing States of Matter Kit	Experimentally produce partial heat curves and phase diagrams for water and determine the heat of vaporization for water	251201	\$214.12		
nterpreting the Periodic Table Kit	Introduce the basic components of the periodic table and the trends found within it	251203	\$281.51	251253	\$208.6
Bonding Chemically Kit	Explore the properties of chemical bonds, and design and conduct an experiment to determine the type of bonds present in 2 unknown substances	∆ ³251204	\$163.05	251254	\$64.4
Expanding on the Gas Laws Kit	Explore the concept of the mole and test Boyle's, Charles's, and the ideal gas laws	<u>^</u> 3251205	\$208.61	251255	\$59.12
Determining Chemical Formulas Kit	Discover the chemical composition of common substances, and use models to differentiate between empirical and molecular formulas	251206	\$80.09	251256	\$30.3
Calculating with Stoichiometry Kit	Design and conduct experiments to determine the mass percent of sodium bicarbonate in antacid tablets	<u>^</u> 1251208	\$214.15	<u>^</u> 1251258	\$74.7
Reconstructing Atomic Theory Kit	Use different atomic representations, and practice writing the electron configuration of an element using information from the periodic table	1 1 251219 1 1 1 1 1 1 1 1 1 1	\$195.48	<u>^</u> 3251269	\$69.3
Inquiries in Science®: Reactions:					
Chemical and Nuclear Lab Package Included kits:	Contains all 7 kits in the Reactions: Chemical and Nuclear Strand	∆³ 251303	\$1,383.65		
Balancing Chemical Equations Kit	Analyze synthesis, decomposition, single replacement, and double replacement reactions	251207		251257	\$131.7
Examining Thermochemistry Kit	Discover how chemical and physical changes can absorb and release heat energy	<u>^</u> 3251209	\$107.69	<u>^</u> 3 251259	\$95.0
Investigating Reaction Rates Kit	Explore how the concentration of a reactant affects the rate of a reaction and determine the rate law expression from analysis of data	251212	\$252.71	251262	\$133.6
Attaining Equilibrium Kit	Investigate Le Châtelier's principle using colorful, reversible reactions	<u>^</u> 251213	\$274.14	<u>^</u> 1251263	\$199.6
Discovering Acids and Bases Kit	Explore the characteristics of acids and bases, relate pH values to the concentration of hydronium and hydroxide ions, and conduct neutralization reactions	1 3 251214	\$208.21	<u>^</u> 1251264	\$192.2
Exploring Voltaic and Electrolytic Cells Kit	Develop a metal activity series, and build a wet cell battery to power an electrical device and investigate variables that affect battery performance	<u>^</u> 3251215	\$247.55	251265	\$141.3
Simulating Nuclear Transformations Kit	Model half-life determination methods, observe the vapor trails of radiation passing through a cloud chamber, and estimate annual radiation exposure	251216	\$219.26	251266	\$70.7
Inquiries in Science®: Solutions Lab Package					
Included kits:	Contains both kits in the Solutions Strand	△ ³ 251302			
Finding Solutions Kit	Explore types of mixtures and the factors that affect solubility, then apply what's learned and design reusable hand warmers	<u>^</u> 251210	\$206.13	<u>^</u> 3251260	\$116.4
Observing Colligative Properties Kit	Determine the freezing-point depression of ionic and molecular substances, then determine the van't Hoff factors of an unknown substance	251211	\$179.43	251261	\$132.8
Inquiries in Science®: Organic Chemistry Kit:					
Introducing Organic Chemistry Kit	Use models to investigate different classes of organic compounds and relate the function of plastics to their molecular shapes	<u>^</u> 3251218	\$252.84	<u>^</u> 3 251268	\$88.9







Chemistry Carolina®

Carolina Chemistry Topic Bundles

Carolina® Chemistry Topic Bundles

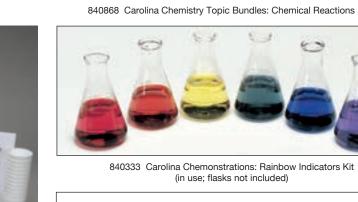
Need a complete lab solution for a broad general chemistry topic? Look no further than Carolina® Chemistry Topic Bundles. These hand-curated lab packages each include 1 teacher demonstration kit and 2 classroom kits. Use the teacher demos to introduce the topic or to ensure student understanding at the end of a unit. The 2 classroom kits provide thorough practical lab experiences. Using all 3 saves you time and money!

Carolina® Chemistry Topic Bundles

Bundle	Kits Included in Bundle	Topics	Item No.	Each
Acids, Bases, and pH	Carolina Chemonstrations®: Rainbow Indicators Carolina ChemKits®: Understanding pH Measurement Carolina ChemKits®: Exploring Acids and Bases	pH indicators, fundamental properties of acids and bases, titration	▲ ³ 840862	\$252.00
Atomic Theory	Carolina Chemonstrations®: Luminol Light-Up Inquiries in Science®: Reconstructing Atomic Theory Economy Atomic Model Class Set	Chemiluminescence, atomic structures, electron configuration, electron energy levels, atomic theory	▲ ³ 840866	\$263.00
Chemical Reactions	Carolina Chemonstrations®: Metal Activity Series Carolina ChemKits®: Types of Chemical Reactions Carolina ChemKits®: Mystery Chemical Reactions	Activity series, reaction types, balancing equations, predicting products, identifying unknowns, evidence of reaction	▲ ³ 840868	\$192.50
Equilibrium	Carolina Chemonstrations®: Under Pressure Carolina ChemKits®: Chemical Equilibrium and Le Châtelier's Principle Inquiries in Science®: Attaining Equilibrium	Equilibrium, kinetics, reaction rates, reaction types, Le Châtelier's principle, chemical equilibrium	▲ ³ 840872	\$343.05
Gas Laws	Carolina Chemonstrations®: Gas Laws Carolina ChemKits®: Combined Gas Laws Carolina ChemKits®: Molar Volume of a Gas	Gay-Lussac's, Avogadro's, Boyle's, Charles's, and Dalton's gas laws; molar volume of hydrogen gas; ideal gas law	▲ ³ 840860	\$172.00
Stoichiometry	Carolina Chemonstrations®: Balloon Stoichiometry Carolina ChemKits®: Introduction to Stoichiometry Carolina ChemKits®: Balancing Chemical Equations	Limiting and excess reagents, balanced chemical equations, percent yield, percent error, law of conservation of mass	840864	\$164.50
Thermochemistry	Hot Demonstrations with Flameless Ration Heaters Kit Carolina ChemKits®: Energy in Chemical Reactions Inquiries in Science®: Examining Thermochemistry Kit	Thermochemical equations, exothermic and endothermic reactions, enthalpy, calorimetry, heat of solution, heat vs. temperature, heat capacity, heat trans	⚠ ³ 840870 fer	\$174.00



840866 Carolina Chemistry Topic Bundles: Atomic Theory



For more information (such as detailed descriptions, kit components, and needed but not supplied items) about the Carolina Chemonstrations® kits, Carolina ChemKits®, and Inquiries in Science® kits featured in these topic bundles, visit Carolina.com.



840870 Carolina Chemistry Topic Bundles: Thermochemistry

American Chemical Society

Chemistry

American Chemical Society

These kits are part of a series of activities, developed by the American Chemical Society through grants from the National Science Foundation and National Institutes of Health, for grades 4-8. Each kit provides a backstory to connect students with real-life scenarios from around the world.



841081 American Chemical Society: Chemistry-Investigating Your World Lab Activity Kit

American Chemical Society: Chemistry—Investigating Your World Lab Activity Kit A

Grades 4-8. Students take an imaginary trip around the globe to meet 4 scientists and get a sense of the wide variety of ways that chemistry is used to benefit mankind. Each scientist introduces one of 4 types of evidence for chemical change. The activities include the production of a gas, chemistry and color change, formation of a precipitate, and temperature change. Materials are suitable for 32 students working in groups of 4. Visit Carolina.com for a complete list of kit materials. /!\ WARNING: CHOKING HAZARD—Children under 8 vrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

841081 Per kit \$152.95



841085 American Chemical Society: Glow It Up Lab Activity Kit

American Chemical Society: Glow It Up Lab Activity Kit

Grades 4-8. Students imagine that they are trapped in the dark basement of a science museum. They are warned not to use a flashlight or cell phone because, due to a methane leak, a tiny spark could start a fire. In order to provide light without heat, students explore the variables in a chemiluminescent chemical reaction to find the combination that results in the brightest and longest-lasting light. They first observe a demonstration that uses a luminol mixture and oxidizer to start a chemical reaction that glows. They also add a fluorescent highlighter dye to the reaction to see how this affects the brightness and duration of the glow. The lab activity concludes by describing how light sticks should be used to guide the trapped students to safety. The kit contains enough materials for multiple classes of 32 students and a teacher's guide, which includes student activity sheets. Visit Carolina.com for a complete list of kit materials.

841085 Per kit \$76.25



841083 American Chemical Society: Chemistry's Colorful Clue Lab Activity Kit

American Chemical Society: Chemistry's Colorful Clue **Lab Activity Kit**

Grades 4-8. Students encounter a mystery where the water in a monitored stream has become acidic. In order to help solve the mystery, the lessons in this lab explore the color changes of a pH indicator solution. After using the indicator to classify different substances as either acidic, basic, or neutral, the students then piece together what happened to the stream. Upon completion of this activity, students generate carbon dioxide gas through a chemical reaction and determine if the carbon dioxide may have affected the pH of a local stream. The kit contains enough materials for multiple classes of 32 students and a teacher's guide, which includes student activity sheets. Visit Carolina.com for a complete list of kit materials.

841083 Per kit \$60.00



841087 American Chemical Society: CO2 to the Rescue Lab Activity Kit

American Chemical Society: CO, to the Rescue Lab **Activity Kit**

Grades 4-8. The lesson opens with a story about a smartphone plunging into a lake. Students are asked to create a way to make the phone float in water. At the beginning of the lab, the teacher activates a self-inflating balloon, which inflates with carbon dioxide gas as chemicals inside the balloon react with one another. Students conduct a pair of chemical reactions to determine which of 2 acids reacts best with baking soda to produce the most carbon dioxide gas. The selected acid is reacted with varying amounts of baking soda to determine what combination yields maximum gas production. For the challenge, students are tasked with designing an efficient rescue system, using the least amounts of chemical reactants, to inflate a resealable bag that will both float and support a model clay smartphone. This kit contains enough materials to support multiple classes of 32 students. Visit Carolina.com for a complete list of kit materials. /!\ WARNING: CHOKING HAZ-ARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

841087 Per kit \$116.95

<u>
↑

³ California Proposition 65</u>

Chemistry Demonstration Kits

Carolina Chemonstrations®

Chemical demos made easy

Chemical demonstrations are a fantastic way to introduce the wonderful world of chemistry. Demonstrations foster engagement as students are encouraged to develop explanations for their observations.

Carolina Chemonstrations® kits are designed to be used by the teacher in front of a class or small group where students become active participants. Before the demo, students draw upon prior knowledge to make predictions. After the demo, students demonstrate an understanding of their macro-level observations with particle level models or illustrations and answer big picture questions.

Every Carolina Chemonstrations® kit includes:

- Detailed preparation and performance instructions
- Materials to perform the demo 4 or 5 times
- Precisely measured chemicals to reduce prep time

Materials that are or that contain hazardous chemicals may be restricted to institutional or business sales only.

We're adding new Carolina Chemonstrations® all the time!

To find additional kits, go to Carolina.com and type "Chemonstrations" in the search field.



Demonstration Kits

Carolina is proud to offer FREE digital teacher's manuals as an added benefit to our proprietary kits. Visit Carolina.com and type "digital teacher's manual" in the search field to learn more.



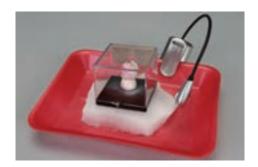
840327 Carolina Chemonstrations: Polyurethane Foam Kit (in use)



840338 Carolina Chemonstrations: Isolating the Elements Kit (in use; test tube rack not included)



840329 Carolina Chemonstrations: Whoosh Bottle Kit (in use)



840374 Carolina Chemonstrations: Observing Ionizing Radiation Using a Cloud Chamber Kit (in use; dry ice not included)



840366 Carolina Chemonstrations: Balloon Stoichiometry Kit (in use; flasks not included)

Demonstration Kits



840366 Balloon Stoichiometry Kit (in use)



840366 Balloon Stoichiometry Kit

Balloon Stoichiometry Kit

Bring some clarity to the topic of limiting and excess reagents with this demonstration that's both quick and memorable. Students watch balloons fill with carbon dioxide gas from the reaction of sodium bicarbonate and hydrochloric acid. The acid and base will vary between limiting and excess in 3 flasks, resulting in differently sized balloons and a pH indicator color change in the solution. Students will write a balanced equation for the reaction occurring in each flask and identify limiting reagents based on the mole ratios of reactants and products. This demo requires approximately 20 minutes, and materials support 4 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

840366 Per kit \$31.50



Chemistry

840321 Blue Bottle Kit (above); in use (inset) (bottles with lids not included)

Blue Bottle Kit

Introduce your students to redox indicators and astonish them with a display of reaction kinetics by performing the classic blue bottle demonstration. Students discuss real-world and career applications of indicators and reaction kinetics, then draw upon prior knowledge to predict what will happen when you combine and shake a solution of dextrose, potassium hydroxide, and methylene blue. This demonstration requires approximately 5 minutes, and the kit contains materials to prepare 5 bottles. Each bottle can be used to perform the demonstration multiple times. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840321 Per kit \$46.75





840307 Like a Salt to a Flame Kit (in use; burner not included)

Like a Salt to a Flame Kit

Generate excitement in your classroom and strengthen students' understanding of atomic structure and emission spectroscopy. Students observe the flames of 6 metal salts in this colorful demonstration, then relate flame test colors to concepts of electron excitation and quantum theory. This demonstration requires approximately 15 minutes, and materials support 10 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840307 Per kit \$47.95



840307 Like a Salt to a Flame Kit

Demonstration Kits



840360 Carolina Chemonstrations: Luminol Light-Up Kit

Carolina Chemonstrations®: Luminol Light-Up Kit

Shed some (blue) light on chemiluminescence, and bring visual learning to atomic theory. Amaze your students when you mix a dry luminol mixture with water to produce a beautiful blue glow. A second demonstration simulates presumptive blood testing. The demo helps students grasp concepts such as redox reactions, electromagnetic radiation, and the conservation of energy. This demonstration requires approximately 15 minutes, and materials support 5 performances.

840360 Per kit \$46.00



840378 Beaker Freezer Kit

Beaker Freezer Kit A

Don't leave endothermic reactions out in the cold—showcase them with this impressive demonstration! Students observe how a reaction between 2 solid compounds absorbs heat from its surroundings and freezes a beaker to a wooden block. Students participate in the demo by making predictions based on prior knowledge and creating particulate-level representations of the reaction. This demo requires approximately 10 minutes of classroom time, and materials support 6 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Sold only to schools and businesses.

840378 Per kit \$49.30



Carolina Chemonstrations®: Nylon Synthesis Kit

Observe the polymerization of nylon with this fun and easy demonstration. The nylon rope trick engages students in organic chemistry and opens the door to a discussion about polymer synthesis, properties, and its many applications. This demonstration requires approximately 15 minutes, and materials support 5 performances. **Note:** *Sold only to schools and businesses.*

840339 Per kit \$34.00

Demonstration Kits

Chemistry



840315 Carolina Chemonstrations: Elephant Toothpaste Kit



840357 Energy Transformations with Irradiated Salt Kit

Carolina Chemonstrations®: Elephant Toothpaste Kit

Enrich your students' study of kinetics, catalysts, and decomposition reactions with this unique take on a classic demonstration. Students have a front row seat to spectacular foaming action from the decomposition of hydrogen peroxide. The Elephant Toothpaste demonstration dramatically illustrates the effect of a catalyst on reaction kinetics and reinforces the importance of catalysts in living and physical systems. Materials support 5 performances and include FREE 1-year access to digital resources that support 3-dimensional instruction.

840315 Per kit \$44.80

Energy Transformations with Irradiated Salt Kit

Spark your students' interest in atomic theory and structure. Students observe thermoluminescence from irradiated salts on a hot plate and learn about excited states of electrons. Two different irradiated salts are included to allow students to compare released energy. This demonstration requires approximately 10 minutes, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840357 Per kit \$55.00





840374 Observing Ionizing Radiation Using a Cloud Chamber Kit (left); in use (above) (dry ice not included)

Observing Ionizing Radiation Using a Cloud Chamber Kit

Expand your nuclear chemistry demos beyond simulations with this unique cloud chamber activity. Students observe the contrails formed as ionizing radiation travels through a cooled, supersaturated vapor. They illustrate and explain what is happening in the cloud chamber on a particulate level while learning about nuclear processes and nuclear equations. Students are challenged to connect their observations with the occurrences and uses of radioactive isotopes in the world. This demonstration requires approximately 20 minutes of classroom time, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840374 Per kit \$57.00

Chemistry

Demonstration Kits



840364 Under Pressure Kit

Under Pressure Kit A²

Bring a dynamic example of Le Châtelier's principle to your classroom with this teacher-led, student-engaged demonstration kit. Students observe a shift in the solubility of carbon dioxide in seltzer water in action as pressure is applied to the system. A pH indicator gives visual clues to the equilibrium change. This demonstration requires approximately 10 minutes, and materials support 5 performances. Includes digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840364 Per kit \$19.00



Carolina Chemonstrations®: Reaction Types Kit A

Demonstrate 5 different reaction types with this highly visual, multifaceted kit. Students learn how to predict the products for synthesis, decomposition, single-replacement, double-replacement, and combustion reactions, then write balanced chemical equations for each. This demo is great for introducing or reviewing chemical reactions and reaction types. Materials support 5 performances of each of the 5 demonstrations.

840341 Per kit \$40.25

1 California Proposition 65 MARNING: Cancer – www.P65Warnings.ca.gov

<u>↑²</u> California Proposition 65

MARNING: Reproductive Harm – www.P65Warnings.ca.gov



Carolina Chemonstrations®: Carbon Snake Kit A

Dehydrating sugar using concentrated sulfuric acid results in an amazing display of elemental carbon "snaking" out of a beaker. This demonstration is a great addition to discussions about chemical versus physical changes, evidence of chemical reactions, exothermic reactions, dehydration reactions, decomposition reactions, and carbohydrate structure. Demonstration requires approximately 10 minutes, and materials support 5 performances.

840376 Per kit \$57.95



Carolina Chemonstrations®: Whoosh Bottle Kit A

Energize your class with this stimulating combustion reaction. The flames and explosive boom mesmerize students as isopropyl alcohol reacts with oxygen to produce water and carbon dioxide in a 3-gal, break-resistant polycarbonate bottle. Materials support 8 performances. Note: A polycarbonate safety shield (item #646350) should be used for this demonstration.

840329 Per kit \$32.00



Demonstration Kits

Chemistry



Metal Activity Series Kit

Students use a series of experiments and logic exercises to build a mini activity series. After observing which metals replace ions of another metal compound in solution, students write balanced equations for each single-replacement reaction that occurs and determine a relative ranking of the metals. This kit is a great introduction or reinforcement of reaction types, redox reactions, and the metal activity series. Materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840319 Per kit \$44.70



Iodine Clock Reaction Kit

Timing is everything in this engaging demonstration of the classic iodine clock reaction! Students observe how temperature, concentration, and the addition of a catalyst affect the rate at which a colorless solution changes to a deep blue color. This demonstration requires approximately 15 minutes of prep time and 30 minutes of classroom time. Materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840325 Per kit \$41.00



840333 Carolina Chemonstrations: Rainbow Indicators Kit

Carolina Chemonstrations®: Rainbow Indicators Kit A3

Here's a colorful introduction to pH indicators for your chemistry class. Amaze your students as you add colorless solutions to seemingly empty beakers and produce a rainbow of colors. It's a mesmerizing way to start your school year and a must during an acid/base unit. This demonstration requires approximately 5 minutes of classroom time. Materials support 5 performances.

840333 Per kit \$57.00



Carolina Chemonstrations®: Polyurethane Foam Kit

Initiate interest in polymer chemistry with this dramatic polymerization reaction, which forms a foam that hardens right before students' eyes. The demonstration requires approximately 15 minutes, and materials support 10 performances. Note: Sold only to schools and businesses.

840327 Per kit \$58.95



Demonstration Kits



820107 Crystal Garden Kit (above) and in use (right) (test tube rack not included)

Crystal Garden Kit

Grades 9–12. A garden in chemistry class? Yes! Thrill your students with colorful stalagmite-like columns of silicate precipitates forming in test tubes. Students observe how transition metal salts dissolve in an aqueous solution of sodium silicate, write balanced equations for the metallic silicates formed, and see how the osmotic pressure of water helps to create and lengthen the silicate columns. This is a great demo for lessons on solubility, reaction types, and osmosis. This demonstration requires 15 minutes, and kit materials support 5 gardens. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

820107 Per kit \$49.95



840303 Super Water-Absorbent Polymers Kit (above); in use (upper right)

Super Water-Absorbent Polymers Kit

Students make predictions about the behavior of 2 water-absorbent polymers, sodium polyacrylate and polyacrylamide, then observe their extraordinary absorbency. Next, they illustrate how the polymers form hydrogen bonds with water and brainstorm practical applications. This demonstration requires approximately 25 minutes, and materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840303 Per kit \$35.00



840382 Carolina Chemonstrations: Reaction in a Bag Kit

Carolina Chemonstrations®: Reaction in a Bag Kit

Grades 7–12. In this classic introduction to scientific inquiry, students observe reactions between 4 compounds, observe simultaneous chemical and physical changes, and identify which reactions are responsible for each change. After the demo, students design experiments to identify which reactions are responsible for each change. This demonstration requires approximately 15 minutes, and materials support 5 performances.

840382 Per kit \$35.10



Lost Volume Kit A2

Delve into the law of conservation of mass with this discrepant event-based demonstration, during which 2 liquids are mixed and the volume decreases. As students develop their particle-level explanations, they soon discover why the volume, unlike mass, is not conserved. This demonstration is recommended for use with the AP® Chemistry unit on intermolecular forces and properties. Requires approximately 10 minutes, and materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840305 Per kit \$22.25

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, this product.

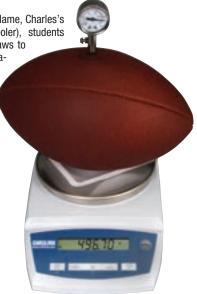
Demonstration Kits

Gas Laws Kit 🕰

In this 4-demonstration kit (which includes mystery flame, Charles's fountain, ideal sports ball, and Gay-Lussac's cooler), students observe the behavior of gases and apply the gas laws to explain their observations. Performing all demonstrations together requires approximately 40 minutes, but each may be performed individually in less time. Kit materials support 5 performances each of the 4 demonstrations and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840375 Per kit \$68.95

Carolina is proud to offer FREE digital teacher's manuals as an added benefit to our proprietary kits. Visit Carolina.com and type "digital teacher's manual" in the search field to learn more.





Chemistry

840375 Gas Laws Kit (above) and in use (left) (football and electronic balance not included)

Water Electrolysis

Carolina Chemonstrations®: Water Electrolysis Kit <u>∧</u>³

Whet your students' appetite for knowledge about oxidation-reduction reactions, electrochemistry, pH, chemical bonding, and stoichiometry. Students take a deepter look at the flow of electrons through an electrical circuit to help break down and explain the concepts behind this colorful reaction activ-

ity. The demonstration requires approximately 15 minutes, and materials support 5 performances.

840301 Per kit \$28.25





840301 Carolina Chemonstrations: Water Electrolysis Kit (above); in use (left) (petri dish not included)



Carolina Chemonstrations®: Isolating the Elements Kit ▲³

Most elements are not found in nature in their free, or elemental, forms. They usually combine with other elements to form compounds. This series of 4 demonstrations isolates 4 elements (copper, oxygen, carbon, and hydrogen) from compounds and illustrates multiple reaction types. Materials support 5 performances of the 4 demonstrations.

840338 Per kit \$56.50

840338 Carolina Chemonstrations: Isolating the Elements Kit (*right*); in use (*left*) (ring stand and clamp not included)



Chemistry General Chemistry Lab Kits

General Chemistry Lab Kits

General chemistry lab kits are hands-on kits designed for students working in pairs or small groups. Carolina offers a wide selection of chemistry kits on topics ranging from stoichiometry to organic chemistry. To learn more about which type of Carolina chemistry kit is right for you, see pages 880–881.

Acids, Bases, & pH



840333 Carolina Chemonstrations: Rainbow Indicators Kit

Carolina Chemonstrations®: Rainbow Indicators Kit A3

Here's a colorful introduction to pH indicators for your chemistry class. Amaze your students as you add colorless solutions to seemingly empty beakers and produce a rainbow of colors. It's a mesmerizing way to start your school year and a must during an acid/base unit. This demonstration requires approximately 5 minutes of classroom time. Materials support 5 performances.

840333 Per kit \$57.00



840667 Carolina ChemKits: Understanding pH Measurement

Carolina ChemKits®: Understanding pH Measurement 11

In this inquiry-based activity, students learn about pH and the use of red and blue litmus paper, universal pH paper, and common liquid indicators, such as methyl red, bromthymol blue, and phenolphthalein. Students determine the pH of known and unknown acids and bases, measure the pH of various household products, and demonstrate that carbon dioxide in water is acidic. The kit contains numerous extension activities, including how to calculate the $\rm K_a$ of a weak acid, how to measure accurately the pH of rain, and how to make litmus paper. Materials support 10 groups of 3.

1 California Proposition 65

840667 Per kit \$84.95



840665 Carolina ChemKits: Exploring Acids and Bases

Carolina ChemKits®: Exploring Acids and Bases A

Explore the fundamental properties of acids and bases with this inquiry-based investigation. Students use indicators to test for acids and bases, combine acids with metals and carbonates to produce hydrogen and carbon dioxide gas, and titrate vinegar to determine the molar concentration of acetic acid. They perform the classic test for hydrogen gas using a burning splint. Materials support 10 groups of 3.

840665 Per kit \$132.75

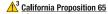


251214 Discovering Acids and Bases Kit

Discovering Acids and Bases Kit

Students explore the characteristics of acids and bases, relate pH values to the concentration of hydronium and hydroxide ions, and conduct neutralization reactions. These explorations gain a real-life connection when students next examine household substances. In the final activity, they design experiments to test vinegar samples for compliance with FDA standards. **Kit** includes lab supplies (enough for 30 students working in groups of 3) plus teacher's manual.

¹ 251214 Kit Each \$208.21 1 251264 Kit Refill Each \$192.27





General Chemistry Lab Kits Atomic Structure & Theory



840232 Carolina ChemKits: Atomic Theory

Carolina ChemKits®: Atomic Theory

In this experiment, students simulate the experiments of J.J. Thomson, Ernest Rutherford, and James Chadwick to understand the early model of the atom.

- 1st—Students observe the interaction of charged objects and use an object of known charge to determine the unknown charge of an object.
- 2nd—Students shoot marbles at a concealed object and use the trajectory to determine its shape.
- 3rd—Students attempt to account for the additional mass of a sealed container, otherwise identical to their unsealed container.

These activities review the major ideas behind the experiments that determined the early structure of the atom. Materials support 8 groups of 4.

840232 Per kit \$148.00



840242 Economy Atomic Model Individual Set

Economy Atomic Model Set

Students learn about atomic theory hands-on with this versatile and affordable model set. Easily build and evaluate elements, isotopes, and ions up to atomic number 18—all while reinforcing concepts from Bohr's atomic model. Teacher's manual includes complete instructions, useful background information, activity ideas, and reproducible student sheets. **Individual Set** includes materials for 1 atomic model. **Class Set** contains materials for 16 atomic models.

840242 Individual Set Each **\$27.00 840243** Class Set Each **\$99.95**



840262 Carolina ChemKits: Smartphone Spectroscopy

Carolina ChemKits®: Smartphone Spectroscopy

- Engage students by using a highly familiar device
- Teach how a spectrophotometer works before using a more delicate instrument

Connect students and science through their smartphones while introducing them to visible light spectroscopy fundamentals. In this lab, students measure the transmittance of light through standard solutions of Red Dye No. 40 with a smartphone, a color analyzer application, the Carolina® Spectroscopy Chamber (item #653355), and a spectrophotometry technique. The spectroscopy chamber, like its traditional counterpart, is designed to allow light to pass through a sample in a clear, colorless tube. The smartphone application analyzes the light. Students then convert that collected data to absorbance or transmittance and create Beer-Lambert calibration curves to determine the concentration of food dye in popular powdered drink mixes. Works with both Android® and iOS® devices. Use the color analyzer app of your choice; no special optical glass tubes required. Materials support 10 groups of 3 and include FREE 1-year access to digital resources that support 3-dimensional instruction. Visit Carolina.com for a complete list of kit materials.

840262 Each \$90.60



840838 Carolina ChemKits: Molecular Modeling

Carolina ChemKits®: Molecular Modeling

Bring visual and tactile learning to molecular structure and geometry with this 4-activity kit. Students draw Lewis dot structures, model electron domains to visualize a molecule's 3-D shape, construct 3-D molecular models, and study how dipole moment indicates molecular polarity. Materials support 8 groups of 4 and include 8 sets of durable plastic atomic models. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

840838 Per kit \$123.40

See more atomic structure and theory kits on the next page.

VSEPR Modeling

841178 VSEPR Modeling Kit

VSEPR Modeling Kit

Explore how molecules with the same number of atoms can have different molecular geometries. Students learn a process to successfully draw Lewis dot structures for elements, then extend that knowledge to write the structures for covalent compounds. Using durable, easy-to-use molecular models, students build 3-dimensional representations to help them better visualize bond angles, lone pair placement, and geometric shapes. The reusable materials are sufficient for 16 student groups; visit Carolina.com for a complete list. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

841178 Per kit \$114.00

Biochemistry



841172P Carolina ChemKits: Introduction to Enzymes (with perishables)

Carolina ChemKits[®]: Introduction to Enzymes

Grade 9-College. Explore the biochemical function of enzymes with this 4-experiment kit. Students study pepsin, invertase, and amylase to understand their effects on the reactions they catalyze. An optional extension activity uses a spectrophotometer to quantify experimental results. Kit materials support 8 groups of 2 to 4 students each and include free 1-year access to digital resources that support 3-dimensional instruction. Kit activities can be completed in 4 lab periods. Note: Order the kit with the perishable materials included or with a voucher to request the perishable materials later at your convenience. Contact us or return the voucher to request delivery of perishables.

841172 Kit (with voucher) Each \$188.00 Each \$176.00 841172P Kit (with perishables)

MARNING: Reproductive Harm – www.P65Warnings.ca.gov

General Chemistry Lab Kits



251219 Reconstructing Atomic Theory Kit

Reconstructing Atomic Theory Kit A

Students "time travel" through history to simulate past experiments and explore how critical discoveries shaped and modified modern atomic theory. First, they connect their observations of a flame test to the movement of electrons between orbitals. Next, students use models to describe atomic structure, learn how to use different atomic representations, and practice writing the electron configuration of an element using information from the periodic table. Finally, they apply their knowledge of atomic models to create detailed descriptions of a representation of an atom.

Each \$195.48 Kit Refill 251269 Each \$69.38



841152 Carolina ChemKits: Introduction to Biochemistry

Carolina ChemKits®: Introduction to Biochemistry A

Grades 9-12. Introduce students to the chemical processes within living organisms and perform some of the most common biochemical tests to identify starches. sugars, proteins, and lipids in both standard and sample solutions. They use their observations of these tests on the sample solutions of bananas at various stages of ripening and of diastase malt to then perform their own biochemical reaction and test the results. Kit activities require approximately 50 minutes. Materials support 10 groups of 3.

841152 Per kit \$91.95





Chemistry



841142 Carolina ChemKits: Qualitative Analysis of Proteins and Amino Acids

Carolina ChemKits[®]: Qualitative Analysis of Proteins and Amino Acids ^{▲³}

In this experiment, students learn the common chemical structure of amino acids, how amino acids differ in chemical structure, and how amino acids form proteins. Students use chemical tests to classify 5 unknown substances as amino acids or proteins, then identify the amino acid in the unknown. Students investigate the optimum conditions for protein digestion in the human body and determine the amount of protein in milk samples they provide. Materials support 8 groups of 4.

841142 Per kit \$187.55



841131 Carolina ChemKits: Introduction to Properties of Lipids

Carolina ChemKits®: Introduction to Properties of Lipids ⚠3

Students observe the interesting properties of lipids, including the famous grease spot test, solubility, Sudan stain test, soap synthesis, and emulsification. They then digest lipids chemically and determine the necessary components for lipid digestion in the body. Materials support 10 groups of 3.

841131 Per kit \$122.85

Chemical Bonding & Formulas



Chemical Bonding Kit A

In this guided investigation, students learn the difference between ionic, covalent, and polar covalent bonds and use electronegativity data to classify bonds by type. Students also learn to draw Lewis structures and test water solubility, melting point, and conductivity of 6 compounds to determine whether their bonds are covalent or ionic. Materials are sufficient for 8 groups of 4 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840835 Per kit \$92.25



841182 Patterns in Electrons and Chemical Bonding Kit

Patterns in Electrons and Chemical Bonding Kit

Go beyond the traditional pen-and-paper experience to help students explore electron configuration and ionic bonding as reflected in patterns found in the periodic table. Using the provided manipulatives, students model how electrons fill the sublevels (part 1) and how ions form compounds (part 2). These hands-on activities challenge students to think about chemical bonding on a particulate level while reinforcing the arrangement of the periodic table. Materials support 15 student groups; visit Carolina.com for a complete list. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

841182 Per kit \$75.00

See more chemical bonding and formulas kits on the next page.



905



840660 Mystery Chemical Reactions Kit

Mystery Chemical Reactions Kit A

Introduce students to a method of identifying unknown chemicals by their reaction types. Students investigate 45 different chemical reactions in this guided-inquiry microscale chemistry experiment. Using a unique reaction mat, students look for signs of chemical reaction, including formation of a precipitate, formation of a gas, and changes in color. They then use their data to identify 8 unknown chemicals, identifying the reactions' products, and practice writing chemical formulas from compound names. Microscale procedure makes setup and cleanup easy. Kit materials support 1 class working in 10 groups of 3 and include digital resources. Value Kit includes materials for 4 to 5 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840660 Kit Each **\$85.50 840661** Value Kit Each **\$200.00**

General Chemistry Lab Kits



840968 Carolina ChemKits: Elements, Compounds, and Mixtures

Carolina ChemKits®: Elements, Compounds, and Mixtures ⚠¹

Students separate mixtures using physical techniques, identify components of these mixtures, and determine whether a change is chemical or physical. In addition, they identify the signs that indicate a chemical change has occurred. Kit provides practice with chromatography, use of the Tyndall effect, calculation of percent error, use of flow charts, and even an activity to differentiate between solutions, colloids, and suspensions. Materials support 10 groups of 3 and include free 1-year access to digital resources that support 3-dimensional instruction.

840968 Per kit \$102.75

Inquiries in Science®: Bonding Chemically Kit

Students explore the properties of chemical bonds. As they analyze the results of their investigations and compare the Lewis structure of each type of bond, they learn about the basic properties of ionic and covalent bonds. Students then use this knowledge to design and conduct their own experiment to determine the type of bonds present in 2 unknown substances. Materials support 10 groups of 3.

△3 251204 Kit Each \$163.05 251254 Kit Refill Each \$64.44



251204 Inquiries in Science: Bonding Chemically Kit

Chemical Reactions & Equations

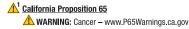
Types of Chemical Reactions Kit A²

Students perform 5 types of chemical reactions: synthesis, decomposition, single-replacement, double-replacement, and combustion. For each reaction, students observe evidence of a chemical change, predict the yielded product, and write the balanced chemical equation. For reactions that produce hydrogen, oxygen, or carbon dioxide, students use a burning or glowing splint to identify the gas. In the final assessment, students classify a list of reactions by type, predict the products, and balance the chemical equations. Materials support 15 pairs and include free 1-year access to digital resources that support 3-dimensional instruction.

840740 Per kit \$84.00



840740 Types of Chemical Reactions Kit







Chemistry



840656 Balancing Chemical Equations Kit (above); in use (upper right)



Balancing Chemical Equations Kit

Introduce and reinforce balancing chemical equations with this model-based kit. Students use colorful manipulatives and a unique mat work surface to understand the law of conservation of mass and to visualize the number of atoms participating in each side of a chemical reaction. This activity also helps students understand the difference between coefficients and subscripts in chemical equations. The **Expansion Pack** extends the number and variety of equations students can balance using the **Kit**, enabling learners to gain practice with more challenging reactions. Kit and Expansion Pack combined provide fully reusable materials for 10 groups, pairs, or individual students. Both include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840656 Kit Each **\$65.95 840675** Expansion Pack Each **\$37.50**



Bright Demonstrations with Glow Sticks Kit

Brighten up your chemistry classroom and encourage critical thinking skills with this 5-activity demonstration kit. Students observe and learn about redox reactions, exothermic reactions, fluorescence, chemiluminescence, and reaction rates. All 5 demonstrations can be performed in approximately 20 minutes. Materials support 5 demonstrations.

840331 Per kit \$41.50



Light Stick

Introduce your students to chemiluminescence with these fun, colorful light sticks. Glow lasts up to 6 hours. Assorted colors. Pack of 3.

840496 Per pack \$14.45

Chromatography Kits & Accessories

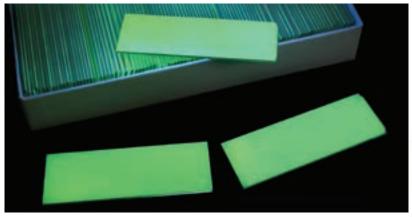


688950 Carolina ChemKits: Introduction to Thin-Layer Chromatography

Carolina ChemKits®: Introduction to Thin-Layer Chromatography

Grades 9–12. Teach your students the fundamentals of thin-layer chromatography with this classic experiment in separation science. Students separate plant pigments and identify compounds based on $R_{\rm f}$ values they calculate. The activities in this lab require approximately 90 minutes of classroom time. **Kit** materials support 1 class of 10 groups of 3. **Value Kit** materials support 4 classes!

△¹ 688950	Kit	Each	\$88.50
1 688951	Value Kit	Each	\$192.95
^ ² 688957	Leaf Extract Refill (2-mL vial)	Each	\$25.45



689452 Silica Gel Thin-Layer Chromatography Plates; fluorescence indicator shows green under short-wave light

Silica Gel Thin-Layer Chromatography Plates

Ready-to-use, pre-coated plates for thin-layer chromatography. Plates contain fluorescence indicator activated at 254 nm, perfect for use in forensics activities. Size, 2.5×7.5 cm.

Item No.	Description	Size	Layer Thickness	Qty	Each
689452	Plastic-Backed Plates	$2.5\times7.5~\text{cm}$	0.20 mm	Box of 200	\$259.00
689456	Plastic-Backed Plates	$2.5\times7.5~\text{cm}$	0.20 mm	Box of 50	\$74.00

Chromatography Paper

Available in 4 sizes.

689105	$1^{1/2}$ " × 300-ft Roll	Each	\$62.00
689107	1" × 600-ft Roll	Each	\$74.00
689110	11-cm-sq Sheets	Box of 100	\$38.25
689114	15 × 2-cm Strips	Pack of 100	\$4.95



689105 Chromatography Paper, Roll

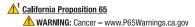


840640 Carolina ChemKits: Thin-Layer Chromatography of Amino Acids

Carolina ChemKits®: Thin-Layer Chromatography of Amino Acids

Students practice their thin-layer chromatography technique on 3 known amino acid samples, reinforcing theory and technique. They calculate the retardation factor for each amino acid and make conclusions about the structure and properties of each amino acid based on its $\rm R_t$ value. Students then separate an unknown mixture of amino acids and use their previous data and observations to identify the amino acids present in the sample. **Kit** materials support 10 student groups. **Value Kit** includes materials to perform the activity 4 times with 10 groups.

840640 Kit Each **\$123.00 840641** Value Kit Each **\$295.00**







840642 Carolina ChemKits: Introduction to Paper Chromatography

Carolina ChemKits®: Introduction to Paper Chromatography A

In this kit students are introduced to paper chromatography as a means for separating a mixture. They separate the components of a universal pH indicator to gain practice in chromatography technique. Then students separate the components of wet-erase markers and calculate the retardation factors. They use this data to understand how chromatography could identify unknown components of a mixture. This activity requires approximately 70 minutes of classroom time, which can easily be divided between 2 class periods. Kit materials support 1 class of 10 groups. Value Kit contains materials for 4 classes!

840642 Each \$55.50 Kit 840643 Value Kit Each \$125.00

Colligative Properties

Modeling Phase Change Kit ▲

Students create, analyze, and interpret thermal curve models and use the colligative property freezing-point depression to determine sample purity and the identity of an unknown. They connect prior knowledge about states of matter with intermolecular forces to better understand what happens on a molecular level during phase changes. General lab equipment, including forty-five 100-mL beakers, is needed but not included. Materials support 15 student pairs and include digital resources. Sup-



<u>↑¹ California Proposition 65</u>

MARNING: Cancer – www.P65Warnings.ca.gov

Conservation of Mass



Carolina ChemKits®: Law of Conservation of Mass

Students explore the law of conservation of mass through 5 separate chemical reactions. For each reaction, students mass the reactants and products and cite evidence of a chemical change. They determine whether mass is conserved and account for any changes in mass. Kit supports 15 pairs.

840713 Per kit \$86.50



251211 Observing Colligative Properties Kit (above); in use (right) (hot plate, beaker, thermometer, and stopwatch not included)

Inquiries in Science®: Observing **Colligative Properties Kit**

Students first determine how freezing points of solvents can be depressed by the addition of nonvolatile solutes. They then experimentally determine the molar mass of an unknown compound and design an experiment to determine the boiling point constant for water. Kit supports 10 groups of 3.

251211 Kit Each \$179.43 251261 Kit Refill Each \$132.81



General Chemistry Lab Kits

Carolina ChemKits®: Ice Cream and Freezing-Point Depression

Teach freezing-point depression with this clean, simple, and easy-to-manage experiment that yields a tasty result. Students lower the freezing point of ice with salt to freeze a single serving of nondairy instant creamer. Students measure the temperature of the ice bath over time and graph their results to determine the freezing-point depression. This activity covers the nature and real-life applications of colligative properties, freezing-point constant, and the van't Hoff factor.

840890 Per kit \$39.95



840890 Carolina ChemKits: Ice Cream and Freezing-Point Depression

Electrochemistry



840705 Carolina ChemKits: Investigating the Activity Series

inouiries in science

251215 Inquiries in Science: Exploring Voltaic and Electrolytic Cells Kit

Carolina ChemKits®: Investigating the Activity Series

Grades 9–12. Why is the Statue of Liberty made of copper? Why do ships have magnesium blocks attached to their hulls? Students react metal strips of copper, iron, magnesium, and zinc with their respective salt solutions to create a metal activity series based on the results of these single-replacement reactions. Teach a variety of concepts, such as molecular versus net ionic equations and oxidation-reduction reactions. Materials support 15 pairs.

840705 Per kit \$53.50

Inquiries in Science®: Exploring Voltaic and Electrolytic Cells Kit

Students discover how metals can vary in chemical activity and use this knowledge to test combinations of metals to produce voltaic cells. They use the cell with the highest voltage output to power various electrical devices and an electrolytic cell for extracting elements and plating metals. Finally, students design experiments to investigate variables that could affect the voltage and amperage of their voltaic cell. Materials support 10 groups of 3.

△3 251215 Kit Each \$247.55 251265 Kit Refill Each \$141.33

Electrodes



757487 Electrode Set

Electrode Set

Replacement electrodes for Student Voltaic Cell Set (item #757486). Consists of 10 electrodes: 1 carbon, 1 nickel, 2 aluminum, 2 copper, 2 iron, and 2 zinc. Electrodes are about $4 \times \sqrt[3]{4}$ ".

757487 Per set **\$28.35**



Metal Strips Set

One each of the following metals: aluminum, brass, copper, steel, and zinc. Each strip measures $^3/_4 \times 5^1/_4$ ".

874850 Per set **\$11.65**

For additional supplies, see pages 810–811.

General Chemistry Lab Kits Nuclear Chemistry



840715 Radioactive Decay and Half-Life Simulations Kit

Radioactive Decay and Half-Life Simulations Kit

Grades 9–12. Strengthen students' grasp of nuclear decay and half-lives with this 3-activity kit. Students simulate radioactive decay using both multi-faced cubes and water flow. Students then perform a radioactive decay series simulation of a "newly discovered" radioisotope from an unstable nucleus to a stable nucleus. The card set for this activity allows students to mimic alpha, beta, gamma, and positron decay as their isotope forms daughter nuclei. The kit activities require approximately 2 hours of classroom time; complete the activities on separate days as needed. Materials support 10 groups of 1 to 4 students and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840715 Per kit \$76.95

Organic Chemistry



251218 Inquiries in Science: Introducing Organic Chemistry Kit

Inquiries in Science®: Introducing Organic Chemistry Kit 🔥

Students explore the chemistry of carbon using a variety of modeling methods. Based on the models created, they learn about molecular shape, stereochemistry, isomerism, and identifying different classes of organic compounds. A series of exercises helps students relate organic molecule structures to their functional applications. In the final activity, students design and conduct their own experiment to evaluate the efficiency of synthetic and natural hydrophilic and hydrophobic polymers in cleaning up an oil spill. Materials support 10 groups of 3.

251218 Kit Each **\$252.84 251268** Kit Refill Each **\$88.95**

CAR@LINA



251216 Simulating Nuclear Transformations Kit

Simulating Nuclear Transformations Kit

Students explore radioactive decay, half-life, archeological dating, radioisotopes, and how and where radiation is found in their everyday lives. They model half-life determination methods, observe the vapor trails of radiation passing through a cloud chamber, and estimate their annual radiation exposure. To cap off the learning, students practice dating an organic artifact by studying the decay of a simulated radioisotope.

251216 Kit Each **\$219.26 251266** Kit Refill Each **\$70.77**



840844 Carolina ChemKits: Aspirin Synthesis (in use)

In this classic organic chemistry synthesis lab, students make a common house-hold product, aspirin, while learning wet chemistry tests and how to extract organic starting materials from natural materials. This unique procedure is safer than other aspirin synthesis labs. The activity takes approximately 45 minutes and supports 15 student pairs.

840844 Per kit \$45.75

See more organic chemistry kits on the next page.





840733 Large Microplates

Microplates

- · Use fewer chemicals and reduce chemical waste
- Run multiple reactions on 1 plate
- · Wash less labware

Save time, money, and the environment with our microplates.

840731	Small (96-well plate)	Pack of 10	\$43.95
New! 216732	Small (96-well plate)	Pack of 50	\$198.50
New! 216733	Small (96-well plate)	Pack of 100	\$397.00
840733	Large (24-well plate)	Pack of 10	\$32.60



841119 Carolina ChemKits: Caffeine Extraction from Tea

Carolina ChemKits®: Caffeine Extraction from Tea

No toxic methylene chloride required to introduce students to organic extraction techniques with this stimulating kit. Students take advantage of the solubility differentials in various solvents to extract and isolate caffeine from tea leaves, then calculate percent recovery. Requires two 55-minute class periods to complete. Materials support 10 groups of 3.

841119 Per kit \$73.00

General Chemistry Lab Kits



840690 Chemplate Chemical Testing Plates

Chemplate®

Lab-Aids®. Molded of clear, high-impact styrene, each economical and easy-to-clean Chemplate® chemical testing plate has 12 large, numbered cavities, 1 jumbo-sized cavity, a snap-off cap, and a snap-off micro spatula. Pack of 10.

840690 Per pack \$27.80



Supporting Your 3-Dimensional Instruction

Carolina offers some of the best highvalue science kits available. The labs in these kits allow students to apply science concepts while engaging in science and engineering practices.

Kits include:

- Teacher's manual with instructional materials that support 3-dimensional learning and the NGSS
- Student guide with sense-making questions and artifacts
- Materials for the hands-on activities
- Subscription to digital resources



Find organic chemistry-focused molecular models on pages 930-932.

840164 Organic Chemistry Molecular Model Set

General Chemistry Lab Kits **Equilibrium**

Chemistry

Chemical Equilibrium and Le Châtelier's Principle Kit

Observe a dynamic equilibrium and Le Châtelier's principle in action while studying 4 different reactions. By adding acid or base, or by changing the temperature of a substance, students see how the equilibrium shifts to reactants or products. Common materials such as tea, starch, and milk of magnesia make this lab safer than most Le Châtelier activities. Materials support 10 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840709 Per kit \$75.00



840709 Chemical Equilibrium and Le Châtelier's Principle Kit



251213 Inquiries in Science: Attaining Equilibrium Kit (above); in use (right) (test tube rack not included)

Grades 9–12. Students investigate reversible reactions and equilibrium. Using this knowledge, they investigate Le Châtelier's principle, shifting equilibrium through the common ion effect and by varying the concentration of reactants. Materials support 10 groups of 3.

251213 Kit Each **\$274.14 251263** Kit Refill Each **\$199.60**

Energy Sources



Carolina ChemKits®: Production of Biodiesel A3

Students determine the quantity of reagents needed to produce a batch of biodiesel, run the reaction, and purify the finished product. The 3-step experiment fills three 50-minute classes with basic chemistry techniques and introduces students to a fascinating new fuel technology. They can even collect and use their own feedstock samples as starting material. Materials support 10 groups of 3.

841148 Per kit \$142.80

Gas Laws



840825 Carolina ChemKits: Gas Laws and Engineering Air Bags

Carolina ChemKits®: Gas Laws and Engineering Air Bags

Grades 9–12. Here's a real-world application of the ideal gas law. Students learn about current air bag technology, including environmental impact of toxic components used in air bags, then design an air bag using less hazardous substances. This kit combines chemical concepts, an understanding of chemical hazards and their environmental impact, plus principles of engineering to create a memorable learning experience. Materials support 15 pairs and include free 1-year access to digital resources that support 3-dimensional instruction.

840825 Per kit \$52.00



Carolina ChemKits®: Molar Volume of a Gas Value Kit

Students react excess hydrochloric acid with a known mass of magnesium metal, collect the resultant hydrogen gas, and use Dalton's law of partial pressures and the combined gas law to calculate an experimental molar volume. This elegant procedure allows students to repeat the procedure 3 times during a class period to collect more data points and arrive at a more precise value. The activity requires approximately 45 minutes of class time. Materials support 10 groups of 3 and include free 1-year access to digital resources that support 3-dimensional instruction.

840827 Per kit \$66.85

General Chemistry Lab Kits



Combined Gas Laws Kit

Along with the ideal gas law, students explore Avogadro's, Boyle's, Charles's, and Dalton's gas laws. They rotate through 11 activities and observe the relationships between volume, temperature, and pressure of a gas. In a separate activity, students construct a model of 1 mole of a gas at STP. Kit activities require 80 minutes. Materials support 11 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. /!\ WARNING: CHOKING HAZARD—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons. Adult supervision required. Keep uninflated balloons from children. Discard broken balloons at once.

840289 Per kit \$81.85



840412 Gas Law Apparatus

Gas Law Apparatus

Perform 12 experiments on the properties of gases, including pressure and volume (Boyle's law), pressure and temperature (Gay-Lussac's law), and pressure and moles of gas (Dalton's law of partial pressures), using this innovative apparatus. Observe firsthand that air has mass and that the buoyant force operates in all fluids. Students graph data to estimate the value of absolute zero. Luer-lock fittings and syringes make these experiments accurate, repeatable, and inexpensive.

840412 Per kit \$116.60

General Chemistry Lab Kits Oxidation-Reduction Reactions



251215 Inquiries in Science: Exploring Voltaic and Electrolytic Cells Kit



840842 Carolina ChemKits: Silver Vials

Inquiries in Science®: Exploring Voltaic and Electrolytic Cells Kit

Students discover how metals can vary in chemical activity and use this knowledge to test combinations of metals to produce voltaic cells. They use the cell with the highest voltage output to power various electrical devices and an electrolytic cell for extracting elements and plating metals. Finally, students design experiments to investigate variables that could affect the voltage and amperage of their voltaic cell. Materials support 10 groups of 3.

△3 251215 Kit Each \$247.55 251265 Kit Refill Each \$141.33

Carolina ChemKits®: Silver Vials

Students reflect on oxidation-reduction reactions while creating their own mirrored silver glass vials. In this classroom kit, dextrose reduces silver ions to metallic silver, which deposits on the inner surface of a glass vial. Materials support 30 individuals and include free 1-year access to digital resources that support 3-dimensional instruction.

840842 Per kit **\$85.95**



840830 Petri Dish Electrolysis Kit (in use)

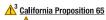
Petri Dish Electrolysis Kit A3

Explore the fundamentals of electrolysis and redox reactions with this colorful, intuitive, multipart activity. First, students observe the electrolysis of water using a universal indicator solution and connect their observations to the chemical changes occurring at each electrode. Next, they investigate the differences between electrolytes in distilled and tap water. In the final activity, students study the electrolysis of aqueous potassium iodide and extend their learning to predict the half-reactions of similar halogen-containing compounds. Materials support 15 pairs. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840830 Per kit \$65.85



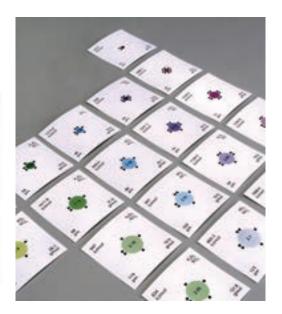
840830 Petri Dish Electrolysis Kit



Periodic Table

General Chemistry Lab Kits





Periodic Table Inquiry Kit

Students investigate periodicity by exploring and manipulating periodic table element cards. Through guided inquiry, they organize the element cards based on physical and chemical properties and identify trends for atomic radius, electronegativity, and ionization energy, then investigate periodicity. Materials support 10 groups of 3 and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840074 Per kit \$25.30



Carolina® Element Set

Large enough to examine and safe to handle, these samples provide a fascinating glimpse of the elements that no textbook or photograph can match. Each element comes with a card describing its scientific properties, commercial uses, and other interesting facts. Each set contains 1 sample of aluminum, bismuth, carbon, copper, iron, silicon, sulfur, tin, and zinc, and 1 copy of the Carolina® Chemistry Reference Chart (item #840060).

840101 Per set \$58.50

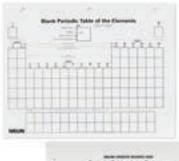
Need additional resources for teaching the periodic table?



See our wall charts on pages 940-941.



Chemistry





840065 Carolina Periodic Table Forms

Carolina® Periodic Table Forms

Grades 9–12. Students create their own periodic tables with these forms as they learn about the elements, their arrangement in the periodic table, and periodic trends. Forms measure $8^1/_2 \times 11^{"}$, are prepunched for easy storage in 3-ring binders, and are printed on heavy cardstock to last all year long. Includes 30 periodic table forms and 1 complete periodic table.

840065 Per set \$13.00



251203 Inquiries in Science: Interpreting the Periodic Table Kit

Inquiries in Science®: Interpreting the Periodic Table Kit

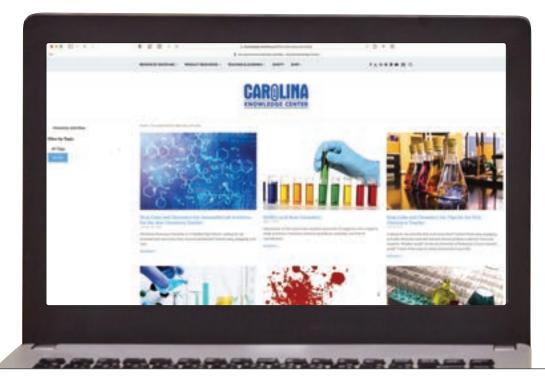
Introduce students to the basic components of the periodic table and trends found within it. By performing a collection of microscale experiments, students discover physical evidence of trends in the properties of elements. Students use this knowledge to design their own arrangement of the elements based on what they have learned. **Kit** includes lab supplies (classroom-safe elements, Periodic Table Element information cards, and other materials to support 10 groups of 3) plus teacher's manual.

251203 Kit Each **\$281.51 251253** Kit Refill Each **\$208.67**

Looking for buying guides, activities, and articles for your class?

Check out our Carolina Knowledge Center to find ideas for your next purchase or lab.

Carolina.com/knowledge



Polymers

General Chemistry Lab Kits



840303 Super Water-Absorbent Polymers Kit (above); in use (upper right)

Molecular Structure and Design Kit

Super Water-Absorbent Polymers Kit

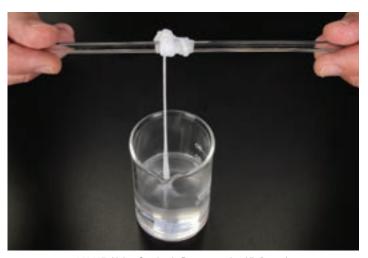
Students make predictions about the behavior of 2 water-absorbent polymers, sodium polyacrylate and polyacrylamide, then observe their extraordinary absorbency. Next, they illustrate how the polymers form hydrogen bonds with water and brainstorm practical applications. This demonstration requires approximately 25 minutes, and materials support 5 performances. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840303 Per kit \$35.00

Students design, produce, and test bioplastics to learn how the characteristics of plastics at the bulk scale are derived from their molecular structures. Combining their bioplastics analysis with prior knowledge of structural formulas, intermolecular forces, and polymers, students design a bioplastic film that meets an outlined set of requirements. Materials support 12 student groups and include digital resources; visit Carolina.com for a complete list of kit materials. For best results, the bioplastic samples should dry in an open, low-humidity area with good airflow. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: This lab requires a total of 6 days for sample drying: Investigation 1, the bioplastic preparation, requires 4 days; Investigation 2, the bioplastic

841174 Per kit \$105.95

film preparation, 2.



840467 Nylon Synthesis Demonstration Kit (in use)

840472 Polyurethane Foam Demonstration Kit (in use)

Nylon Synthesis Demonstration Kit

Combine 2 colorless solutions to create a strand of polymer that seems to have no end using Carolina's version of the enormously popular Nylon Rope Trick. Premixed solutions and complete teacher instructions make this demonstration easy and fun to use. Materials support 5 performances. Note: Sold only to schools and businesses.

840467 Per kit \$35.65

Polyurethane Foam Demonstration Kit

This classic demonstration is a perfect introduction to chemical reactions or polymers. Mix equal portions of 2 clear, colorless liquids and watch as a rigid mountain of foam forms. Resulting foam is more than 30 times the original volume of the liquids. Materials are sufficient for 10 or more demonstrations.

840472 Per kit \$62.00



882377 Polyvinyl Alcohol (4%)/Sodium Borate, Decahydrate (4%) Slime Bundle

Polyvinyl Alcohol (4%)/Sodium Borate, Decahydrate (4%) Slime Bundle

Formula: $(C_2H_4O)_n$, $Na_2B_4O_7 \bullet 10H_2O$

Notes: Sufficient PVA and borax solutions for 32 batches of slime using the formula 40 mL polyvinyl alcohol to 5 mL borax; slime can be mixed in a small cup or a resealable plastic bag

882377 1,500 mL PVA/200 mL Borax **\$38.50**



The Power of Carolina.com

Take advantage of our technology

- Our shopping list feature offers convenience and flexibility
- Do the work 1 time; you always have the ability to refer back
- Share a list with others or copy a shared list to your account
- Import a list from Excel®

Chemistry



Sodium Borate, Decahydrate

Formula: $Na_2B_4O_7 \bullet 10H_2O$

888575 4% (use with item #882372 Polyvinyl Alcohol to make slime) Laboratory Grade 100 mL \$7.05

888575 Sodium Borate, Decahydrate, 100 mL





865442 Glue, White, 1 gal and 865445 Glue, Clear, 1 gal

Glue

Notes: Multi-purpose glue for school or office; effective on wood, paper, fabric, leather, ceramics, and other surfaces

865442 White 1 gal **\$38.50 865445** Clear 1 gal **\$49.40**

Let us make your life easier.

Carolina Kits 30°

These hands-on investigations have everything you need for consistent, comprehensive student labs.

 Easy prep with included materials and supporting resources

 Engaging activities that emphasize content mastery

 Integrated standards to simplify your three-dimensional instruction

Get the details at Carolina.com/3D.



CAR@LINA®

Polymers, Dehydrated

General Chemistry Lab Kits



882201 Polyacrylamide (hydrated)

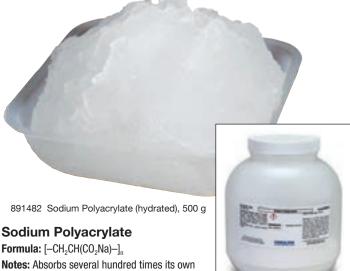
Polyacrylamide

Formula: CH₂CH(CONH₂)

Notes: Absorbs several hundred times its own weight in water and is nearly invis-

ible in water; air-dry to reuse

882201 Laboratory Grade 100 g \$11.80



891482 Sodium Polyacrylate, 500 a

weight in water

891480 Laboratory Grade 100 g \$13.65 **891482** Laboratory Grade 500 g **\$36.00**

Spheres



840394 Clear, Colorless Spheres

Snow Polymer Characteristic: White

Sodium Polyacrylate,

Notes: Absorbs 100× its own weight in water to form a fluffy, dry "snow"; mix 1 part polymer to 10 parts water for maximum effect; "snow" volume is triple the water volume; 100 g makes nearly 2 gal of "snow" and 500 g makes nearly 10 gal; air-dry to reuse

891500 Sodium Polyacrylate, Snow Polymer, 100 g

100 g 891500 Laboratory Grade \$13,40 891502 Laboratory Grade 500 q \$30.50



891502 Sodium Polyacrylate, Snow Polymer, 500 g

Clear, Colorless Spheres

Grow from approximately 4 to 20 mm in diameter. Made of superabsorbent polymer, these objects grow to several times their original size when soaked in water. Each pack contains 50 g (about 1,100 spheres). Allow 12 hr to hydrate fully.

840394 Per pack \$8.65



For full chemical specifications, see the alphabetical listing in the Chemicals section starting on page 946. Find safety data sheets (SDS) at www.carolina.com.

General Chemistry Lab Kits **Properties of Matter**



752475 Density Cube Set

Density Cube Set <u>^</u>³

Set of ten 1" cubes in 10 different materials. Includes aluminum, steel, copper, brass, nylon, acrylic, pine, poplar, oak, and PVC cubes and instructions.

752475 Per set \$64.95



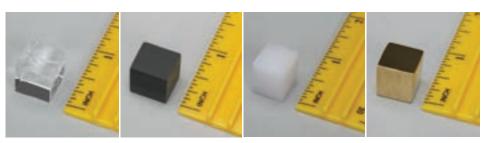


840921 Carolina ChemKits: Properties of Matter

Carolina ChemKits®: Properties of Matter A3

Learn to distinguish chemical properties from physical properties and use both types of properties to identify substances. Students test the solubility, electrical conductivity, and chemical reactivity of known compounds and use their data to determine the identity of an unknown compound. Test samples include both molecular and ionic substances. An excellent introduction to properties of matter. Materials support 10 groups of 3.

840921 Per kit \$83.95



752483 1/2" Acrylic Cube, 752484 1/2" PVC Cube, 752485 1/2" Polypropylene Cube, and 752488 1/2" Brass Cube from the Build Your Own Density Cubes Set

Build Your Own Density Cubes Set

Individual density cubes available in 1/2" and 1" sizes. Ideal for a variety of density, mass, specific gravity, volume, and buoyancy experiments. Mix and match the individual cubes to customize your own activity.

						, -	
752483	1/2" Acrylic Cube	Each	\$1.50	752498	1" Acrylic Cube	Each	\$2.70
752484	1/2" PVC Cube	Each	\$1.50	752499	1" PVC Cube	Each	\$3.35
752485	1/2" Polypropylene			752502	1" Polypropylene		
	Cube	Each	\$1.50		Cube	Each	\$2.60
752486	1/2" Nylon Cube	Each	\$1.50	752503	1" Nylon Cube	Each	\$3.40
752487	1/2" Steel Cube	Each	\$2.55	752504	1" Steel Cube	Each	\$6.65
1 752488	1/2" Brass Cube	Each	\$7.95	1 752505	1" Brass Cube	Each	\$8.05
752494	1/2" Aluminum Cube	Each	\$2.65	752506	1" Aluminum Cube	Each	\$4.35
752497	1/2" Copper Cube	Each	\$10.85	752507	1" Copper Cube	Each	\$20.70

Looking for more density sets?



Want to create your own?

Then turn to pages 860-862 or visit Carolina.com (type "density" in the search field).

General Chemistry Lab Kits



251200 Inquiries in Science: Understanding Properties of Matter Kit

Inquiries in Science®: Understanding Properties of Matter Kit

Students study the classification of matter, intensive and extensive properties, and chemical and physical properties and changes. As a final activity, students use their knowledge to design and conduct an experiment based on the relationship between intensive and extensive properties, focusing specifically on density.

△3 251200 Kit Each \$224.85 251250 Kit Refill Each \$124.53



251201 Inquiries in Science: Changing States of Matter Kit

Inquiries in Science®: Changing States of Matter Kit

Students work together in groups to experimentally produce partial heat curves and phase diagrams for water and to determine the heat of vaporization for water. Through these activities they develop an understanding of the states of matter and investigate the effect of pressure on boiling temperature. As a final activity, students design and perform a protocol for determining the heat of fusion for ice.

251201 Per kit \$214.12





840940 Student Distillation Kit (above); in use (left) (additional equipment not included)

Student Distillation Kit

Materials and instructions to teach simple distillation of a 2-component mixture.

Kit includes:

Distillation Flask Test Tube One-Hole Stopper Distillation Sample (25% propylene glycol in water)

840940 Per kit \$45.95

General Chemistry Lab Kits Reaction Rates





Reaction Rate of an Antacid Kit

The acid-base neutralization in this lab simulates what happens when antacids are taken to alleviate indigestion. Students collect the carbon dioxide produced from the reaction, using the water displacement method. Through graphical analysis of the volume of gas collected over time, students determine the effect that changing the concentration of hydrochloric acid has on the reaction rate. Materials are sufficient for 15 student pairs. General lab equipment and labware (ring stands, clamps, beakers, graduated cylinders) are needed but not supplied. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

841166 Per kit \$46.95

Solutions & Solubility



251210 Inquiries in Science: Finding Solutions Kit

Inquiries in Science®: Finding Solutions Kit 🕰

Students explore types of mixtures and the factors that affect solubility (such as the effects of pressure and temperature), identify different types of mixtures, and experiment with miscible and immiscible liquids. After determining the solubility curve of a substance, students apply their findings as they design reusable hand warmers.

251210 Kit Each **\$206.13 251260** Kit Refill Each **\$116.43**

See more solutions and solubility kits on the next page.

Making Sense of Solubility Kit A3

Students develop a general model of solubility based on their own empirical data collected by reacting aqueous solutions of ionic compounds. The final investigation quides students through the effect of pH on calcium carbonate solubility. Students combine their knowledge from the hands-on activities with their analysis of the provided graphs (solubility vs. pH, solubility vs. temperature, and solubility vs. pressure) to make sense of the phenomenon of how cave speleothems form. Kit materials support 10 groups and include digital resources; visit Carolina.com for a complete list of kit materials. General lab equipment and a mild acid such as 0.1-M hydrochloric acid or vinegar are needed but not supplied. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: Hot plates and beakers are required for an optional hands-on investigation of how temperature affects solubility.

841176 Per kit \$97.85

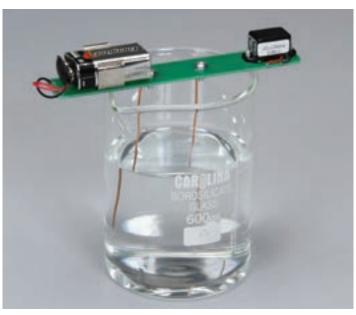




LED Conductivity Indicator

Lab-Aids®. This conductivity indicator measures relative electrical conductivity of a liquid or solid by a light-emitting diode (LED) display. A good conductor is indicated by a continuous "blinking" of the LED, a weak conductor is indicated by a dull red "glow" of the LED. No glowing or blinking means a poor or non-conducting solution. The LED Conductivity Indicator requires no special preparation. Its safety and ease of operation will increase your students' understanding by creating a "hands-on" experience. Requires a 9-V battery for operation (not included).

840688 Each \$45.80



840895 Audible Conductivity Kit (in use; battery and beaker not included)

Audible Conductivity Kit

Study the relative conductivity of solutions with this kit's audible conductivity apparatus. A buzzer indicates the flow of current between the electrodes and provides an alternative to typical visual indicators. The included teacher's manual provides complete apparatus instructions and activity ideas.

840895 Each \$36.50

General Chemistry Lab Kits Stoichiometry

Chemistry



840718 Introduction to Stoichiometry Value Kit

Introduction to Stoichiometry Kit

Remove stoichiometric confusion with this multi-activity kit. After predicting the mass or volume of reaction products, students use their observations and data collected during the experiments to calculate percent yield and percent error. The activities require approximately 90 minutes to complete. **Kit** materials support 1 class of 10 groups of 3 and include digital resources. **Value Kit** supports 4 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D.

840717 Kit Each **\$79.95 840718** Value Kit Each **\$184.85**



251208 Calculating with Stoichiometry Kit

Calculating with Stoichiometry Kit 11

Students first use manipulative cards to set up and practice stoichiometric problems. They then obtain data from chemical reactions, which they compare with the results of stoichiometric calculations and determine the percent yield. In the concluding activity, students design and conduct their own experiments to determine the mass percent of sodium bicarbonate in antacid tablets.

251208 Kit Each **\$214.15 251258** Kit Refill Each **\$74.77**

Thermochemistry



840744 Energy in Chemical Reactions Kit

Energy in Chemical Reactions Kit A

Grades 9–12. Heat up your study of thermodynamics with this 2-activity kit. Investigate the thermodynamics of physical and chemical changes that absorb and release heat energy. Using a coffee cup calorimeter, students calculate the heats of a solution of 2 salt compounds. In the second activity, students determine the heat of combustion of a hydrocarbon using a soda can calorimeter. Requires approximately 45 minutes. **Kit** materials support 1 class of 10 groups of 3 and include digital resources. **Value Kit** supports 4 classes! Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at **Carolina.com/3D**.

840744 Kit Each **\$42.85 840746** Value Kit Each **\$104.85**





841170 Heat of Combustion Kit

Heat of Combustion Kit A²

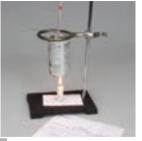
Grades 9–12. Calorimetry provides firsthand experience with the transformation of chemical energy to thermal energy. This lab is based on the phenomenon of the diesel engine as a thermal system. Students calculate the heat of combustion for prepared biodiesel, corn oil, and canola oil. Those values and the provided data for traditional petrodiesel fuels allow students to support their claims about the relative functionality of each fuel. Materials support 16 pairs and include digital resources. Supports NGSS and 3-dimensional instruction. Learn more about Carolina Kits 3D® labs at Carolina.com/3D. Note: The biodiesel sample preparation process that is required before students begin the activity takes a minimum of 6 calendar days from start to finish.

841170 Per kit \$47.80

See more thermochemistry kits on the next page.







251209 Inquiries in Science: **Examining Thermochemistry** Kit (left) and in use (above) (soda can, thermometer, stirring rod, ring stand, and ring not included)

General Chemistry Lab Kits

Inquiries in Science®: Examining Thermochemistry Kit At

Students discover how chemical and physical changes can absorb and release heat energy. After measuring the heat of combustion for a common fuel and the heats of solution for some common salts, students design a hot pack and a cold pack that could be used as a portable first-aid device.

251209 Kit Each \$107.69 251259 Kit Refill Each

Miscellaneous Chemistry Kits



Properties of Matter: What Is Oobleck? Kit A

Introduce young students to the concepts of matter in a fun, safe, and hands-on way. Students are given samples of both a solid and a liquid so that they can perform some simple experiments that demonstrate the differences. They are then given a sample of "Our Friend Oobleck" (a non-Newtonian fluid) to use in the same experiments, and they are asked to determine if Oobleck is a solid or a liquid. Materials support 10 groups of 1 to 3 students. Instructions included. Visit Carolina.com for a complete list of kit materials. Kit addresses the Next Generation Science Standards*.

821093 Per kit \$33.45



Density: Lava Lamp Kit

What is density? This concept can be difficult to explain to younger students. Help them visualize and understand density and introduce the idea of polarity as well with this demonstration for the whole classroom. Contains enough materials to build 5 lava lamps. Instructions included. Visit Carolina.com for a complete list of kit materials. Kit addresses the Next Generation Science Standards*.

841095 Per kit **\$43.95**

*Next Generation Science Standards® is a registered trademark of WestEd. Neither WestEd nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

▲¹ California Proposition 65



Acids and Bases Kit

Students learn about acids and bases through discussion and then test a dilute acid and dilute base with neutral litmus paper to learn how the paper indicates something is acidic or basic. Once that skill is learned, they can move on to test some common items that would be found around their house to determine if they are acids or bases. Extra litmus paper is included for optional testing of more items from home or around the school building for a greater understanding of acids and bases. Materials support 6 student groups. Includes instructions. Visit Carolina.com for a complete list of kit materials. Kit addresses the Next Generation Science Standards*.

841091 Per kit \$33.50



841097 Small Group Learning: Properties of Soaps and Detergents Kit

Small Group Learning: Properties of Soaps and **Detergents Kit**

Though similar in function, soaps and detergents differ in chemistry and performance. Students examine the similarities and differences in the properties of soap, hand dishwashing detergent, and machine dishwashing detergent—all included in the kit. Perform activities such as testing pH; examining the effect of soap and detergent on the surface tension of water; and discovering foaming ability, fat emulsification, and the performance of soap and detergent in hard water. Kit contains enough materials for 5 groups. Teacher's manual and student study guide copy masters are included. Visit Carolina.com for a complete list of kit materials. Kit addresses the Next Generation Science Standards*.

841097 Per kit \$41.25

↑ California Proposition 65





Chemistry



Introduction to Enzymes Kit

Kemtec®. Students study the action and nature of enzymes as catalysts while performing 5 experiments. Using experimental controls and variables, students observe the action of amylase on starch, invertase on sucrose, and pepsin on protein. Students examine the rate of enzyme-catalyzed reactions and use changes in solution color and pH as indicators of chemical change. As an optional exercise, students can use a spectro-photometer to quantify their results. Materials support 6 groups of 4. **Note:** *Kit includes reply card to request separate shipping of enzymes. These items cannot be shipped outside the continental US*.

841118 Per kit \$189.00

841118 Introduction to Enzymes Kit

Introduction to Qualitative Analysis of Carbohydrates Kit

Kemtec®. Students practice their analytical skills as they perform tests to classify carbohydrates. Tests include anthrone test for carbohydrates, iodine test for starches, Benedict's test for reducing carbohydrates, Barfoed's test for reducing monosaccharides, Seliwanoff's test for ketoses, and Bial's test for pentoses. Requires the use of the following reagents which are not included in the kit: concentrated sulfuric acid, concentrated hydrochloric acid, and 3M hydrochloric acid. Materials support 6 groups of 4.

841134 Per kit \$173.90



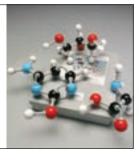
Introduction to Biochemistry Kit 1

Kemtec®. Includes qualitative tests for sugar (glucose), starch, protein, and lipids; digestion of protein with pepsin; examination of the enzyme activity of salivary amylase; semi-quantitative test for ascorbic acid; and measurements of the pH of foods. Materials are sufficient for 24 students working in 4 groups of 6 students.

841114 Per kit \$250.00

Biochemistry molecular models start on page 935.

> 840189 Molymod Biochemistry Student Set





General Chemistry Lab Kits



840443 Fascinating Oscillating Reaction Kit

Fascinating Oscillating Reaction Kit

Make a solution and watch it change from colorless, to amber, to blue, and then back to colorless. Amazingly, the cycle repeats itself again and again! Students perform experiments to learn how the reaction works and the chemistry behind the Briggs-Rauscher oscillating reaction. No sulfuric acid is required. Materials needed but not included are 3% hydrogen peroxide and water. Kit is for 5 stations of 2 to 3 students for 2 to 3 classes. **OREGON AND MINNESOTA RESTRICTION NOTICE: This product contains malonic acid and cannot be sold to customers in Oregon and Minnesota.**

840443 Per kit \$81.90



840449 The Fizz Wizard and Jammin' Jelly Reaction Kit

The Fizz Wizard and Jammin' Jelly Reaction Kit

Students make soda fizz, create tasty jelly, and formulate their own carbonated drinks using the materials in this fun kit. Students learn how food chemists make their favorite snacks using acid-base chemistry, pH, and polymers. Recipes for making polymer pudding desserts at home are included. All reaction products in this kit are edible. Complete with instruction booklet and SDS. This kit has enough materials for 5 stations of 2 to 3 students for 2 to 3 classes.

840449 Per kit \$81.95

The Cool Blue Light Kit

Students examine chemiluminescence by making solutions that produce blue light. What makes fireflies glow and other interesting aspects of luminescence are explained. Complete with instruction booklet and SDS. Kit is for 5 stations of 2 to 3 students for 2 to 3 classes.

840457 Per kit \$80.05



840457 The Cool Blue Light Kit

Chemistry



840658 Identification of Chemical Reactions Kit

Identification of Chemical Reactions Kit ≜¹

Lab-Aids®. Students identify 4 types of chemical reactions: color changes, precipitates, gas generation, and exothermic reactions. Using the Lab-Aids® Chemplate® chemical testing plate (item #840690), students mix many possible combinations, then observe and deduce from the reaction what has happened. Kit contains enough material for 12 lab groups of 2 students each for 2 classes.

840658 Per kit \$188.25



Ob-Scertainer: A Better Black Box Kit

Grades 9–12. Lab-Aids®. Introduce students to the scientific method with this challenging yet engaging kit. Students collect data, make direct and indirect observations, formulate and test hypotheses, and refine their models while trying to determine the inner configurations of 12 different containers. An entertaining and educational way to learn the scientific method. Materials support 24 individuals.

840933 Per kit \$128.75

840933 Ob-Scertainer: A Better Black Box Kit



Carolina STEM Challenge® Chemistry Series

- · Activities that engage and inspire students
- Fun, real-world design challenges
- · Exciting tournament-style format

Learn about these chemistry kits on page 889.

820103 Chemical Reaction Rockets Kit



Chemistry Molecular Models

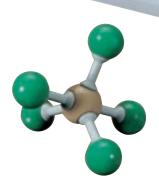
Molecular Models



- Designed by a chemistry teacher for chemistry teachers
- · Known worldwide for quality, durability, and eye-catching design
- Versatile, with sets that can take chemistry classes from beginning to advanced levels

Save Money!

- · Spend less when you buy this high-quality model set
- · Build skeletal or spacefilling models
- Use parts interchangeably with other Molymod® products



Save Time!

- Parts snap together and stay together
- Assembled models are easy to handle
- Set withstands many years of classroom use

Carolina® Molymod® Molecular Model Set

Suitable for introductory chemistry in high school or college. Features durable Molymod® components. This set enables students to construct skeletal or space-filling models for organic and inorganic chemistry.

- 10 Carbon (black)
- 22 Hydrogen (white)
- 6 Oxygen (red)
- 2 Nitrogen Tetrahedral (blue)
- 840181 Per set \$46.45
- Nitrogen Pyramidal (blue) 8 Sulfur (yellow)

6 Halogen (green)

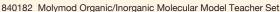
- 4 Trigonal Bipyramid (brown)
- 4 Octahedral (gray)
- 12 Short Links (white)
- 30 Medium Links (gray) 12 Long Flexible Links (gray)

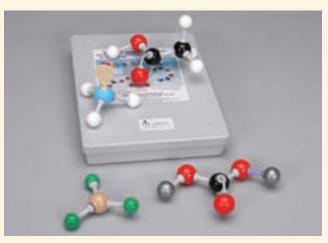












840184 Molymod Organic/Inorganic Molecular Model Student Set

Molymod® Organic/Inorganic Molecular Model Sets

These versatile molecular model sets contain plastic atoms and bonds designed to make skeletal models of elementary organic and inorganic structures. Available as a Teacher Set and a Student Set, each packed in a plastic case with instruction sheet. In the contents listing below, the number of atoms or parts in each set is preceded by a "T" for Teacher Set and an "S" for Student Set.

Carbon (black) (T 20; S 6) Halogen (green) (T 8; S 6) Hydrogen (white) (T 14; S 14)

Lone Pair Electron Clouds (T 6; S 3) 840182 Teacher Set Each 840184 Student Set

Oxygen (red) (T 22; S 7) Phosphorus (purple) (T 7; S 2) \$87.40

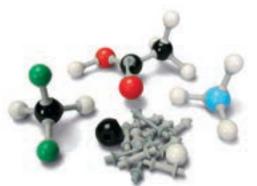
\$51.75

Each

Metal (gray) (T 14; S 8)

Nitrogen (blue) (T 10; S 3)

Sulfur (yellow) (T 13; S 2) Boron (beige) (T 1; S 0) Atom sp3 (beige) (T 1; S 0) Atom dsp3 (beige) (T 1; S 0) Atom d²sp³ (beige) (T 1; S 0) Medium Links (gray) (T 38; S 20) Medium Links (purple) (T 12; S 5) Long Flexible Links (gray) (T 36; S 12) Unhybridized P-Orbital (pink) (T 6; S 0) Unhybridized P-Orbital (purple) (T 6; S 0)



840172 Molymod Individual Organic Pack

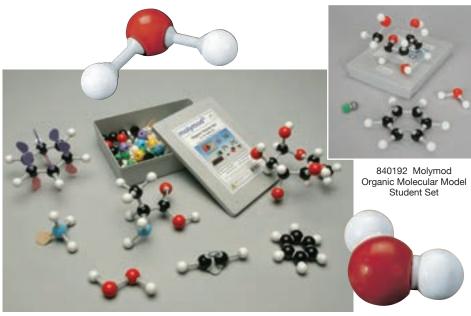
Molymod[®] Individual Organic Pack

Atom parts and links for constructing simple organic molecules. With instructions.

- 4 Carbon (black)
- 10 Hydrogen (white)
- 2 Halogen (green)
- 2 Oxygen (red) Nitrogen (blue)
- 20 Medium Links (gray)
- 4 Long Flexible Links (gray)

840172 Per pack \$16.80

Molymod® Molecular Models are NOT toys and should be kept away from young children. These sets and kits are intended for educational use only.



840190 Molymod Organic Molecular Model Teacher Set

Molymod® Organic Molecular Model Sets

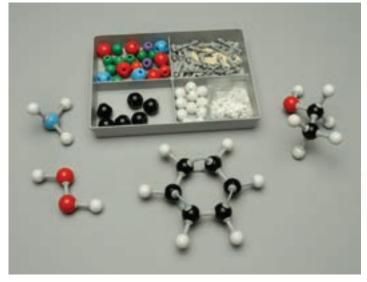
Designed to make skeletal and semi-space-filling models of alkanes, hydrocarbon derivatives, and other compounds taught in an introductory organic course. Available as a Teacher Set and a Student Set. With instructions. In the contents listing below, the number of atoms or parts in each set is preceded by a "T" for Teacher Set and an "S" for Student Set.

Carbon (black) (T 38; S 12) Halogen (green) (T 8; S 4) Hydrogen (white) (T 40; S 20) Metal (gray) (T 3; S 1) Nitrogen (blue) (T 4; S 4)

840190 Teacher Set \$84.10 Each **840192** Student Set Each \$54.10

Oxygen (red) (T 12; S 6) Phosphorus (purple) (T 4; S 1) Sulfur (yellow) (T 2; S 2) Short Links (white) (T 60: S 26) Medium Links (gray) (T 55; S 26)

Long Flexible Links (gray) (T 25; S 12) Link Removal Tool (T 1; S 1) Lone Pair Electron Clouds (T 6; S 0) Unhybridized P-Orbital (pink) (T 6: S 0) Unhybridized P-Orbital (purple) (T 6; S 0) **Chemistry** Molecular Models



840164 Organic Chemistry Molecular Model Set

Organic Chemistry Molecular Model Set

Prentice Hall. This set of plastic atoms and bonds enables students to construct ball-and-stick as well as space-filling models of organic compounds. Included are 14 tetrahedral carbon (black), 28 hydrogen (white), 8 oxygen (red), 8 chlorine (green), 4 nitrogen (blue), 2 bromine (orange), and 2 iodine (purple) atom centers. Approximate atom diameters, 2 cm. Set contains 40 single-bond and 12 multiple-bond connectors for ball-and-stick models and 40 links for space-filling models. Instruction booklet included.

840164 Per set \$142.00



840187 Molymod Shapes of Molecules Set

Molymod® Shapes of Molecules Set

Teach your students how to predict shapes of molecules using the Valence Shell Electron Pair Repulsion (VSEPR) theory and this comprehensive model set. Every VSEPR shape from linear to octahedral is possible, including bent, seesaw, T-shaped, and square planar. Set includes sufficient components to construct the following 8 shapes at the same time: linear (HCl), linear (BeCl $_2$), bent (H $_2$ 0), trigonal planar (BH $_3$), pyramidal (NH $_3$), tetrahedral (CH $_4$), trigonal bipyramidal (PCl $_5$), and octahedral (SF $_6$). With instruction sheet.

840187 Per set \$63.90

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- · FREE class activities and projects
- · FREE digital games and videos
- FREE organism care guides, safety information, SDS, and more







840215 Molecular Model Student Set

840214 Molecular Model Teacher Set

Molecular Model Sets

Suitable for constructing complex organic and inorganic molecules. Available as a **Teacher Set** and a **Student Set**. In the contents list below, the number of atoms or parts in each set is preceded by a "T" for Teacher Set and an "S" for Student Set. Includes durable storage box.

Carbon (black) (T 60; S 12) Hydrogen (white) (T 125; S 26) Oxygen (red) (T 30; S 6) Halogen (green) (T 25; S 5) Metal (yellow) (T 20; S 4) Monovalent Metals (orange) (T 20; S 4) Divalent Metals (orange) (T 30; S 6) Trivalent Metals (yellow) (T 30; S 6) Non-Metals (blue) (T 30; S 6) Bonds (T 150; S 30)

840214 Teacher Set Each **\$138.85 840215** Student Set Each **\$27.80**

What could you do with \$1,000 worth of Carolina products?

Dream Big is a multi-year program by Carolina to address the projects, equipment needs, and instructional materials that teachers often think about but cannot acquire or implement without added financial resources. We're offering a range of resources to help you bring your ideas to the classroom.

Learn more at Carolina.com/dreambig, including how you can be one of 3 educators to win \$1,000 worth of Carolina products of your choosing.

Magnetic Water Kit A3

Grades 8-12. This cup of model water molecules is the answer for students thirsting to explore and understand polarity, hydrogen bonding, surface tension, solubility, states of matter, and crystal structure. Powerful magnets embedded in the atom centers let students actually see and feel simulated molecular attraction or repulsion, making fundamental molecular interactions easier to comprehend.

Class Set contains: Kit contains: Plastic Cup 6 Kits 12 Water Molecules Carrying Tray Sodium Ion Chloride Ion Hydroxyl Group Ethane Molecule (with 1 removable hydrogen)

840140 Kit Each \$63.95 840141 Class Set Each \$365.00



840141 Magnetic Water Kit Class Set

Teacher Testimonial

"The magnetic water kits allow all students to have a 'hands-on' experience with the chemistry of water. Students 'see' the difference between a covalent bond within the water molecule and the hydrogen bonds among water molecules. We use the magnetic molecule kits to connect the abstract phase change diagram of water (melting, heating, boiling) to the molecular world. My students . . . had a concrete model of dipoles and hydrogen bonding before the abstract definition, and this, I believe, helped them to understand the vocabulary of polarity better . . . Although it is nice to have a class set of water molecule kits, just 1 would be a nice classroom addition . . .

Susan R. Bober Science Teacher Schaumburg High School Schaumburg, IL

Customer Review

"Very effective hands-on tool for learning about water's unique qualities. Students 'experience' the effects of hydrogen bonding, cohesion, adhesion, etc. as they manipulate these magnetic

Middle School Earth/Environmental **Science Teacher**

Molymod® Biological Sciences Molecular Model Set

Deepen student understanding of the biological sciences through skeletal or semispace-filling models. With one set, build simple aldoses, phospholipids, an amino acid, glucose (monosaccharide), and more. Combine multiple sets to build more advanced structures, such as disaccharides, alpha and beta glucose, or carbohydrates. One set supports 1-2 students. With instructions. Visit Carolina.com to view a list of structures and topics for 1-3 model sets.

6 Carbon (black) 2 Sulfur (yellow) 14 Hydrogen (white) 1 Copper (copper) 7 Oxygen (red) 3 Nitrogen (blue)

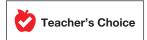
1 Phosphorus (purple) 3 R-Groups (pink)

50 Short Links (clear) 26 Medium Links (gray) 12 Long Flexible Links (gray)

840174 Per set \$19.35

Molymod® Replacement Parts

Have some pieces of your Molymod® set or kit disappeared? No problem—Carolina sells replacement parts! For more information or to order, email chemistry@carolina.com or phone 800.334.5551.





840174 Molymod Biological Sciences Molecular Model Set

Molymod® Molecular Models are NOT toys and should be kept away from young children. These sets and kits are intended for educational use only.

Molecular Models **Biochemistry**

Molymod® Biochemistry Sets

Designed for constructing semi-space-filling models of biochemical structures, including amino acids, peptides, DNA bases, and polysaccharides. Available as a **Teacher Set** and a **Student Set**. In the contents list below, the number of atoms or parts in each set is preceded by a "T" for Teacher Set and an "S" for Student Set. With instructions.

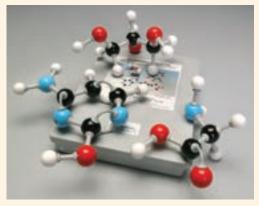
Carbon Tetrahedral (black) (T 42; S 12) Carbon Trigonal Planar (black) (T 24; S 9) Carbon Linear (black) (T 2; S 0) Hydrogen Mono (white) (T 0; S 22) Hydrogen Linear (white) (T 10; S 3) Hydrogen Atom Links (white) (T 100; S 0) Nitrogen Tetrahedral (blue) (T 12; S 3) Nitrogen Trigonal Planar (blue) (T 12; S 6) Nitrogen Angular (blue) (T 10; S 2) Oxygen Angular (red) (T 20; S 11) Oxygen Linear (red) (T 10; S 0) Oxygen Mono (red) (T 10; S 2) Sulfur Angular (yellow) (T 2; S 1) Phosphorus Tetrahedral (purple) (T 6; S 1) Metal Tetrahedral (gray) (T 1; S 0) Metal Octahedral (gray) (T 1; S 0) Atom Links (transparent) (T 150; S 0) Gray Links (T 10; S 0) Medium Links (gray) (T 0; S 40) Long Flexible Links (gray) (T 0; S 10) Link Remover Tool (T 2; S 0)

840185 Teacher Set

840189 Student Set



840185 Molymod Biochemistry Teacher Set



840189 Molymod Biochemistry Student Set

Molymod[®] Fat Model Kit

Each

Each

Kit contains enough atom parts and links to build 1 molecule of glyceryl tristearate ($C_{57}H_{11}O_{6}$, tristearin). With instructions.

\$185.65

\$55.15

57 Carbon (black) 110 Hydrogen (white) 6 Oxygen (red) 175 Links Link Remover Tool

840208 Per kit \$65.75



840208 Molymod Fat Model Kit

Molymod® 20-Amino Acid Set

Study the structure of the 20 common amino acids with this complete set. Contains enough atom parts and links to build 1 each of the amino acids listed below. With instructions.

Proline

Serine

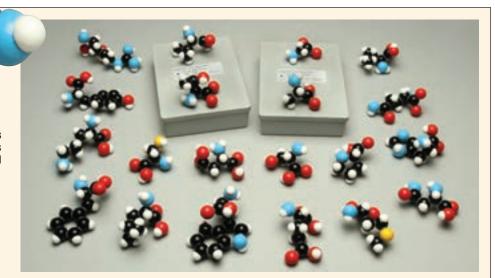
Threonine

Tryptophan

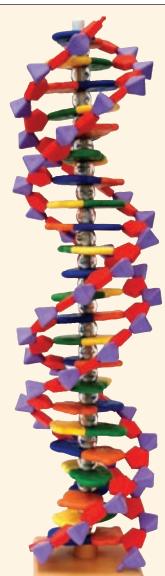
Tyrosine

Alanine Glycine
Arginine Histidine
Asparagine Isoleucine
Aspartic Acid Leucine
Cysteine Lysine
Glutamic Acid Methionine
Glutamine Phenylalanine

840219 Per set \$229.30



Chemistry Molecular Models



Molymod® DNA Model Set

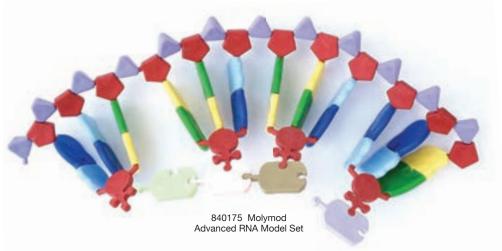
Teach the primary and secondary structure of DNA with this durable, attractive model. Colorful pieces reveal the polymeric nature of DNA, including base pairs, phosphate ester linkages, and ribose units. Adenine and thymine bases are attached by 2 pegs to model their 2 hydrogen bonds and 3 pegs link cytosine and guanine base pairs. Model even shows major and minor grooves. Size, 18" H.

840203 Per set \$99.95

Customer Review

"This was at an ACS exhibition. It stands out from other models because it's very different and colorful and captures students' attention."

High School Chemistry Teacher



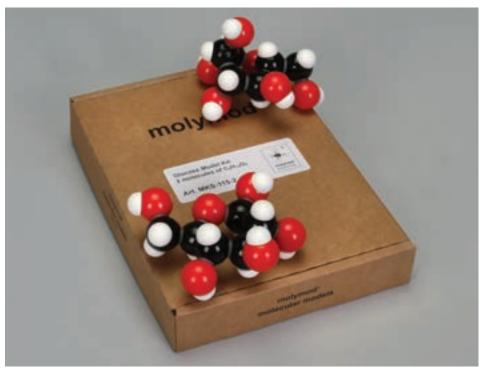
Molymod® Advanced RNA Model Set

Perfect complement to the Molymod® DNA Model Set (item #840203)

Use this RNA model to show your students the structural differences between RNA and DNA and demonstrate transcription and translation, the crucial events of protein synthesis. Includes 4 tRNA pieces and 4 amino acid pieces to show the synthesis of a tetrapeptide from beginning to end.

840175 Per set \$62.65

For more DNA and RNA models, turn to the Biotechnology Models & Simulations section starting on page 262.



840204 Molymod Glucose Model Kit

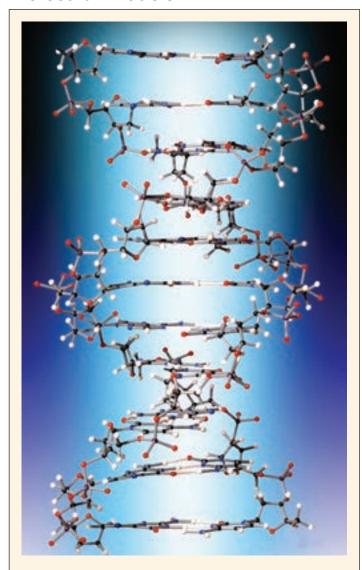
Molymod® Glucose Model Kit

Kit contains enough atom parts and links to build 2 glucose molecules (C₆H₁₂O₆). With instructions.

12 Carbon (black) 12 Oxygen (red) 24 Hydrogen (white) 48 Links Link Remover Tool

840204 Per kit \$36.25

Molecular Models



Orbit™ Proview DNA Model

Large-scale 3-D model helps students visualize and understand the base pairs, sugar rings, and phosphate groups of the DNA structure. Students construct the subassemblies then join them together to make the complete DNA model. Model includes 750 atoms and 850 bonds, a suspension framework of pre-strung wooden plates, assembly instructions, and a student worksheet. Size, 85 cm H \times 40 cm W. You can suspend the model from a hook or display it on a laboratory ring stand.

840225 Each \$230.15

Orbital Models



840188 Molymod Atomic Orbital Set

Molymod® Atomic Orbital Set

This set contains enough parts to make 14 easy-to-assemble atomic orbitals. The pink and purple, pear-shaped lobes represent the 2-wave phase. Opaque white spheres represent atomic nuclei. Each model comes with its own clear, colorless base for display purposes. Approximate model heights, including the base, are 5 cm (s orbital), 9 cm (p orbital), and 8 cm (d orbital).

1s Unhybridized 5 3d Unhybridized sp² Hybridized 2s Unhybridized 2s plus 3 2p Unhybridized sp Hybridized sp Hybridized

840188 Per set \$89.55

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- · Satisfaction guarantee means no-hassle returns
- · Instant customer service with online chat
- Competitive pricing and quantity discounts



Chemistry Atomic Models



840228 Interactive Atom Set

Interactive Atom Set

Grades 9–12. Developed for visually impaired students, this set makes it easy to see or feel the structure of the atom. Subatomic particles are molded with their charge on top (plus for protons, minus for electrons, and a flat surface for neutrons), while orbitals are represented with raised rings around the nucleus. Using the 30 electrons, 30 neutrons, and 30 protons provided, students build atoms, ions, and isotopes on both the container lid and bottom. Activity reinforces concepts of atomic number, atomic mass, filling order of orbitals, and ionic charge. Set accommodates 1 group of 3 to 4 students. Container size, 9" diam \times $1^{1}/_2$ ".

840228 Per set \$78.55



Interactive Atom Class Set

Encourage your students to construct atoms, isotopes, and ions while you demonstrate the same concepts in an easy, concrete way. This magnetic demonstration tool attaches to your classroom whiteboard, or the included storage board, and gives students a visual representation of electron orbitals, atomic nuclei, and subatomic particles. The Interactive Atoms are based on Bohr's atomic theory and give students a tactile representation of the world's smallest building blocks. All parts are separate, so use only the parts needed to increase classroom flexibility. Set includes 1 Interactive Atom Teacher Set and 8 Interactive Atom Student Sets. Interactive Atom Teacher Set includes 2 atomic nuclei, 8 electron orbitals, 20 neutrons, 20 protons, 20 electrons, and a storage board. Interactive Atom Student Sets include 8 electron orbitals, 30 protons, 30 neutrons, 30 electrons, and a stackable storage box with lid.

840233 Per set **\$435.00**

Why Shop Carolina.com?

Find everything from our print catalogs and more

- Expanded product information, additional photo views, and zoom-in feature
- · Web exclusive items
- · Order history and shipment tracking at your fingertips
- · Free teacher resources, such as classroom activities and projects

Chemistry



Economy Atomic Model Set

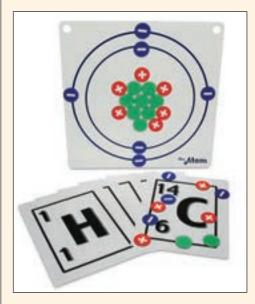
Students learn about atomic theory hands-on with this versatile and affordable model set. Easily build and evaluate elements, isotopes, and ions up to atomic number 18—all while reinforcing concepts from Bohr's atomic model. Teacher's manual includes complete instructions, useful background information, activity ideas, and reproducible student sheets. **Individual Set** includes materials for 1 atomic model. **Class Set** contains materials for 16 atomic models.

840242 Individual Set Each **\$27.00 840243** Class Set Each **\$99.95**

Atoms, Electrons and Energy Kit A

Teach atomic structure and how atomic structure leads to periodic trends with this visual and tactile model set. A large, magnetic energy level template includes 4 energy levels and space for each element's nucleus, orbitals, and electrons. Each color-coded magnetic element nucleus shows element symbol, atomic number, and electronegativity number. Color-coded magnetic s, p, and d orbitals assist in the conceptualization of electron arrangement and trends. Kit includes materials for both teacher demonstration and student study of the atomic structure and electron arrangement of the first 36 elements. An instructional CD and a teacher's manual for step-by-step guidance are also included. Accommodates a class of 30 students.

840260 Per kit \$297.60



Customer Review

"Students love using this!

I have used this with my students as a teacher demo to 'build' atoms and isotopes. We also used a class set of these models to have groups of students create atoms and isotopes after looking at the nuclear symbols provided. Groups compete to build a correct model. Student engagement is apparent as they help each other determine the number and placement of the subatomic particles."

High School Chemistry Teacher

Magnetic Atom Model Set

Build model atoms large enough for every student in the class to see. Students can model elements, ions, and isotopes by placing magnetic red (protons), green (neutrons), and blue (electrons) pieces in the correct locations on the 16×16 " white board. Students relate atomic structure to atomic number, mass number, and charge, and compare how orbitals fill as electrons are added. Includes worksheets to guide students in modeling 10 elements, ions, and isotopes, including hydrogen, deuterium, tritium, carbon, and carbon-14. The white board has 2 holes for easy, secure mounting on a vertical surface.

840235 Per set \$148.00



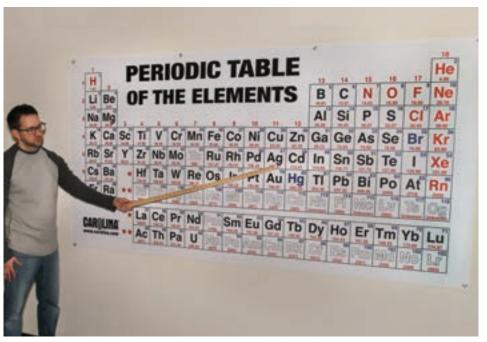
840260 Atoms, Electrons and Energy Kit

Chemistry Teacher Resources

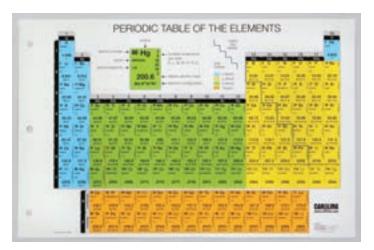
Periodic Table of the Elements Giant size!

 96×48 ". Giant-size periodic table is made of 100% plastic, corrugated cardboard; will not tear, warp, or discolor. Hinged to fold to 4×2 -ft size. Type style and 3-color printing assures maximum visibility. The chart is self-supporting on a desk or is easily mounted in an out-of-the-way place such as the corner of a room.

579620 Each \$218.00



579620 Periodic Table of the Elements





840073 Carolina Student Infographic Periodic Table

Carolina® Student Infographic Periodic Table

Add a colorful, fact-filled periodic table to your students' science binders. This 2-sided chart is 3-hole punched and laminated to provide a durable, reliable reference. The front of the chart folds out to $11 \times 16^{1}/2^{\circ}$ and includes each element's name, atomic number, symbol, number of electrons per shell, electronegativity, relative atomic mass, and electron configuration. The back of the chart features a vivid, real-world image of each element plus the density, melting and boiling points, and rounded atomic mass along with a key to determine whether the element exists in solid, liquid, or gaseous form. Includes elements through 118.

840073 Each \$7.60 10+ Each \$6.80



840085 Periodic Table Pen



Periodic Table Pen

Keep the periodic table close at hand with the periodic table pen. Table pulls out from pen and neatly rolls back into the barrel once your curiosity is satisfied. Elements, their melting points, boiling points, and atomic masses are printed on the front. Multiple physical constants, gas law equations, and conversion factors are listed on the back. Pull-out chart measures $7 \times 2^1/2^n$. Periodic table measures $4 \times 2^1/2^n$.

840085 Each \$7.45

Teacher Resources

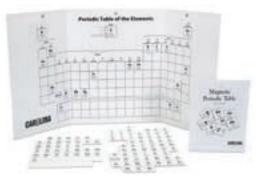
Chemistry

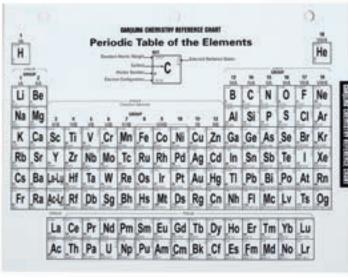
840075 Magnetic Periodic Table

Magnetic Periodic Table

 $\it Grade~9-College.~38\times 20".$ Customize how you present the periodic table. Remove the pieces from the board to focus on particular elements or to study important concepts. Set includes magnetic board, element squares, instructions with activities on electron configuration, Bohr models, Lewis structures, valence electrons, and periodic trends.

840075 Per set \$58.00





840060 Carolina Chemistry Reference Chart

Carolina® Chemistry Reference Chart

 $11\times8^{1/2}".$ A 2-sided chart that puts the fundamentals of chemistry right at your fingertips. Printed on heavy-stock paper for durability. Chart includes these topics and tables:

Concentrated Acids and Bases Flame Tests

Numeric Notation Periodic Table of the Elements with Electronic Configurations and Oxidation States

Physical Constants and Conversion Factors

840060 Pack of 10 \$22.60

Selected Polyatomic Ions Solubility of Selected Inorganic Compounds in Water Solubility Rules for Inorganic Compounds

Standard Units

Temperature Conversion Formulas



Interactive Periodic Table Appeals to kinesthetic, auditory, and visual learners!

 $42\times32^{\shortparallel}$. Bring the periodic table to life with this stunning full-color wall chart. Each element block gives multiple element properties and data, and color coding across the table helps students understand periodic trends. A FREE digital app transforms the chart into a 3-D educational powerhouse, with in-depth element information, interactive 3-D models, and a compound builder to make hundreds of different formulas. Chart is made of durable coated paper. Digital app is available for multiple device platforms.

840079 Each \$25.95

Carolina® Periodic Table Forms

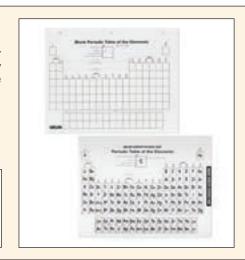
Grades 9–12. Students create their own periodic tables with these forms as they learn about the elements, their arrangement in the periodic table, and periodic trends. Forms measure $8^1/_2 \times 11^{"}$, are prepunched for easy storage in 3-ring binders, and are printed on heavy cardstock to last all year long. Includes 30 periodic table forms and 1 complete periodic table.

840065 Per set \$13.00

Customer Review

"This is a great value for the classroom. I highly recommend this to anyone trying to teach elements to their students. Having students write the elements has been highly successful for me."

Middle School Chemistry Teacher



Teacher Resources



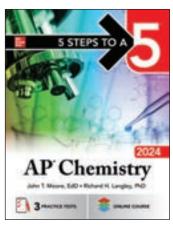
840083 Carolina Mole Box

Rh Sb 840090 Periodic Table Cards (views of card fronts and backs)

Carolina® Mole Box

Grades 6–12. Bring a physical representation of the volume of a mole of gas at STP to your classroom with the Carolina® Mole Box. The box itself is 11.1" on each side and forms a 22.4-L cube when constructed. Useful information, including gas law equations, constants, and conversion factors, is printed on each side of the cube. Make this a permanent part of your classroom decor!

840083 Each \$11.90



840562 5 Steps to a 5: AP* Chemistry

5 Steps to a 5[™]: AP* Chemistry

Grades 9–12. John T. Moore and Richard H. Langley. 2023. 552 pages. Prepare and build test confidence for the AP® Chemistry Exam with this easy-to-follow study guide. Updated for the latest exam changes, 5 Steps to a 5[™]: AP* Chemistry is by far the best AP® Chemistry prep book available. It includes an online prep course, offers hundreds of practice exercise with answer explanations, and provides 3 full-length practice exams (both in the book and online) that reflect the latest exam. Practice in the format you need, whether print, online, or mobile. Soft cover.

840562 Each \$21.80

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does not endorse, these products.

Periodic Table Cards

Teach, review, and test element names, symbols, and periodic trends with this colorful, durable card set. Each 2-sided card includes element name, symbol, average atomic mass, atomic number, common valence(s), electron configuration, and a colored border indicating if the element is a metal, metalloid, nonmetal, or undefined. Cards are $2^{1}/_{2}\times3^{1}/_{2}$ " (6.3 \times 8.8 cm) and include elements up to 118 plus a teacher's guide.

840090 Per set \$13.50



840105 Mole Set

Mole Set

Make the abstract concept of the mole tangible with this set. Each set includes 1 mole of aluminum, copper, iron, and zinc. Activities allow students to identify the elements as well as estimate physical properties such as atomic radius and volume. Instructions included.

840105 Per set \$45.00

Chemistry

Sensors

Go Direct®

Simplify your lab setup. Foster learning.

Empower students to investigate scientific concepts with hands-on, real-time data collection.

New! Go Direct® Sensors

With more than 50 sensors to choose from, the Go Direct® family of sensors offers an affordable solution to collecting experimental data. Go Direct® sensors are easy to use—just connect and start collecting data with your device. Includes free software that is intuitive and user-friendly. Visit Carolina.com for individual sensor descriptions and warranty information. Note: Vernier products are designed for educational use only. They are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

118024	Platinum-Cell Conductivity Probe	Each	\$180.00		
118040	Colorimeter	Each	\$129.00		
118042	Drop Counter	Each	\$109.00		
118044	SpectroVis Plus Spectrophotometer	Each	\$449.00		
118045	Plastic Cuvettes (visible range)	Pack of 100	\$24.00		
118046	Cuvette Rack	Each	\$9.00		
118100	pH Sensor	Each	\$109.00		





118044 Go Direct SpectroVis Plus Spectrophotometer







118040 Go Direct Colorimeter

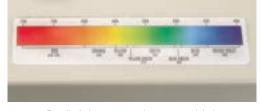




Chemistry Spectrophotometers



- Great performance at an outstanding price
- Fast and easy operation
- Simple data management



Detail of electromagnetic spectrum label, included for easy reference, from 653303 Carolina Digital Spectrophotometer

Carolina® Digital Spectrophotometer

This digital spectrophotometer is uncomplicated—turn the knob to set the wavelength, push 1 button to blank the standard, and the instrument is ready. Unit displays both absorbance and % transmittance; press the Mode button to toggle between the 2. Features an easy-to-read LED display and a durable case that's a breeze to wipe clean. Accepts both test tube cuvettes and square cuvettes (separate adapter included). Includes user manual, dust cover, and pack of 12 test tube cuvettes. One-year warranty.

Specifications:

Wavelength Range: 335 to 1,000 nm Wavelength Accuracy: ± 2 nm Photometric Range: 0–100% T; 0–2 A Photometric Accuracy: $\pm 2.0\%$ T

Power Requirements: 115/230 V, switchable

Dimensions: $16 \times 7 \times 12$ " D (41 × 19 × 31 cm)

Weight: 13 lb

 653303
 Spectrophotometer 653340
 Each 51,425.00
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UV/Vis Spectrophotometer

Choose this spectrophotometer for both DNA purity analysis in the ultraviolet range and general lab analysis in the visible range. This dual-purpose instrument features a 200 nm to 1,000 nm wavelength range and bright 4-line LCD display. USB and RS232 ports facilitate data transfer. Includes dust cover, operation manual, two 10-mm square UV-transparent cuvettes, four 10-mm square optical glass cuvettes, and 1-year manufacturer's warranty. A broad wavelength range and reasonable price make this spectrophotometer a great value.

Specifications:

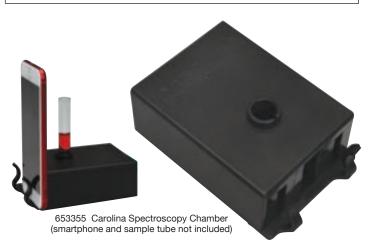
Wavelength Range: 200 to 1,000 nm

Wavelength Accuracy: ±2 nm

Photometric Range: 0–125% T; –0.3–2.5 A Photometric Accuracy: ±0.004 A at 0.5 A Power Requirements: 110/220 V, switchable

Dimensions: 20" W \times 17" D \times 8" H (42 \times 34 \times 18 cm)

Weight: 22 II 653307 Each \$5,400.00 Before your students use a spectrophotometer, teach how it works with Carolina ChemKits®: Smartphone Spectroscopy (item #840262) on page 903.



Carolina® Spectroscopy Chamber

How does a smartphone become a spectrophotometer? With the Carolina® Spectroscopy Chamber!

The Carolina® Spectroscopy Chamber, like its traditional large-apparatus counterpart, allows light to pass through a sample in a clear, colorless tube. A smartphone app analyzes the light, and students convert the collected data to absorbance or transmittance to create calibration and measurement curves. With the durable, affordable Carolina® Spectroscopy Chamber, students can gain an understanding of how a spectrophotometer works before moving on to a delicate, more expensive instrument. Smartphone, light source, color analyzer app of your choice, sample tubes, and colored background are needed but not supplied. Includes setup guide and access to a video tutorial.

- Works with Android® and iOS® devices
- Does not require special optical glass tubes
- · Stays securely in place on nonslip feet

653355 Each \$12.50 5+ Each \$11.95

Spectrophotometers

Spectronic® 200 Spectrophotometer

- Full-color LCD display
- Stackable for easy storage
- · Sloped surfaces shed spills
- USB port for exporting data
- · Corrosion-resistant construction

The latest addition to the classic Spectronic® 20 series improves upon its predecessors in every respect. The unit automatically sets to 0% T when powered up. It sweeps across the entire wavelength range with every scan, eliminating the need to recalibrate at 0% T or 100% T when the wavelength is changed. With your solution in the sample holder, 1 push of a button sets to 100% T. The sample chamber has room-light immunity, meaning the sample door does not need to be closed to make a reading, which allows the use of tall test tubes. The chamber accommodates 10-mm square cuvettes and 13- to 25-mm-diameter round cuvettes. The unit measures absorbance, transmittance, and concentration. The LCD display measures $2^3/4^{\circ}$ W \times 2" H and tilts to suit the viewer. The display emulates the appearance of the Spectronic® 20D+ and can show text in English, Spanish, French, German, and Italian. Place the unit on its end and easily store on a shelf like a book. Includes 12 square cuvettes and 1-year manufacturer's warranty. Note: Sold only to schools.

Specifications:

Wavelength Range: 340 to 1,000 nm Wavelength Accuracy: ±2 nm Photometric Range: -0.3 A to 2.5 A Photometric Accuracy: ±0.05 A at 1.0 A

Power Requirements: 100 to 240 V (selected automatically)

15" W × 12" D × $3^3/5$ " H (39 cm W × 30 cm D × 16 cm H) Dimensions:

Weight: 97/10 lb

653302 Spectronic 200 Spectrophotometer \$1.895.00 Each 653314 Replacement Tungsten Lamp Each \$53.00



653323 Genesys 30 Visible Spectrophotometer

653302

Spectronic 200

Chemistry

Spectrophotometer Accessories

Spectronic® Round Test Tube Cuvette

For use with Spectronic® 200 (item #653302) and Spectronic® 20D+ spectrophotometers. Optical glass; size, 1/2" diameter.

653310 Box of 12 \$210.00

Spectronic® Square Plastic Semi-Micro Cuvette Save money by using less sample with these cuvettes

A 1/2"-sq plastic (polystyrene) cuvette for use with the Spectronic® Square Cuvette Holder (item #653325) and these spectrophotometers: Carolina® Digital (item #653303), Spectronic® 200 (item #653302), Spectronic® 20D+, and Spectronic® Genesys™ 20.

653311 Pack of 25 \$20.50

Spectronic® Square Cuvette Holder

Makes inserting and removing Spectronic® Plastic Semi-Micro Cuvettes (item #653311) fast and easy. Works with these spectrophotometers: Carolina® Digital (item #653303), Spectronic® 200 (item #653302), Spectronic® 20D+, and Spectronic® Genesys™ 20.

653325 Each \$143.00

Spectronic® Genesys™ 20 Replacement Lamp

For use with the Spectronic® Genesys™ 20 spectrophotometer.

Tungsten-halogen.

653335 Pack of 2 \$136.00

Genesys™ 30 Visible Spectrophotometer

Perform both basic and complex analyses with the Genesys™ 30 Visible Spectrophotometer, an intuitive and reliable solution for students, educators, and lab technicians. The Genesys[™] 30 is designed specifically for improved usability, with features such as:

- Large, removable, and washable sample compartment with front access
- . Big, high-resolution color screen that is easy to read
- Familiar keypad controls for easy, routine use
- Sealed and rubberized keypad
- · Chemical-resistant, PC-ABS covers
- Sloping surfaces that shed spills

This thoughtfully designed spectrophotometer blends the simplicity to satisfy novice students with the capabilities that biology and chemistry labs need for accurate quantitative analysis.

- . 3A linear measurement range for concentrated solutions
- · Multi-point quant offers higher measurement confidence
- Traditional monochromator paired with advanced electronics delivers outstanding stability
- Scan mode for spectral analysis and interpretation
- Easy data collection—use the USB data export or snap on the optional thermal printer (available from Carolina by special order)

The Genesys[™] 30 accessories, including thermal printer, tall test tube holder, and dust cover, are available from Carolina by special order.

Specifications:

Wavelength Range: 325 nm to 1,100 nm Wavelength Accuracy: ±2 nm Photometric Range: -3 A to +3 A

Photometric Accuracy: ±0.002 A (0 to 0.3 A); 0.5% of ABS reading (0.301 to 2.5 A) Power Requirements: 100 to 250 V; 50 to 60 Hz (V and Hz selected automatically);

external AC to DC converter

 $35.5 \text{ cm L} \times 38.5 \text{ cm W} \times 19.5 \text{ cm H}$ **Dimensions:**

Weight: 16¹/₂ lb 653323 Each \$3,320.00

Safety

Carolina is concerned with safety. Our safety communications are under continual update and improvement. In the event of a serious spill, contamination, ingestion, or other emergency situation, information is available from Carolina by calling product information at 800.227.1150 or 336.584.0381 and explaining your emergency. This service is available 8 AM to 5 PM (ET) Monday through Friday. For chemical emergencies during all other hours, contact your local poison control center at 800.222.1222 within the US.

It is recommended that each person in the laboratory be required to wear eye protection at all times. Contact lenses should not be worn in a chemical laboratory. Laboratory coats and laboratory aprons should be used to prevent chemical contamination. It is advised that appropriate gloves be worn when handling any chemical. When pouring volatile chemicals, always use a fume hood.

Carolina provides a safety data sheet (SDS) for each hazardous chemical (as defined by OSHA). For your protection, the safety requirements listed on the data sheet should be followed.

Ordering

Many chemicals and kits and sets containing chemicals can be sold to schools and businesses only. For the most current shipping information, go to Carolina.com. When ordering, please include catalog number, name, and package size for each chemical to ensure speed and accuracy in handling.

Shipping

946

Shipments are made with cost in mind. Items regulated by the Department of Transportation (DOT) may result in increased transportation charges. Carolina's policy is to minimize these costs for you.

Important Note: Returned chemicals must be packed and shipped in compliance with DOT regulations. If you need assistance, please contact Customer Service at 800.334.5551.

Chemical Grades

ACS—Exceptional purity. Meets the purity standards set by the American Chemical Society's Committee on Analytical Reagents. Suitable for use in all laboratory experiments.

Reagent—High purity. Often equal to ACS grade. Suitable for use in all laboratory experiments.

Laboratory—Intermediate purity. Suitable for qualitative analysis; not suitable for quantitative analysis (e.g., titrations).

Find an SDS Quickly at Carolina.com

Our website gives you quick, easy access to our safety data sheets.

- 1. Type the chemical name or item number in the search field.
- In the supplied results, click the desired product (if multiple items are displayed). Then in the chemical's description, click the (M)SDS link to view or download a PDF of the SDS.

Fast, simple access to SDS online is just another way Carolina saves you time, makes your job easier, and keeps your students safe. Rely on Carolina for expert technical support of chemicals.

Hazard Communication Standard Pictograms



Standardized pictograms found on Carolina chemical labels and safety data sheets. Carolina is committed to safety and aligned with OSHA HazCom regulations and the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

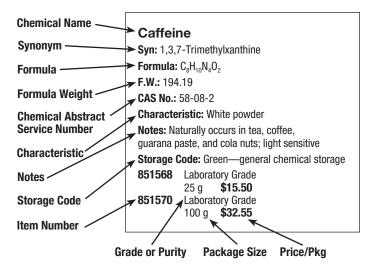
Technical Support

Technical support for Chemistry is easily accessible.

- · Call: 800.227.1150
- Fax: 336.447.2212
- Email: chemistry@carolina.com

We welcome your comments and suggestions.

Sample of Chemical Listing





Download Carolina's Solution Preparation Manual at www.carolina.com/pdf/activities-articles/Solution-Preparation.pdf (automatic download).

How to Prepare Solutions

Molar Solutions

Molarity means the number of moles of solute per liter of solution. To prepare a 1-M solution, slowly add 1 mole of compound to a clean 1-L volumetric flask half-filled with water. Allow the compound to dissolve completely, swirling the flask gently if necessary. Once the solute is completely dissolved and the solution is at room temperature, dilute to the mark with water. Invert the flask several times to mix.

Percent Solutions

Mass Percent means the number of grams of solute per 100 g of solution. For example, 10 g of sodium chloride in 90 g of water is a 10%-by-mass solution.

Mass percent = mass solute/mass of solution = $10 \text{ g/}(10 \text{ g} + 90 \text{ g}) \times 100\% = 10\%$

Volume Percent means the number of milliliters of solute per 100 mL of solution. For example, 10 mL of hydrochloric acid in 90 mL of water is a 10%-by-volume solution. The volume percent of a solution cannot be calculated directly from the volumes of its components, because the final volume may not equal the sum of the components' volumes. To prepare volume percent solutions, determine the final volume of solution desired first. For example, to prepare 100 mL of a 10%-by-volume solution of acetic acid, dilute 10 mL of acetic acid with water to 100 mL.

Dilutions

When preparing a dilution, decide the volume and molar concentration of the resulting solution you require. Use the equation $M_{reagent} \times V_{reagent} = M_{dilution} \times V_{dilution}$, where M is molarity and V is volume. Slowly add the calculated volume of concentrated reagent to the proper-size volumetric flask half-filled with distilled or deionized water and swirl the flask to mix. Once the solution is at room temperature, dilute to the mark with water and invert the flask several times to mix.

Chemical Disposal Guidelines

The best practice in chemical waste disposal is to accumulate chemical wastes in properly labeled waste containers. The labeling should include the identity and quantity of waste added to the container (unidentified waste is more expensive to discard). Waste containers are hazardous and should be isolated and stored in accordance with the contents' hazards. They must be kept closed at all times except when waste is being added. Care should be taken not to combine incompatible materials. Once filled, waste collection containers must be moved from the lab to your waste storage area within 3 days. These collection containers are removed by properly licensed vendors at scheduled intervals. The lowest possible waste disposal costs are achieved by following the waste segregation pattern recommended by your waste removal vendor.

For more information about chemical disposal, visit the Resources section of Carolina's website, Carolina.com (Resources > Lab Safety Information). If you have questions about any of these safety guidelines, please contact our Environmental Health and Safety Office.

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.

The Golden Rules of Safer Chemical Storage

- 1. Keep all doors and cabinets locked.
- 2. Allow only authorized personnel into storage areas.
- Avoid crowding chemicals on shelves.
 Keep larger bottles toward the back, and limit rows to 2 deep. Allow enough space between bottles so they can be removed without knocking others off the shelf.
- 4. Provide adequate ventilation (about 6 room air changes per hr).
- 5. Install smoke/heat detectors.
- Maintain secure shelving and check it annually; replace and repair when needed.
- Separate chemicals according to the following segregation plan. The colors noted below should appear on the chemical container's label.
 - General Chemical Storage (Green)
 - Toxic Chemicals (Blue)
 - Flammable Chemicals (Red); store in approved flammables cabinets
 - Reactives (Yellow)
 - Corrosives (White); separate acids and bases; separate oxidizer acids (nitric and perchloric) from organic acids (formic, acetic, etc.)
- Examine containers annually. Reattach loose labels with clear packing tape and dispose of unknowns.
- 9. Maintain an inventory that is updated at least annually.
- 10. Purchase only what you can use in 1 year.
- 11. Store larger and heavier containers on lower shelves.
- 12. Store hazardous materials below eye level.
- 13. Tape caps closed with vinyl electrical tape to avoid evaporation and leaks.
- 14. When containers are received, mark the full level, date received, and who is responsible for the material. When containers are opened, add the date of the opening.

Our chemicals have a new look!

The health, flammability, and reactivity information has been replaced with a storage and handling code to reflect the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

For further safety information, refer to the safety data sheets available online at Carolina.com.



Acetaldehyde 1

Syn: Acetic aldehyde, ethyl aldehyde, ethanal

Formula: CH₂CHO F.W.: 44.05 CAS No.: 75-07-0

Storage Code: Red—flammable

841271 Laboratory Grade 100 mL \$69.95

Acetic Acid

Formula: CH,CO,H F.W.: 60.05 CAS No.: 64-19-7

Characteristic: Clear, colorless liquid; strong

vinegar odor

Notes: Colorless solid below 16° C (61° F)

Storage Code: White-corrosive 841289 17.4 M (100% v/v); Glacial

ACS Grade 30 mL \$6.15 17.4 M (100% v/v); Glacial 841290 **ACS Grade** 500 mL \$22.95 841292 17.4 M (100% v/v); Glacial;

in glass bottle

ACS Grade

2.5 L 841293 17.4 M (100% v/v); Glacial;

in plastic-coated safety bottle \$80.35 ACS Grade 2.5 L

841330 0.1 M (0.6% v/v) Laboratory Grade 1 L \$11.25

841333 1 M (6% v/v) Laboratory Grade 1 L \$12.65

841355 6 M (36% v/v) Laboratory Grade 500 mL \$12.80



Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Flammable. Store in approved flammable containers. Store away from oxidizing materials. Red

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

Acetic Anhydride

Syn: Acetic oxide, acetyl oxide

Formula: C,H,O, F.W.: 102.09 CAS No.: 108-24-7 Characteristic: Colorless Storage Code: Red-flammable

841390 Reagent Grade 100 mL \$12.75

Aceto-Carmine (Schneider)

Notes: Solution made with acetic acid and carmine

Storage Code: White—corrosive

841423 Laboratory Grade 100 mL \$23.95

Aceto-Orcein

Notes: Solution made with acetic acid and orcein

Storage Code: White-corrosive

841453 Laboratory Grade 100 mL **\$40.50**

Acetone

Syn: 2-Propanone Formula: CH_COCH_ F.W.: 58.08 CAS No.: 67-64-1

Notes: Clear, colorless, flammable liquid

Storage Code: Red-flammable

841481 Laboratory Grade 500 mL \$16.80 841485 Laboratory Grade 1 L \$20.70 841500 500 mL ACS Grade \$9.45 841502 ACS Grade 3.8 L \$43.00 841506 ACS Grade 19 L \$222.25

Acetone Alcohol Acetone

Characteristic: Clear, colorless, flammable liquid

Storage Code: Red-flammable

841533 Laboratory Grade 500 mL **\$20.50**

Acetylcholine Bromide

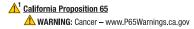
Formula: C₇H₄, BrNO₆ F.W.: 226.14 CAS No.: 66-23-9

Characteristic: Clear, colorless liquid

Storage Code: Green—general chemical storage

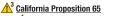
Aqueous 1:10,000 841611

Laboratory Grade 100 mL \$9.40



\$64.50











841690 Acetylsalicylic Acid, 100 g

Syn: 2-Acetoxybenzoic acid, aspirin Formula: 2-CH,COOC,H,COOH

F.W.: 180.16 CAS No.: 50-78-2

Characteristic: White crystalline powder

Storage Code: Blue—toxic

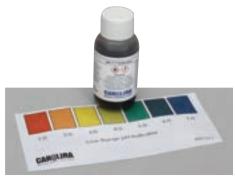
841690 Laboratory Grade 100 g \$13.35

Acid Alcohol A

Notes: 3% hydrochloric acid in 95% ethanol

Storage Code: Red—flammable

841733 Laboratory Grade 500 mL \$20.25 841735 Laboratory Grade 1 L \$42.65



848267 Acid Universal Indicator, 30 mL

Acid Universal Indicator 🕰

Notes: 7-step acid indicator for pH 1 to 7; each 1-unit increment is a distinct color

Storage Code: Red—flammable

848267 Laboratory Grade 30 mL \$6.05 \$54.00 848269 Laboratory Grade 500 mL

Acid Rain. Simulated 🗥

Notes: Test the effects of simulated acid rain on plants, rocks, or even soil samples; pH, 4.5 ±0.2 Storage Code: Green—general chemical storage 841804 Laboratory Grade 4 L \$43.00

Adrenaline

Svn: Epinephrine Formula: C₀H₁₃NO₃ F.W.: 183.20

CAS No.: 51-43-4

Notes: Solution has a poor shelf life; refrigerate

Storage Code: Blue—toxic 842093 Aqueous 1:10,000

Laboratory Grade 500 mL \$25.80



842133 Agar Powder, 500 g

Agar Powder

Syn: Agar agar CAS No.: 9002-18-0

Characteristic: White to beige

Notes: Will not dissolve in cold water; does not

support the growth of bacteria

Storage Code: Green—general chemical storage Reagent Grade 100 g 842130 \$28.15 Reagent Grade 500 g \$94.45 842133

Albumin

Syn: Egg white CAS No.: 9006-50-2 Characteristic: Yellow powder

Storage Code: Green—general chemical storage

842251 Laboratory Grade \$20.00 100 g \$92.00 842252 500 g Reagent Grade

Alconox® **Detergent**

Notes: For manual cleaning and use in ultrasonic washers; biodegradable, corrosion-inhibited, interfering residue free; use as 1% solution

Storage Code: Greengeneral chemical storage

842400 Laboratory Grade \$52.90 4 lb

842402

Laboratory Grade \$290.40 25 lb



842400 Alconox Detergent, 4 lb

Alizarin Yellow R

Formula: C_{1,2}H₀N₂O₅Na F.W.: 309.21 CAS No.: 1718-34-9

Storage Code: Green—general chemical storage 842722 Laboratory Grade 10 g \$13.70

Alka-Seltzer®

Storage Code: Green—general chemical storage

842780 Pkg of 24 \$13.35

Alum

See Aluminum Potassium Sulfate, Dodecahydrate

Aluminum

Formula: Al F.W.: 26.98 CAS No.: 7429-90-5

Notes: Powder is 2 to 5 mesh; strips are $4 \times \frac{1}{2}$;

wire is 16 gauge

Storage Code: Red—flammable (powder)

Green—general chemical storage

843068 Powder

Laboratory Grade 100 g \$18.30 843070 Powder Laboratory Grade 500 a \$45.90

843072 Shot

Laboratory Grade 500 q \$22.50

843074 Strips; $1/2 \times 4$ "

Laboratory Grade Pack of 10 \$7.50

843076 Wire: 16 Gauge

Laboratory Grade 100 g \$19.80

Aluminum Chloride, Hexahydrate

Formula: AICI, • 6H,0 F.W.: 241.43

CAS No.: 7784-13-6

Notes: Decomposition yields highly toxic fumes of

hydrochloric acid

Storage Code: Green—general chemical storage

843190 Crystal

Reagent Grade 500 g \$48.75

Aluminum Hydroxide

Formula: AI(OH), F.W.: 78.00

CAS No.: 21645-51-2

Storage Code: Green—general chemical storage

843272 Anhydrous

Laboratory Grade 500 g \$19.60

Chemicals



843310 Aluminum Nitrate. Nonahydrate, 500 g

Aluminum Nitrate, Nonahydrate

Syn: Aluminum trinitrate, aluminum (III) nitrate

Formula: Al(NO₃)₃ • 9H₃O

F.W.: 375.13 CAS No.: 7784-27-2

Characteristic: White crystals

Notes: Consider aluminum sulfate as a green

chemistry substitute

Storage Code: Green—general chemical storage 843310 Reagent Grade 500 g \$37.00



Aluminum Potassium Sulfate, Dodecahvdrate

Syn: Alum

Formula: AIK(SO₄)₂ • 12H₂O CAS No.: 7784-24-9 Characteristic: White powder

Storage Code: Green—general chemical storage 843360 Laboratory Grade 500 g \$12.75

Aluminum Sulfate, 18-Hydrate

Formula: Al₂(SO₄)₂ • 18H₂O

F.W.: 666.45 CAS No.: 7784-31-8

Characteristic: White, lustrous crystals

Notes: Green chemistry substitute for aluminum

nitrate

Storage Code: Green—general chemical storage 843490 Reagent Grade 500 g \$21.85

20 Natural Amino Acids Set

Set contains 20 amino acids, 1 g each.

DL-alpha Alanine DL-Leucine L-Arginine L-Lvsine L-Asparagine **DL-Methionine DL-Aspartic Acid** DL-Phenylalanine L-Proline L-Cysteine DL-Serine L-Cystine HCI L-Glutamic Acid DL-Threonine Glycine DL-Tryptophan L-Histidine DL-Tyrosine **DL-Isoleucine DL-Valine**

Storage Code: Green—general chemical storage **843600** Laboratory Grade Per set **\$104.25**

Ammonium Carbonate

Formula: (NH₄)₂CO₂ F.W.: 96.09 CAS No.: 506-87-6

Characteristic: Hard crystals, lumps

Notes: Water soluble; decomposes in hot water Storage Code: Green—general chemical storage 843752 Reagent Grade 500 g \$27.95

Ammonium Chloride

Formula: NH,CI F.W.: 53.49

CAS No.: 12125-02-9

Notes: Green chemistry substitute for ammonium

Storage Code: Green—general chemical storage

843800 Granular

Laboratory Grade 500 g \$10.50

843805 1 M

Laboratory Grade 500 mL \$7.15



843910 Ammonium Dichromate, 500 g

Ammonium Dichromate A

Syn: Ammonium bichromate

Formula: (NH₄)₂Cr₂O₇ F.W.: 252.06 CAS No.: 7789-09-5

Characteristic: Crystals are bright orange-red

Notes: Possible carcinogen Storage Code: Blue-toxic 843910 Granular

Laboratory Grade 500 g \$34.00



844011 Ammonium Hydroxide, 2.5 L

Ammonium Hydroxide

Formula: NH,OH F.W.: 35.05

CAS No.: 1336-21-6

Characteristic: Watery white liquid; strong ammonia

843690 Household Ammonia 64 oz \$7.20

844033 1 M

Laboratory Grade

\$13.20 1 L

844010 14.5 M: Strong Ammonia Solution

ACS Grade

500 mL \$18.90 844011 14.5 M; in glass bottle

> **ACS Grade** 2.5 L \$38.95

Ammonium Molybdate, **Tetrahydrate**

Syn: Ammonium heptamolybdate Formula: $(NH_4)_6 Mo_7 O_{24} \bullet 4H_2 O$

F.W.: 1235.86 CAS No.: 12054-85-2

Characteristic: Colorless to slightly greenish or

yellowish crystal

Notes: Soluble in water; insoluble in alcohol Storage Code: Green—general chemical storage **844080** Laboratory Grade 100 g **\$45.95**



844120 Ammonium Nitrate, 500 g

Ammonium Nitrate

Syn: Nitric acid ammonium salt

Formula: NH, NO, F.W.: 80.04

CAS No.: 6484-52-2

Characteristic: Transparent crystals

Notes: Consider ammonium chloride as a green

chemistry substitute

Storage Code: Yellow-reactive

844120 Crystal

Reagent Grade 500 g \$27.50

Ammonium Sulfate

Formula: (NH₄)₂SO₄ F.W.: 132.14 CAS No.: 7783-20-2

Characteristic: Brownish-gray to white crystals Storage Code: Green—general chemical storage **844362** Laboratory Grade 500 g **\$13.55**

Ammonium Thiocyanate

Syn: Thiocyanic acid, ammonium salt; ammonium

sulfocyanate Formula: NH, SCN **F.W.:** 76.12

CAS No.: 1762-95-4 Storage Code: Greengeneral chemical storage 844432 Laboratory Grade

500 g **\$29.60**



Syn: 1-Pentanol Formula: CH₃(CH₂)₄OH

F.W.: 88.15 CAS No.: 71-41-0

Storage Code: Red—flammable

844530 Reagent Grade 500 mL \$29.95



844432 Ammonium Thiocyanate, 500 g



844753 Aniline Blue, 100 mL

Aniline Blue

Syn: Acid blue 22, aniline blue water soluble sodium

salt, methyl blue

Formula: C₃,H₂,N₃,Na₂O₀S₃

F.W.: 737.72

CAS No.: 28631-66-5

Storage Code: Green—general chemical storage

844753 Saturated

Laboratory Grade 100 mL \$11.35

L-Ascorbic Acid

Syn: Vitamin C Formula: C₆H₈O₆ F.W.: 176.12 CAS No.: 50-81-7 Characteristic: White

Storage Code: Green—general chemical storage

845534 Powder

> Laboratory Grade 25 g \$8.75

845536 Powder

> Reagent Grade 100 g **\$19.40**



Baking Powder

Notes: Double-acting baking powder; contains sodium bicarbonate; use as an inexpensive laboratory

base

Storage Code: Green—general chemical storage

846700 230 g \$5.40



846578 Balsam Canada Neutral Xylene, 25 mL

Balsam Canada Neutral Xylene 1

Storage Code: Red—flammable

846578 Laboratory Grade 25 mL \$31.90

Barfoed Reagent

Storage Code: Green—general chemical storage **846625** Laboratory Grade 100 mL **\$10.60**

Barium Chloride, Anhydrous

Formula: BaCl₂ **F.W.:** 208.27

CAS No.: 10361-37-2
Characteristic: White powder
Storage Code: Blue—toxic
846742 0.1 M Aqueous

Laboratory Grade 500 mL **\$11.45**

Barium Chloride, Dihydrate

Formula: BaCl₂ • 2H₂0 F.W.: 244.26 CAS No.: 10326-27-9

Storage Code: Blue—toxic

846710 ACS Grade 500 g \$28.00

Barium Hydroxide, Octahydrate

Formula: Ba(0H)₂ • 8H₂0

F.W.: 315.47

CAS No.: 12230-71-6

Storage Code: White—corrosive

846820 Reagent Grade 500 g \$35.30



846950 Barium Sulfate, 500 g

Barium Sulfate

Formula: BaSO₄ **F.W.:** 233.39 **CAS No.:** 7727-43-7

Characteristic: White, fine, heavy powder or

polymorphous crystals

Storage Code: Green—general chemical storage **846950** Laboratory Grade 500 g **\$23.00**

Beeswax

CAS No.: 8012-89-3 Characteristic: Yellow

Storage Code: Green—general chemical storage **847050** Laboratory Grade 500 g **\$52.25**



847111 Benedict's Solution, Qualitative, 500 mL

Benedict's Solution, Qualitative

Notes: For analysis of reducing sugars

 Storage Code: Green—general chemical storage

 847111
 Laboratory Grade
 500 mL
 \$6.70

 847115
 Laboratory Grade
 1 L
 \$11.55

 847113
 Laboratory Grade
 3.8 L
 \$39.95

Benedict's Solution, Quantitative

Notes: 25 mL of reagent is equivalent to 50 mg of

glucose

Storage Code: Green—general chemical storage847121Laboratory Grade500 mL\$14.90847124Laboratory Grade1 L\$21.70

Benzoic Acid

Syn: Benzenecarboxylic acid **Formula:** C_6H_5COOH **F.W.:** 122.12

CAS No.: 65-85-0

Characteristic: White crystals

Storage Code: Green—general chemical storage **847310** Laboratory Grade 500 g **\$39.95**

For B.H.T. see 2,6-Di-Tert-Butyl-4-Methylphenol (item #849866) on page 960.



848202 Biuret Powder, 50 g

Biuret Powder

Notes: This powder is not used to make biuret; it is a positive control to let you know your biuret solution is working properly

Storage Code: Green—general chemical storage **848202** Laboratory Grade 50 g **\$38.85**



848215 Biuret Reagent, 3.8 L

Biuret Reagent A²

Characteristic: Blue

Storage Code: White-corrosive

848209	Laboratory Grade	30 mL	\$4.45
848211	Laboratory Grade	100 mL	\$5.75
848213	Laboratory Grade	500 mL	\$8.90
848214	Laboratory Grade	1 L	\$16.00
848215	Laboratory Grade	3.8 L	\$46.95





Bogen Universal Indicator ▲³

Notes: 7 different colors in 1-unit steps; wide range pH 4 to 10

Storage Code: Red—flammable

848263 Laboratory Grade 100 mL **\$10.25** 848265 Laboratory Grade

500 mL **\$17.25**

Boiling Chips, Marble

See Marble Chips

Boiling Chips, Pumice

Storage Code: Green—general chemical storage **848280** Laboratory Grade 500 g **\$29.95**

Borax

See Sodium Borate, Decahydrate

Boric Acid

Formula: H₃BO₃ **F.W.:** 61.83

CAS No.: 10043-35-3 Characteristic: White

Storage Code: Green—general chemical storage

848440 Powder

Laboratory Grade 500 g \$13.35

Bromcresol Green, Sodium Salt

Formula: C₂₁H₁₃Br₄NaO₅S

F.W.: 720.00 **CAS No.:** 62625-32-5

Characteristic: Greenish-black crystalline powder or

liquid

Storage Code: Green—general chemical storage

848943 0.04%

Laboratory Grade 100 mL \$7.45



849084 Bromphenol Blue, 5 g

Bromphenol Blue

Formula: C₁₉H₉Br₄NaO₅S

F.W.: 691.94 CAS No.: 62625-28-9

Characteristic: Blue-black powder

Notes: Sodium salt

Storage Code: Green—general chemical storage **849084** Reagent Grade 5 g **\$25.70**

849095 0.04% Aqueous

Laboratory Grade 500 mL **\$12.40**

Bromthymol Blue A

Characteristic: 1.6% in 50% ethanol Storage Code: Red—flammable

849175 Laboratory Grade 500 mL \$85.00



849150 and 849152 Bromthymol Blue Powder

Bromthymol Blue

Syn: BTB, bromothymol blue **Formula:** $C_{27}H_{27}Br_2NaO_5S$

F.W.: 646.39 CAS No.: 34722-90-2

Characteristic: Reddish-brown crystals

Notes: Sodium salt, water soluble; when making a solution with this, if it turns green, add 4% sodium hydroxide solution dropwise until it turns blue

Storage Code: Green—general chemical storage

849150 Powder Reagent Grade \$7.75 1 g 849152 Powder Reagent Grade \$27.70 849157 0.01% Aqueous Laboratory Grade 100 mL \$4.65 849159 0.01% Aqueous Laboratory Grade 500 mL \$6.40 849162 0.04% Aqueous Laboratory Grade 30-mL dropper bottle \$4.05 849164 0.04% Aqueous Laboratory Grade 100 mL \$4.25 849165 0.04% Aqueous Laboratory Grade \$7.60 500 mL 849166 0.04% Aqueous Laboratory Grade \$14.90 849167 0.04% Aqueous

Laboratory Grade

4 L

\$39.20

Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

Buffers

See page 989



849790 1-Butanol, 500 mL

1-Butanol

Syn: n-Butyl alcohol Formula: CH₂(CH₂)₂CH₂OH

F.W.: 74.12 CAS No.: 71-36-3

Notes: May be substituted for ethanol and xylene

Storage Code: Red-flammable

849790 Reagent Grade 500 mL \$29.80



Caffeine

Syn: 1,3,7-Trimethylxanthine

Formula: C₈H₁₀N₄O₂ F.W.: 194.19 CAS No.: 58-08-2

Characteristic: White powder

Notes: Naturally occurs in tea, coffee, guarana paste,

and cola nuts; light sensitive

Storage Code: Green—general chemical storage 851568 Laboratory Grade 25 g \$15.50 851570 Laboratory Grade 100 g \$32.55



851615 Calcium Turnings, 25 g

Calcium

Formula: Ca F.W.: 40.08

CAS No.: 7440-70-2

Storage Code: Red-flammable

851615 Turnings

Laboratory Grade 25 g \$14.40 851619 **Turnings** \$30.60 100 g

Reagent Grade

Calcium Acetate, Monohydrate

Svn: Lime acetate, calcium diacetate

Formula: Ca(CH₃CO₂)₂ • H₂O

F.W.: 176.18 CAS No.: 5743-26-0

Storage Code: Green—general chemical storage

851660 Powder

Laboratory Grade 500 g \$29.40

Calcium Carbide

Formula: CaC. F.W.: 64.10 CAS No.: 75-20-7 Characteristic: Gray/black Storage Code: Red—flammable

851700 Lump

Laboratory Grade 500 g \$26.40

Calcium Carbonate 11

Syn: Limestone, chalk, marble

Formula: CaCO. **F.W.:** 100.09 CAS No.: 1317-65-3

Storage Code: Green—general chemical storage

851748 Powder

Laboratory Grade 100 g

851750 Powder

> Laboratory Grade 500 g \$16.40

\$7.85

Calcium Carbonate Chips

See Marble Chips



851843 Calcium Chloride, Anhydrous, 2 kg

Calcium Chloride, Anhydrous

Formula: CaCl. F.W.: 111.0 CAS No.: 10043-52-4

Notes: Used as a drying and dehydrating agent for organic liquids and gases; green chemistry substitute

for calcium nitrate

Storage Code: Green—general chemical storage

851840 Pellets; 4 to 8 Mesh Laboratory Grade 500 g \$9.40 851843 Pellets; 4 to 8 Mesh

Laboratory Grade 2 kg \$24.00 851870 Granular; 8 Mesh Laboratory Grade 500 g \$13.60

851847 0.1 M Aqueous Laboratory Grade 500 mL \$7.15 851845 1.0 M Aqueous

Laboratory Grade 500 mL \$8.85

Calcium Chloride, Dihydrate

Formula: CaCl₂ • 2H₂O F.W.: 147.01

CAS No.: 10035-04-8

Notes: Green chemistry substitute for calcium nitrate Storage Code: Green—general chemical storage

851800 Granular

Laboratory Grade 500 g \$8.95

Calcium Hydroxide

Syn: Lime Formula: Ca(OH), F.W.: 74.09 CAS No.: 1305-62-0 Characteristic: White

Notes: Absorbs CO, from the air; keep tightly closed

Storage Code: White-corrosive

852030 Powder

Laboratory Grade 500 g \$11.75

Calcium Nitrate, Tetrahydrate

Syn: Nitric acid, calcium (II) salt Formula: Ca(NO₂)₂ • 4H₂O

F.W.: 236.15

CAS No.: 13477-34-4

Notes: Strong oxidizer; consider calcium chloride as a

green chemistry substitute Storage Code: Yellow—reactive

852180 Laboratory Grade 500 g \$15.40

Calcium Oxide

Syn: Lime, quick lime, burnt lime

Formula: CaO F.W.: 56.08 CAS No.: 1305-78-8 Notes: Deliquescent

Storage Code: White—corrosive

852240 Powder

Laboratory Grade 500 g \$14.60



Calcium Phosphate, Monobasic, Monohydrate

Syn: Monocalcium phosphate, monohydrate

Formula: Ca(H₂PO₄)₂ • H₂O

F.W.: 252.07 CAS No.: 10031-30-8 Characteristic: White solid

Notes: Deliquescent in air; loses water at 100° C Storage Code: Green—general chemical storage **852260** Laboratory Grade 100 g **\$13.30**



852394 Calcium Sulfate, Dihydrate, 100 g

Calcium Sulfate, Dihydrate

Formula: CaSO, • 2H₂O

F.W.: 172.17

CAS No.: 10101-41-4

Storage Code: Green—general chemical storage 852394 Reagent Grade 100 g \$16.65

Calcium Sulfate, Hemihydrate A

Formula: CaSO₄ • 1/2 H₂O

F.W.: 145.15 CAS No.: 10034-76-1 Characteristic: White

Storage Code: Green—general chemical storage

852391 Powder

Reagent Grade 500 g \$9.65

Carbol Fuchsin Kinyoun A

Storage Code: Green—general chemical storage **852665** Laboratory Grade 500 mL **\$80.30**

Carbol Fuchsin Ziehl-Neelsen A

Notes: Contains basic fuchsin, water, ethanol, and phenol

Storage Code: Red-flammable

852705 Laboratory Grade 500 mL \$26.40 852707 Laboratory Grade 1 L \$46.05

Carbol Xylol A

Notes: Toxic: causes skin and eye burns

Storage Code:

Red—flammable

852793

Laboratory Grade 500 mL **\$76.80**

Carbon

See Charcoal

852793 Carbol Xylol, 500 mL



Cargille Immersion Oil A

Notes: Reduces trapped air; low viscosity; 150 centistokes; 1-oz size has a glass applicator rod in the cap

Storage Code: Green-general chemical storage

852980 Laboratory Grade \$13.95 1 oz

852984 Laboratory Grade \$57.35 16 oz

Cargille Immersion Oil B

Notes: View multiple slides with 1 application; high viscosity; 1,250 centistokes; 1-oz size has a glass applicator rod in the cap

Storage Code: Green—general chemical storage

853000 Laboratory Grade

\$15.15 1 oz 853004 Laboratory Grade

16 oz **\$58.40**



852980 Cargille Immersion Oil A, 1 07



853000 Cargille Immersion Oil B, 1 oz

853311 Carolina Immersion Oil

Carolina® Immersion Oil

Carmine Blue

See Indiao Carmine

Notes: Clear, non-gumming; refractive index 1.515; in 15-mL dropping bottle; no PCBs

Storage Code: Green—general chemical storage 853311 Laboratory Grade Per bottle \$10.95



220118A Carolina's Perfect Solution, 1 gal

Storage Code Key

Blue Toxic. Store separately in a secured area.

General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Reactive. Store separately and away from incompatible material.

Carolina's Perfect Solution®

Notes: Ready-to-use holding solution for Carolina's Perfect Solution® specimens; cannot be used to fix specimens

Storage Code: Green—general chemical storage

220118A 1 gal Each \$32.00 220115A 5 gal Each \$95.00



Yellow

Carosafe®

Notes: Formaldehyde-free holding solution; cannot be used to fix specimens

Storage Code: Green—general chemical storage853341Laboratory Grade4 L\$48.00853343Laboratory Grade20 L\$162.00



853355 Carosafe Concentrate, 20 L

Carosafe® Concentrate

Notes: Formaldehyde-free holding solution; cannot be used to fix specimens; mix with 9 parts water

 Storage Code: Green—general chemical storage

 853351
 Laboratory Grade
 1 L
 \$44.00

 853353
 Laboratory Grade
 4 L
 \$130.00

 853355
 Laboratory Grade
 20 L
 \$490.00

Casein

CAS No.: 900-71-9

Characteristic: Off-white powder, odorless **Notes:** Mixture of phosphoproteins from milk;

hygroscopic

Storage Code: Green—general chemical storage

853428 Powder

Laboratory Grade 100 g \$14.45



853532 Catalase, 5 mL

Catalase

CAS No.: 2593710

Notes: Dilute 1 mL catalase to 715 mL with distilled water for a final concentration of 400 IU/mL; converts hydrogen peroxide to oxygen and water; keep refrigerated; oxidizing enzyme; this product has a shelf life of 6 months from date of receipt

Storage Code:Green—general chemical storage853530Laboratory Grade1 mL\$24.25853532Laboratory Grade5 mL\$48.75



853540 Catechol, 100 g

Catechol A

Syn: Pyrocatechol Formula: $C_6H_6O_2$ F.W.: 110.11 CAS No.: 120-80-9

Characteristic: Crystal Notes: 99% pyrocatechol Storage Code: Blue—toxic

853540 Reagent Grade 100 g \$59.95

Caustic Potash

See Potassium Hydroxide

Caustic Soda

See Sodium Hydroxide

Cellulase

Notes: Breaks down cellulose into glucose; solid contains 1,000 to 150,000 cellulase units (CU) per gram; keep refrigerated; optimal pH for activity is pH 5; optimal temperature for activity is 55° C; not a substitute for catalase used in AP® Biology lab

Storage Code: Green—general chemical storage **853630** Laboratory Grade 25 g **\$46.65**

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Charcoal

Formula: C F.W.: 12.01

853780

CAS No.: 7440-44-0 Characteristic: Gray/black

Notes: Insoluble in water and organic solvents **Storage Code:** Green—general chemical storage

853740 Activated Carbon

Reagent Grade & Wood Lump

500 g **\$32.00**

Laboratory Grade 500 g **\$15.00**

Chlorine Water, Saturated

Characteristic: Pale yellow liquid with chlorine odor

Storage Code: White-corrosive

853943 Laboratory Grade 500 mL \$16.95

Chloroform A3

Syn: Trichloromethane Formula: CHCl₃ F.W.: 119.38 CAS No.: 67-66-3 Characteristic: Clear

Notes: Consider ethyl acetate as a green chemistry

substitute

OH

Storage Code: Blue—toxic

853980 Laboratory Grade 500 mL \$58.00



854770 Citric Acid, Anhydrous, 500 g

Citric Acid, Anhydrous

Formula: $C_6H_8O_7$ F.W.: 192.13 CAS No.: 77-92-9 Characteristic: White

Notes: Used in the manufacture of beverages, phar-

maceutical syrups, and elixirs

Storage Code: Green—general chemical storage

854770 Powder

Reagent Grade 500 g \$29.50

Citric Acid, Monohydrate

Formula: C₆H₈O₇ • H₂O F.W.: 210.14 CAS No.: 5949-29-1

 Storage Code:
 Green—general chemical storage

 854690
 Laboratory Grade
 500 g
 \$27.50

 854695
 Laboratory Grade
 100 g
 \$22.50

Cleaner

See Alconox® Detergent and Disinfectant, WAVICIDE®-01

Cobalt Chloride, Hexahydrate

Syn: Cobalt II chloride, hexahydrate

Formula: CoCl₂ • 6H₂O **F.W.:** 237.93 **CAS No.:** 7791-13-1

Notes: Soluble in most organic solvents; green chemistry substitute for cobalt nitrate

Storage Code: White-corrosive

854959 Reagent Grade 100 g \$23.50

Cobalt Chloride Test Paper

See pH Test Papers on pages 990-993



855001 Coconut Oil, 100 mL

Coconut Oil

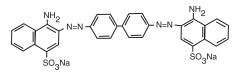
CAS No.: 8001-31-8

Storage Code: Green—general chemical storage **855001** Laboratory Grade 100 mL **\$10.85**



855363 Congo Red, 100 mL

Congo Red 11



Formula: C₃₂H₂₂N₆Na₂O₆S₂

F.W.: 696.67 CAS No.: 573-58-0

Notes: pH 3.0 blue to 5.0 red

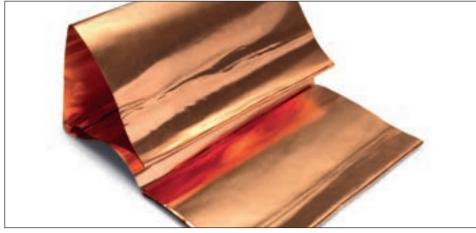
Storage Code: Green—general chemical storage

855348 Powder

Laboratory Grade 10 g \$16.20

855363 1% Aqueous Laboratory Grade 100 mL **\$11.30**

855365 1% Aqueous Laboratory Grade 500 mL **\$31.05**



855420 Copper Foil, 100 g

Storage Code Key

Red

Yellow

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Reactive. Store separately and away from incompatible material.

Chemicals



855580 Copper Shot, 500 g



757488A Copper Electrodes, 3/4 × 51/2"

Copper

F.W.: 63.55

CAS No.: 7440-50-8 Characteristic: Copper color

Notes: Green chemistry substitute for lead **Storage Code:** Green—general chemical storage

855420 Foi

Reagent Grade

100 g **\$17.10**

855530 Powder

Laboratory Grade

500 g **\$69.45**

855580 Shot

757488A

Laboratory Grade

500 g **\$55.00** Electrodes, ³/₄ × 5¹/₂"

Laboratory Grade

Pack of 12 **\$27.95**

756350 Wire; 16 Gauge

135 ft **\$27.95**

Copper (I) Chloride

Syn: Cuprous chloride

Formula: CuCl F.W.: 99.00

CAS No.: 7758-89-6

Characteristic: Tan to grayish-white powder,

odorless

Notes: Sensitive to moisture and sunlight; solutions

oxidize rapidly in air

Storage Code: White—corrosive

856305 Powder

Laboratory Grade 100 g **\$16.00**

\$9.95

Chemicals

Copper (II) Carbonate

Syn: Cupric carbonate Formula: CuCO₂ • Cu(OH)₂

F.W.: 221.12 CAS No.: 12069-69-1 Characteristic: Blue/green

Storage Code: Green—general chemical storage 856398 Reagent Grade 100 g **\$15.70** 856400 Laboratory Grade 500 g **\$43.80**

Copper (II) Chloride, Anhydrous

Syn: Cupric chloride Formula: CuCl F.W.: 134.45 CAS No.: 7447-39-4

Characteristic: Yellow-brown crystalline powder

Storage Code: White-corrosive

856430 Powder

Laboratory Grade 100 g \$28.25 856434 1.0 M

Laboratory Grade 500 mL \$12.40



856442 Copper (II) Chloride, Dihydrate, 500 g

Copper (II) Chloride, Dihydrate

Syn: Cupric chloride, dihydrate Formula: CuCl₂ • 2H₂O F.W.: 170.49

Characteristic: Green to blue powder

CAS No.: 10125-13-0

856442

Storage Code: White-corrosive 856440 Laboratory Grade 500 g \$28.20 856450 Reagent Grade 100 g \$16.30

500 q

\$49.00

Copper (II) Nitrate, Trihydrate

Reagent Grade

Syn: Cupric nitrate Formula: Cu(NO₂)₂ • 3H₂O

F.W.: 241.60 CAS No.: 10031-43-3 Characteristic: Dark blue Storage Code: Yellow-reactive

856479 Reagent Grade 100 g \$22.00

Copper (II) Nitrate Solution

Svn: Cupric nitrate Formula: Cu(NO₃)₃ F.W.: 187.56 CAS No.: 10031-43-3 Characteristic: Dark blue

Storage Code: Green—general chemical storage

856475 0.1 M

Laboratory Grade 500 mL \$11.70

Copper (II) Oxide

Syn: Cupric oxide Formula: CuO F.W.: 79.55 CAS No.: 1317-38-0

Storage Code: Green—general chemical storage 856488 Reagent Grade 100 g \$17.15

Copper (II) Sulfate, Anhydrous

Syn: Cupric sulfate, anhydrous

Formula: CuSO. F.W.: 159.60 CAS No.: 7758-98-7 Characteristic: Off-white

Storage Code: Green—general chemical storage

856589 Powder

Reagent Grade 100 g \$24.20 856592 Reagent Grade 500 g \$68.95



856550 Copper (II) Sulfate, Pentahydrate, 500 g

Copper (II) Sulfate, Pentahydrate

Syn: Cupric sulfate, pentahydrate Formula: CuSO, • 5H₂O

F.W.: 249.69 CAS No.: 7758-99-8 Characteristic: Blue/white

Storage Code: Green—general chemical storage 856550 Laboratory Grade 500 q \$15.70 856552 Laboratory Grade \$43.00 2.5 kg

856562 Fine Crystal

Reagent Grade 500 q \$32.40

Copper (II) Sulfate Solution

Svn: Cupric sulfate solution

Formula: CuSO, Characteristic: Blue

Storage Code: Green—general chemical storage

855640 1 M (25%)

Laboratory Grade 500 mL

855643 20%

> Laboratory Grade 500 mL \$18.35

Corn Oil

Characteristic: Light yellow oil

Storage Code: Green—general chemical storage

855700 16 oz \$9.90

Corn Syrup

Notes: Contains dextrose; tests positive with

Benedict's Solution

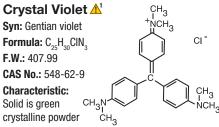
Storage Code: Green—general chemical storage

855720 16 oz \$7.95

Cresol Red

Syn: o-Cresolsulfonephthalein

Storage Code: Green—general chemical storage 856053 Laboratory Grade 1 g \$10.95



Notes: Biological stain

Storage Code: Green—general chemical storage 856150 Reagent Grade \$13.50 10 q 856205 1% Aqueous Laboratory Grade 500 mL \$18.00 856207 1% Aqueous

Laboratory Grade 1 L \$34.30

Crystal Violet Solution, Hucker's A

Syn: Crystal violet Hucker's stain Characteristic: Dark violet liquid

Notes: For Gram staining: contains crystal violet and

ammonium oxalate

Storage Code: Red—flammable

867485 Laboratory Grade 500 mL \$28.75

Cupric, Cuprous Salts

See Copper





856798 Cyclohexane, 500 mL

Cyclohexane

Syn: Hexahydrobenzene **Formula:** $CH_2(CH_2)4CH_2$

F.W.: 84.16 **CAS No.:** 110-82-7

Characteristic: Clear, colorless liquid Storage Code: Red—flammable

856798 Laboratory Grade 500 mL \$24.30



856794 Cyclohexene, 100 mL

Cyclohexene

Syn: 1,2,3,4-Tetrahydrobenzene

Formula: C₆H₁₀ **F.W.:** 82.14

CAS No.: 110-83-8

Characteristic: Clear, colorless liquid Storage Code: Red—flammable

856794 Laboratory Grade 100 mL \$19.10



Decolorizer

See Acetone Alcohol

Detergent

See Alconox® Detergent

Dextrose, Anhydrous

Syn: Glucose, D-glucose, grape sugar, corn sugar

Formula: C₆H₁₂O₆ **F.W.:** 180.16 **CAS No.:** 50-99-7

Storage Code: Green—general chemical storage

857430 Granular

Reagent Grade 500 g **\$15.50 857432** Granular

Reagent Grade 1 kg **857450** Powder

Reagent Grade 500 g **\$16.50**

857451 Powder

Reagent Grade 2 kg \$42.00

\$25.70

Dextrose, Monohydrate

Syn: Glucose

Formula: $C_6H_{12}O_6 \bullet H_2O$

F.W.: 198.18 CAS No.: 5996-10-1 Characteristic: White

Storage Code: Green—general chemical storage

857490 Powder

Reagent Grade 500 g **\$18.95 857488** Powder

Laboratory Grade 500 g **\$14.25**



857539 Diastase Malt, 25 g

Diastase Malt

CAS No.: 9000-92-4

Notes: $1 \times NF$; 1 g digests 50 g starch in less than

30 min

Storage Code: Green—general chemical storage

857539 Powder

Laboratory Grade 25 g \$10.00

Diatomaceous Earth 11

Notes: Filter aid

Storage Code: Green—general chemical storage **857570** Laboratory Grade 500 g **\$22.90**

Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

CARQUINA ***** 1 y 2 de la companya de la companya

868601 2,6-Dichloroindophenol, 5 g

2,6-Dichloroindophenol

Syn: 2,6-Dichlorophenol indophenol; DPIP

 $\textbf{Formula:} \ \textbf{C}_{12}\textbf{H}_{6}\textbf{CI}_{2}\textbf{NNaO}_{2}$

F.W.: 290.09 CAS No.: 620-45-1

Characteristic: Dark green; water soluble; solution

is blue

Notes: For qualitative determination of vitamin C Storage Code: Green—general chemical storage 868600 Laboratory Grade 1 g \$13.95 868601 Laboratory Grade 5 g \$41.00

Diethyl Ether

See Ether



Disinfectant, WAVICIDE®-01

Formula: 2.65% solution (glutaraldehyde)

Storage Code: Blue-toxic 858475 Laboratory Grade 3.8 L **\$54.00**

> 858475 WAVICIDE-01 Disinfectant, 3.8 L



2,6-Di-Tert-Butyl-4-Methylphenol

Syn: BHT, butylated hydroxytoluene

Formula: $C_{15}H_{24}O$ F.W.: 220.35 CAS No.: 128-37-0

Storage Code: Green—general chemical storage 849866 Reagent Grade 100 g \$16.00

Dodecyl Sodium Sulfate

Syn: Sodium dodecyl sulfate, SDS, lauryl sodium sulfate, sodium lauryl sulfate

Formula: CH₃(CH₂)₁₁OSO₃Na

F.W.: 288.38 CAS No.: 151-21-3

Storage Code: Red—flammable

858740 Laboratory Grade 100 g \$21.45

DPIP

See 2,6-Dichloroindophenol



858963 Drierite, Indicating (8 mesh), 454 g

Drierite®, Indicating (8 mesh)

Notes: Blue granules turn pink when wet; contains calcium sulfate, anhydrous, as the desiccant and cobalt chloride as the indicator; to recharge, spread in a 1-granule-deep layer and heat for 1 hour at 210° C (425° F)

Storage Code: Blue-toxic

858963 Granules

Laboratory Grade 454 g **\$43.80**

EDTA

See Ethylenediaminetetraacetic Acid (free acid)



859450 Embryo Rearing Solution, 500 mL

Embryo Rearing Solution

Notes: For freshwater teleosts; ready-to-use solution Storage Code: Green—general chemical storage 859450 Laboratory Grade 500 mL \$19.00



859632 Eosin Yellowish, 100 mL

Eosin Yellowish

Syn: Eosin Y, acid red 87 Formula: C₂₀H₆Br₄Na₂O₅

F.W.: 691.8 CAS No.: 17372-87-1

Characteristic: Red-brown crystalline powder Storage Code: Green—general chemical storage

859632 1% Solution

Laboratory Grade 100 mL \$12.40

Epinephrine

See Adrenaline

Epsom Salts

See Magnesium Sulfate, Heptahydrate



861265 Ethanol, 20 L

Ethanol A2

Syn: Ethyl alcohol Formula: CH, CH, OH F.W.: 46.07

CAS No.: 64-17-5

Notes: Completely denatured; green chemistry

substitute for methanol

Storage Code: Red-flammable

861261 70% Laboratory Grade 500 mL \$10.25 861267 70% \$22.10 Laboratory Grade 1 L 861263 70% Laboratory Grade 3.8 L \$33.70 861265 70% Laboratory Grade 20 L \$187.05 861281 95% Laboratory Grade 500 mL \$8.15 861282 95% Laboratory Grade 1 L \$16.05 861283 95% Laboratory Grade 3.8 L \$35.00 861285

Laboratory Grade 20 L

Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material. \$197.10

E-F

Chemicals



861300 Ethanol, Anhydrous, Reagent, 3.8 L

Ethanol, Anhydrous, Reagent A

Syn: Ethyl alcohol **Formula:** CH₃CH₂OH

F.W.: 46.07 CAS No.: 64-17-5

Notes: Contains no water; completely denatured with isopropanol and methanol; green chemistry substitute for methanol

Storage Code: Red—flammable

 861298
 Reagent Grade
 473 mL
 \$11.40

 861300
 Reagent Grade
 3.8 L
 \$43.95

 861302
 Reagent Grade
 20 L
 \$219.85

Ether

Syn: Ethyl ether **Formula:** $(C_2H_5)_20$ **F.W.:** 74.12 **CAS No.:** 60-29-7

Notes: Consider hexanes as a green chemistry substitute **Storage Code:** Red—flammable

861348 Anhydrous Reagent Grade 500 mL \$37.35



861348 Ether, 500 mL

Ethyl Acetate

Formula: CH₃CO₂CH₂CH₃

F.W.: 88.11 **CAS No.:** 141-78-6

Characteristic: Clear, colorless liquid

Notes: Green chemistry substitute for chloroform and

methylene chloride

Storage Code: Red—flammable

861490 Laboratory Grade 500 mL **\$22.00 861492** Reagent Grade 4 L **\$88.00**

Ethylenediaminetetraacetic Acid Disodium Salt, Dihydrate

Syn: EDTA disodium salt dihydrate **Formula:** $C_{10}H_{14}N_2Na_2O_8 - 2H_2O$

F.W.: 372.24 **CAS No.:** 6381-92-6

Characteristic: White powder; metal chelating agent Notes: More water-soluble than EDTA free acid Storage Code: Green—general chemical storage 861778 Reagent Grade 100 g \$26.00

Ethylenediaminetetraacetic Acid

(free acid)

Syn: EDTA Formula: $C_{10}H_{16}N_2O_8$ F.W.: 292.25 CAS No.: 60-00-4 Characteristic: White

powder; metal chelating agent

Storage Code: Green—general chemical storage

861780 Laboratory Grade 100 g **\$18.95**



861780 Ethylenediaminetetraacetic Acid (free acid), 100 g

Ethylene Glycol A2

Formula: $C_2H_6O_2$ F.W.: 62.07 CAS No.: 107-21-1 Characteristic: Clear

Notes: Main component of most antifreeze

formulations

Storage Code: Green—general chemical storage **861710** Laboratory Grade 500 mL **\$12.30**



Fehling's Solution A

Syn: Fehling's copper solution **Characteristic:** Clear, blue liquid

Notes: Use with Fehling's B to test for reducing

sugars

Storage Code: Green—general chemical storage **862273** Laboratory Grade 500 mL **\$7.25**

Fehling's Solution B

Syn: Fehling's alkaline tartrate solution **Characteristic:** Clear, colorless liquid

 $\textbf{Notes:} \ \textbf{Use with Fehling's A to test for reducing}$

sugars

Storage Code: Green—general chemical storage **862283** Laboratory Grade 500 mL **\$15.25**

Ferric, Ferrous Salts

See Iron

Flagella Stain, Leifson A

Storage Code: Red—flammable

863193 Laboratory Grade 100 mL **\$34.40**



863200 Fluorescein, Sodium Salt, 25 g

Fluorescein, Sodium Salt

Syn: Uranine, acid yellow 73 **Formula:** $C_{20}H_{10}O_5Na_2$ **F.W.:** 376.27

CAS No.: 518-47-8

Characteristic: Orange-red powder, hygroscopic,

water soluble

Notes: Produces intense yellow-green fluorescence Storage Code: Green—general chemical storage 863200 Reagent Grade 25 g \$13.30



Food Coloring

Notes: Set contains one 7.5-mL dropper bottle for each color (red, blue, green, and yellow)

Storage Code: Green-general

chemical storage

898030 Set

Each \$6.95 898031 FD&C Red #40

30 mL \$3.90

898032 FD&C Blue #1

30 mL \$4.00

898033 FD&C Green #3 30 mL \$3.75

898034 FD&C Yellow #5

Formaldehyde 123

Formula: CH_oO

CAS No.: 50-00-0

F.W.: 30.03

863463

863465

Formalin A3

30 mL \$3.90

contains 10% methanol as inhibitor

37% Formaldehyde

37% Formaldehyde

Laboratory Grade 3.8 L

Laboratory Grade 20 L

Storage Code: Red—flammable

Notes: 10% formaldehyde solution



898034 FD&C Yellow #5 Food Coloring, 30 mL

\$32.30

\$187.00

Gastric Juice

Notes: Keep refrigerated; artificial

Storage Code: Green—general chemical storage 864603 Laboratory Grade 500 mL \$13.15

Gelatin

CAS No.: 9000-70-8 Characteristic: Tan

Storage Code: Green—general chemical storage

864660 Granular

Reagent Grade 500 g \$36.95

Glucose

See Dextrose

Glucose Standard Solution

Svn: Dextrose Characteristic: Clear

Notes: Shelf life is 1 year from the date it is opened Storage Code: Green—general chemical storage

865390 1 mL=1 mg

Laboratory Grade 500 mL \$13.75

865393 1 mL=10 mg

Laboratory Grade 500 mL \$14.95



893840 Glucose Test Strips

Glucose Test Strips

Notes: Semi-quantitative strip measures glucose concentration; graduations are 0, 100, 300, 1,000, and

3,000 mg/dL

Storage Code: Green—general chemical storage 893840 Laboratory Grade 100 strips \$25.55



Storage Code: Green—general chemical storage

865442 White 1 gal \$38.50 Clear 1 gal **\$49.40** 865445

Glycerin Jelly

Characteristic: Yellow

865442 Glue, White,

1 gal and 865445

Glue, Clear, 1 gal

Notes: Used for nematodes and similar parasites; media used for slide mounting of organisms Storage Code: Green—general chemical storage 865495 Laboratory Grade 500 mL \$54.50

Glycerol

Syn: Glycerin Formula: C₂H₂(OH)₂ **F.W.:** 92.10 CAS No.: 56-81-5

Characteristic: Clear, colorless liquid

Storage Code: Green—general chemical storage **865530** Laboratory Grade 500 mL \$15.80

865560 500 mL Reagent Grade \$16.75 865534 3.8 L \$98.60 Reagent Grade

Syn: 10% formaldehyde solution, neutral-buffered

863533 Laboratory Grade 3.8 L \$56.00

Formalin, Neutral-Buffered 13

Notes: 37% aqueous solution; possible carcinogen;

Characteristic: Clear liquid

Storage Code: Blue-toxic

Notes: Buffer reduces formation of formalin pigment. which occurs from the reaction of formaldehyde and hemoglobin at acidic pH: exchange old solution for new in holding tanks every 6 months to prevent formalin pigment

Storage Code: Blue—toxic

863553 Laboratory Grade 3.8 L \$64.50

Formic Acid

Formula: HCO2H F.W.: 46.03 CAS No.: 64-18-6

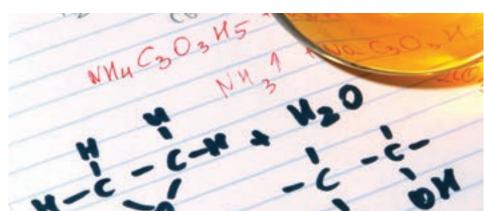
Storage Code: White-corrosive

863810 23.6 M

ACS Grade 500 mL \$36.35

Fructose

See Levulose





865867 Gram Iodine, 1 L

Gram Iodine

Characteristic: Brown color **Notes:** Staining solution

 Storage Code:
 Green—general chemical storage

 865863
 Laboratory Grade
 100 mL
 \$7.70

 865865
 Laboratory Grade
 500 mL
 \$13.10

 865867
 Laboratory Grade
 1 L
 \$42.00

Graphite Powder ▲¹

Syn: Graphite, natural; carbon, black lead

Formula: C **F.W.:** 12.01

CAS No.: 7782-42-5

Characteristic: Dark gray-black crystalline powder Storage Code: Green—general chemical storage 865880 Laboratory Grade 500 g \$22.85

Guar Gum

CAS No.: 9000-30-0 Characteristic: Buff colored

Storage Code: Green—general chemical storage

866102 Powder

Reagent Grade 500 g \$40.85



Gum Arabic

Syn: Acacia
CAS No.: 9000-01-5
Characteristic: Buff colored

Storage Code: Green—general chemical storage

866108 Powder

Laboratory Grade 100 g \$16.35



n-Heptane

Syn: n-Heptane, normal heptane

Formula: CH₃(CH₂)₅CH₃ **F.W.:** 100.20 **CAS No.:** 142-82-5

Characteristic: Clear, colorless liquid Notes: Immiscible with water

Storage Code: Red—flammable

867132 Laboratory Grade 500 mL **\$34.00**

1,6-Hexanediamine

Formula: $H_2N(CH_2)_6NH_2$

F.W.: 116.2 CAS No.: 124-09-4 Characteristic: Clear

Notes: Use 6% solution with Sebacoyl Chloride (item

#887302) to make nylon **Storage Code:** White—corrosive

867162 6%

Laboratory Grade 100 mL \$7.90

Hexanes 122

Formula: C₆H₁₄ **F.W.:** 86.18 **CAS No.:** 110-54-3

Characteristic: Clear, colorless liquid

Notes: Green chemistry substitute for ether and

petroleum ether

Storage Code: Red-flammable

867180 Reagent Grade 500 mL \$17.75

Household Ammonia

See Ammonium Hydroxide

Hydrochloric Acid

Formula: HCI F.W.: 36.46 CAS No.: 7647-01-0

Storage Code: White—corrosive

867790 12.1 M (37% v/v); in glass bottle

ACS Grade 500 mL **\$22.40 867791** 12.1 M (37% v/v); in plastic-coated safety bottle

ACS Grade 500 mL **\$25.25** 12.1 M (37% v/v); in glass bottle ACS Grade 2.5 L **\$38.95**

ACS Grade 2.5 L **\$38.95 867793** 12.1 M (37% v/v); in plastic-coated

safety bottle

ACS Grade 2.5 L **\$64.95 867821** 0.1 M (0.3% v/v)
Laboratory Grade 500 mL **\$7.85**

867823 0.1 M (0.3% v/v)
Reagent Grade 1 L

847841 1 M (3% v/v) Laboratory Grade 500 mL \$7.50 867843 1 M (3% v/v)

867843 1 M (3% v/v) Laboratory Grade 1 L \$12.80 867861 3 M (9% v/v) Laboratory Grade 500 mL \$10.70

867863 3 M (9% v/v) Laboratory Grade 1 L \$18.20 867868 6 M (18%)

Laboratory Grade 500 mL **\$10.60 867870** 6 M (18%) Laboratory Grade 1 L **\$17.00**

867893 10 M (30% v/v) Laboratory Grade

1 L **\$59.65**

\$10.60



Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.



Chemicals H-I



868146 30% Reagent Grade, 100 mL and 868170 30% Reagent Grade, 500 mL Hydrogen Peroxide

Hydrogen Peroxide

Svn: Peroxide Formula: H₂O₂ F.W.: 34.02

CAS No.: 7722-84-1

Characteristic: Clear and colorless

Notes: Stabilized

Storage Code: Yellow-reactive (30%)

Green—general chemical storage

	gonoral onomical otorage		
868093	3%		
	Reagent Grade	473 mL	\$6.40
868115	3%		
	Reagent Grade	1 L	\$12.50
868122	3%		
	Reagent Grade	3.8 L	\$21.75
868133	6%		
	Laboratory Grade	500 mL	\$10.40
868135	6%		
	Laboratory Grade	3.8 L	\$23.40
868146	30%		
	Reagent Grade	100 mL	\$14.65
868170	30%		
	Reagent Grade	500 mL	\$34.50

Immersion Oil

See Carolina® Immersion Oil and Cargille Immersion Oil

Indigo Carmine

Syn: Carmine blue, food blue No. 2, indigo disulfonate

Formula: C, H, N, Na, O, S,

F.W.: 466.37 CAS No.: 860-22-0

Characteristic: Violet with metallic sheen Notes: pH 11.6 blue to 13.0 yellow

Storage Code: Green—general chemical storage 868550 Reagent Grade 25 g \$47.65

Invertase

CAS No.: 9001-57-4

Notes: Enzyme from yeast; breaks down sucrose into fructose and glucose; contains 10,000 units per gram;

keep refrigerated

Storage Code: Green—general chemical storage

868900 Powder

Reagent Grade 100 g \$35.35

lodine

Formula: I, F.W.: 253.81 CAS No.: 7553-56-2 Characteristic: Purple/black Storage Code: White—corrosive

868982 Crystal

Reagent Grade 25 g \$28.30 868972 Crystal \$55.50 Laboratory Grade 100 g 868984 Crystal \$51.00 Reagent Grade 100 g 869021 0.05 M (1.3%); Aqueous Laboratory Grade \$19.80 500 mL

869091 0.08 M (2%); Aqueous Laboratory Grade 100 mL 869093 0.08 M (2%); Aqueous

Laboratory Grade 500 mL \$20.95



869051 Iodine-Potassium lodide Solution, 30 mL

Iodine-Potassium Iodide Solution

Notes: 1% iodine, 2% potassium iodide; use to differentiate bacteria based on their ability to

hydrolyze starch

Storage Code: Green—general chemical storage

869051 Laboratory Grade 30 mL \$7.95 869053 Laboratory Grade 100 mL \$7.95 869055 Laboratory Grade 500 mL \$12.35 869057 Laboratory Grade 1 L \$26.30

Iodine Tincture 12

Characteristic: Brown; 2% iodine in 50% ethanol

Storage Code: Red-flammable

869121 Laboratory Grade 100 mL \$8.65 **869123** Laboratory Grade 500 mL \$25.35





869210 Iron Filings, 500 g and 869240 Iron Reduced Powder, 500 g

Iron

\$12.75

Formula: Fe F.W.: 55.85

CAS No.: 7439-89-6 Characteristic: Gray/black

Storage Code: Green—general chemical storage

Filings; 40 to 60 Mesh 869210

Laboratory Grade 500 g \$19.50 869212 Filings; 40 to 60 Mesh

Laboratory Grade 2 kg \$48.00

869240 Reduced Powder

> Laboratory Grade 500 g \$23.55



CAR®LINA®

Iron (II) Sulfate, Heptahydrate

Syn: Ferrous sulfate, heptahydrate

Formula: FeSO₄ • 7H₂0

F.W.: 278.00 **CAS No.:** 7782-63-0

Characteristic: Green to greenish-brown crystals **Storage Code:** Green—general chemical storage

863010 Granular

Reagent Grade 500 g \$14.50

Iron (III) Chloride, Anhydrous

Syn: Ferric chloride, anhydrous

Formula: FeCl₃ **F.W.:** 162.20 **CAS No.:** 7705-08-0

Storage Code: White-corrosive

862460 Reagent Grade 100 g \$15.40

Iron (III) Chloride, Hexahydrate

Syn: Ferric chloride, hexahydrate

Formula: FeCl₃ • 6H₂0 F.W.: 270.30 CAS No.: 10025-77-1 Storage Code: Blue—toxic

862440 Lump

Reagent Grade 500 g \$42.90

Iron (III) Chloride Solution

Syn: Ferric chloride solution

Formula: FeCl₂

Characteristic: Yellow-orange liquid, odorless

Storage Code: White—corrosive

862480 1 M

Laboratory Grade 100 mL \$10.75



862626 Iron (III) Nitrate, Nonahydrate, 500 mL

Iron (III) Nitrate, Nonahydrate

Syn: Ferric nitrate, nonahydrate **Formula:** $Fe(NO_3)_3 \bullet 9H_2O$

F.W.: 404.00 CAS No.: 7782-61-8 Characteristic: Light violet Storage Code: Yellow—reactive

862622 Crystal

Reagent Grade 500 g **\$23.75**

862626 0.2 M Aqueous

Laboratory Grade 500 mL \$10.20

Iron (II, III) Oxide, Black

Syn: Ferric oxide black, magnetite

Formula: Fe₃0₄ **F.W.:** 231.55

CAS No.: 1317-61-9

Characteristic: Fine black powder

Notes: Use in magnetism experiments in place

of iron filings

Storage Code: Green—general chemical storage

862630 Powder

Laboratory Grade 500 g \$21.95

Iron (III) Oxide

Syn: Ferric oxide, ferric oxide red, hematite

Formula: Fe₂O₃ F.W.: 159.69 CAS No.: 1309-37-1 Characteristic: Red powder

Notes: Compare to iron (II, III) oxide, black **Storage Code:** Green—general chemical storage

862660 Powder

Reagent Grade 500 g \$40.60



899856 Isobutyl Alcohol, 500 mL

Isobutyl Alcohol

Syn: 2-methyl-1-propanol; isobutanol;

2-methylpropan-1-ol; 2-methylpropyl alcohol; IBA

Formula: (CH₃)₂CHCH₂OH

F.W.: 74.12 **CAS No.:** 78-83-1

Storage Code: Red—flammable

899856 Reagent Grade 500 mL \$30.00

Isopropyl Alcohol

See 2-Propanol

Storage Code Key

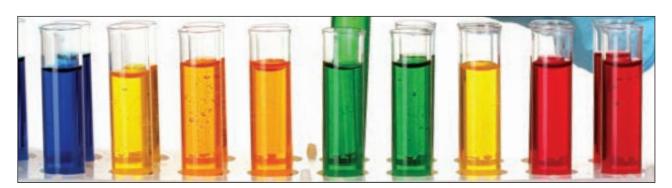
Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.



Janus Green B

Formula: C₃₀H₃₁CIN₆ F.W.: 511.07 CAS No.: 2869-83-2

Storage Code: Green—general chemical storage

869573 0.1% Aqueous

Laboratory Grade 100 mL \$19.50



Kastle-Meyer Reagent A

Notes: 2% phenolphthalein in 20% potassium hydroxide solution; use with hydrogen peroxide for presumptive blood tests

Storage Code: White-corrosive 871300 Laboratory Grade

30-mL dropper bottle \$10.65

Kerosene

Syn: Fuel oil, lamp oil, petroleum distillates

CAS No.: 64741-65-7

Characteristic: Clear, colorless liquid Storage Code: Red-flammable

871202 Laboratory Grade 500 mL \$21.10

Kleermount®, in Xylene 11

Notes: A permanent neutral mounting medium that

will not turn acid or darken with age Storage Code: Red-flammable

871343 Laboratory Grade 100 mL \$20.95

Kovac Solution

Storage Code: Red-flammable

871389 Laboratory Grade 30 mL \$20.90 871391 Laboratory Grade 100 mL \$49.50 871393 Laboratory Grade 500 mL \$89.95



Laboratory Cleaners

See Alconox® Detergent

Lactose, Monohydrate

Syn: Milk sugar

Formula: C₁₂H₂₄O₁₂ • H₂O

F.W.: 360.31

CAS No.: 64044-51-5 Characteristic: White

Storage Code: Green—general chemical storage

871750 Powder

Reagent Grade 500 g \$24.95



868693 Blue Latex Injection Medium, 4 L (left) and 868703 Red Latex Injection Medium, 4 L (right)

Latex Injection Medium*

Storage Code: Green—general chemical storage

868693 Blue

Laboratory Grade 4 L \$115.50

868703 Red

Laboratory Grade 4 L \$115.50

*For best results, use with item #220114 Carolina's Perfect Solution® Embalming Fluid (no phenol).

Lauric Acid

Syn: Dodecanoic acid Formula: CH₂(CH₂)₁₀CO₂H

F.W.: 200.32 CAS No.: 143-07-7

Characteristic: White, waxy solid

Notes: Insoluble in water; green chemistry substitute

for naphthalene

Storage Code: Green—general chemical storage 871840 Laboratory Grade 100 g \$12.60



871930 Lead, Shot, 500 g

Lead A3

Formula: Pb F.W.: 207.2

CAS No.: 7439-92-1

Characteristic: Silver-gray soft metal Notes: Consider copper as a green chemistry

substitute

Storage Code: Green—general chemical storage

871930 Shot

Laboratory Grade 500 g \$26.55

Lead (II) Nitrate 13

Formula: Pb(NO₃)₃ **F.W.:** 331.2

CAS No.: 10099-74-8 Characteristic: White

Storage Code: Yellow—reactive

872134

Laboratory Grade 500 mL \$12.20

872139 Crystal

Reagent Grade 100 q \$10.40

872138 0.1 M Aqueous

Laboratory Grade 500 mL **\$10.50**

Leifson Stain

See Flagella Stain, Leifson



Lemon Juice

Characteristic: 100% lemon juice; acid Notes: Use as an inexpensive laboratory acid;

approximate pH is 2.0

Storage Code: Green—general chemical storage

872320 8 oz \$6.05

Levulose

Syn: d-Fructose СНООН Formula: C₆H₁₂O₆ F.W.: 180.16

CAS No.: 57-48-7

Storage Code: Green—general chemical storage 872340 Reagent Grade 100 g \$15.95

Lime Water

Notes: 140 mg calcium hydroxide per 100 mL of solution; exhale into solution to generate insoluble calcium carbonate

Storage Code: Green—general chemical storage 872441 Laboratory Grade 500 mL \$5.85 872443 Laboratory Grade 3.8 L \$13.90

Lipase

Syn: Steapsin CAS No.: 9001-62-1

Notes: Pancreatic lipase; hydrolyzes triacylglycerols (fats) into fatty acids and glycerol; contains 19.6 USP

units per milligram; keep refrigerated

Storage Code: Green—general chemical storage 872500 Laboratory Grade 25 g \$25.35

L

Liqui-Nox® Detergent

Notes: Biodegradable, phosphate-free, interfering residue free; use as 1% solution; for manual use only

(i.e., not for dishwasher use)

Storage Code: Green—general chemical storage

872512 3.8 L \$97.90

Lithium

Formula: Li F.W.: 6.94

CAS No.: 7439-93-2

Characteristic: A light, soft silvery metal immersed in

heavy mineral oil

Notes: Reacts violently with water Storage Code: Red-flammable

872540 Laboratory Grade 2.5 g \$27.20

Lithium Chloride

Formula: LiCl F.W.: 42.39 CAS No.: 7447-41-8

Characteristic: White

Notes: Green chemistry substitute for lithium nitrate Storage Code: Green—general chemical storage 872590 \$29.95 Reagent Grade 100 g 872580 500 g \$119.95 Reagent Grade 872595 1 M

Laboratory Grade 500 mL **\$16.50**

Lithium Nitrate

Formula: LiNO₃ **F.W.:** 68.95

CAS No.: 7790-69-4

Notes: Consider lithium chloride as a green chemistry

substitute

Storage Code: Yellow-reactive

872650 Granular

Reagent Grade 100 g \$33.25



872722 Litmus, 25 g

Litmus

Syn: 7-Hydroxy-2-phenoxazone

CAS No.: 1393-92-6 Characteristic: Blue

Notes: Red, pH 0 to 4.5; blue, pH 8.3 to 14 Storage Code: Green—general chemical storage 872722 Laboratory Grade 25 g \$24.40



See pH Test Papers on pages 990-993

Chemicals

Storage Code Key

Toxic. Store separately in a secured area. Blue

Green General chemical storage.

Flammable. Store in approved flammable containers. Store away from oxidizing materials. Red

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Reactive. Store separately and away from incompatible material. Yellow



Lugol Solution

Syn: Lugol's iodine, iodine potassium-iodide Characteristic: Purple-yellow liquid

Notes: 10% potassium iodide, 5% iodine **Storage Code:** Green—general chemical storage

 872793
 Laboratory Grade
 100 mL
 \$8.30

 872795
 Laboratory Grade
 500 mL
 \$25.95

 872797
 Laboratory Grade
 1 L
 \$49.95

Luminol (free acid)

Syn: 5-Amino-2, 3-dihydro-1,

4-phthalazineione **Formula:** C₈H₇N₃O₂ **F.W.:** 177.17

CAS No.: 521-31-3 Characteristic: Tan

Notes: For experiments in chemiluminescence

Storage Code: Green—general chemical storage

872608 Laboratory Grade 5 g \$36.70

872810 Laboratory Grade 10 g \$70.30



872831 Lycopodium Powder, 25 g

Lycopodium Powder

Characteristic: White/yellow Storage Code: Red—flammable

 872831
 Reagent Grade
 25 g
 \$15.35

 872833
 Laboratory Grade
 100 g
 \$36.40

 872835
 Laboratory Grade
 500 g
 \$148.95

M



873124 Magnesium Turnings, 100 g



873120 Magnesium Ribbon, 25 g

Magnesium

Formula: Mg F.W.: 24.31

CAS No.: 7439-95-4

Characteristic: Silver-gray ribbon and turnings Notes: Ribbon measures $^{1}/_{8}$ " W \times 10' L Storage Code: Red—flammable

873120 Ribbon

Laboratory Grade 25 g **\$16.85 873124** Turnings

Reagent Grade 100 g **\$27.50**

Magnesium Chloride, Hexahydrate

Formula: MgCl₂ • 6H₂0 F.W.: 203.33 CAS No.: 7791-18-6

Characteristic: White

 $\textbf{Notes:} \ \textbf{Green chemistry substitute for magnesium}$

nitrate

Storage Code: Green—general chemical storage

873240 Crystal

Laboratory Grade 500 g \$15.90

Magnesium Nitrate, Hexahydrate

Formula: $Mg(NO_3)_2 \bullet 6H_2O$

F.W.: 256.43 CAS No.: 13446-18-9 Characteristic: White

Notes: Consider magnesium chloride as a green

chemistry substitute

Storage Code: Green—general chemical storage

873280 Crystal

Reagent Grade 500 g \$21.75



873310 Magnesium Oxide, 500 g

Magnesium Oxide

Formula: Mg0 F.W.: 40.30 CAS No.: 1309-48-4 Characteristic: White

Storage Code: Green—general chemical storage **873310** Laboratory Grade 500 g **\$59.95**

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Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

Magnesium Sulfate, Anhydrous

Formula: MgSO₄
F.W.: 120.39
CAS No.: 7487-88-9
Characteristic: White

Storage Code: Green—general chemical storage

873400 Powder

Reagent Grade 500 g \$36.20



873376 Magnesium Sulfate, Heptahydrate, 500 g

Magnesium Sulfate, Heptahydrate

Syn: Epsom salts **Formula:** $MgSO_4 \bullet 7H_2O$

F.W.: 246.45 **CAS No.:** 10034-99-8

Storage Code: Green—general chemical storage

873376 Crystal

Laboratory Grade 500 g \$9.60

873402 Crystal

Reagent Grade 100 g \$9.75

Malachite Green

(hydrochloride) CH₃ + CH₃
Syn: Basic green
Formula: C₂₃H₂₅N₂Cl
F.W.: 364.92
CAS No.: 569-64-2
Characteristic:
Green
Storage Code:

Green—general chemical storage **873520** Laboratory Grade 25 g **\$38.20**

Malachite Green (oxalate)

Syn: Light green N **Formula:** $C_{52}H_{54}N_2O_{12}$ **F.W.:** 927.02 **CAS No.:** 2437-29-8

Storage Code: Green—general chemical storage

(1%) Blue—toxic

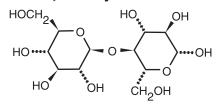
873453 1%

873455 Laboratory Grade 100 mL \$15.40 1% Laboratory Grade 500 mL \$37.65

873475 Saturated

Laboratory Grade 500 mL **\$41.85 873550** Laboratory Grade 25 g **\$53.25**

Maltose, Monohydrate



Syn: Malt sugar

Formula: $C_{12}H_{22}O_{11} \bullet H_2O$

F.W.: 360.32 CAS No.: 6363-53-7

Storage Code: Green—general chemical storage **873750** Reagent Grade 100 g **\$14.20**

Manganese (II) Chloride, Tetrahydrate

Syn: Manganous chloride, tetrahydrate

Formula: MnCl₂ • 4H₂0 F.W.: 197.91 CAS No.: 13446-34-9

Characteristic: Light-pink crystals or crystalline

powder

Notes: Deliquescent

Storage Code: Green—general chemical storage **873862** Reagent Grade 100 g **\$14.50**





873790 Manganese (IV) Dioxide Powder, 500 g

Manganese (IV) Dioxide

Syn: Manganese (IV) oxide

Formula: MnO₂ F.W.: 86.94

CAS No.: 1313-13-9 Characteristic: Black

Storage Code: Yellow—reactive

873790 Powder

Laboratory Grade 500 g \$11.60



874050 Marble Chips, 500 g

Marble Chips 1

Syn: Limestone, calcium carbonate

CAS No.: 471-34-1 Characteristic: Gray/white

Storage Code Key

Storage Code: Green—general chemical storage 874050 Laboratory Grade 500 g \$7.05 874052 Laboratory Grade 2 kg \$14.90

General chemical storage.

Toxic. Store separately in a secured area.



874850 Metal Strips Set

Metal Strips Set

One each of the following metals: aluminum, brass, copper, steel, and zinc. Each strip measures $^{3}/_{4}$ \times $5^{1}/_{4}$ ".

Storage Code: Green—general chemical storage

874850 Per set \$11.65

Methanol A2

Syn: Methyl alcohol, wood alcohol

Formula: CH_aOH F.W.: 32.04 CAS No.: 67-56-1

Characteristic: Clear, colorless

Notes: Highly toxic by ingestion; consider ethanol as a

green chemistry substitute Storage Code: Red-flammable

874950 Reagent Grade 500 mL \$8.55 874913 \$33.70 ACS Grade 3.8 L 874915 Laboratory Grade 20 L \$108.00 874893 70%

Laboratory Grade 3.8 L \$40.75

Methyl Blue

See Aniline Blue

Methyl Cellulose

Syn: Cellulose methyl ether **CAS No.:** 9004-67-5

Storage Code: Green—general chemical storage

875183 3% Aqueous

Laboratory Grade 100 mL \$9.80

Methyl Orange, Indicator, Sodium Salt

Formula: C₁₄H₁₄N₃O₃SNa

F.W.: 327.34 CAS No.: 547-58-0

Characteristic: Orange/yellow

Notes: Indicator pH 3.0 red to 4.4 yellow Storage Code: Blue—toxic (powder)

Green—general chemical storage

(solutions)

875408 Powder

Laboratory Grade 25 g \$17.30

875435 0.05% Aqueous

Laboratory Grade 500 mL \$18.70

875437 0.1% Aqueous

> Laboratory Grade 30 mL \$6.45

Methyl Paraben

See Mold Inhibitor



875503 Methyl Red, 500 mL

Methyl Red

Syn: Acid red 2 sodium salt Formula: $C_{15}H_{14}N_3O_2Na$

F.W.: 291.28 CAS No.: 845-10-3

Notes: pH 4.4 red to 6.2 yellow, sodium salt Storage Code: Green—general chemical storage Red—flammable (0.2% in alcohol)

875503 0.02% Aqueous

Laboratory Grade 500 mL **\$16.00**

^2 875505 0.2% in alcohol

Laboratory Grade 500 mL \$30.10





Flammable. Store in approved flammable containers. Store away from oxidizing materials.

Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Reactive. Store separately and away from incompatible material.

Blue Green

Red

White Yellow



875911 Methylene Blue, 30 mL

Methylene Blue

Formula: C₁₆H₁₈N₃SCI **F.W.:** 319.85 **CAS No.:** 61-73-4

Characteristic: Green water-soluble powder or

opaque blue solution

Storage Code: Green—general chemical storage

(powder and aqueous)

Red—flammable (ethanol solutions)

875684 Powder Laboratory Grade 25 g \$22.00 875724 0.1% Aqueous Laboratory Grade 500 mL \$21.95 **^**2 875911 0.2% in 25% ethanol Laboratory Grade 30 mL \$15.10 **1**2 875913 0.2% in 25% ethanol Laboratory Grade 100 mL \$21.50 **^**2 875915 0.2% in 25% ethanol Laboratory Grade 500 mL \$31.25 **^**2 875795 0.3% in 30% ethanol (Loeffler) Laboratory Grade 500 mL \$18.50

875734 1% Aqueous
Laboratory Grade 100 mL \$6.75

Laboratory Grade 100 mL **\$6.75** 875735 1% Aqueous Laboratory Grade 500 mL **\$12.50** Methylene Chloride ▲

Syn: Dichloromethane **Formula:** CH_2CI_2 **F.W.:** 84.93 **CAS No.:** 75-09-2

Characteristic: Clear, colorless

Notes: Consider ethyl acetate as a green chemistry

substitute

Storage Code: Blue—toxic

875970 Laboratory Grade 500 mL **\$19.75**

Milk of Magnesia

Characteristic: Milky white liquid

Notes: Contains 80 g magnesium hydroxide per liter; use with vinegar to illustrate acid-base reactions, chemical equilibrium, solubility, and

heat of neutralization

Storage Code: Green—general chemical storage

876010 4 oz **\$7.10**

Mineral Oil

See Paraffin Oil. White

Molasses

Notes: Dark, thick liquid

Storage Code: Green-general chemical storage

876020 16 oz \$12.00

Mold Inhibitor

Syn: Methyl paraben **Formula:** $C_8H_8O_3$ **F.W.:** 152.16

CAS No.: 99-76-3 Characteristic: White

Storage Code: Green—general chemical storage

876165 Powder

Reagent Grade 500 g \$64.85

Mold Inhibitor Solution

See Disinfectant

Molisch's Reagent

See Naphthol Alpha Solution

N

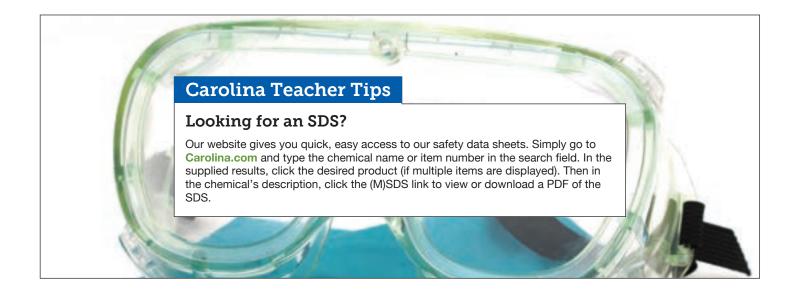


876673 Naphthol Alpha Solution, 500 mL

Naphthol Alpha Solution A

Syn: Molisch's reagent **Notes:** 5% in 95% ethanol **Storage Code:** Red—flammable

876673 Laboratory Grade 500 mL **\$31.95**



Nickel (II) Chloride, Hexahydrate ¹

Syn: Nickelous chloride hexahydrate

Formula: NiCl₂ • 6H₂0 F.W.: 237.69 CAS No.: 7791-20-0

Characteristic: Green crystals or crystalline powder

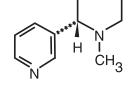
Notes: Deliquescent **Storage Code:** Blue—toxic

877142 Reagent Grade 100 g \$25.75

Nicotine Solution, 0.01% A2

Formula: C₁₀H₁₄N₂ F.W.: 162.24 CAS No.: 54-11-5 Characteristic: Yellow Notes: 10 mL contains

the amount of nicotine found in 1 cigarette



Storage Code: Green—general chemical storage **877270** Laboratory Grade 100 mL **\$29.85**

Nigrosin

CAS No.: 8005-03-6 Notes: Water-soluble stain

Storage Code: Green—general chemical storage

877363 5% Aqueous

Laboratory Grade 100 mL **\$15.20 877365** 5% Aqueous

Laboratory Grade 500 mL **\$64.35**

▲ 877383 Saturated Aqueous

Laboratory Grade 100 mL **\$16.55**



Ninhydrin

Syn: 1,2,3-Indantrione monohydrate

F.W.: 195.15 CAS No.: 485-47-2

Storage Code: Green—general chemical storage

(powder)

Red—flammable (in isopropanol)

ЮH

0

877460 Powder

Laboratory Grade 5 g \$15.50

877489 0.5% in isopropanol

Laboratory Grade 500 mL \$23.55



877563 Nitric Acid, 2.5 L

Nitric Acid

Formula: HNO₃ **F.W.:** 63.01

CAS No.: 7697-37-2 Characteristic: Clear

Notes: Do not store near acetic acid **Storage Code:** White—corrosive

877567 1 M (4% v/v)

Laboratory Grade 500 mL \$24.50

877564 6 M (27% v/v)

Laboratory Grade 500 mL **\$26.50**

877560 15.6 M (70% v/v); in glass bottle

ACS Grade 500 mL **\$43.30 877563** 15.6 M (70% v/v); in plastic-coated

safety bottle

ACS Grade 2.5 L **\$99.95**

Normal Saline

See Sodium Chloride



878340 Oleic Acid, 500 mL

Oleic Acid

Formula: CH₃(CH₂)₇CH:CH(CH₂)₇COOH

F.W.: 282.46 CAS No.: 112-80-1

Characteristic: Light yellow liquid at 25° C
Storage Code: Green—general chemical storage
878340 Laboratory Grade 500 mL \$24.20

Oxalic Acid, Dihydrate

Syn: Ethanedioic acid **Formula:** $C_2H_2O_4 2H_2O$

F.W.: 126.07

CAS No.: 6153-56-6

Characteristic: Clear
Storage Code:
White—corrosive

878650 Laboratory Grade 500 g **\$17.90**



878650 Oxalic Acid, Dihydrate, 500 g

Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.



878953 Pancreatin, 5% Aqueous, 500 mL

Pancreatin

CAS No.: 8049-47-6 **Notes:** Keep refrigerated

Storage Code: Green—general chemical storage

878929 Powder

Laboratory Grade 100 g **\$29.00 878953** 5% Aqueous

Laboratory Grade 500 mL **\$25.45**

Paraffin Oil, White

Syn: Mineral oil CAS No.: 8042-47-5 Characteristic: White liquid

Storage Code: Green—general chemical storage **879108** Laboratory Grade 500 mL **\$15.00**



879190 Paraffin Wax, 1 lb

Paraffin Wax

Notes: Clear, low melting point paraffin

Storage Code: Green—general chemical storage **879190** Laboratory Grade 1 lb **\$15.30**

Pepsin

Syn: Gastric juice enzyme **CAS No.:** 9001-75-6

Characteristic: Activity

1:3,000

Notes: Gastric Juice, Artificial (item #864603) is premixed and ready to use (stomach acid) and contains pepsin

Storage Code: Green—general chemical storage

879377 Laboratory Grade **879379** Reagent Grade



879377 Pepsin, 25 g 25 g **\$14.85**

\$34.25

100 g

Chemicals



879542 Petroleum Ether, 3.8 L

Petroleum Ether

Syn: Ligroine, naphtha CAS No.: 8032-32-4

Characteristic: Clear, colorless liquid

Notes: Consider hexanes as a green chemistry

substitute

Storage Code: Red—flammable

879540 Laboratory Grade 500 mL **\$39.95 879542** Laboratory Grade 3.8 L **\$114.00**

Phenol

Syn: Carbolic acid **Formula:** C_6H_50H **F.W.:** 94.11

CAS No.: 108-95-2

Notes: Toxic by ingestion, inhalation, and skin

absorption

Storage Code: Blue—toxic

879750 Laboratory Grade 500 mL **\$53.00**



Phenol Red, Sodium Salt

Svn: Phenolsulfonphthalein Formula: C₁₀H₁₃NaO₅S F.W.: 376.36 CAS No.: 34487-61-1

Characteristic: Water-soluble indicator Notes: pH 6.8 vellow to 8.4 red

Storage Code: Green—general chemical storage

879850 Powder ACS Grade \$8.70 1 g 879851 Powder **ACS Grade** \$18.50 5 q 879852 Powder Reagent Grade 10 q \$38.00 879875 0.04% Aqueous \$13.40 Laboratory Grade 500 mL 879877 0.04% Aqueous

Phenolphthalein

Formula: C₂₀H₁₄O₄ F.W.: 318.33 CAS No.: 77-09-8 Characteristic: White

Notes: pH 8.2 colorless to 10.0 pink

Laboratory Grade

Storage Code: Green-general chemical storage

(powder)

Red—flammable (in alcohol)

1 L

\$24.20

1 879941 Powder \$11.25 Reagent Grade 25 g **1** 879910 Reagent Grade 100 q \$18.95 **1** 879963 0.5% in alcohol Laboratory Grade 100 mL \$5.95 **1** 879965 0.5% in alcohol 500 mL \$9.30 Laboratory Grade **1** 879991 1% in 95% alcohol Laboratory Grade 30-mL dropper bottle \$5.30 **1** 879993 1% in 95% alcohol \$6.60 100 mL Laboratory Grade **1** 879995 1% in 95% alcohol

Phenyl Salicylate

Syn: Salol Formula: C₁₃H₁₀O₃ F.W.: 214.22 CAS No.: 118-55-8

Storage Code: Green—general chemical storage

Laboratory Grade

500 mL

\$11.70

\$8.75

881202 Crystal

Laboratory Grade 30 q

881200 Crystal

> Laboratory Grade 100 g \$25.60

Phenylthiourea

Svn: Phenylthiocarbamide (PTC)

Formula: C,H,N,S F.W.: 152.22 CAS No.: 103-85-5 Notes: Toxic by ingestion Storage Code: Blue-toxic

881222 Laboratory Grade 10 g \$104.40

Phosphoric Acid

Formula: H₂PO₄ F.W.: 97.99 CAS No.: 7664-38-2

Notes: Viscous, odorless, colorless liquid

Storage Code: White-corrosive 881470

14.8 M (85%)

Reagent Grade 500 mL \$36.95

Planaslo®

Notes: Solution for slowing planarian worms and small annelids; 15-mL dropping bottle Storage Code: Green-

general chemical storage 882001

Laboratory Grade Per bottle \$9.95



882001 Planaslo



882201 Polyacrylamide (hydrated)

Polyacrylamide

Formula: CH₂CH(CONH₂) CAS No.: 31212-13-2 Characteristic: White

Notes: Absorbs several hundred times its own weight in water and is nearly invisible in water; air-dry to

Storage Code: Green—general chemical storage 882201 Laboratory Grade 100 g \$11.80

Polyvinyl Alcohol

Syn: Ethenol homopolymer Formula: (C₂H₅0)n CAS No.: 9002-89-5 Characteristic: Off-white

Notes: Use 4% solution with item #888575 Sodium

Borate, Decahydrate, to make slime

Storage Code: Green—general chemical storage

882370 Powder Laboratory Grade 100 q \$19.40 882371 4% Aqueous Laboratory Grade 500 mL \$12.25 882372 4% Aqueous Laboratory Grade 1 L \$20.70 882373 4% Aqueous Laboratory Grade 3.8 L \$63.80



882377 Polyvinyl Alcohol (4%)/Sodium Borate, Decahydrate (4%) Slime Bundle

Polyvinyl Alcohol (4%)/Sodium Borate, Decahydrate (4%) Slime **Bundle**

Syn: Ethenol homopolyer, borax/sodium tetraborate

Formula: $(C_2H_4O)_n$, $Na_2B_4O_7 \bullet 10H_2O$ CAS No.: 9002-89-5, 1303-96-4

Notes: Sufficient PVA and borax solutions for 32 batches of slime using the formula 40 mL polyvinyl alcohol to 5 mL borax; slime can be mixed in a small cup or a resealable plastic bag

Storage Code: Green—general chemical storage 882377 1.500 mL PVA/200 mL Borax \$38.50

Can't find a chemical?

Go to Carolina.com (Products > Chemistry > Chemicals) for additional chemical selections.





882610 Potassium Biphthalate, 500 g

Potassium Biphthalate

Syn: Potassium hydrogen phthalate, KHP

Formula: C₈H₅KO₄ **F.W.:** 204.22 **CAS No.:** 877-24-7

Notes: Used as a buffer for pH determination **Storage Code:** Green—general chemical storage

882608 Crystal

Reagent Grade 100 g \$20.50

882610 Crystal

Reagent Grade 500 g \$44.85

Potassium Bromide

Formula: KBr F.W.: 119.02 CAS No.: 7758-02-3 Characteristic: White

Storage Code: Green—general chemical storage

882760 Crystal

Reagent Grade 500 g \$33.00

Potassium Carbonate, Anhydrous

Formula: K_2CO_3 F.W.: 138.21 CAS No.: 584-08-7 Characteristic: White

Storage Code: Green—general chemical storage **882836** Laboratory Grade 500 g **\$21.50**



882880 Potassium Chlorate, 100 g

Potassium Chlorate

Formula: KCIO₃ F.W.: 122.56 CAS No.: 3811-04-9 Characteristic: White

Notes: Strong oxidizer; can explode if slightly

contaminated

Storage Code: Red-flammable

882870 Crystal

Laboratory Grade 500 g \$27.45

882880 Crystal

ACS Grade 100 g **\$24.50**

Potassium Chloride

Formula: KCI **F.W.:** 74.54

CAS No.: 7447-40-7

Notes: Green chemistry substitute for potassium

nitrate

Storage Code: Green—general chemical storage

882908 Crystal

Laboratory Grade 100 g \$7.20

882910 Granular

ACS Grade 500 g **\$13.45**

882912 0.1 M

Laboratory Grade 500 mL \$8.95



882990 Potassium Chromate, 100 g

Potassium Chromate A3

Formula: K₂CrO₄
F.W.: 194.21
CAS No.: 7789-00-6
Characteristic: Yellow

Characteristic: Yellow
Storage Code: Blue—toxic

882990 Crystal

Reagent Grade 100 g \$30.15





883150 Potassium Dichromate, 100 g

Potassium Dichromate A3

Formula: K₂Cr₂O₇ F.W.: 294.22 CAS No.: 7778-50-9 Characteristic: Orange

Notes: Known carcinogen, mutagen, and respiratory sensitizer; strong oxidant; toxic by ingestion and

inhalation

Storage Code: Yellow—reactive

883150 Crystal

Reagent Grade 100 g \$17.25



883280 Potassium Ferricyanide, 100 g

Potassium Ferricyanide

Syn: Potassium hexacyanoferrate (III)

Formula: K, Fe(CN), F.W.: 329.26 CAS No.: 13746-66-2

Characteristic: Red

Storage Code: Green—general chemical storage

883280 Powder

Yellow

976

ACS Grade 100 g \$14.30

Potassium Hydrogen Phthalate

See Potassium Biphthalate



883470 Potassium Hydroxide Pellets, 500 g

Potassium Hydroxide

Syn: Caustic potash Formula: KOH F.W.: 56.11 CAS No.: 1310-58-3

Characteristic: White

Storage Code: White-corrosive

883470 Pellets

Laboratory Grade 500 q \$21.00 883490 Pellets

Reagent Grade 500 q

883497 1 M (5.6%); Aqueous

Laboratory Grade 500 mL **\$10.00**

\$26.95

Potassium Iodate

Formula: KIO. F.W.: 214.00 CAS No.: 7758-05-6

Notes: Strong oxidizer; moderately toxic; skin irritant Storage Code: Green—general chemical storage

883699 Powder

Reagent Grade 100 g \$34.50

883697

0.1 M Laboratory Grade 500 mL **\$9.60**



883871 Potassium Iodide, 500 mL

Potassium Iodide

Formula: KI F.W.: 166.00 CAS No.: 7681-11-0

Storage Code: Green—general chemical storage

883809 Crystal Reagent Grade

100 a \$45.10 883810 Reagent Grade 500 g \$195.00 883789 Laboratory Grade 100 g \$44.85 883792 Laboratory Grade 500 g \$174.95 883871 0.1 M (2%) Laboratory Grade 500 mL \$13,40

883877 1 M

> Laboratory Grade 500 mL \$45.00



883910 Potassium Nitrate, 500 g

Potassium Nitrate

Syn: Saltpeter Formula: KNO₃ F.W.: 101.11 CAS No.: 7757-79-1

Characteristic: White; strong oxidant; skin irritant Notes: Consider potassium chloride as a green chem-

istry substitute

Storage Code: Yellow-reactive

883908 Crystal

ACS Grade 100 g \$10.70 883910 Crystal

500 g Reagent Grade \$22.45 883940 Laboratory Grade 500 g \$11.95



Reactive. Store separately and away from incompatible material.



884147 Potassium Permanganate, 100 g

Potassium Permanganate

Formula: KMnO₄ **F.W.:** 158.04 **CAS No.:** 7722-64-7

P

Characteristic: Purple/black, strong oxidizer

Storage Code: Yellow—reactive

884147 Crystal

Reagent Grade 100 g **\$11.15 884150** Crystal

Reagent Grade 500 g **\$27.00 884130** Crystal

Eaboratory Grade 500 g \$19.25 884203 0.2 M (3%) Reagent Grade 1 L \$17.80

Potassium Phosphate, Dibasic

Formula: K₂HPO₄ **F.W.:** 174.18 **CAS No.:** 7758-11-4

Storage Code: Green—general chemical storage

884298 Crystal

Reagent Grade 100 g **\$16.10**

884300 Crystal

Reagent Grade 500 g \$38.50

Potassium Phosphate, Monobasic

Formula: KH₂PO₄ F.W.: 136.09 CAS No.: 7778-77-0 Characteristic: White

Storage Code: Green—general chemical storage

884250 Crystal

Reagent Grade 500 g \$34.60



884482 Potassium Sulfate, 500 g

Potassium Sulfate

Formula: K₂SO₄ **F.W.:** 174.26 **CAS No.:** 7778-80-5

Storage Code: Green—general chemical storage **884482** Laboratory Grade 500 g **\$31.00**

Potassium Thiocyanate

Formula: KSCN F.W.: 97.18 CAS No.: 333-20-0

Storage Code: Green—general chemical storage **884629** Reagent Grade 100 g **\$18.95**

2-Propanol

Syn: Isopropyl alcohol, IPA **Formula:** (CH₃)₂CHOH **F.W.:** 60.10

CAS No.: 67-63-0

Storage Code: Red—flammable

884831 70%

884833 70% \$12.40 884835 70% 3.8 L \$52.50 70% 1.aboratory Grade 19 L \$181.50

884890 Anhydrous ACS Grade 500 mL \$11.10

884892 Anhydrous Reagent Grade 3.8 L **\$58.50**

Propionic Acid

Syn: Propanoic acid, methyl acetic acid

Formula: CH₃CH₂COOH

F.W.: 74.08 **CAS No.:** 79-09-4

Characteristic: Colorless, oily liquid **Storage Code:** White—corrosive

884938 Laboratory Grade 500 mL \$28.30

iso-Propyl Alcohol

See 2-Propanol

n-Propyl Alcohol

Syn: 1-Propanol, propylic acid **Formula:** CH₃CH₂CH₂OH

F.W.: 60.09 **CAS No.:** 71-23-8

Storage Code: Red—flammable

884990 Reagent Grade 500 mL \$22.60



Propylene Glycol

Syn: 1,2-Propanediol **Formula:** CH₃CH(OH)CH₂OH

F.W.: 76.09 **CAS No.:** 57-55-6

Characteristic: Clear, oily liquid

Storage Code: Green—general chemical storage **885094** Laboratory Grade 500 mL **\$21.75**

Protoslo[®] A²

Characteristic: Clear, colorless solution

Notes: In 15-mL dropper bottle; slows the movement of protozoa to keep them in focus and in the field of view, while preserving characteristic motion

Storage Code: Green—general chemical storage

885141 Laboratory Grade Per bottle \$8.95



885141 Protoslo

Q



886048 Quinine Sulfate, Dihydrate, 5 g

Quinine Sulfate, Dihydrate

Formula: $(C_{20}H_{24}N_2O_2)_2 \bullet H_2SO_4 \bullet 2H_2O$

F.W.: 782.96 CAS No.: 6119-70-6

Storage Code: Green—general chemical storage **886048** Laboratory Grade 5 g **\$61.00**

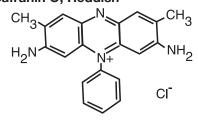
R

Ringer Solution, Amphibian

Storage Code: Green—general chemical storage **886503** Laboratory Grade 1 L **\$17.00**



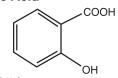
Safranin O, Reddish



Formula: C₂₀H₁₉CIN₄ **F.W.:** 350.85 **CAS No.:** 477-73-6

Storage Code: Green—general chemical storage

Salicylic Acid



Formula: $C_7H_8O_3$ F.W.: 138.13 CAS No.: 69-72-7 Characteristic: White Storage Code: Blue—toxic

887070 Laboratory Grade 500 g \$29.95

Sand 1

Syn: Silicon dioxide **Formula:** SiO₂ **F.W.:** 60.09

CAS No.: 14808-60-7 Characteristic: Fine

Storage Code: Green—general chemical storage

887140 Yellow

Laboratory Grade 500 g **\$11.20**

887144 White

Laboratory Grade 500 g \$8.25

Schiff's Reagent

Notes: Refrigerate to prolong shelf life; discard if pink Storage Code: Green—general chemical storage 887265 Laboratory Grade 100 mL \$18.50



887302 Sebacoyl Chloride 4% Solution and 867162 1,6-Hexanediamine (in use) to make nylon rope

Sebacoyl Chloride

Syn: Sebacyl chloride **Formula:** $C_{10}H_{16}CI_2O_2$ **F.W.:** 239.14 **CAS No.:** 111-19-3

Characteristic: Clear; corrosive; fumes irritating to

eyes; toxic by ingestion or inhalation

Notes: Use 4% solution with 1,6-Hexanediamine (item

#867162) to make nylon

Storage Code: White-corrosive

887302 4%

Laboratory Grade 100 mL \$23.10

Seliwanoff Reagent

Notes: For analysis of reducing sugars **Storage Code:** White—corrosive

887365 Laboratory Grade 100 mL \$9.45



887482 Silica Gel, unsaturated



887482 Silica Gel, saturated with water

Silica Gel

CAS No.: 7631-86-9

Notes: Desiccant; indicating beads turn from blue to

pink when saturated with water

Storage Code: Green—general chemical storage **887482** Laboratory Grade 500 g **\$27.85**



887517 Silicon, 500 g

Silicon

Formula: Si **F.W.:** 28.09

CAS No.: 7440-21-3

Characteristic: Metallic silver color

Storage Code: Green—general chemical storage

887515 Lump

Laboratory Grade 100 g **\$14.00**

887517 Lump

Laboratory Grade 500 g \$48.00

Silver Nitrate

Formula: AgNO₃
F.W.: 169.87
CAS No.: 7761-88-8
Characteristic: White

Notes: Corrosive solid; causes burns; light sensitive

Storage Code: Yellow-reactive

010.090			
887788	Reagent Grade	5 g	\$24.50
887790	Reagent Grade	25 g	\$106.00
887792	Reagent Grade	100 g	\$325.00
887795	ACS Grade	500 g	\$1,709.45
887839	0.1 M (2%)	-	
	Laboratory Grade	100 mL	\$18.85
887841	0.1 M (2%)		
	Laboratory Grade	500 mL	\$48.50
887843	0.1 M (2%)		
	Laboratory Grade	1 L	\$97.00
887875	1 M (17%)		
	Laboratory Grade	100 mL	\$89.95

Soda Lime

CAS No.: 8006-28-8 Characteristic: Buff color

Notes: Corrosive; skin burns possible; mixture of calcium oxide, sodium hydroxide, and water; 4 to 8

mesh; indicating

Storage Code: White—corrosive

887960 Reagent Grade 500 g \$42.60

Sodium

Syn: Natrium
Formula: Na
F.W.: 22.99
Characteristic: Soft, silvery-white metal

Notes: Reacts violently with water to produce corrosive sodium hydroxide and flammable hydrogen gas; divided into cubes and

packed in mineral oil Storage Code: Red—

flammable

888000 Reagent Grade 10 g **\$49.95 888005** Reagent Grade 50 g **\$59.00**

888005

Sodium, 50 g

Sodium Acetate, Anhydrous

Formula: CH₃CO₂Na **F.W.:** 82.03 **CAS No.:** 127-09-3

Characteristic: White

Notes: Skin, eye, and respiratory irritant

Storage Code: Green—general chemical storage

888128 Powder

Laboratory Grade 100 g **\$8.80**

888130 Powder

Laboratory Grade 500 g \$18.80

Sodium Acetate, Trihydrate

Formula: CH₂COONa • 3H₂O

F.W.: 136.08 **CAS No.:** 6131-90-4

Storage Code: Green—general chemical storage

888050 Crystal

Reagent Grade 500 g \$21.80



888177 Sodium Alginate, 2% Aqueous, 100 mL

Sodium Alginate

Syn: Alginic acid, sodium salt Formula: $(C_6H_7O_6Na)_n$ CAS No.: 9005-38-3

Characteristic: White

Storage Code: Green—general chemical storage

888171 Powder

Laboratory Grade 25 g \$18.10

888177 2% Aqueous

Laboratory Grade 100 mL \$6.50

Sodium Benzoate

Syn: Benzoic acid, sodium salt

Formula: C₆H₅CO₂Na **F.W.:** 144.10 **CAS No.:** 532-32-1

Characteristic: White powder

Notes: Hygroscopic

Storage Code: Green—general chemical storage

888300 Powder

Laboratory Grade 100 g \$13.90





888358 Sodium Bicarbonate, 100 g

Sodium Bicarbonate

Syn: Baking soda; sodium hydrogen carbonate

Formula: NaHCO. F.W.: 84.01 CAS No.: 144-55-8

Characteristic: White

Storage Code: Green—general chemical storage

888360 Powder

Reagent Grade \$11.60 500 q 888358 Powder

Laboratory Grade

\$5.75 100 a

888361 Powder

Laboratory Grade 2 kg \$19.95

Sodium Bisulfite

Syn: Sodium hydrogen sulfite

Formula: NaHSO. F.W.: 104.07 CAS No.: 7631-90-5

Storage Code: Green—general chemical storage

888500 Granular

Reagent Grade 500 g \$14.90



888575 Sodium Borate, Decahydrate, 100 mL

Sodium Borate, Decahydrate

Syn: Borax; sodium tetraborate **Formula:** Na₀B₄O₇ • 10H₀O

F.W.: 381.42 CAS No.: 1303-96-4

Notes: 4% solution used for preparing slime with

polyvinyl alcohol

Storage Code: Green—general chemical storage Laboratory Grade 500 g 888560 \$11.95 888575

4% (use with item #882372 Polyvinyl Alcohol to make slime) Laboratory Grade 100 mL \$7.05

888580

Laboratory Grade 500 mL \$7.30

Sodium Bromide

Formula: NaBr F.W.: 102.89 CAS No.: 7647-15-6 Characteristic: White

Storage Code: Yellow-reactive

888710 Granular

Reagent Grade 500 g \$34.00



888784 Sodium Carbonate, Anhydrous, 1.0 M Aqueous, 500 mL

Sodium Carbonate, Anhydrous

Formula: Na,CO, F.W.: 105.99 CAS No.: 497-19-8 Characteristic: White

Storage Code: Green—general chemical storage

888770 Granular

Reagent Grade 500 g \$14.20 888768 Powder Laboratory Grade 100 q \$5.30

888780 0.1 M Aqueous Laboratory Grade 500 mL \$7.00 888784 1.0 M Aqueous

> Laboratory Grade 500 mL \$7.20

Sodium Carbonate, Monohydrate

Formula: Na,CO, • H,O F.W.: 124.00 CAS No.: 5968-11-6

Storage Code: Green—general chemical storage

888760 Granular

Laboratory Grade 500 g \$10.95



888840 Sodium Chlorate, 500 g

Sodium Chlorate

Formula: NaClO_a F.W.: 106.44 CAS No.: 7775-09-9 Notes: Hygroscopic

Storage Code: Yellow-reactive

888840 Laboratory Grade 500 g \$24.00



888884 Sodium Chloride, Crystal, ACS Grade, 1 kg

Sodium Chloride

Syn: Table salt Formula: NaCl F.W.: 58.45

CAS No.: 7647-14-5 Characteristic: White

Notes: Green chemistry substitute for sodium nitrate Storage Code: Green—general chemical storage

888880 Crystal

ACS Grade 500 a \$9.25 888884 Crystal \$20.70 ACS Grade 1 kg 888883 Crystal

Reagent Grade 2 kg \$27.00 888933 0.85% Aqueous, Normal Saline

Laboratory Grade 500 mL \$7.50

888937 Aqueous, Saturated

Laboratory Grade 500 mL \$9.30

Storage Code Key

Blue Toxic. Store separately in a secured area. Green General chemical storage. Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.



889060 Sodium Citrate, Dihydrate, 500 g

Sodium Citrate, Dihydrate

Syn: Sodium citrate; disodium salt Formula: $Na_3C_6H_5O_7 \bullet 2H_2O$

F.W.: 294.10 CAS No.: 6132-04-3 Characteristic: White

Storage Code: Green—general chemical storage

889060 Granular

Laboratory Grade 500 g \$20.90

Sodium Dichromate, Dihydrate A3

Syn: Sodium bichromate Formula: Na₂Cr₂O₇ • 2H₂O F.W.: 298.00

CAS No.: 7789-12-0

Characteristic: Reddish to bright orange crystals

Storage Code: Yellow-reactive

889202 Laboratory Grade 250 g \$14.70

Sodium Dodecyl Sulfate

See Dodecyl Sodium Sulfate



889308 Sodium Fluoride, 100 g

Sodium Fluoride

Syn: Sodium monofluoride, floridine

Formula: NaF F.W.: 41.99 CAS No.: 7681-49-4

Notes: Toxic by inhalation and ingestion

Storage Code: Blue—toxic 889308 Powder

Laboratory Grade 100 g \$15.50

Sodium Hydrogen Carbonate

See Sodium Bicarbonate

Visit Carolina.com for new products and current pricing.



889425 Sodium Hydroxide, Pellets, 30 g



889430 Sodium Hydroxide, Flake, 2 kg

Sodium Hydroxide

Syn: Caustic soda, soda lye

Formula: NaOH F.W.: 40.00 CAS No.: 1310-73-2 Characteristic: White

Notes: Protect concentrated solutions of sodium hydroxide from air because they react with carbon dioxide in air to form sodium carbonate

Storage Code: White-corrosive 889425 Pellets Laboratory Grade 30 g \$7.35 Pellets 889470 Reagent Grade \$20.15 500 a 889461 Pellets Reagent Grade \$66.95 2 kg 889460 Beads Laboratory Grade 500 g \$11.85 889430 Flake Laboratory Grade 2 kg \$24.85 889551 0.1 M (0.4%); Aqueous Laboratory Grade 500 mL \$7.20 889553 0.1 M (0.4%); Aqueous \$14.05 Laboratory Grade 1 L 889561 0.5 M (2%); Aqueous Laboratory Grade 500 mL \$7.85 889571 1 M (4%); Aqueous 500 mL \$8.05 Laboratory Grade 889573 1 M (4%); Aqueous Laboratory Grade 1 L \$16.10 889585 3 M (12%); Aqueous Laboratory Grade 500 mL \$11.15 6 M; Aqueous 889591 Laboratory Grade 500 mL \$12.60 889597 50%: Aqueous Laboratory Grade 500 mL \$22.00



Svn: Bleach Formula: NaOCI F.W.: 74.44 CAS No.: 7681-52-9

Notes: Corrosive; can cause skin burns

Storage Code: White-corrosive

889640 Laboratory Grade 500 mL \$8.25 889642 Laboratory Grade 1 L \$12.60

Sodium Hyposulfite

See Sodium Thiosulfate, Pentahydrate

Sodium Lauryl Sulfate

See Dodecyl Sodium Sulfate

Sodium Iodide

Formula: Nal F.W.: 149.90 CAS No.: 7681-82-5 Characteristic: White

Storage Code: Green—general

chemical storage

889710 Laboratory Grade

100 g \$44.95 889714 Laboratory Grade 500 g **\$198.70**

889720 0.5 M Aqueous

Laboratory Grade 500 mL \$29.95



889720 Sodium lodide, 500 mL



Sodium Metabisulfite

 $\begin{aligned} & \textbf{Formula:} \ \text{Na}_2 \text{S}_2 \text{O}_5 \\ & \textbf{F.W.:} \ 190.11 \\ & \textbf{CAS No.:} \ 7681-57-4 \end{aligned}$

Characteristic: White powder Storage Code: Blue—toxic

888528 Powder

Reagent Grade 100 g \$9.70

Sodium Nitrate

Formula: NaNO₃ F.W.: 84.99 CAS No.: 7631-99-4 Characteristic: White

Notes: Strong oxidizer; avoid friction or shock; consider sodium chloride as a green chemistry substitute

Storage Code: Yellow-reactive

889840 Laboratory Grade 500 g \$18.00



889902 Sodium Nitrite, 100 g

Sodium Nitrite

Syn: Nitrous acid sodium salt

Formula: NaNO₂ **F.W.:** 69.00 **CAS No.:** 7632-00-0

Characteristic: White to slightly yellow crystalline

solid

Storage Code: Yellow—reactive

889902 Reagent Grade 100 g \$14.50

Sodium Phosphate, Dibasic, Anhydrous

Formula: Na₂HPO₄
F.W.: 141.96
CAS No.: 7558-79-4
Storage Code: Green—general chemical storage
891442 Reagent Grade
500 g \$36.80



891442 Sodium Phosphate, Dibasic, Anhydrous, 500 g

Sodium Phosphate, Monobasic, Monohydrate

Formula: NaH₂PO₄ • H₂O

F.W.: 137.99 **CAS No.:** 10049-21-5

Storage Code: Green—general chemical storage **891340** Reagent Grade 500 g **\$44.00**

Sodium Phosphate, Tribasic, Dodecahydrate

Syn: TSP, trisodium phosphate **Formula:** Na₂PO₄ • 12H₂O

F.W.: 380.12 CAS No.: 10101-89-0

Notes: Severe body irritant; moderately toxic

Storage Code: White-corrosive

891410 Reagent Grade 500 g **\$30.50**



891482 Sodium Polyacrylate (hydrated), 500 g

Sodium Polyacrylate

Formula: [-CH₂CH(CO₂Na)-]_n
CAS No.: 9003-04-7
Characteristic: White

Notes: Absorbs several hundred times its own weight

in water

891480 Laboratory Grade 100 g **\$13.65 891482** Laboratory Grade 500 g **\$36.00**

Storage Code Key

White

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.





891500 Sodium Polyacrylate, Snow Polymer, 100 g

Sodium Polyacrylate, Snow Polymer

Characteristic: White

S

Notes: Absorbs 100× its own weight in water to form a fluffy, dry "snow;" mix 1 part polymer to 10 parts water for maximum effect; "snow" volume is triple the water volume; 100 g makes nearly 2 gal of "snow" and 500 g makes nearly 10 gal; air-dry to reuse

891500 Laboratory Grade 100 g \$13.40

891502 Laboratory Grade 500 g \$30.50

Sodium Silicate Solution

Syn: Water glass **Formula:** $Na_2SiO_3 \cdot 9H_2O$

F.W.: 284.20 CAS No.: 1344-09-8 Characteristic: White

Notes: Skin irritant, moderately toxic by ingestion;

40 to 42° Be; 40% aqueous

Storage Code: Green—general chemical storage **891590** Laboratory Grade 500 mL **\$7.80**

Sodium Sulfate, Anhydrous

Formula: Na₂SO₄ **F.W.:** 142.04 **CAS No.:** 7757-82-6

Storage Code: Green—general chemical storage **891710** Reagent Grade 500 g **\$17.95**

891714 1.0 M Aqueous

Laboratory Grade 500 mL \$11.70

Sodium Sulfide, Nonahydrate

Formula: Na₂S • 9H₂O F.W.: 240.18 CAS No.: 1313-84-4

Notes: Corrosive; dangerous fire and explosion risk;

flammable solid

Storage Code: White-corrosive

891772 Crystal

Reagent Grade 500 g \$71.50

Sodium Sulfite

Formula: Na₂SO₃ **F.W.:** 126.04 **CAS No.:** 7757-83-7

Storage Code: Green—general chemical storage **891800** Laboratory Grade 500 g **\$13.40**

891804 0.1 M Aqueous

Laboratory Grade 500 mL **\$10.00**

Sodium Thiosulfate, Pentahydrate

Syn: Sodium hyposulfite **Formula:** $Na_2S_2O_3 \bullet 5H_2O$

F.W.: 248.19 CAS No.: 10102-17-7

Storage Code: Green—general chemical storage **891970** Laboratory Grade 500 g **\$12.00**

892000 Crystal

Reagent Grade 500 g \$13.60

Stannic, Stannous Salts

See Tin



892510 Starch 1% Aqueous, Laboratory Grade, 1 L

Starch

Formula: $(C_6H_{10}O_5)n$

Characteristic: White powder

Notes: Some may be insoluble in water or alcohol **Storage Code:** Green—general chemical storage

Corn Powder 892501 Reagent Grade \$12.95 500 g 892502 Corn Powder Laboratory Grade 500 g \$12.85 892529 Soluble Potato ACS Grade \$21.00 892532 Soluble Potato Reagent Grade \$62.95 500 a 892510 1% Aqueous Laboratory Grade \$23.55 11

Stearic Acid

Syn: Octadecanoic acid **Formula:** CH₃(CH₂)₁₆COOH

F.W.: 284.48 **CAS No.:** 57-11-4

Storage Code: Green—general chemical storage **892602** Laboratory Grade 250 g **\$17.00**



Strontium Chloride, Hexahydrate

Formula: SrCl₂ • 6H₂0 **F.W.:** 266.64

CAS No.: 10025-70-4 Characteristic: White granules

Notes: Green chemistry substitute for strontium

nitrate

Storage Code:Green—general chemical storage892720Reagent Grade100 g\$13.95892722Reagent Grade500 g\$37.15

Strontium Nitrate

Formula: Sr(NO₃)₂ **F.W.:** 211.63 **CAS No.:** 10042-76-9 **Characteristic:** White

Notes: Strong oxidizer; consider strontium chloride as

a green chemistry substitute

Storage Code: Yellow—reactive

892750 Reagent Grade 100 g \$15.90



892860 Sucrose, 500 g

Sucrose

Syn: Cane sugar, white sugar

Formula: $C_{12}H_{22}O_{11}$ F.W.: 342.31 CAS No.: 57-50-1 Characteristic: White

 Storage Code: Green—general chemical storage

 892860
 Reagent Grade
 500 g
 \$18.60

 892871
 Reagent Grade
 2 kg
 \$51.60

 892875
 Laboratory Grade
 100 g
 \$6.25



892965 Sudan III Fat Stain, Herxheimer, Laboratory Grade, 500 mL

Sudan III

Formula: C₂₂H₁₆N₄0 **F.W.:** 352.41 **CAS No.:** 85-86-9

Characteristic: Reddish-brown

Storage Code: Green—general chemical storage

(25 g)

Red—flammable

Laboratory Grade 100 mL **\$8.95**

⚠ 892965 Fat Stain, Herxheimer

Laboratory Grade 500 mL \$35.65



892997 Sudan IV Fat Stain, Herxheimer, Laboratory Grade. 1 L

Sudan IV

F.W.: 380.45 CAS No.: 85-83-6 Characteristic: Brown

4 892997

Storage Code: Green—general chemical storage

(25 g)

Red-flammable

892980 Laboratory Grade 25 g **\$99.00**▲ **892993** Fat Stain, Herxheimer

Laboratory Grade 100 mL

892995 Fat Stain, Herxheimer

Fat Stain, Herxheimer
Laboratory Grade 500 mL \$37.85

Fat Stain, Herxheimer

Laboratory Grade 1 L \$73.80

\$11.60

Green Chemistry

Green chemistry refers to a set of principles that can help you minimize the hazardous substances used in your classroom. In our continuing effort to make your lab safer and greener, we've identified chemicals consistent with the 12 Principles of Green Chemistry, as well as what these green substances replace. You'll find this information in the chemical's "Notes" line.

For a complete list of chemical substitutions and a detailed explanation of green chemistry, go to **Carolina.com** and type "green chemistry" in the search field; in the supplied results, click "Resources," then view the articles "Introduction to Green Chemistry," "12 Principles of Green Chemistry," and other helpful safety information. At Carolina, it's easy to go green.

Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.



893210 Sulfur, Precipitated Powder, 500 g

Sulfur

Formula: S **F.W.:** 32.06

CAS No.: 7704-34-9

Characteristic: Yellow powder, crystals, rolls, or

lumps

Storage Code: Green—general chemical storage

893210 Precipitated Powder

Reagent Grade 500 g \$16.80

893260 Broken Lumps

Laboratory Grade 500 g \$10.50



893260 Sulfur, Broken Lumps, 500 g



893301, 893297, 893302, 893423, and 893381 Sulfuric Acid

Sulfuric Acid 🗥

Formula: H₂SO₄ **F.W.:** 98.08

CAS No.: 7664-93-9

Storage Code: White-corrosive

893297 18 M (95–98% v/v); in glass bottle ACS Grade 30 mL **\$7.40** 893301 18 M (95–98% v/v); in plastic-coated

safety bottle

ACS Grade 500 mL **\$22.00 893302** 18 M (95–98% v/v); in glass bottle ACS Grade 2.5 L **\$49.80 893303** 18 M (95–98% v/v); in plastic-coated

safety bottle

ACS Grade 2.5 L **\$78.95 893381** 0.1 M (0.6% v/v) Laboratory Grade 500 mL **\$11.25 893423** 1 M (6% v/v)

1 L

\$15.60

\$17.25

\$25.55

Laboratory Grade **893431** 3 M (17% v/v)

893431 3 M (17% v/v) Laboratory Grade 500 mL **\$12.95** 893441 5 M (28% v/v)

Laboratory Grade 500 mL 893443 5 M (28% v/v) Laboratory Grade 1 L CARGLINA

Chemicals

893000 Tannic Acid, 100 g

Tannic Acid

Syn: Tannin **Formula:** $C_{76}H_{52}O_{46}$ **F.W.:** 1701.20 **CAS No.:** 1401-55-4

Characteristic: Yellow to light tan powder

Notes: Darkens when exposed to air and light

Storage Code: Green—general chemical storage

893000 Laboratory Grade 100 g \$25.70

Tert-Butyl Alcohol

See page 954

Test Papers

See pH Test Papers on pages 990-993

Tetrazolium Chloride

See 2,3,5-Triphenyl Tetrazolium Chloride



California Proposition 65

WARNING: Cancer – www.P65Warnings.ca.gov



896190 Thymol, 25 g

Thymol

Syn: Thyme camphor **Formula:** $C_{10}H_{14}O$ **F.W.:** 150.22 **CAS No.:** 89-83-8

Characteristic: Colorless, translucent crystals

Storage Code: Green—general chemical storage

896190 Laboratory Grade 25 g \$13.25

Thymol Blue Sodium Salt

Syn: Thymolsulfonphthalein Formula: $\mathrm{C_{27}H_{29}O_{5}SNa}$ F.W.: 488.57 CAS No.: 62625-21-2

Characteristic: Brownish-green or pink, crystalline

powder

Storage Code: Green—general chemical storage **896070** Reagent Grade 1 g **\$16.50**

Tin

Formula: Sn F.W.: 118.71 CAS No.: 7440-31-5

Characteristic: Silvery white metal

Storage Code: Green—general chemical storage

896302 Mossy

Laboratory Grade 100 g \$37.00

896304 Shot

Laboratory Grade 25 g \$19.45

Tin (IV) Chloride, Pentahydrate

Syn: Stannic chloride, pentahydrate

Formula: $SnCl_4 \bullet 5H_2O$

F.W.: 350.6

CAS No.: 10026-06-9 Characteristic: White/yellow

Notes: Soluble in cold water; decomposes in hot

wate

Storage Code: Green—general chemical storage

892350 Lump

Laboratory Grade 100 g \$65.25



896562 Toluene, 3.8 L

Toluene 122

Syn: Toluol **Formula:** C₇H₈ **F.W.:** 92.14

CAS No.: 108-88-3

Storage Code: Red—flammable

896562 ACS Grade 3.8 L **\$60.40**



896615 Toluidine Blue O, 500 mL

Toluidine Blue O

Syn: Basic blue 17 **Formula:** C₁₅H₁₆CIN₃S **F.W.:** 305.82 **CAS No.:** 92-31-9

Storage Code: Green—general chemical storage

896613 1% Aqueous

Laboratory Grade 100 mL \$14.80

896615 1% Aqueous

Laboratory Grade 500 mL \$47.80

Carolina Teacher Tips

Carolina ChemKits®

- · Cover essential topics for high school general chemistry
- · Can be completed in 1 or 2 class periods
- · Include premeasured chemicals for a class of 30

Carolina ChemKits® are designed for high school general chemistry labs and developed with Carolina expertise provided by scientists, educators, and decades of experience. Manufactured in-house to exacting standards and priced to give you the best performance on a budget, these kits are a remarkable value. Each addresses a single topic with a guided investigation that focuses students on data collection, analysis, and critical thinking to help them develop a clear understanding of the topic.

Learn more about Carolina ChemKits® starting on page 880.

T-W

2,3,5-Triphenyl Tetrazolium Chloride

Syn: TTC, tetrazolium chloride

Formula: $C_{19}H_{15}CIN_4$ **F.W.:** 334.82 **CAS No.:** 298-96-4

Notes: Aqueous solutions may be slightly hazy or turn

yellow in light

Storage Code: Green—general chemical storage896930Laboratory Grade5 g\$28.40896932Laboratory Grade10 g\$52.95

Tris (Hydroxymethyl) Aminomethane

Syn: Tris, free base **Formula:** $H_2NC(CH_2OH)_3$ **F.W.:** 121.14

CAS No.: 77-86-1

Storage Code: Green—general chemical storage **896970** Laboratory Grade 250 g **\$55.25**

Trypsin

CAS No.: 9002-07-7 **Notes:** Hydrolyzes protein

Storage Code: Green—general chemical storage **897000** Laboratory Grade 25 g **\$84.50**



Universal Indicator

See Bogen Universal Indicator

Urea

Formula: (NH₂)₂CO F.W.: 60.06 CAS No.: 57-13-6

Storage Code: Green-general chemical storage

897650 Crystal

Laboratory Grade 500 g \$10.95

Chemicals

Urease

CAS No.: 9002-13-5

Notes: Catalyzes the hydrolysis of urea into ammonia and carbon dioxide; contains 140–180 units per gram;

keep refrigerated

Storage Code: Green—general chemical storage

897690 Powder

Reagent Grade 10 g \$26.75



Vinegar

CAS No.: 64-19-7 Characteristic: Colorless

Notes: Contains at least 4% acetic acid

Storage Code: Green—general chemical storage 898110 White Vinegar 473 mL \$5.50 898112 White Vinegar 3.8 L \$11.85

Vitamin C

See L-Ascorbic Acid



Water Glass

See Sodium Silicate Solution

Water, Deionized

Syn: Hydrogen oxide **Formula:** H_2O **F.W.:** 18.01 **CAS No.:** 7732-18-5

Characteristic: Clear, colorless liquid
Notes: Ideal for making aqueous solutions
Storage Code: Green—general chemical storage
857201 Reagent Grade 3.8 L \$11.90

Water, Distilled

Syn: Hydrogen oxide **Formula:** H₂0 **F.W.:** 18.01 **CAS No.:** 7732-18-5

Characteristic: Clear, colorless liquid

Storage Code: Green—general chemical storage **858621** Reagent Grade 3.8 L **\$11.40**



Storage Code Key

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Red Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

WAVICIDE®-01

See Disinfectant

Wright-Giemsa Stain, Fucillo ▲

Notes: For red blood cell morphology and white blood

cell differentiation

Storage Code: Red—flammable

898570 Reagent Grade 1 L \$68.00

Wright Stain

CAS No.: 68988-92-1 Notes: Used as a blood stain Storage Code: Red—flammable 898535 0.3% in methyl alcohol

Laboratory Grade 500 mL \$19.95



Xylene ▲¹

Formula: C₈H₁₀ **F.W.:** 106.17 **CAS No.:** 1330-20-7

Storage Code: Red-flammable

898741 Laboratory Grade 500 mL \$19.00



Yeast, Activated

Storage Code: Green—general chemical storage

898890 Powder

Laboratory Grade 100 g \$14.00

Yeast, Brewer's

Storage Code: Green—general chemical storage

898900 Powder

Laboratory Grade 500 g \$32.85



Z



899300, 899340, and 899410 Zinc

Zinc

Formula: Zn **F.W.:** 65.38

CAS No.: 7440-66-6

Characteristic: Light gray metallic color

Notes: Zinc dust is stabilized

Storage Code: Green—general chemical storage

899300	Granular; 10 Mesh		
	Reagent Grade	500 g	\$56.90
899340	Mossy		
	Laboratory Grade	500 g	\$31.40
899410	Shot		
	Reagent Grade	500 g	\$35.70
899344	Dust		
	Laboratory Grade	500 g	\$42.00
899346	Sheet; 1/32" thick		
	Laboratory Grade	6 × 12"	\$19.95
757488C	Electrodes, 3/4 × 55	/16"	
	Laboratory Grade	Pack of 12	\$23.10



899346 Zinc, Sheet, 6 x 12"

Zinc Acetate, Dihydrate

Formula: $Zn(C_2H_3O_3)_2 \bullet 2H_2O$

F.W.: 219.51 CAS No.: 5970-45-6

Notes: Green chemistry substitute for zinc chloride

and zinc nitrate

Storage Code: Green—general chemical storage **899462** Laboratory Grade 100 g **\$10.80**

Zinc Chloride

Formula: ZnCl₂ **F.W.:** 136.29 **CAS No.:** 7646-85-7

Notes: Hygroscopic; consider zinc acetate as a green

chemistry substitute

Storage Code: White-corrosive

899542 Reagent Grade 500 g \$24.95

Zinc Nitrate, Hexahydrate

Formula: $Zn(NO_3)_2 \bullet 6H_2O$

F.W.: 297.49

CAS No.: 10196-18-6

Notes: Consider zinc acetate as a green chemistry

substitute

Storage Code: Yellow—reactive

899572 Laboratory Grade 500 g **\$26.80**

Zinc Oxide

Formula: Zn0 F.W.: 81.38 CAS No.: 1314-13-2

Storage Code: Green—general chemical storage **899606** Laboratory Grade 500 g **\$31.60**

Zinc Sulfate, Heptahydrate

Syn: White vitriol, heptahydrate **Formula:** $ZnSO_4 \bullet 7H_2O$

F.W.: 287.56

CAS No.: 7446-20-0

Storage Code: Green—general chemical storage **899464** Reagent Grade 500 g **\$23.55**

Storage Code Key

Red

Blue Toxic. Store separately in a secured area.

Green General chemical storage.

Flammable. Store in approved flammable containers. Store away from oxidizing materials.

White Corrosive. Separate acids from bases; separate oxidizer acids from organic acids.

Yellow Reactive. Store separately and away from incompatible material.

Buffers

Buffer, Chemvelope

The buffer in the Chemvelope, when dissolved in 500 mL distilled water, makes a precise buffer solution. Carton of 5 envelopes includes 1 vial of preservative solution. Powders keep 5 years; prepared solutions keep 3 weeks (or 3 months with preservative added). Preservative contains a pH indicator and colors each buffer solution for easy identification.

Buffer Capsules

The buffer in each capsule, when dissolved in 100 mL distilled water, makes a precise buffer solution. Vial contains 10 capsules. Expiration date of capsules is printed on vial, usually 3 years or more. Prepared solution keeps 3 weeks.

Buffer Solutions

Prepared with distilled water and checked for accuracy. Solutions are colorless unless stated otherwise. Shelf life is 1 year.

	solution fo	r easy identificati	on.				
pH 1							
pH 2	849330	Carton of 5	\$19.15	849470	Vial of 10	\$12.70	849633 500 mL \$12.70
pH 3	849340	Carton of 5	\$19.15	849480	Vial of 10	\$12.70	849643 500 mL \$12.70
							Red color-coded solution 849653 500 mL \$7.95
pH 4	849350	Carton of 5	\$18.80	849490	Vial of 10	\$12.70	Colorless solution 849655 500 mL \$7.95
pH 5	849360	Carton of 5	\$19.15	849500	Vial of 10	\$12.70	849663 500 mL \$12.70
pH 6	849370	Carton of 5	\$19.15	849510	Vial of 10	\$12.70	849673 500 mL \$12.70
pH 7	849380	Carton of 5	\$18.80	849520	Vial of 10	\$12.70	Yellow color-coded solution 849683 500 mL \$7.95 849687 3.8 L \$46.55
							Colorless solution 849685 500 mL \$7.95
pH 8	849390	Carton of 5	\$19.15	849530	Vial of 10	\$12.70	849693 500 mL \$12.70
pH 9	849400	Carton of 5	\$19.15	849540	Vial of 10	\$12.70	849703 500 mL \$12.70
							Blue color-coded solution 849713 500 mL \$7.95
pH 10	849410	Carton of 5	\$18.80	849550	Vial of 10	\$12.70	Colorless solution 849714 500 mL \$7.95
pH 11	849420	Carton of 5	\$19.15	849560	Vial of 10	\$12.70	849715 500 mL \$12.70
pH 12	849430	Carton of 5	\$19.15	849570	Vial of 10	\$12.70	849717 500 mL \$12.70



849310 Buffer Set, Chemvelopes

Buffer Set, Chemvelopes Buffer Set, Envelopes

One envelope each of pH 2.0 through 11.0. Each envelope makes 500 mL of solution. Includes 1 vial of preservative solution. Powders keep 5 years; prepared solutions keep 3 weeks (or 3 months with preservative added). Preservative contains a pH indicator and colors each buffer solution for easy identification.

849310 Per set \$39.65



849314 Buffer Set, Envelopes

Each envelope contains sufficient powder to make 500 mL solution: 3 envelopes pH 4.0, 4 envelopes pH 7.0, 3 envelopes pH 10.0, 1 vial preservative solution. Powders keep 5 years; prepared solutions keep 3 weeks (or 3 months with preservative added). Preservative contains a pH indicator and colors each buffer solution for easy identification.

849314 Per set \$42.45



849316 Buffer Set, Capsules

Buffer Set, Capsules

Contains 1 vial each, with 10 capsules per vial of pH 4.0, pH 7.0, and pH 10.0. Each capsule is sufficient to make 100 mL buffer solution. Complete with 1 vial preservative solution. Powders keep 5 years; prepared solutions keep 3 weeks (or 3 months with preservative added). Preservative contains a pH indicator and colors each buffer solution for easy identification.

849316 Per set \$37.40

Chemicals pH Test Papers

Carolina® pH Indicator Strips

- Rapid, accurate, and easy-to-read results
- Non-bleed system provides precise pH values
- Well-defined, easy-tomatch colors
- Portable pack allows for field work

The non-bleed system used for these strips allows the color to remain longer and stay readable until the test



894030 Carolina pH Indicator Strips (pH 0.0 to 14.0)

pads are dry. Convenient to use both inside and outside of the lab. Can be stored up to 3 years under proper conditions.

894030	pH 0.0 to 14.0	Pack of 100	\$16.85
894080	pH 0.0 to 14.0	Pack of 5,000	\$695.00
894035	pH 0.0 to 6.0	Pack of 100	\$15.80
894042	pH 4.0 to 10.0	Pack of 100	\$15.80
894036	pH 7.0 to 14.0	Pack of 100	\$15.80

13 La CAROLLINA 12 CAROLLINA 12

894020 Carolina pH Test Paper (pH 1.0 to 13.0)

Carolina® pH Test Paper (pH 1.0 to 13.0)

Range: 1.0 to 13.0Sensitivity: 1

Carolina® pH Test Paper provides a quick and easy method of indicating the pH of a solution by using a single-color change. Available as a **Single Roll** (15-ft reel with color chart), **3-Roll Refill** (three 15-ft reels with **no color chart**), and **50-Roll Bulk Pack** (a set of fifty 15-ft reels with a color chart). Store up to 3 years under proper conditions. **Note:** Due to the extreme similarity in the colors of pH 13 and pH 14 for this paper, the pH range ends at 13. To accurately test for pH above 12, consider using a pH meter or a more sensitive strip, such as the Carolina® pH Indicator Strips (item #894036).

894020	Single Roll	Each	\$6.20
894024	3-Roll Refill	Each	\$16.55
894070	50-Roll Bulk Pack	Each	\$255.00



893930 Universal pH Indicator Strips (pH 0.0 to 14.0)

Universal pH Indicator Strips Simple, fast, portable, reliable

- · Consistent, accurate reliability
- Convenient to use outside the lab
- Results within seconds
- Effective in weakly buffered, colored, or turbid solutions, as well as in mud or sludge

ColorpHast® products include a bright, easy-to-read color chart. Covalently bound indicators do not bleed from uneven color zones or fade under intense light. Each package contains 100 strips.

	Item No.	Range	Sensitivity	Per Pkg
Ö	893930	0.0 to 14.0	1	\$33.00
	893935	0.0 to 6.0	0.5	\$34.25
	893942	5.0 to 10.0	0.5	\$36.00

Hydrion® Spectral pH Strips

Plastic pH strips indicate pH with unique colors for exact matches of pH. Colors align easily for matching—the strip's pH pad and the color swatch on the vial are the same size. Flexible, easy-to-handle plastic strips are more durable than paper strips if needed for later reference. Conveniently packaged in flip-top vials of 100 strips. Item #894776 is sold as a set of 50 vials for a total of 5,000 strips.

	Item No.	Range	Sensitivity	Per Pkg
Ö	894726	0.0 to 14.0	1	\$15.30
	894776	0.0 to 14.0	1	\$682.00
	894727	0.0 to 6.0	0.5	\$16.00
	894729	5.5 to 8.0	0.2 to 0.4	\$15.45



894726 Hydrion Spectral pH Strips (pH 0.0 to 14.0)



894720 Hydrion Spectral pH Paper Single-Roll Dispenser (pH 1.0 to 14.0)

Hydrion® Spectral pH Paper Dispensers (pH 1.0 to 14.0)

Distinct colors indicate each pH unit over the entire pH scale. **Single-Roll** dispenser, 15-ft roll. **Double-Roll** dispenser, two 15-ft rolls. **Refill**, five 15-ft rolls.

 894720
 Single Roll
 Each
 \$8.40

 894722
 Double Roll
 Each
 \$14.95

 894724
 Refill
 Each
 \$37.85



894722 Hydrion Spectral pH Paper Double-Roll Dispenser (pH 1.0 to 14.0)

Chemicals Test Papers



895280 Hydrion Jumbo pH Strips, Wide Range

Hydrion® Jumbo pH Strips, Wide Range

• Range: 1.0 to 12.0 • Size: 3/8 × 21/2" L strip

• Quantity: 100 strips per vial; 5 vials per package

895280 Per pkg \$28.95



895110 Hydrion pH Strips, Wide Range, 10-Vial Package



Hydrion® pH Strips, Wide Range

• Range: pH 1.0 to 12.0

• Size: 1/4 × 2" L strip

• Quantity: 100 strips per vial; sold in 10- or 50-vial packages

895110 10-Vial Package Each \$22.30 895160 50-Vial Package Each \$99.95



Notes: 7 different colors in 1-unit steps; wide range pH 4 to 10

Storage Code: Red-flammable

848263 Laboratory Grade 100 mL **\$10.25 848265** Laboratory Grade 500 mL **\$17.25**

Acid Universal Indicator A

Notes: 7-step acid indicator for pH 1 to 7; each 1-unit increment is a distinct color



848267 Acid Universal Indicator, 30 mL



Chemicals Test Papers



894610 Hydrion AB pH Paper Dispenser (pH 1.0 to 11.0)

Hydrion® AB pH Paper Dispenser (pH 1.0 to 11.0)

Type A and B papers combine to give coverage of the pH 1.0 to 11.0 range. Type A paper indicates even pH values: 2.0, 4.0, 6.0, 8.0, and 10.0. Type B paper indicates odd pH values: 1.0, 3.0, 5.0, 7.0, 9.0, and 11.0. Dispenser contains two 15-ft rolls, 1 each of Type A and Type B paper.

894610 Each \$15.40



894980 Hydrion Jumbo pH Dispenser

Hydrion® Jumbo pH Dispenser

Single-roll dispenser, $1/2 \times 600$ ". Wide range. pH range 1.0 to 12.0. **894980** Each **\$22.60**



894157 Hydrion Lo Ion pH Test Kit (pH 1.0 to 11.0)

Hydrion® Lo Ion pH Test Kits

Standard pH paper cannot accurately measure the pH of some solutions (e.g., tap water, distilled water, deionized water, and other pure water samples) because the concentration of dissolved ions is too low. For these samples, use a Lo lon pH Test Kit. Place a 3" strip of paper in the 4-mL test tube, fill with sample, cap, and shake. After 1 min, compare the strip's color to the supplied color chart. Materials are sufficient for 60 tests. Each kit includes 15-ft roll of paper, test tube with cap, and color chart—all in 1 container.

Item No.	Range	Sensitivity	Each
894157	pH 1.0 to 11.0	1	\$16.35
894160	pH 3.0 to 5.5	0.5	\$16.65



895511 Acid/Base Indicator Strips

Acid/Base Indicator Strips

Set includes 1 vial of red litmus strips and 1 vial of blue litmus strips. 100 strips per vial.

895511 Per set \$6.25





Test Papers Chemicals





895574 Potassium Iodide Starch Test Strips, Vial of 100

Potassium Iodide Starch Test Strips

These test strips detect free iodine, chlorine, and peroxides in solution. Lower levels react with the strips at 5 to 10 ppm. Iodine requires approximately 60 sec to react, and initial reactions show a slight blue color; higher concentrations turn the strip from dark blue to purple.

895572 Package of 1,200 Each **\$29.00 895574** Vial of 100 Each **\$2.90**



895390 Blue Litmus Paper Strips

Litmus Paper Strips

Blue litmus paper turns red at pH 4.5 or less (acidic). Red litmus paper turns blue at pH 8.3 or more (basic). Neutral litmus paper turns from purple to blue or red. Strips measure 7×48 mm.

895389	Blue Strips	Vial of 100 Each	\$2.90
895390	Blue Strips	Package of 1,200 Each	\$17.20
895509	Red Strips	Vial of 100 Each	\$2.95
895510	Red Strips	Package of 1,200 Each	\$16.10
895439	Neutral Strips	Vial of 100 Each	\$2.20
895440	Neutral Strips	Package of 1,200 Each	\$16.10



895570 Cobalt Chloride Humidity Test Strips

Cobalt Chloride Humidity Test Strips

Use these test strips as part of your weather study program. Cobalt strips indicate humidity: blue = low humidity; pink = high humidity. Packaged in 12 vials; 100 strips per vial.

895570 Per pack **\$26.75**

Chemicals pH Meters



186024 and 186025 OHAUS pH Pen Meters

OHAUS pH Pen Meters A3

Convenient pH testing with an economical solution! These simple-to-use pH pen meters offer fast and accurate results. With them, you can measure a sample's pH, or relative acidity or alkalinity, using just 1 hand! Each meter is designed with a durable IP67 waterproof housing, protective cap that safeguards the sensor, and automatic shutdown to preserve battery life. Storage case and wrist strap included. The pH/Temperature Pen Meter also includes temperature compensation and measurement. Replacement electrodes are available for both meters.

186024	pH Pen Meter	Each	\$74.00
186025	pH/Temperature Pen Meter	Each	\$126.00
186039	pH Pen Meter Replacement Electrode	Each	\$51.00
186040	pH/Temperature Pen Meter Replacement Electrode	Each	\$91.00

Sper Test Tube pH Pen Meter

Designed for simple one-handed operation, this pen meter offers highly stable and accurate readings displayed on a large LCD. It automatically calibrates to 4-, 7-, and 10-pH buffers and can be adjusted to recognize others. Features a hold function, automatic shutoff, and low-battery indicator. Its case is IP65 waterproof, and the meter floats if dropped into water. Easy to use for students in

the lab or field. Comes with 2 button-cell batteries, built-in electrode, and protective cap. Fits standard test tubes 16×50 mm or larger.

Specifications:

Battery Type: 2 × CR2032 Calibration: 4, 7, and 10 pH Accuracy: ±0.2 pH 0.00 to 14.00 pH Range:

Resolution: 0.1 pH $235 \times 35 \times 25 \text{ mm}$ Dimensions: Weight: 71 q 652371 Each \$56.50



652371 Sper Test Tube pH Pen Meter

Visit Carolina.com to view our entire selection of portable and bench meters.

See additional pen meters and bench meters on pages 618-622.



186051 OHAUS Starter pH Bench Meter (in use; beaker not included)

OHAUS Starter pH Bench Meter

With a clear, user-friendly interface and the ability to store up to 99 items in its internal memory, this pH bench meter is a reliable and efficient addition to basic laboratories or science classrooms. An affordable, intuitive instrument, measuring pH from 0.00 to 14.00 and temperatures from 0.0 to 100.0 °C, it also features autobuffer recognition and auto-endpoint modes that make calibration and measurement straightforward tasks. Visit Carolina.com for more specifications.

186051 Each \$433.00



New! Go Direct® pH Sensor

An important and versatile sensor for lab and field activities alike, this sensor gives students the freedom to explore pH without the inconvenience of dangling wires or spilled solutions. Just connect and start collecting data with your device; the sensor transmits live readings and captures data in real time. Sensor is comprised of a pH electrode connected to a Go Direct® electrode amplifier via a BNC connector. Includes free software that is intuitive and easy to use. Visit Carolina.com for additional details and warranty information. Note: Vernier products are designed for educational use only. They are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis. control of a manufacturing process, or industrial testing of any kind.

118100 Each \$109.00

Empower Your Students with Go Direct® Sensors

Go Direct® sensors make it easier than ever for students to investigate scientific concepts through hands-on, real-time data collection. The sensors:

- · Simplify lab setup
- Foster learning
- · Maximize lab time
- · Let you focus on teaching
- Include free software

See all of our Go Direct® products at Carolina.com.



Laboratory Safety

Carolina Helps Keep Science Education Safe

Rest assured that you are teaching science safely when you rely on Carolina Biological Supply Company products. Safety is our foremost priority. We maintain a variety of working science labs on our industrial campus, and we outfit these facilities and our workers with the best and most appropriate laboratory safety equipment for each type of duty. Our industrial hygiene program guarantees that safe science is everyday business.

We are equally committed to helping our customers provide the safest laboratory environment possible for their students. We use our specialized expertise to make sure all of our personal protective equipment (PPE) offerings are the best choices for use in student science labs. Other products, such as eyewash stations and safety storage cabinets, must meet the performance criteria specified in various federal and state safety mandates. Industry experience and dedication make Carolina a trustworthy source for your laboratory safety equipment.

Carolina Teacher Tips

Lab Safety Demands a Multilayered Approach

A safe, well-managed classroom and student laboratory require a multilayered approach that includes preparation, appropriate safety equipment, and strict protocols for dealing with chemicals and other hazardous materials. Maintenance of safety equipment is essential. Eyewash stations, safety showers, fire extinguishers, and fire blankets need to be in good working order and positioned correctly. Another important consideration is the care of goggles, gloves, and aprons; the items need to be in serviceable condition and in adequate quantities for the number of students in your classes. Additionally, all chemicals and other hazardous materials should be clearly and correctly labeled and kept in a secured area.

Proper preparation is critical. Students need instructions on laboratory technique and in handling materials before being allowed to conduct experiments. They should also dress appropriately for the laboratory and be prohibited from bringing food, drink, or personal items into the work area. Keep the spotlight on safety by posting emergency telephone numbers, including those for the school office, the poison control center, and a hazardous materials service. Finally, state safety rules clearly and enforce them consistently in all classrooms and at all levels of authority.



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Download valuable classroom materials at no cost 24/7

- FREE supplements to your lesson plans
- FREE class activities and projects
- · FREE digital games and videos
- FREE organism care guides, safety information, SDS, and more

Laboratory Safety Face Protection

These Eyewear Options Put Safety First

- Safety spectacles: All of our safety spectacles meet ANSI Z87.1-2003 standards for impact resistance. They feature side shields for maximum protection against flying objects. Safety spectacles do not afford chemical-splash protection.
- Indirect-vent goggles: Designed specifically for chemical-splash protection, these goggles
 are the appropriate choice for activities involving potentially hazardous fluids. In addition, all
 of our safety goggles meet ANSI Z87.1-2003 standards for impact resistance.
- Ventless goggles: These goggles are the best choice for students who must wear contact lenses during activities that require chemical-splash protection.
- Safety visors and splash shields: When worn in conjunction with the appropriate safety eyewear, these devices afford extra protection against splashes and flying objects.



Value Packs

- · Bright colors appeal to students.
- Products offer top quality at affordable prices.
- Eyewear meets safety requirements.
- Exclusive packs blend comfort, versatility.

Safety Goggles Value Pack, Small A2

The perfect safety goggles for every student laboratory situation at a great price. These indirectly vented, chemical-splash goggles feature a sturdy polycarbonate lens that meets all ANSI Z87.1-2010 requirements for impact resistance. These soft, pliable goggles are sized and shaped to fit snugly, yet comfortably, on a smaller face. Adjustable elastic headband assures a perfect fit for every wearer. Size, small. Pack of 10 in assorted neon colors.

646703 Per pack **\$46.50** 10+ Each **\$41.70** 30+ Each **\$38.70**

From 646704B Safety Goggles Value Pack, Small/Large

Safety Goggles Value Pack, Small/Large ▲²

Indirectly vented, chemical-splash goggles in mixed sizes (small and large) to fit all students. Same features as item #646703 Small Safety Goggles and item #646704A Large Safety Goggles. Meets all ANSI Z87.1-2010 requirements for impact resistance. Pack of 20 goggles (15 small, 5 large) in assorted neon colors.

646704B Per pack **\$85.55** 10+ Each **\$79.55** 30+ Each **\$76.55**

Safety Goggles Value Pack, Large ▲²

Indirectly vented, chemical-splash goggles fit snugly, yet comfortably; can be worn over prescription eyewear. Wide, sturdy polycarbonate lens meets all ANSI Z87.1-2010 requirements for impact resistance. Adjustable elastic headband assures a perfect fit for every wearer. Size, large. Pack of 10 in assorted neon colors.

646704A Per pack **\$65.30** 10+ Each **\$59.30** 30+ Each **\$56.30**

Small and large safety goggles can also be ordered in single-color 10-packs at Carolina.com.



Face Protection Goggles

Laboratory Safety



Economy Direct-Vent Goggles \triangle

Our most economical impact-resistant goggles. Lenses meet ANSI Z87.1-2003 standards for impact resistance. **Note:** *Not intended for chemical-splash protection.*

646706C Each \$4.10

50+ Each **\$3.60** 100+ Each **\$3.00**



Economy Chemical-Splash Goggles A²

Our most economical indirect-vent goggles. For impact and chemical-splash protection. Lenses meet ANSI Z87.1-2003 standards for impact protection.

646706B Each **\$5.05** 50+ Each **\$4.50** 100+ Each **\$4.15**



Sellstrom® Indirect-Vent Laboratory Goggles 🔥

Economical goggles meet ANSI Z87.1-2003 standards and have all the important features of more expensive goggles. Flexible PVC body fits comfortably over prescription eyeglasses. For impact and chemical-splash protection.

646703B Each **\$10.75** 10+ Each **\$10.20** 30+ Each **\$9.05**



Deluxe Chemical-Splash Goggles ⚠³

Oversized, fog-free goggles can be worn over prescription eyewear; constructed of soft, nonallergenic material with flared edge for comfortable fit. Vents are built into the rim, eliminating the need for vent plugs. Has wide, comfortable, adjustable elastic headband. Lenses meet federal ANSI Z87.1-2003 standards for impact resistance.

646699 Each \$15.50



Flexible Jumbo Goggles A

For chemical-splash protection. Lightweight, vinyl goggles with STA-CLEAR® fog-free lenses. Can be worn over regular glasses.

646710 Each \$12.05

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Safety Goggles A

Estwing. Protect your eyes from debris and specimen fragments. The clear lenses are made of polycarbonate and are impact resistant, but not unbreakable. Fits over normal-size glasses. With adjustable headband. Meets The GLOBE® Program specifications. **Note:** *Not intended for chemical-splash protection.*

GE09205 Each \$9.75

Laboratory Safety Spectacles



Ultra-Spec 2000 Safety Glasses

UVEX®. Exclusive 4C coating provides antistatic, antifog, and anti-scratch protection. Filters 99.9% of UV rays. Extremely lightweight for additional comfort. Has free-flow ventilation and fits over most prescription glasses. Meets performance criteria for ANSI Z87.1-2003 and CSA Z94.3 standards. **Note:** *Not intended for chemical-splash protection.*

213695 Each \$11.30



Carolina® Safety Spectacles A

Wide, distortion-free lenses. High safety factor from close-to-face fit and unbreakable construction. Stylish wrap-around design assures total eye protection and superior comfort. Meets performance criteria for ANSI Z87.1 impact protection standards. **Note:** *Not intended for chemical-splash protection.*

646700 Each \$5.30



Carolina® Adjustable Safety Glasses 🕰

Wide-view polycarbonate lens with molded side shields and nylon brow ridge; meets all ANSI Z87.1-2003 impact resistance requirements. Temples can be adjusted to assure perfect fit for wearers. Non-sterile; not autoclavable. **Note:** *Not intended for chemical-splash protection.*

646705 Each \$8.55



Carolina® Small-Size Safety Spectacles

All of the features of top-quality safety spectacles in a small size for younger students and small adults; meets federal ANSI Z87.1-2003 standards for impact protection. Modern-style polycarbonate eye shield has excellent optical clarity. Close-fitting design features a universal nose bridge; deep, reinforced side shields for lateral impact protection; and integrally molded brow guard. **Note:** *Not intended for chemical-splash protection.*

646713 Each **\$6.55** 10+ Each **\$5.55**

Face Shield



Personal Splash Shield

Economical splash shield provides every student with superior protection against chemical-splash injury, particularly when used with safety spectacles or goggles. Optically clear, antifog shield is resistant to most chemicals; has comfortable, impenetrable foam head-band and elastic strap. Measures $13 \times 7^1/2^{\text{"}}$.

646719 Each \$4.95

Body Shield



Polycarbonate Safety Shield

Protect your students during lab demonstrations with this large weighted safety shield made of $^3/_{16}{}^{\shortparallel}$ (4.7-mm) clear polycarbonate, the most impact-resistant transparent shield material available. Three-sided construction provides stability, added protection against flying debris from front and sides, and maximum viewing angle. Heavy steel perimeter base is $1\times 1^7/_8{}^{\shortparallel}$ and coated with blue epoxy. Dimensions at base: $19^1/_2{}^{\shortparallel}$ W \times $6^1/_2{}^{\shortparallel}$ D \times $30{}^{\shortparallel}$ H.

646350 Each \$601.00

Why Shop Carolina.com?

Find everything from our print catalogs and more

- Expanded product information, additional photo views, and zoom-in feature
- · Web exclusive items
- Order history and shipment tracking at your fingertips
- Free teacher resources, such as classroom activities and projects

Face Protection

Evewear Storage & Cleaning



646844 Ultraviolet Sterilization Cabinet (for 40 goggles or glasses)

GOGGLE SANITIZER CARSLINA

646846 Carolina Goggle Sanitizer Cabinet



Laboratory Safety

646720 Metal Lens Cleaning Station

Ultraviolet Sterilization Cabinets

Sanitize and store glasses or goggles. Safe and easy to use; no messy dripping or drying. The 15-min timer lets you control sterilization. Includes key lock, keys, 2 safety door switches, pilot light, long-life ultraviolet (UV-C) bulb, and 8-ft power cord. White baked enamel. 110-V AC. Two sizes. Shipped FOB Bay City, MI; allow 4 weeks for delivery. Replacement Ultraviolet (UV-C) Bulb and a set of 2 Extra Keys are also available.

> 646842 $28 \times 24^{1}/_{2} \times 9^{1}/_{4}$ "

for 30 goggles or glasses)

Each \$1.147.00

 $32 \times 24^{1}/_{2} \times 9^{1}/_{4}$ 646844

(for 40 goggles or glasses)

Each \$1,320.00

646845 Replacement Ultraviolet

(UV-C) Bulb Each

New! 646842D Extra Keys Set

\$61.05 \$18.00

Extra Keys

Carolina® Goggle Sanitizer Cabinet

Quickly and efficiently sanitize your goggles between classes with this easy-to-operate sanitizer. Have students load up to 36 goggles onto enamel-finish metal racks, close the doors, then set the 15-min timer for sanitization. Can be mounted on a wall or placed on a counter. Comes with a 25-W, long-life ultraviolet (UV-C) bulb, a key lock, keys, and 2 safety door switches. Also has a pilot hole so you can see that your cabinet is operating. Dimensions: 26" W \times 29" H \times 10 $^{3}/_{20}$ " D. A 25-W Replacement Ultraviolet (UV-C) Bulb and a set of 2 Extra Keys are also available.

> 646846 Cabinet Each \$718.00 646847 Replacement Ultraviolet \$89.70 (UV-C) Bulb Each

> > Set

\$23.00

Metal Lens Cleaning Station

The most durable, complete solution to dirty lab goggles. Simply mist goggle lens using the included water spray bottle, then clean with the sanitizing antifog wipes (also included). The station's baked enamel finish, heavy-gauge steel, and locking compartment will provide years of service. Comes with 1 box of 1,000 wipes. Replenish with Wipes Refill.

646720 Metal Lens Cleaning Station

Each \$105.20 646720A Wipes Refill

> \$35.90 Each

Lens Cleaning Station

Large disposable lens cleaning station keeps eyewear spotless with 16 oz of cleaning fluid and 1,500 lens cleaning tissues.

646717A Each \$32.80

Hearing Protection Respiratory



Earmuffs A3

New! 646846D

Are your experiments loud? Reduce the possibility of hearing damage by using these lightweight protective earmuffs that reduce harmful noises. Comfortable ear cushions and adjustable headband to fit any head size.

646851 Each \$20.65

Protection



Disposable Protective Face Mask

This uniquely designed mask has extra-soft elastic ear loops for comfortable wear. Keeps your nose and mouth protected from pollution, fluids, and dust. Made of nonwoven fabric for easy breathability. Disposable.

646852 Pack of 50 \$32.10

Laboratory Safety Hand Protection

Nitrile Disposable Gloves Good enough for a doctor's office and perfect for your classroom!

- Non-latex construction ensures students experience no latex-related allergic reactions
- Stronger material than other types of gloves, offering more protection
- Resistance to many types of chemicals, including oils and tissue fats

100% nitrile gloves contain no natural rubber proteins—the ideal solution for individuals allergic to natural rubber latex. Ambidextrous, beaded cuff, 3- to 4-mil thickness, $9^1/2^{11}$ in length. Powder free.

706335	Small	Box of 100	\$23.95
		5+ Boxes Each	\$22.80
706336	Medium	Box of 100	\$23.95
		5+ Boxes Each	\$22.80
706337	Large	Box of 100	\$23.95
		5+ Boxes Each	\$22.80
706338	X-Large	Box of 100	\$23.95
		5+ Boxes Fach	\$22.80



Stretch Polyethylene Gloves

Enjoy the fit of these stretch polyethylene gloves with the stretch performance of a latex glove at a much lower price. The polyethylene in these gloves is specially formulated to stretch like latex, which reduces tearing and provides a snug fit with tactile sensitivity. Gloves are embossed for better gripping and are latex, vinyl, and powder free.

 706393
 Small
 Box of 200
 \$15.85

 706394
 Medium
 Box of 200
 \$15.85

 706395
 Large
 Box of 200
 \$15.85





706395 Stretch Polyethylene Glove

Antiseptic Cleanser A³

Powerful antimicrobial skin cleanser. Gentle to hands, with a pleasant scent and rapid action, making this nontoxic liquid an excellent product. 16 oz.

199827 Each **\$27.85**



Carolina Gloves Fit Many Lab Situations

- Nitrile disposable gloves: An excellent choice for chemistry labs and for use during dissections, nitrile gloves offer superior resistance to tears and to most chemicals, including oils.
- Disposable vinyl gloves: These lightweight, semi-fitted gloves are appropriate for general lab use, such as setting up microbiology cultures.
- **Disposable polyethylene gloves:** Loose-fitting and extremely lightweight, these economy gloves are useful primarily for working with soils and nontoxic lab materials.
- Latex-free exam gloves: Polyvinyl and fitted, these exam gloves allow the same amount of tactile sensitivity as their latex counterparts. They are lighter than nitrile gloves yet have good tear resistance. This latex-free alternative is a good choice for handling animal tissues and performing most routine lab activities, including dissection.

Hand Protection



706386 Latex-Free Gloves, Powdered

Latex-Free Gloves, Powdered

Non-latex gloves; beaded cuff, ambidextrous, nonsterile, powdered. **Note:** *Not for medical use.* Dispenser of 100 gloves.

706386	Powdered; Small	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$22.50
706387	Powdered; Medium	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$22.50
706388	Powdered; Large	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$22.50
706389	Powdered; X-Large	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$22.50



706391 Latex-Free Glove, Powder Free

Latex-Free Gloves, Powder Free

These non-sterile, powder-free gloves are ambidextrous and feature a beaded cuff. Dispenser of 100 gloves.

706390	Powder Free; Small	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$21.80
706391	Powder Free; Medium	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$21.80
706392	Powder Free; Large	
	Per dispenser	\$23.50
	5+ Dispensers Each	\$21.80

Laboratory Safety



706348 Vinyl Exam Gloves, Powder Free

Vinyl Exam Gloves, Powder Free

Powder-free gloves, 99/10" in length, 6-mil thickness, rolled cuff, natural white, ambidextrous. Dispenser of 100 gloves.

706348	Medium	Per dispenser	\$21.75
		5+ Dispensers Each	\$19.80
706349	Large	Per dispenser	\$21.75
		5+ Dispensers Each	\$19.80
706350	X-Large	Per dispenser	\$21.75
	_	5+ Dispensers Each	\$19.80



706346 Disposable Polyethylene Gloves

Disposable Polyethylene Gloves

Sanitized. Inhibits germ and bacteria growth. Retards mildew and mold. Dispenser of 100 gloves.

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706345	Small	Per dispenser	\$11.95	
		5+ Dispensers Each	\$10.45	
706346	Medium	Per dispenser	\$11.95	
		5+ Dispensers Each	\$10.45	
706347	Large	Per dispenser	\$11.95	
		5+ Dispensers Each	\$10.45	

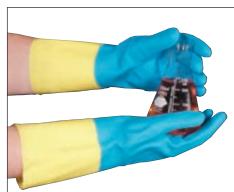


706300A Nitrile Utility Gloves

Nitrile Utility Gloves

Heavy (15 mil) utility gloves are made of chemical-resistant nitrile and flock lined for comfort. Cuffs are 13" high to protect forearms. Ideal for handling chemicals.

706300A	Small	Per pair	\$4.80
		10+ Pairs Each	\$4.55
706300B	Medium	Per pair	\$4.80
		10+ Pairs Each	\$4.55
706300C	Large	Per pair	\$4.80
		10+ Pairs Each	\$4.55
706300D	X-Large	Per pair	\$4.80
		10+ Pairs Each	\$4.55



706352A Neoprene/Latex Utility Gloves

Neoprene/Latex Utility Gloves

Sturdy, flock-lined gloves provide superior protection without sacrificing comfort or flexibility. Perfect for handling preserved specimens, cleaning up chemicals, or just about any other messy laboratory chore. Hand portion is made of chemical-resistant neoprene with sure-grip textured surface. Cuff is tear-resistant, blended latex.

706352A	Small	Per pair	\$4.35
706352B	Medium	10+ Pairs Each Per pair	\$3.85 \$4.35
7003320	Mediuiii	10+ Pairs Each	\$3.85
706352C	Large	Per pair 10+ Pairs Each	\$4.35 \$3.85
706352D	X-Large	Per pair	\$4.35
		10+ Pairs Each	\$3.85

Laboratory Safety



Autoclave Gloves

Soft, all-cotton gloves with 5" gauntlet; will resist heat up to 450° F (232° C). Excellent for handling hot objects from autoclave or oven.

701640 Per pair \$33.85



Kevlar® Aramid Gloves

Made of long-wearing, 100% Kevlar® aramid; 29string knit. Cut and abrasion resistant. Kevlar® is a DuPont® registered trademark.

701642 Per pair \$14.55



Hand Protection

Hand Protector

This hand protector is ideal for gripping hot beakers, flasks, bottles, and other objects. It is made of molded silicone rubber and features a special gripping surface to prevent even wet containers from slipping. One size.

702982 Each \$25.45



Cotton/Canvas Heat-Resistant

These gloves are made of multilayered cotton canvas with 2 layers of fabric on palms for superior heat resistance. Knuckle strap provides protection to knuckles and back of hand. One size.

706405 Per pair **\$6.55**



706500 Zetex Gloves



706305A High/Low Temperature Gloves

Zetex® Gloves

Are you working with very hot materials? Zetex® gloves are the best choice for handling intensely hot objects. They are made of high-tech, texturized silica-based varns-asbestos free and impervious to moisture and most solvents. Wool-lined and loose fitting for comfort, double-stitched for durability. Recommended range of protection: 600° to 1,000° C. Available in 2 lengths, 11" and 14".

706500 11" Per pair **\$81.00 706501** 14" Per pair **\$86.00**

High/Low Temperature Gloves

Seamless cotton knit gloves have a second glove sewn inside for superior protection from hot and cold objects. Coated with a special nitrile formulation for a sure-grip surface. Ambidextrous.

706305A Small Per pair \$11.50 10+ Pairs Each \$11.00 706305B Per pair \$11.50 10+ Pairs Each \$11.00



706400A Terry Cloth Utility Glove

Terry Cloth Utility Gloves

Seamless, 100% cotton knit terry cloth gloves offer moderate protection against heat, abrasion, and cuts. Knit wristband.

706400A Per pair **\$3.35** 10+ Pairs Each **\$2.85** 706400B Large Per pair \$3.35 10+ Pairs Each \$2.85

Laboratory Safety

Body Protection









Laboratory Aprons A

Black, rubberized. Protects clothing from acids and fluids.

706250	Small (27 \times 36")	Each	\$18.45	12+ Each	\$17.70
706252	Medium (27 × 42")	Each	\$18.80	12+ Each	\$18.05
706254	Large (36 × 46")	Each	\$24.20	12+ Each	\$23.45

Laboratory Aprons A

Transparent plastic. Heavyweight, 6 gauge. Resists most chemicals.

706260 Small (27 × 36") Each **\$8.70 706264** Large (36 × 46") Each **\$10.10**

Laboratory Aprons Value Pack A

Heavyweight, transparent vinyl apron is inert to most chemicals. Features include cotton neckstrap stitched into hem with reinforcements at stress points and tiestring waist.

706244 Small (27 × 36") Pack of 10 **\$66.05 706245** Large (36 × 43") Pack of 10 **\$83.60**

Aprons 🗥

Heavyweight nitrile apron. Reinforced bib, and all edges turned and hemmed. Ideal for any situation where heavy-duty protective coverings are required. Black.

706275 27 × 36" Each **\$24.45 706276** 35 × 45" Each **\$28.95**

Cover Up with These Versatile Aprons

- Nitrile aprons: Offering superior resistance to most types of chemicals, these aprons are the best choice when heavy-duty protective coverings are required.
- Rubberized cloth aprons: These waterproof aprons are resistant to tears and most chemicals. Comfortable and easy to wear, the
 durable, medium-weight cover-ups are suitable for general lab use.
- Transparent vinyl aprons: A good choice for general classroom use, these lightweight, reasonably durable aprons protect clothing
 against liquids and most of the chemicals used in student labs.
- Tyvek® aprons: These aprons are constructed of an extremely lightweight, synthetic material. They offer protection against many types of chemicals but are less durable than other kinds of aprons. While they are appropriate for use in dissection labs, Tyvek® laboratory aprons are not recommended for chemistry labs.



NexGen® Laboratory Apron

Made of NexGen®. Inert to most organic and inorganic chemicals and tear resistant. Disposable. Tie-string waist. Size, 28×36 ".

706242 Each \$5.80



Economy Polyethylene Lab Apron

For use with nonaggressive or nonhazardous chemicals. This disposable embossed polyethylene apron measures $28\times46"$ and is 1.5-mil thick. Box of 100.

706240 Per box \$39.50



Economy Laminated Polypropylene Apron

This apron is great for laboratory situations that do not involve exposure to aggressive or hazardous chemicals. Durable laminated polypropylene material means the apron is waterproof and tear resistant. Features a neck strap and long waist ties. Size, 28×45 ". Box of 100.

706241 Per box \$128.15



Bring Our FREE Online Resources to Your Classroom

Carolina offers additional free online resources (such as lab activities, kit component lists, care sheets, standards correlations, streaming videos, and more) related to many of our advertised products. Simply go to **Carolina.com** and type a product's item number or a search term in the search field. Then click the Resources tab to access available resources.



Body Protection/Eyewash Stations

Laboratory Safety



Disposable Lab Coats

Made of Tyvek® and inert to most organic and inorganic chemicals. White lab coat will not discolor with age.

706330	Medium	Each	\$10.15
		30+ Each	\$9.15
706332	Large	Each	\$10.15
		30± Fach	\$9 15

Laboratory Coat

This economical and stylish knee-length lab coat is made of 35% cotton, 65% polyester easy-care twill fabric. Features include left breast pocket, roomy side pockets, side slit openings, and adjustable back belt. Men's and women's tailoring; size determined by chest measurement.

706281	Man's Small (36-38)
	Fach \$35.20

706282 Man's Medium (40–42)

706283 Each \$35.20 Man's Large (44–46) Each \$35.20

706284 Man's Extra-Large (48-50)

Each \$35.20

706286 Woman's Small (36–38) Each **\$35.20**

Woman's Medium (40)

Each **\$35.20 706288** Woman's Large (42)

706287

Woman's Large (42) Each **\$35.20**



Eyewash Stations



646795 Continuous Flow Portable Eyewash Station

Cysoline Wall Station Indicate Tolling India Linear Indicate India Linear India Lin

646780 Eyewash Station

Continuous Flow Portable Eyewash Station

Self-contained, gravity flow eyewash delivers 16 gallons of water through dual-spray heads at more than 0.4 gpm for 15 minutes, in compliance with ANSI Z358.1 requirements. Rugged plastic unit can be installed wherever needed. Ideal for use where a continuous supply of safe piped water is not available. Includes steel wall brackets for easy mounting, drainage hose, **Bacteriostatic Additive** (available for reorder), and test log card.

646795Portable Eyewash StationEach\$562.00646797Bacteriostatic AdditiveEach\$35.25

Eyewash Station

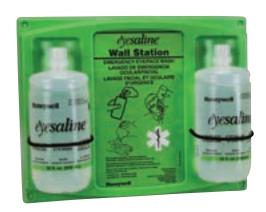
A dependable, convenient, and sterile way to provide a required emergency eyewash station that is isotonic with a pH in the same range as that of normal eye fluid. In addition, it will neutralize small quantities of acid or caustic contaminating the eye. In 16-oz bottle.

646780 Eyewash Station

Each **\$50.70**

646782 Replacement Solution (16 oz)

Each **\$20.80**



Emergency Eye/Face/Body Double Wash Station

Place EyeSaline® sterile solution stations at appropriate locations for emergency use to flush water-soluble acids, alkalis, or loose particulate contamination from the eyes and skin. Provides a sterile, buffered, preserved saline solution, pH balanced to be similar to human tears. Mounts easily to the wall (fasteners provided) for ready access. Unbreakable, flexible polyethylene bottles have tamper-evident seals and are clearly date coded for easy inspection. Large bottle opening allows full flow for rapid irrigation of eyes or skin. With two 32-oz bottles.

646787 Each \$93.85

Laboratory Safety



eyePod™ Eyewash Station A3

Looking for a compact, easily accessible professional eyewash for your lab? Stop looking—this is it! The Axion™ eyePod™ allows you everyday use of your faucet, but a quick 180° turn instantly converts it into an eyewash station. Unlike most faucet eyewashes, this one has a thermostatic safety valve that blocks hot-water use when in the eyewash mode. The low-rise, stainless-steel unit also washes your eyes outward instead of inward towards your nose. Easily attaches to your water faucet using 1 of 3 included adapters. The flow rate is 0.5 gpm.

646829 Each \$423.00



Combination Eyewash/Drench Hose, Deck Mount

Guardian™. A dual-purpose appliance that meets the provisions of ANSI Z358.1-2004 as both an eyewash and a drench hose. Connects to your main water supply and mounts on a counter near a sink. May be used as a fixed eyewash, or remove and use as a drench hose to rinse any part of the body. Consists of twin spray heads with flip-top dust covers, internal flow control mechanisms, and filters to remove impurities from water. The stainless-steel squeeze handle activates a forged brass squeeze valve; the locking clip engages to hold the valve open for hands-free operation. Reinforced 8-ft PVC hose withstands up to 300 PSI of water pressure. Deck flange is included for countertop mounting. Water supply is through a ³/8" NPT male swivel-type inlet.

646822 Each **\$543.00**

Eyewash Stations



Eyewash, Faucet Mount

Guardian™. Converts a faucet into an emergency eyewash station without interfering with normal faucet operation; install it in any sink close to where accidents might occur. Twin spray heads with float-off dust covers are mounted 3" apart and deliver a soft, aerated flow of water. Angle of heads is adjustable to permit full coverage and avoid splashing. User pulls forged brass diverter valve to activate eyewash; water pressure holds valve open, leaving user's hands free. Furnished with 3 adapters for installation on most commonly used lab faucets. Available for **Standard** and **Gooseneck** faucets.

646828A Eyewash for Standard Faucet Each **\$138.00 646828B** Eyewash for Gooseneck Faucet Each **\$160.00**



Eyewash, Wall Mount

Guardian™. This eyewash connects to your school's main water supply and mounts on a wall. Twin spray heads have flip-top dust covers, internal flow control mechanisms, and filters to remove impurities from the water. The $11^1/2$ "-diam catch bowl is orange ABS plastic; the $^1/2$ " IPS chrome-plated brass stay-open ball activation valve has PTFE seals. Comes with a heavy cast aluminum wall bracket with corrosion-resistant powder-coated finish. Water is supplied through a $^1/2$ " NPT female inlet; waste drains through a $1^1/4$ " NPT female outlet. Includes an ANSI-compliant identification sign. Each unit is assembled and water tested at the factory for quality assurance.

646818 Each \$435.00

Emergency Showers/Fire Protection

Emergency Showers





646834B Emergency Shower, Vertical Mount

Emergency Shower

Guardian™. Emergency shower has 10"-diameter showerhead constructed of orange ABS plastic and a USA-made 1" IPS chrome-plated brass stay-open ball valve with chrome-plated brass ball and PTFE seals. Furnished with stainless-steel actuating arm and 29" stainless-steel pull rod. Water supply is through a 1" NPT female inlet. ANSI-compliant identification sign is also included. Available for **Horizontal** (wall) or **Vertical** (ceiling) mounting.

646834A Horizontal Mount Each **\$378.00 646834B** Vertical Mount Each **\$393.00**

Laboratory Safety



Emergency Shower/Eyewash Combination

Guardian™. Emergency shower/eyewash station connects to main water supply. Showerhead is orange ABS plastic, 10" diameter; eyewash bowl is orange ABS plastic, 11¹/2" diameter. Both the 1" shower valve and the ¹/2" eyewash valve have IPS chrome-plated brass stay-open ball valves with PTFE seals. Station comes with a stainless-steel actuating arm and 29" stainless-steel pull rod. Water is supplied through a 1" NPT female top or side inlet. Waste exits via a 1¹/4" NPT female outlet (positioned either 8" or 20" above the floor). Includes ANSI-compliant identification sign. Unit is assembled and water tested at the factory for quality assurance.

646838 Each \$1,152.00

Fire Protection



Heavy-Duty Fire Extinguisher

Dry chemical. Extinguishes class A fires in ordinary combustible materials; class B fires in flammable liquids, gases, and greases; and class C fires in electrical appliances and equipment. Pressure gauge indicates unit is charged and ready for use. Rated 1-A:10-B:C. Wt, $2^{1}/_{2}$ lb.

646945 Each \$56.10



646924 Wool Fire Blanket with 646925 Storage Bag

Wool Fire Blanket

Blanket has been treated with DuPont® X-12 to retard fire. Blanket size, 80×62 ". **Storage Bag** (sold separately) has 4 mounting holes with grommets and hook-and-loop closure. Bag size, $17\times12\times4$ ".

646924 Fire Blanket Each **\$101.85 646925** Storage Bag Each **\$77.10**



Fire Blanket in Metal Case

Fire Blanket in Metal Case

Mount your fire blanket in a fixed location. This large, durable, fire-retardant blanket is contained in a sturdy metal case that is easily mounted and readily accessible. Ideal for safely containing and smothering small fires or draping over injured victims. Blanket is white fiberglass and measures 5×6 ft. **Replacement Fire Blanket** is sold separately. Case dimensions, 15" W $\times 15$ " H $\times 2$ " D.

646919 Fire Blanket in Metal Case Each \$158.10 646919A Replacement Fire Blanket

Each **\$96.00**

Laboratory Safety Spill Control



AllWik® Economy Spill Kit

Everything needed to contain up to 5 gallons of spilled chemicals, including aggressive chemicals such as acids, caustics, solvents, and oils. Packed in a highly visible, bright yellow bag.

Kit includes:

Ten 15 × 19" Absorbent Pads Two 3" × 4 ft Chemical Absorbent SOCs Pair Nitrile Gloves

647002 Per kit \$111.40

Disposal Bag Instruction Sheet



Chemical Spill First Response Kit A

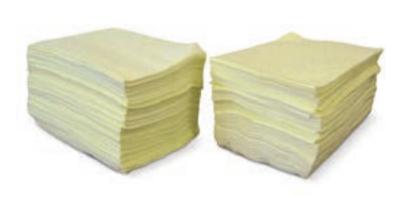
Everything needed to control and clean up a moderate-size chemical spill, including aggressive chemicals such as acids and caustics. Packaged in a vinyl zipper bag.

Kit includes:

Fifteen 15 × 19" Absorbent Pads Three 3" × 4 ft Chemical Absorbent SOCs Pair Chemical-Splash Goggles

647005 Per kit \$94.05

Pair Nitrile Gloves Disposal Bag with Tie



Aggressive Liquid Cleanup Pad

An essential item for every well-stocked chemical storeroom. Aggressive liquid pad absorbs prodigious quantities of acids and bases as well as petroleum- and water-based liquids. Size, 15×19 ". Bale of 100.

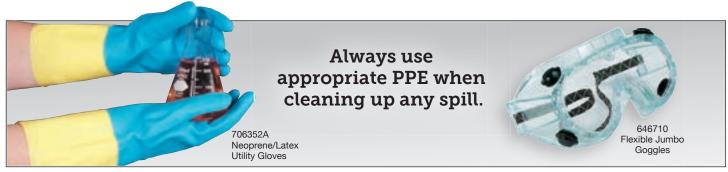
647008 Per bale \$173.75



Scienceware® Labmat™ Liner

For use on lab bench or as drawer liner. Safeguards surfaces from stains, spills, and wear. Flexible plastic film back is nonskid and prevents soak-through of most solutions. 50.8 cm (20") W. Packed in 15.2-m roll in dispenser carton.

713325 Per roll **\$72.25**



Spill Control

Laboratory Safety



Carolina® Flammable Solvent Spill Cleanup Kit 🛕

Be prepared for laboratory emergencies. Contains everything you need to absorb and dispose of 1 liter of spilled solvent.

Kit includes:

1,100 g Diatomaceous Earth Absorbent Vinyl Exam Gloves

2 Poly Bags with Twist Ties 646990 Per kit \$75.35 Dust Pan and Brush Set Instruction Sheet and MSDS



Carolina® Acid Spill Cleanup Kit A

Be prepared for laboratory emergencies. Contains everything you need to absorb and dispose of 1 liter of spilled acid.

Kit includes:

Vermiculite Absorbent Neutralizing Mixture Vinyl Exam Gloves

646992 Per kit \$75.35

2 Poly Bags with Twist Ties Dust Pan and Brush Set Instruction Sheet and MSDS



Carolina® Caustic Spill Cleanup Kit

Be prepared for laboratory emergencies. Kit contains everything you need to absorb and dispose of 1 liter of spilled caustic.

Kit includes:

Vermiculite Absorbent **Neutralizing Mixture**

Vinvl Exam Gloves 4 Poly Bags with Twist Ties Dust Pan and Brush Set Instruction Sheet and MSDS

646994 Per kit \$79.65



647030 Mercury Collector

Mercury Collector

Bel-Art®. Safely capture and contain spilled mercury. Just press the foam pad onto the mercury spill, forcing the mercury beads into the pad. Then screw the pad onto the collection jar and mercury releases into the bottom compartment. Use recommended mercury disposal method. Container holds up to 125 mL of mercury. Container dimensions: $4^{1}/_{8} \times 2^{"}$. Comes with one pad.

647030 Mercury Collector Each \$35.40 647032 Replacement Pad Pack of 12

Carolina Teacher Tips

Mercury Spill Cleanup

Clean up mercury spills immediately. Wear nitrile gloves, a lab coat, and eye protection. Collect mercury droplets with an aspirator especially designed for such use. Never use a regular vacuum cleaner to clean up mercury spills. Small droplets can be picked

up with wet toweling, adhesive tape, or duct tape. Place spilled mercury in a tightly capped, thick-walled, polyethylene bottle, and send to a waste management facility.

Laboratory Safety Chemical Storage Accessories

Chemical Storage Accessories



647064 Metal Chemical Storage Can

Metal Chemical Storage Cans

Safely store your hazardous chemicals. Just place the chemical bottles in these heavy-duty metal cans, and then seal with the watertight lid. Now, your hazardous chemicals have an added level of protection from spillage and breakage. Sizes: **1-qt Can**, 4" L \times 4" W \times 5" H; **1-gal Can**, 6" L \times 6" W \times 8" H. **Note:** Not for storage of incompatible materials.

647064 1-qt Can Each **\$14.95 647065** 1-gal Can Each **\$19.25**



Safety Storage Can A

Eagle®. Reduce the risk of explosions from the vapors of flammable liquids. This storage can is constructed of high-density polyethylene for durability and resistance to chemicals. It also will not dent or rust. Size, 1 gal.

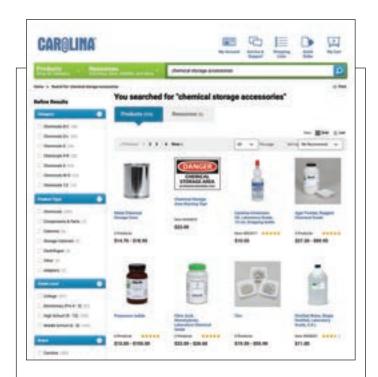
647172 Each \$109.20



Bottle Safety Carrier

Heavy-walled bottle carrier is made of a flexible, chemical-resistant thermoplastic elastomer that protects glass bottles from leaking and breaking during transport. Molded in a single piece with sturdy carrying handle and leak containment reservoir. Centering ring in base holds bottle to prevent contact with wall. Can be steam sterilized; also resists oxidation and growth of bacteria and fungi. 4-L capacity.

647014 Each \$111.15



Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources, and accessories.

First Aid/Disposal

Laboratory Safety

First Aid



Deluxe OSHA-Compliant First Aid Kit

A 196-piece comprehensive first aid kit designed for a group of 50 people. Contains 20 important first aid products, including top-quality bandages, gauze pads, compresses, eye-care products, ointment, wipes, tape, scissors, tweezers, and a 6-piece CPR pack. Packaged in a durable transport case that can be easily wall-mounted in the classroom or carried along on field trips. Kit exceeds federal OSHA requirement 1910.151 and is endorsed by the American Medical Association.

646514 Per kit \$74.15



OSHA-Compliant First Aid Kit

This 104-piece first aid kit is designed for a group of 25 people. Contains 17 important first aid products, including bandages, gauze pads, compresses, eye care products, ointment, wipes, tape, scissors, and tweezers, all packaged in a durable plastic transport case. The case can be wall-mounted for easy access in the classroom or carried along on field trips. Kit exceeds federal OSHA requirement 1910.151 and is endorsed by the American Medical Association.

646512 Per kit \$63.00

Disposal



647161 (left) and 647163 (right) Glass Disposal Boxes

Glass Disposal Boxes

Eliminate contact with broken glassware in the laboratory. Each box is lined with a polybag for wet and contaminated glassware and can be sealed for safe disposal. Choose from the **Benchtop Model** or the **Floor Model**. Pack of 6.

647161 Benchtop Model (8 × 8 × 10")

Per pack \$55.05

647163 Floor Model (12 × 12 × 28")

Per pack \$79.40



647055 Bel-Art Autoclavable Biohazard Disposal Bags

Bel-Art® Autoclavable Biohazard Disposal Bags

An economical solution to biohazard waste disposal. Perfect for safe disposal of used pipets, petri dishes, culture plates, and more. These translucent bags are made of high molecular weight, high-density (HMHD) polyethylene; 0.03-mm wall thickness meets or exceeds dart-impact test requirement of 165 g per ASTM D1709-85. Imprinted with standard orange-red biohazard warning label and precautionary procedures in 4 languages. Bags can be autoclaved at maximum of 121° C. Sterilization indicator patch darkens when subjected to steam sterilization.

647054 12×24 " Pack of 100 **\$87.40 647055** 24×30 " Pack of 100 **\$173.65**



647058 Bel-Art Benchtop Biohazard Disposal Bag with Holder

Bel-Art® Benchtop Biohazard Disposal Bags with Holder

Autoclavable bags provide an economical, space-saving disposal unit for use in fume hoods and laboratory stations. Bright, orange-red bags are high molecular weight, high-density (HMHD) polyethylene printed with standard biohazard symbol. Sterilization indicator patch darkens when exposed to steam sterilization. Size, $8^{1}/_{2} \times 11^{"}$.

647058 Disposal Bags with Holder Box of 100 **\$66.55**

647061 Replacement Disposal Bags

Box of 100 **\$28.65**

Laboratory Safety Safety Education



Laboratory Safety

 36×44 ". An illustrated safety summary containing rules and practices for the laboratory, this chart has colorful, vivid illustrations. Printed on durable synthetic paper. **572062** Each **\$105.15**



Carolina® Laboratory Safety Guidelines

 $24\times36".$ This full-color chart illustrates and reinforces key laboratory safety guidelines. Suitable for all grade levels.

572065 Each \$17.60



The Search Is On!

Find what you need— Carolina.com's guided search saves time and effort

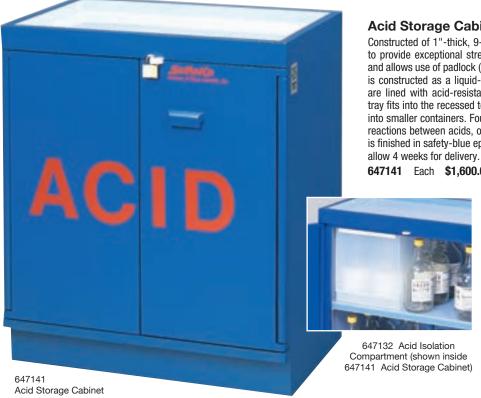
- Quickly narrow results suited to topic, subject, or discipline
- View product details or add to cart without leaving search
- More than product search find activities, videos, and lesson ideas



Laboratory Safety

Safety Storage

Floor Cabinets



Acid Storage Cabinet

Constructed of 1"-thick, 9-ply, high-density hardwood. Cabinet joints are rabbeted to provide exceptional strength. Unique plastic locking mechanism secures doors and allows use of padlock (lock and 2 keys provided). Cabinet has 1 fixed shelf; floor is constructed as a liquid-tight trough to contain accidental spills. Shelf and floor are lined with acid-resistant polypropylene for extra protection. An acid-resistant tray fits into the recessed top to catch spills that may occur while transferring acids into smaller containers. Four levelers are supplied. For additional protection against reactions between acids, order item #647132 Acid Isolation Compartment. Cabinet is finished in safety-blue epoxy paint. Size, $36 \times 31 \times 20$ ". Shipped FOB Batavia, IL;

647141 Each \$1,600.00

Acid Isolation Compartment

For use with item #647141 Acid Storage Cabinet, Protects against reactions between nitric acid and other chemicals (especially acetic acid). Fits inside most fullsize acid storage cabinets to semi-isolate nitric acid and nitric acid spills. Capacity, 5 × 2.5 L. Size, 135/16 × 135/16 × 151/4". Shipped FOB Batavia, IL; allow 4 weeks for delivery.

647132 Each \$187.45



Flammables Floor Cabinets

Lockable floor cabinet provides safe storage of flammable materials. Constructed of 1"-thick, 9-ply, exterior-grade plywood, finished with yellow epoxy paint inside and out, hazard labels, and corrosion-resistant hardware. Meets applicable OSHA, NFPA, and Uniform Fire Code standards for flammable liquids storage. Comes with selfclosing doors and 2 keys. Available in 2 sizes. Dimensions: 30-gal Cabinet, 237/8" $W \times 36^{1/2}$ " H $\times 23^{7/8}$ " D; **54-gal Cabinet**, 43" W $\times 44^{3/4}$ " H $\times 18$ " D. Shipped FOB Batavia, IL; allow 4 weeks for delivery.

647146A 30-gal Cabinet Each \$1,105.00 647147A 54-gal Cabinet Each \$3,238.00

Carolina Pledge: **Excellent Customer Support**

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See Carolina.com/returns for details.

Laboratory Safety

Benchtop Cabinets

Benchtop Flammables Storage Cabinet

This lockable cabinet provides safe, convenient storage of small quantities (up to 4 gal) on the laboratory bench. Constructed of 1" multi-ply, laminated plywood; floor is a liquid-tight trough. One fully adjustable shelf maximizes space. Self-closing door has internal metal lock with 2 keys. Meets all applicable OSHA, NFPA Code 30, and Uniform Fire Code standards for storage of flammable liquids. Size, $21^{1/4} \times 15^{3/4} \times 16^{3/4}$ ". Shipped FOB Batavia, IL; allow 4 weeks for delivery.

647145A Each \$994.00

Benchtop Acid Storage Cabinet

Ideal for storage of small quantities of corrosive materials in a stockroom or class-room. Constructed to meet and exceed OSHA and NFPA standards. Built for durability and longevity; fabricated entirely of $^3/_4$ " MDF, which will not delaminate; OSHA blue surface finish is 3 layers of temper-cured, acid-resistant epoxy. Hinges and closures are nonmetallic, acid-resistant material. Floor is lined with 0.125"-thick polypropylene, which forms a liquid-tight dam to contain spillage. Exterior dimensions: $16^3/_4$ " W \times $15^3/_4$ " D \times $21^1/_2$ " H; wt, 42 lb. Shipped FOB Batavia, IL; allow 4 weeks for delivery.

705386 Each \$1,025.00



705386 Benchtop Acid Storage Cabinet

Stackable Storage Cabinets

Jumbo Stacking Corrosives and Flammables Storage Cabinets

Organize and separate your flammables and corrosives with 2 individual cabinets in the space normally occupied by a single cabinet. They can be placed under your work surface with $32^1/2^n$ clearance or stacked up to 2 units high. Each cabinet is constructed of 1"-thick, multi-ply, exterior grade plywood, finished with chemical-resistant epoxy paint and prominent hazard labels. Meets or exceeds all applicable OSHA and NFPA standards; flammables cabinet also meets Uniform Fire Code standards. Cabinets have a 2", liquid-tight bottom trough to contain spills and hold 18 gal (70 L). Yellow **Flammables Cabinet with Self-Closing Doors** has adjustable shelf; blue **Corrosives Cabinet with Manual Doors** has fixed-position shelf. Suitable locking mechanisms and keys included. Size of each cabinet, 30^n W \times $32^1/2^n$ H \times $18^1/2^n$ D. Shipped FOB Batavia, IL; allow 4 weeks for delivery.

705395 Corrosives Cabinet with Manual Doors Each \$1,100.00 Flammables Cabinet with Self-Closing Doors Each \$1,450.00

Carolina Teacher Tips

Some Storage Guidelines: Store acids and bases safely!

- · Keep acids and bases in separate storage cabinets.
- Segregate oxidizing acids from organic acids and flammable/combustible materials.
- · Store acetic acid as a flammable liquid to prevent reaction with oxidizing acids.
- Nitric and hydrochloric acids may be stored in the same cabinet, but set them in separate drip trays to prevent liberation of chlorine and nitrosyl chloride (NOCI) gases.
- Segregate bases from acids, metals, explosives, organic peroxides, and flammable materials.

For more lab safety tips, visit the Resources section of Carolina.com.



705395 (top) and 705396A (bottom) Jumbo Stacking Corrosives and Flammables Storage Cabinets



1016 Classroom Resources

1020 Laboratory Equipment & Supplies

1103 Laboratory Furniture

Classroom Resources

Supplies



644055 Glue Stick

Glue Stick

A tube of glue that works like a lipstick. Safe, odorless, clean, washes out, and easy to use. For paper, cloth, photos, etc.

644055 Each \$2.85



659007 Science Fair Exhibit Panels, Colored Boards

Science Fair Exhibit Panels

A great idea for science fairs, math expositions, learning centers, or any other project where a display board is needed. All boards feature sturdy construction and an innovative, overlapping panel design allowing for easy handling and transport. Panels are available in brilliant white and an assortment of vibrant colors (red, blue, black, green, and yellow). Size, 48×36 ".

 659006
 White Boards
 Box of 24
 \$126.00

 659007
 Colored Boards (assorted colors)
 Box of 24
 \$168.00



Lab Pen

Nalgene®. Black ink, dries quickly, provides permanent record. Especially useful for writing on polyethylene sheets (poly paper).

657790 Each \$7.95



644338A Expo Dry-Erase Marker Set

Expo® Dry-Erase Marker Set

Erasable with a dry cloth or tissue from porcelain boards, glass, and unpainted metal. For use on all dryerase boards. Set of 4.

644338A Per set \$11.30



644298 Sharpie Marker Set

Sharpie® Marker Set

Fine point. Set of 4 markers: black, red, blue, and green.

644298 Per set \$9.50

Sharpie® Marker

Ultra-fine point. The permanent, high-intensity, black ink is quick drying and highly water resistant.

644287 Each \$2.60



644620 Graph Paper

Graph Paper

Ruled in millimeters; 1-cm grids. Standard notebook size. Pack of 20 sheets.

644620 Per pack \$7.10

Supplies

Classroom Resources



644010 Modeling Clay Assortment 2

Modeling Clay Assortments

Each assortment contains four 1/4-lb sticks of nonhardening, plastic modeling clay.

644009 Assortment 1 (gray, green, red, brown) Each **\$7.30** 12+ Each **\$6.95 644010** Assortment 2 (blue, yellow, red, green) Each **\$7.30** 12+ Each **\$6.95**



644285 Colored Pencils, 12-Color Set

Colored Pencil Sets

Verithin®. Assorted colors in an easel box. Contains all the essential colors.

644285 12-Color Set Each **\$12.80 644286** 24-Color Set Each **\$23.45**



Modeling Clay

Visit Carolina.com for additional colors

Fine textured, economical. 1 lb per box.

644000 644003 644005	Brown	Per box	\$7.30	12+ Boxes Each 12+ Boxes Each 12+ Boxes Each	\$6.95
				12+ Boxes Each	
644007	Yellow	Per box	\$7.30	12+ Boxes Each	\$6.95



657730 China and Glass Pencil, Red

China and Glass Pencils

Ideal for use on any highly polished surfaces. Will not scratch or injure. Paper wrapped.

657730	Red	Each	\$2.30
657732	Blue	Each	\$2.30
657734	Rlack	Fach	\$2.30

Carbonless Notebooks

- Perfect for AP® Science and college laboratories
- . Chemistry Notebooks include lab safety tips and periodic table

The best-selling notebooks for AP® Science! They are designed to help students keep accurate, organized data—a must in science classes. Carbonless duplicate sheets teach the importance of recording accurate data, neatness, and organization while providing a convenient way to submit completed lab work for grading and review. The permanent copy stays secure in the notebook, along with a table of contents, for easy reference.

657900 657901	Chemistry, Spiral Bound, 50 Sheets Chemistry, Spiral Bound, 100 Sheets			100+ Each 100+ Each	
657902	Chemistry, Top Bound, 50 Sheets			100+ Each	
657903	Chemistry, Top Bound, 100 Sheets	Each	\$22.05	100+ Each	\$20.95
657904	Life Science, Spiral Bound, 70 Sheets	Each	\$22.55	100+ Each	\$21.45

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657900 Chemistry Spiral Bound Carbonless Notebook, 50 Sheets

Classroom ResourcesCalculators

Each Teacher Kit for nongraphing Texas Instruments calculators includes 10 calculators, storage caddy, poster, and a set of instruction materials in both English and Spanish.

TI-108 Calculator

Grade 2 and up. The popular, basic 6-function solar calculator designed especially for students. Memory and sign change keys contribute to the utility of this economical calculator. Durable plastic keys and case; solar operation.

912442 Calculator Each **\$10.75 912442K** TI-108 Teacher Kit Each **\$111.35**

Calculator CaddyStack™

912580 Each \$32.30



912580 Calculator CaddyStack



TI-30XIIS™ Calculator

Two-line display scientific calculator combines 2 variable statistics and advanced scientific functions. See entry and calculated result at the same time. History retention feature stores previous entries. Features an 11-digit scroll entry line width, 10-digit answer and 2-digit exponent line, 5 variable memories, fractions, and fraction/decimal conversions. Dual power: solar and battery. One-year limited warranty.

912422 Calculator Each **\$24.65 912422K** TI-30XIIS Teacher Kit

Each **\$232.60**

912422K TI-30XIIS Teacher Kit



912422K TI-30XIIS Teacher Kit



912454 TI-34 MultiView Calculator



912410 TI-15 Explorer

TI-15 Explorer™ Calculator

Large, easy-to-read, color-coded keys make this calculator ideal for elementary and middle school students. Its unique Answer Format feature allows students to see the same number represented in different formats, including stacked fractions, quotient and remainder, mixed numbers, and decimals. Operates on battery (included) and solar power.

912410 Each \$26.95

TI-34 MultiView Calculator

Two-line display shows entries and results at the same time. Allows you to review previous entries to look for patterns and to perform operations with fractions and mixed numbers. The integer division key expresses results as quotients and remainders. The 2 constant keys with counter help build tables and develop concepts of multiplication, division, and unit-of-measure conversions. Features scientific and trigonometric functions.

912454 Each \$31.70

Visit Carolina.com to view our selection of math resources.

Calculators/Equipment

Graphing Calculators

TI-83 Plus™ Graphing Calculator

Easy-to-use graphing tool with enhanced TI-83 features and Flash ROM for upgrading and applications. Link cable and I/O port for data sharing with another TI-83 Plus™. TI-83. or TI-82. CBL™/ CBR™ application built in for easy data collection, display, and analysis. Calculator has 24 K of RAM and 160 K of user data archive as data and application storage space.

912463 Each \$200.00

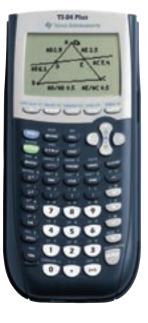
TI-84 Plus™ Graphing Calculator

The TI-84 Plus[™] includes more than 10 preloaded software applications, an improved display, and a built-in USB port, which makes data transfer to a computer and between calculators easier than ever. Calculator has 24 K of RAM and 480 K of memory to archive data and store applications.

912466 Each \$214.10

912466 TI-84 Plus Graphing Calculator

Classroom Resources



Plus Graphing Calculator

912463 TI-83

Equipment



CELESTRON° MicroDirect™ 1080p HDMI Handheld Digital Microscope ▲

Grades 6-12.

The Celestron® MicroDirect™ 1080p HDMI Handheld Digital Microscope is an easyto-use, low-power microscope with a high-speed 3.5-megapixel sensor. Unlike most digital microscopes, the MicroDirect[™] has a 1080p HDMl video output that connects directly into an HDMI monitor or projector for live high-resolution video streaming. The camera has a micro SD card slot (card not included) for capturing 3.5-megapixel still images and video clips. These features eliminate the need for a computer connection, which is why the MicroDirect™ is one of the easiest digital microscopes to set up and use.

The MicroDirect[™] is powered by a USB connection. Plug one end of the USB cable (included) into the microscope and the other end into an open USB 2.0 port on your computer, monitor, or projector. If your device has no USB 2.0 port, plug the USB cable into a 120-V (5-V, 1-A) power adapter (not included), then plug the power adapter into an electrical outlet. Note: The included USB cable works with all standard USB plugs that come with many of today's electronics (such as smartphones and tablets).

Create high-resolution images, VGA-quality video, and time-lapse animations using the Micro Capture Pro software included for Windows® 7.1 and above. You can also take accurate measurements and make notes on your specimens using this intuitive software. An adjustable LED illuminator ensures your specimens are clear and bright, and the fully adjustable, professional stand allows for steady shots, even at high magnification.

Intended for educational use, discriminating hobbyists, or professionals, the MicroDirect[™] is well suited for jobs such as entomology, industrial quality control, component inspection, medical investigation, scientific research, and forensics documentation.

- Celestron® Micro Capture Pro software DVD with measuring feature
- · Adjustable height stand and calibration ruler included
- 20× to 200× magnification
- . Manual focus range from 10 mm to infinity
- · Adjustable 8-LED ring illuminator
- Celestron® 2-vear limited warranty
- Size, $6^9/_{10} \times 5^1/_2 \times 4^1/_3$ "; wt, $2^1/_5$ lb (microscope and stand)

591770 Each **\$258.00**



Contents
Labware Kits 1021
Autoclaves & Sterilizers 1023
Balances
Beakers
Blenders & Bottles
Brushes
Burets
Burners
Carboys
Centrifuges
Clamps
Condensers & Crucibles 1051
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Specimen Containers 1081
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Stirrers
Stoppers
Support Stands
Syringes
Laboratory Thermometers 1088
Timers & Clocks
Trays & Pans
Tubes & Accessories 1092
Tubing
Vials & Watch Glasses
Water Baths
Water Purification

Items	Basic Package	Deluxe Package
Apron, plastic, medium	4	4
Balance, triple beam, 610-g capacity (item #702020)	-	1
Barnes dropping bottle, 34 mm sq × 53 mm H	2	2
Beaker brush, 16" L	1	1
Beaker, borosilicate glass, 100 mL	1	1
Beaker, borosilicate glass, 250 mL	1	1
Beaker, borosilicate glass, 400 mL	4	4
Beaker, borosilicate glass, 50 mL	1	1
Ceramic gauze, 5×5 "	1	1
Crucible and cover, 45 mm diam \times 45 mm H	1	1
Erlenmeyer flask, borosilicate glass, 125 mL	1	1
Erlenmeyer flask, borosilicate glass, 250 mL	1	1
Erlenmeyer flask, borosilicate glass, 500 mL	1	1
Evaporating dish, porcelain, 75 mm diam × 25 mm H	1	1
Forceps, small	1	1
Funnel, glass, 80 mm diam \times 130 mm L	1	1
Funnel, plastic, 75 mm diam \times 70 mm L	1	1
Gas lighter, flint-type (item #706630)	-	1
Graduated cylinder, glass, 100 mL	1	1
Graduated cylinder, plastic, 10 mL	1	1
Graduated cylinder, plastic, 50 mL	1	1
Hand mitt for handling hot containers	1	1
Medicine dropper, glass, 3"	6	6
Meterstick, hardwood (item #702620)	1	1
Petri dish, 100 × 15 mm	-	4
Ring stand, cast iron, 5 \times 8" with 20 \times $^3/_8$ " rod	1	1

	Basic	Doluvo
Items	Package	Deluxe Package
Ring, chrome-plated cast iron, 4" diam	1	1
Rubber stopper, #0, 1-hole	1	1
Rubber stopper, #0, 2-hole	1	1
Rubber stopper, #0, solid	1	1
Rubber stopper, #3, 1-hole	1	1
Rubber stopper, #3, 2-hole	1	1
Rubber stopper, #3, solid	1	1
Rubber stopper, #5.5, 1-hole	1	1
Rubber stopper, #5.5, 2-hole	1	1
Rubber stopper, #6, solid	1	1
Ruler, clear plastic, 12"	4	4
Scale, spring, 0HAUS, 1,000 \times 25 g/10 \times 0.25 N	1	1
Scale, spring, OHAUS, 100 \times 1 g	1	1
Scoop, plastic, 5×2 "	1	1
Scoop, metal with wooden handle, laboratory	1	1
Specimen jar lid, black plastic, pack of 12	-	1
Specimen jar, glass, 16 oz, pack of 12	-	1
Stirring rod, glass, 20 cm	6	6
Stopwatch, miniature	-	1
Test tube brush, 11" L	2	2
Test tube rack, Unwire [™] , for up to 20-mm tubes	1	1
Test tube, glass, $18 \times 150 \text{ mm}$	6	6
Test tube clamp, small metal	1	1
Thermometer, immersion, -20 to 110° C (0 to 230° F), 76 mm, red	2	2
Tongs, laboratory	1	1
Wash bottle, 16 oz	-	1
Watch glass, 65 mm diam	1	1





Carolina® Lab Equipment Packages A3

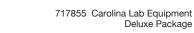
- Outfit your lab: Dozens of basic materials come in bundles
- Deluxe advantage: Package includes a triple beam balance
- Make connections: Options for experiments span disciplines

Our laboratory equipment packages contain the most frequently used items for a group of 4 students conducting biology or chemistry experiments. We have not included items that vary widely in choice, such as burners or safety glasses. Please contact us for help in selecting these items.

717850 Basic Package 717855 Deluxe Package Each

Each \$375.00 \$698.00

Deluxe Package



Labware Kits

Labware Kits

Carolina® Beaker-Breakers Sometimes accidents just happen; let Carolina pick up the pieces for you

School labs can be hectic. You prefer glass over plastic but it takes time and money to order the right glassware. And then it breaks. You need insurance.

We can't prevent breakage, but we can guarantee that you'll not pay for broken glassware. Carolina's Beaker-Breakers program protects you against glassware breakage for 1 full year from the date of purchase.

- Top Quality—Carolina's Beaker-Breakers sets contain top-quality Corning® Pyrex® labware
- Save Time-We've put together 3 sets of the most common sizes of beakers (250 mL), graduated cylinders (100 mL), flasks (250 mL), and test tubes (18 × 150 mm), so you don't have to fret with the order
- Save Money—Set prices are considerably lower than individual component prices, plus you receive FREE replacements for broken glassware

Replacement is easy. Just let us know if a piece of Beaker-Breaker glassware breaks, and a replacement will be shipped with your next order from Carolina.

Laboratory Equipment & Supplies



721100 Carolina Beaker-Breakers Set 1 (108 pieces)

Set 1 (108 pieces)

- 12 Beakers (250 mL)
- 12 Graduated Cylinders (100 mL)
- 12 Flasks (250 mL)
- 72 Test Tubes (18 × 150 mm)

721100 Per set \$324.35

Set 2 (96 pieces)

- 12 Beakers (250 mL)
- 12 Graduated Cylinders (100 mL)
- 72 Test Tubes (18 × 150 mm)

721102 Per set \$265.20

Set 3 (36 pieces)

- 12 Beakers (250 mL)
- 12 Graduated Cylinders (100 mL)
- 12 Flasks (250 mL)

721104 Per set \$258.05



General Chemistry Hardware Kit A

Assortment of hardware most often used in general chemistry labs. Contains the following items.

Beaker Tongs Crucible Tongs Buret Clamp Burner Tripod

Pinchcock Clamp Pipe Clay Triangle Right-Angle Clamp Support Ring (4") Support Stand $(5 \times 8")$ Test Tube Rack, 6-Tube Test Tube Tongs Wire Gauze (5 × 5")

707298 Per kit \$103.30



707290 Deluxe Lab Toolkit

Deluxe Lab Toolkit

Contains 1 each of the following: 6-hole test tube rack, test tube brush, test tube clamp, crucible tongs, lab scoop, spatula, and forceps.

707290 Per kit \$19.80



See more labware kits on the next page.





717800 Student Plastic Labware Kit

Student Plastic Labware Kit A

An assortment of plastic labware suitable for high school and college laboratories. Contains the following items:

Dropping Bottle

Funnel

Graduated Beakers (100 and 250 mL)

Graduated Cylinders (10 and 100 mL)

6 Graduated Pipets (3 mL)

3 Test Tubes (14 mm)

Wash Bottle

4 Widemouthed Bottles (60 mL)

717800 Per kit \$36.70



Chemistry Labware Kit

Assortment of items most often used in a general chemistry laboratory. Made of borosilicate glass except as noted.

2 Barnes Dropping Bottles 6 Test Tubes 6 Dropping Pipets Flask (250 mL) Spatula Test Tube Clamp

Beaker (50 mL) Cylinder (polypropylene, 10 mL) Cylinder (polypropylene, 50 mL) **Evaporating Dish** 6 Stirring Rods Cylinder (glass, 100 mL)

Beaker (100 mL) Forceps Beaker (250 mL) Tongs Flask (125 mL) Funnel (75 mm) Watch Glass Funnel (polypropylene) Wire Gauze Crucible Crucible Cover Rubber Stoppers (assorted)

Scoop

717820 Per kit \$116.35

Labware Materials Specifications

Today's labware comes in a variety of materials to fit every need. This chart will help you select the type of material that most closely fits your laboratory needs. As always, if you have questions, please call or email the Laboratory Equipment and Supplies Department at Carolina.

Name	Transparency	Chemical Resistance	Max Working Temp (°C/°F)	Break Resistance	Microwave Safe	Autoclavable
Borosilicate Glass	Clear	Excellent	230/446	Breakable	Yes	Repeatedly
Flint Glass	Clear	Excellent	100/212	Breakable	Yes	No
High-Density Polyethylene (HDPE)	Translucent	Good	120/248	Good	No	No
Low-Density Polyethylene (LDPE)	Translucent	Good	80/176	Good	Yes	No
Polycarbonate (PC)	Clear	Poor	135/275	Good	No	Limited
Polymethylpentene (PMP)	Clear	Good	175/347	Fair	Yes	Repeatedly
Polypropylene (PP)	Translucent	Excellent	135/275	Excellent	Yes	Repeatedly
Polystyrene (PS)	Clear	Poor	90/194	Fair	No	No
Polyvinylchloride (PVC)	Clear	Fair	70/158	Fair	Yes	No

Note: Pyrex® (Corning®) and Kimax® (Kimble) brands are both borosilicate glass.

Autoclaves & Sterilizers

Laboratory Equipment & Supplies

Autoclaves & Sterilizers







Carolina® Automatic Autoclaves

Designed for research but priced for the classroom laboratory, these units are ideal for autoclaving instruments, liquids, small glassware, and other laboratory equipment. Operation is as simple as loading the sample, securing the door, and pushing a button. Choose from 1 of 4 pre-set programs and 1 drying cycle, or design your own program with

temperatures of either 121° C or 134° C. These compact benchtop autoclaves feature a large, easy-to-use LCD digital display and a durable stainless-steel chamber that is easy to clean. Installation is also easy since these units are self-contained and require no external plumbing. Mechanical and electrical safety interlock prevents the door from being opened while the chamber is pressurized. These autoclaves also include a USB port and can be connected to an optional printer. The 8-L size comes with 2 trays, the 18-L and 28-L sizes with 3 trays. 120 V. CE approved.

Item No.	Capacity	Overall Dimensions	Chamber Dimensions	Wt	Power	Each
701654	8 L	$20 \times 13^{1}/_{2} \times 12^{9}/_{10}$ "	$6^{7}/_{10} \times 12^{1}/_{2}$ "	66 lb	120 V	\$5,550.00
701670	18 L	$22 \times 17^{1}/_{2} \times 15^{7}/_{10}$ "	$9^8/_{10} \times 13^3/_4$ "	99 lb	120 V	\$7,650.00
701676	28 L	$25\times25\times22"$	$12^3/_5 \times 16^2/_5$ "	209 lb	120 V	\$14,055.00







Tuttnauer® Offers Sterilization Without Compromise

Carolina sells several models of Tuttnauer® autoclaves that offer:

Quality
 Safety
 Reliability





701646 Tuttnauer Manual Autoclave, Model 2340M

View them at Carolina.com.



Autoclaves & Sterilizers



701695 Steroclave Sterilizer with 701695A Support Base

701696 Portable Steam Pressure Sterilizer

Steroclave Sterilizer

A self-contained sterilizer constructed of heavy cast aluminum with an immersion heating element, automatic thermostatic control, automatic release valve, pressure gauge, and pilot light. Designed with a metal-to-metal seal to eliminate all rubber gaskets and clamping locks to prevent removal of the cover while pressure is present. Pressure penetrates hinges and crevices of any instrument and sterilization is complete in 20 to 30 minutes. Unit is equipped with a 3-wire, grounded cord and operates on 110-V AC. Capacity, 25 qt; wt, 31 lb. Optional **Support Base** elevates the Steroclave 13/8" to avoid heat damage to surfaces.

701695 Sterilizer Each **\$1,195.00 701695A** Support Base Each **\$113.00**

Portable Steam Pressure Sterilizer

Nonelectric; requires heat source. Constructed of high-quality, cast aluminum alloy. Designed with metal-to-metal seal to eliminate rubber gaskets and clamping locks to prevent removal of the cover while pressure is present. Equipped with pressure gauge and pressure control valve. Capacity, 25 qt; wt, 24 lb.

701696 Each \$696.00

Accessories



701630 Sterile Indicator Tape

Sterile Indicator Tape

Pressure sensitive. Black stripes appear after exposure to high temperature. $^{3}/_{4} \times 500''$ roll.

701630 Per roll \$7.85



701640 Autoclave Gloves



702982 Hand Protector

Hand Protector

This hand protector is ideal for gripping hot beakers, flasks, bottles, and other objects. It is made of molded silicone rubber and features a special gripping surface to prevent even wet containers from slipping. One size.

702982 Each \$25.45

Autoclave Gloves

Soft, all-cotton gloves with 5" gauntlet; will resist heat up to 450° F (232° C). Excellent for handling hot objects from autoclave or oven.

701640 Per pair \$33.85



831625 Autoclave Sterilization Pouches, $3^{1/2} \times 9^{"}$, Box of 200

Autoclave Sterilization Pouches With sterilization indicators!

SafeSeal®. These medical-grade sterilization pouches have an internal/external sterilization indicator printed directly on them, saving you the time and expense of adding indicators separately. The easily visible indicator changes color with sterilization heat, time, and the presence of steam. Pouches are made of wet-strength treated, virgin medical-grade paper; feature quadruple-sealed edges to prevent separation or tearing by instruments; and meet CDC Infection Control Guidelines for effective sterilization. Available in 4 sizes.

831625	$3^{1}/_{2} \times 9^{"}$	Box of 200	\$30.85
831626	$5^{1/4} \times 10^{"}$	Box of 200	\$50.75
831627	$7^{1}/_{2} \times 13^{"}$	Box of 200	\$90.00
831628	12 × 17"	Box of 200	\$177.20

Laboratory Equipment & Supplies

Balances

A Guide to Balances

Mechanical or electronic?

When considering which balance is best for your application, the first decision you'll need to make is whether to choose a mechanical or electronic balance. Mechanical balances are usually used in elementary and middle school classes to teach basic weighing techniques. These balances, due to their hands-on nature, also help students develop manual dexterity and show them how mechanical movement is translated into a measurement value. Mechanical balances do not require electrical power. They have a fixed weighing unit, fixed weighing mode, and no computer connectivity for recording and storing measurement data.

Electronic balances are primarily used in high school and college classes. Easy and fast to operate, these balances enable students to use their lab time more productively when performing complex, multistep experiments. Electronic balances require electrical power, either from batteries or a plug-in adapter. Advanced functions include selectable weighing units, selectable weighing modes, and computer connectivity for recording and storing measurement data.

Major features of mechanical and electronic balances

Mechanical



- For elementary school and above
- Hands-on learning approach
- Nonelectric

- · Fixed weighing unit
- Fixed weighing mode
- No computer connectivity

Electronic

- For high school and above
- Easy, fast measurements
- Electric
- · Selectable weighing units
- Selectable weighing modes
- Computer connectivity



The following specifications describe key balance capabilities. Understanding these specifications can help you choose the balance that best meets your application's requirements. Tip: Be sure to read individual product descriptions carefully because they may include additional specifications pertinent to your application.

Capacity—The maximum weight the balance can measure. Choose a balance with 10 to 15% more capacity than your application requires.

Readability—The smallest difference in weight that the balance can display. Choose a balance that meets or exceeds the readability that your application requires.

Repeatability—The accuracy of the balance in measuring the same weight within a given time. Choose a balance that meets or exceeds the repeatability that your application requires.

Weighing Units—The units of measure that the balance can display. Choose a balance with the weighing units that your application requires. **Note:** Electronic balances offer selectable weighing units and mechanical balances do not.

Weighing Modes—The balance's ability to perform specialized weighing tasks. Examples of this include percent weighing, parts counting, and animal weighing. Choose a balance that offers the weighing modes that your application requires. **Note:** Electronic balances offer selectable weighing modes and mechanical balances do not.

Environment—The range of environmental conditions (typically temperatures) in which the balance can provide accurate measurements. Choose a balance that provides accurate measurements under the environmental conditions in which it will be used.

Connectivity—The balance's ability to connect to a computer and record and store measurement data. Choose a balance with an RS232 or USB port if your application requires computer connectivity. Note: Electronic balances offer computer connectivity and mechanical balances do not.



Balances

Electronic

Our most popular classroom electronic balance just got better!



- · Advanced features and technology
- · Built-in durability for the classroom
- · Stackable to save space

Whether you teach biology, chemistry, or physical science, we have the right balance for you. These value-packed balances are highly popular because they offer simple operation, years of service, and the durability that you and your students demand.

- Latest Features—Hinged draftshield for more accurate weighing, LCD display, travel protection lock, RS232 interface hookup, and 2 weighing modes (g and N)
- Durability—Splash-proof keypad, stainless-steel pan, sturdy body, plus 200-lb load cell protection
- Flexible Energy Source—Includes an AC adapter or switch to 4 AA batteries (not supplied) when in the field
- Lockable—Optional Balance Security Device (item #702189) sold separately
- Carolina Exclusive 2-Year Warranty

Calibrate each balance from the keypad. Dimensions, $5^{1/2} \times 9 \times 2^{1/2}$ " (139 × 228 × 63 mm).



702010 Carolina Electronic Balance, with pan open (left) and with pan closed (right)

Customer Review

"These electronic balances are perfect for our lab. First, they were extremely affordable—you just can't beat the price, especially for this level of quality. I purchased 10 of them to replace some older balances and had the new ones calibrated and ready to go in about 10 minutes. The interface is intuitive and easy for students to use, and the measurements are accurate and repeatable. Can't ask for much more than that!"

High School Biology Teacher

Item No.	Capacity	Readability	Repeatability	Pan Size	Each
702010	150 g	0.01 g	0.01 g	47/10" diam	\$429.00
702011	300 g	0.1 g	0.1 g	4 ⁷ / ₁₀ " diam	\$224.00
702017	300 g	0.01 g	0.01 g	47/10" diam	\$560.00
702012	500 g	0.1 g	0.1 g	47/10" diam	\$264.00
702013	1,500 g	0.1 g	0.1 g	$4^7/_{10}\times 5^3/_{10}\text{"}$	\$399.00
702014	3,000 g	0.1 g	0.1 g	$4^7/_{10} \times 5^3/_{10}$ "	\$522.00
702015	5,000 g	1.0 g	1.0 g	$4^7/_{10}\times 5^3/_{10}\text{"}$	\$266.00

Accessory

702189 Balance Security Device Each \$30.00







Laboratory Equipment & Supplies

OHAUS Scout® Portable Electronic Balances A

Superior performance and simple operation have made Scout® balances the most popular portable balance in the classroom. With the updated Scout®, you get the same exceptional accuracy and reliability of earlier Scouts along with several unique improvements that make this balance the choice for educators. All of this and still an affordable price!

OHAUS Value:

- Easy to Use for Students of All Skill Levels-Four-button keypad and intuitive, visual menu prompts
- High-Contrast Backlight LCD Display—With 33/4 × 11/2" display
- Weigh-Below Hook
- Standard Security Features—Lockdown mode prevents tampering of weighing modes, and integral Kensington® lock guards against theft
- Overload Protection—Up to 10× capacity and shock resistant
- Stackable—Easy to store your balances
- Easy to Keep Clean—Sealed front panel, molded spill ring, and removable stainless-steel platform
- Calibration Weight—Included with all models up to 620 g
- Specific Gravity Kit-Included for all models
- Energy-Saving Auto Shutoff—User programmable settings
- Flexible Energy Source—Includes an AC adapter or you can switch to 4 AA alkaline batteries (not included)
- OHAUS Reliability and Accuracy—Teachers have trusted these products for over 100 years
- Dependable—Five-year warranty

702240 OHAUS Scout Balance SKX123 $(120 \times 0.001 g)$

0.000

All models feature weighing, specific gravity modes, and mole weighing as fast as 1-second stabilization time; digital calibration from the keypad; and tare range to capacity by subtraction. Dimensions: item #702240, 84/5 × $8 \times 3^{1/2}$ "; items #702241 to #702247, $8^{4/5} \times 8 \times 2$ ".

	Item No.	Model	Capacity	Readability	Repeatability (std dev)	Linearity	Weighing Units 8 Modes	Pan Size	Wt	Each
	702240	SKX123	120 g*	0.001 g	2 mg	±0.003 g	g, N, oz	33/5" diam (9 cm)	13/4 lb (0.79 kg)	\$832.00
Ö	702241	SKX222	220 g	0.01 g	0.01 g	±0.01 g	g, N, oz	47/10" diam (12 cm)	13/4 lb (0.79 kg)	\$607.00
	702242	SKX422	420 g	0.01 g	0.01 g	±0.01 g	g, N, oz	47/10" diam (12 cm)	13/4 lb (0.79 kg)	\$855.00
Ö	702243	SKX421	420 g	0.1 g	0.1 g	±0.1 g	g, N, oz, Ib	47/10" diam (12 cm)	13/4 lb (0.79 kg)	\$351.00
	702244	SKX621	620 g	0.1 g	0.1 g	±0.1 g	g, N, oz, Ib	$6^{7}/_{10} \times 5^{1}/_{2}$ " (17 × 14 cm)	13/4 lb (0.79 kg)	\$487.00
	702245	SKX2201	2,200 g	0.1 g	0.1 g	±0.1 g	g, kg, N, oz, lb	$6^{7}/_{10} \times 5^{1}/_{2}$ " (17 × 14 cm)	13/4 lb (0.79 kg)	\$625.00
	702246	SKX6201	6,200 g	0.1 g	0.1 g	±0.1 g	g, kg, N, oz, lb	$6^{7}/_{10} \times 5^{1}/_{2}$ " (17 × 14 cm)	13/4 lb (0.79 kg)	\$1,045.00
	702247	SKX8200	8,200 g	1.0 g	1.0 g	±1.0 g	g, kg, N, oz, lb	$6^{7}/_{10} \times 5^{1}/_{2}$ " (17 × 14 cm)	13/4 lb (0.79 kg)	\$513.00





Carolina® Compact Balances A

- Compact size
- · Sleek, low-profile design
- 2-vear warranty

These economical compact balances are perfect for a wide variety of applications, operating on battery or AC power. All units feature easy 2-button operation with automatic shutoff to conserve batteries.

Specifications:

Weighing Modes: g, oz

Tare Range: To capacity by subtraction

Stabilization Time: 3 sec

Calibration: Digital calibration from keypad

Optimal Operating

Temperature: 65 to 77° F (18 to 25° C)

Power Requirements: 3 AA alkaline batteries (included) or AC adapter (sold

separately)

Display: LCD ($^{1}/_{2} \times 1^{1}/_{5}$ " H digits) Pan Size: $5^{1}/_{5} \times 5$ " (132 × 125 mm)

Dimensions: $8^{1}/_{10} \times 5^{1}/_{2} \times 1^{3}/_{5}$ " (205 × 140 × 41 mm)

Item No.	Capacity × Readability	Each
702065	220 × 0.1 g	\$136.00
702066	2,200 × 1.0 g	\$136.00
702067	5,200 × 1.0 g	\$145.00
Accessory		
702203	AC Adapter for Compact Scales (120 V)	\$78.00

Ö

OHAUS Compass Portable Electronic Scales A

- Sleek low-profile design ideal for the field, classroom, or office
- · Improved functionality with large backlit LCD display
- · Rugged plastic construction with stainless-steel pan
- One-year warranty

You really can take it with you with these battery- or AC-powered (adapter not included) portable OHAUS Compass scales. With capacities from 220 to 5,200 g, these uniquely designed scales have more applications than any other scales in their class. All feature overload and underload indicators, a tactile feedback keypad, a low-battery indicator, and an energy-saving auto shutoff after 5 minutes of no activity (battery operation only). Easy operation, long battery life (up to 1,000 hours), and great performance make these compact electronic scales a truly remarkable value.

Specifications:

Weighing Modes: g, oz, lb:oz, N

Tare Range: Full capacity by subtraction

Stabilization Time: 3 sec

Calibration: User-selectable external span/digital with

external weight

Optimal Operating Temperature: 64 to 77° F (18 to 25° C)

Power Requirements: 3 AA alkaline batteries (included) or AC adapter

(not included)

Display: LCD (18 mm) with backlight Pan Size: $5^{6/10} \times 5^{\circ}$ (142 × 128 mm)

Dimensions: $7^9/_{10} \times 5^3/_{10} \times 1^3/_{5}$ " (201 × 135 × 41 mm)

Item No.	Model	Capacity × Readability	Each
702220	CX221	220 g × 0.1 g	\$211.00
702221	CX2200	2,200 g × 1.0 g	\$211.00
702222	CX5200	5,200 g × 1.0 g	\$249.00
Accessory			
702210		AC Adapter	\$35.00





702220 OHAUS Compass

Portable Electronic Scales

702210 AC Adapter



Laboratory Equipment & Supplies

Your Pocket Partner

OHAUS Pocket Scales

Whether you're on the go or in the lab, an OHAUS pocket scale is a valuable companion that delivers results. What makes it such a helpful tool?

- Small—Fits in your hand, pocket, or backpack
- Portable—Battery operated
- Versatile—Great for distance learning and college labs
- Affordable—Less than the cost of many college textbooks

Small size doesn't mean you sacrifice precision or reliability. OHAUS pocket scales are also accurate and dependable, with the features you're looking for—multiple weighing modes, auto shutoff, a 1-year warranty, and more.

Team up with an OHAUS pocket scale.



702352 OHAUS Pocket Scale, Model PS121

OHAUS Pocket Scales A

- Compact—They fit in the palm of your hand
- Portable—Batteries are included
- **Rugged**—Sliding pan protects scale during transport

OHAUS Pocket Scales are small enough to go anywhere, yet they still offer accuracy and dependability. Each has 4 weighing options, a sliding pan for overload protection during transport, an LCD screen, an auto shutoff, and a low-battery indicator.

Specifications:

Weighing Modes: g, oz, ozt, dwt
Readability: 0.1 g
Repeatability: 0.1 g
Calibration: External digital
Power Requirements: 2 lithium batteries

(included)

Display: $3/10 \times 1/5$ " (8.9 × 4 mm) Pan Size: $2^2/5 \times 2^3/4$ " (60 × 70 mm) Dimensions: $2^9/10 \times 3/4 \times 3^7/10$ " (73 × 19

 $\begin{array}{cc} \times \mbox{ 93 cm)} \\ \mbox{Weight:} & 2.7 \mbox{ oz} \mbox{ (75 g)} \end{array}$

Item No.	Model	Capacity	Each
702352	PS121	120 g	\$97.00
702353	PS251	250 a	\$125.00



702352 OHAUS Pocket Scale, Model PS121 (in use)



702353 OHAUS Pocket Scale, Model PS251

If your college or university needs a pocket scale in a custom kit, call 800.334.5551, ext 6312.

OHAUS Gold Series Pocket Scale ▲3

Enjoy weighing small objects with a scale that fits in your pocket ($2^3/_4 \times 4^1/_2 \times ^6/_{10}$ "). This convenient balance is battery operated (2 AAA batteries included) with an automatic shutoff and a low-battery indicator.

Specifications:

Weighing Modes: g, oz, dwt, gn Capacity: 500 g Readability: 0.1 g Calibration: External Display: LCD, backlit, $1 \times 1/2$ "

 $(2.54 \times 1.27 \text{ cm})$

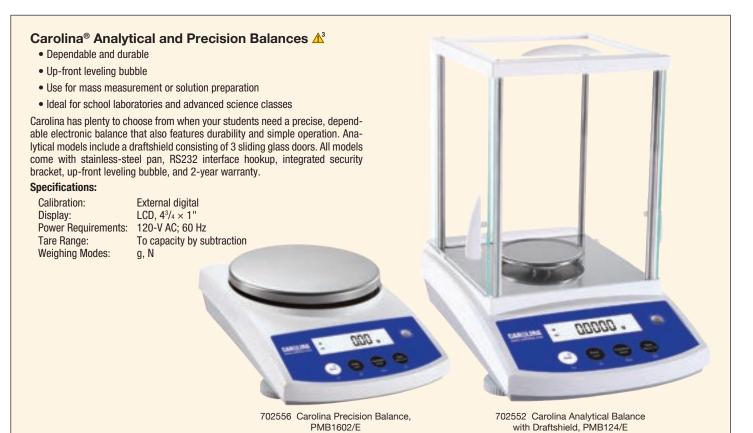
Model: YA501 **702354** Each **\$91.00**





702354 OHAUS Gold Series Pocket Scale

Balances of Colleges and Professional Labs



Item No.	Model	Capacity	Readability	Stabilization Time	Pan Size	Overall Dimensions	Shipping Wt	Each
With Draftshield								
702552	PMB124/E	120 g	0.0001 g	3 sec	31/2" diam	$7^9/_{10} \times 12^1/_5 \times 12^1/_2$ "	15.4 lb	\$2,490.00
702553	PMB224/E	220 g	0.0001 g	3 sec	31/2" diam	$7^9/_{10} \times 12^1/_5 \times 12^1/_2$ "	15.4 lb	\$2,861.00
702554	PMB223/E	220 g	0.001 g	3 sec	47/10" diam	$7^9/_{10} \times 12^1/_5 \times 12^1/_2$ "	15.4 lb	\$1,503.00
Without Draftshi	eld							
702555	PMB622/E	620 g	0.01 g	3 sec	7" diam	$7^9/_{10} \times 3^7/_{10} \times 12^1/_2$ "	11 lb	\$1,240.00
702556	PMB1602/E	1,600 g	0.01 g	3 sec	7" diam	$7^9/_{10} \times 3^7/_{10} \times 12^1/_2$ "	11 lb	\$1,465.00
702557	PMB2202/E	2,200 g	0.01 g	3 sec	7" diam	$7^9/_{10} \times 3^7/_{10} \times 12^1/_2$ "	11 lb	\$1,582.00



OHAUS Pioneer® Precision and Analytical Balances A

Developed with your feedback, OHAUS Pioneer® Precision and Analytical Balances are designed for use in laboratory, industrial, and educational applications. These balances include a leveling system, environmental settings, USB device port, and AC adapter. Other key features include:

- Simple Performance—A 7-segment backlit LCD and 3-button keypad make the Pioneer®
- Frameless Draftshield (included with models PX84/E, PX163/E, PX224/E, and PX323/E-Designed without a top rail for the glass doors, the frameless draftshield with sliding top allows convenient access to the weighing chamber and helps to eliminate spills. The draftshield's doors are easy to remove and replace, making it fast and simple to clean.
- Compact Size with Just the Features You Need—Pioneer® offers 3 simple application modes and multiple weighing units.
- Up-Front Leveling Indicator—Ensure that the balance is level with a quick view of this
- Environmental Settings—Three filter modes and adjustable zero tracking are ideal for working in slow-filling applications where sensitivity is a must. When working in harsh environments, you can adjust balance settings to compensate for vibrations and other disturbances.
- Integral Weigh-Below Hook—This feature is critical for determining density or specific gravity.
- In-Use Cover and Security Bracket—Protect against theft and spills at no additional cost.
- Two-Year Warranty.

Specifications:

Application Modes: Weighing, parts counting, percent weighing

g, ct, oz, dwt, ozt, gr, N, tolas, mommes, baths, mesghals, taels (also Weighing Modes:

mg for models PX84/E, PX163/E, PX224/E, and PX323/E; also lb and

kg for models PX1602/E, PX3202/E, and PC4201/E)

Tare Range: Full capacity by subtraction

PX84/E and PX224/E, 4 sec; PX163/E and PX323/E, 2 sec; PX1602/E, Stabilization Time:

PX3202/E, and PX4201/E, 1 sec

Optimal Operating

Temperature: 50 to 104° F (10 to 40° C) Digital with external weight Calibration: Power Requirements: AC adapter (included) Double-line LCD, backlight Display:

Without draftshield, $8^{1}/_{5} \times 3^{3}/_{5} \times 12^{3}/_{5}$ " (19.6 × 9.2 × 32 cm); Dimensions:

with draftshield, $8^{1}/_{5} \times 13^{1}/_{4} \times 12^{3}/_{5}$ " (19.6 × 33.65 × 32 cm)





Item No.	Model	Capacity	Readability	Repeatability (std dev)	Linearity	Pan Size	Shipping Wt	Each
With Draftsl	nield							
702544	PX84/E	82 g	0.0001 g	0.0001 g	±0.0002 g	31/2" diam (90 mm)	15.4 lb (7 kg)	\$2,182.00
702545	PX224/E	220 g	0.0001 g	0.0001 g	±0.0003 g	31/2" diam (90 mm)	15.4 lb (7 kg)	\$2,794.00
702546	PX163/E	160 g	0.001 g	0.001 g	±0.002 g	43/4" diam (120 mm)	15.4 lb (7 kg)	\$1,270.00
702547	PX323/E	320 g	0.001 g	0.001 g	±0.002 g	43/4" diam (120 mm)	15.4 lb (7 kg)	\$1,478.00
Without Dra	ftshield							
702549	PX1602/E	1,600 g	0.01 g	0.01 g	±0.02 g	7" diam (180 mm)	11 lb (5 kg)	\$1,223.00
702550	PX3202/E	3,200 g	0.01 g	0.01 g	±0.02 g	7" diam (180 mm)	11 lb (5 kg)	\$1,611.00
702551	PX4201/E	4,200 g	0.1 g	0.1 g	±0.02 g	7" diam (180 mm)	11 lb (5 kg)	\$1,310.00

702549 OHAUS Pioneer Precision Balance without Draftshield, Model PX1602/E



Triple Beam Balances



Customer Review

"The OHAUS Triple Beam Balance has stood the test of time and elementary students! It has been an asset to our science program. The kids like using it too! We will purchase more!"

Elementary Science Teacher

702150 OHAUS Triple Beam Balance, Model 750-SO



702154 OHAUS Triple Beam Balance, Model 710-00

OHAUS Triple Beam Balances A

- . Capacity up to 2,610 g
- · Choice of 2 weighing platforms
- · Optional locking device for extra security

Bring high precision and reliability to your classroom with a quality OHAUS balance.

These triple beam balances offer a 610-g capacity (expandable to 2,610 g with item #702356 **Metric Weight Set**). They also deliver accurate, consistent results with 0.1-g readability.

Choose the model that fits your needs. Model **710-00** (item #702154) has a removable pan. Model **760-00** (item #702155) has a 225-g tare beam so you can tare out the weight of sample containers. These portable balances require a simple zero adjustment immediately before you begin working. Each has a 5-year warranty.

Specifications:

 $\begin{array}{lll} \text{Capacity:} & \text{610 g} \\ \text{Capacity with Weight Set:} & 2,610 g \\ \text{Readability:} & 0.1 g \\ \text{Front Beam Calibration:} & 10 \times 0.1 g \\ \text{Middle Beam Calibration:} & 500 \times 100 g \\ \text{Rear Beam Calibration:} & 100 \times 10 g \\ \end{array}$

	Item No.	Model	Weighing Platform	Platform Size	Tare Capacity	Each
Ö	702150	750-S0	Stainless-Steel Flat Surface	6" diam (15.2 cm)	-	\$205.00
	702154	710-00	Stainless-Steel Pan (removable)	6" diam \times $^{4}/_{5}$ " D (15.2 \times 1.9 cm)	-	\$372.00
	702155	760-00	Stainless-Steel Flat Surface	6" diam (15.2 cm)	225 g	\$383.00



702189 Balance Security Device

Accessories

	702356	Metric Weight Set	Each	\$96.00
<u></u> \$^3\$	702189	Balance Security Device	Each	\$30.00





For teaching science, we believe you will not find a more reliable and easy-to-use triple beam balance at a better price.

Carolina® Triple Beam Balance Versatile, high-quality balance

- · Accurately weighs solids, liquids, and powders
- · Accommodates many different lab applications
- Available lockable security device (sold separately)

Why use different balances to weigh different substances? This versatile triple beam balance not only demonstrates mass measurement concepts, it serves as an accurate, reliable instrument for everyday weighing.

- Classroom Durability—Large, stable metal body and generous stainlesssteel pan to withstand years of classroom use
- Built-In Precision—Magnetic damping, positive-poise positioning, and well-defined notches for reliable readings
- Guaranteed—Carolina Exclusive 2-Year Warranty

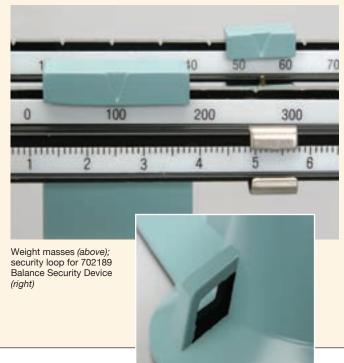
This great addition to your lab equipment also has a counterbalance knob for fast zeroing. If you weigh all the options, you'll find ours to be the most dependable triple beam balance for the price.

Specifications:

Capacity: 610 g Readability: 0.1 g

Platform Size: 6" diam (15.2 cm)

702020 Carolina Triple Beam Balance Each \$145.00 ↑ 702189 Balance Security Device Each \$30.00





Model TJ611

OHAUS Triple Beam Balance

- Top quality
- Capacity up to 2,610 g
- Lockable (Balance Security Device sold separately)
- Three-year warranty

Model TJ611 offers a 610-g capacity (expandable to 2,610 g with the item #702356 **Metric Weight Set**), notched and tiered beams for easy reading, magnetic damping for quick results, and a zero adjust compensator to ensure correct zero. Because this balance was designed by OHAUS, you can be sure it meets stringent standards of quality and performance.

1 702153	Balance	Each	\$199.00
702356	Metric Weight Set	Each	\$96.00
1 702189	Balance Security Device	Each	\$30.00

OHAUS Triple Pro Balance A

With many new features, this top-of-the line triple beam balance from OHAUS is designed for easy transport.

- Rod and clamp assembly (included)
- Enclosed weight set compartment (weights included) for easy transportation
- Transportation lock
- Ergonomic carrying handle
- Lockable (Balance Security Device sold separately)
- Ten-year warranty

Specifications:

 $\begin{array}{lll} \text{Capacity:} & 2,610 \text{ g} \\ \text{Readability:} & 0.1 \text{ g} \\ \text{Front Beam Calibration:} & 10 \times 0.1 \text{ g} \\ \text{Middle Beam Calibration:} & 500 \times 100 \text{ g} \\ \text{Rear Beam Calibration:} & 100 \times 10 \text{ g} \\ \text{Stainless-Steel Platform:} & 6" \text{ diam (15.2 cm)} \\ \text{Model:} & TP2611 \\ \end{array}$

702150B Balance Each **\$297.00 702189** Balance Security Device Each **\$30.00**



702150B OHAUS Triple *Pro* Balance, Model TP2611



OHAUS Dial-O-Gram[®] Balance ▲

This Dial-O-Gram $^{\! \otimes}$ Balance has a Vernier dial to help speed the weighing process.

702172 Each \$478.00

OHAUS Harvard Trip Balances

- Two-platform design is ideal for comparative weighing
- · Equipped for specific-gravity weighing
- Magnetic damping speeds weighing process

OHAUS Harvard Trip Balances are based on the classic Roberval balance principle to determine the difference in mass between 2 objects, rather than their absolute value. Balances have stainless-steel plate platforms, 2,000-g capacity, and 0.1-g readability. Five-year warranty.

Specifications:

Capacity: 2,000 g Readability: 0.1 g

Platform Size: 6" diam (15.2 cm)

Item No.	Model	Туре	Tare Capacity	Top Beam Calibration	Bottom Beam Calibration	Each
702122	1550-SD	Double Beam	-	10 × 0.1 g	200 × 10 g	\$531.00
702132	1560-SD	Double w/Tare Beam	225 g	10 × 0.1 g	200 × 10 g	\$555.00



702122 OHAUS Harvard Trip Balance, Model 1550-SD

Laboratory Equipment & Supplies





OHAUS Hanging Pan Balances ▲3

· Precision weighing

- Vernier dial on Model 310-00, Dial-O-Gram®
- Self-storing specific-gravity platform
- Five-year warranty

These easy-to-use OHAUS Hanging Pan Balances are perfect for classrooms and laboratories.

Specifications:

Readability: 0.01 g

Stainless-Steel Platform: 31/2" diam × 1/2" D

Item No.	Туре	Model	Capacity	Front Beam Calibration	Second Beam Calibration	Third Beam Calibration	Rear Beam Calibration	Dial Calibration	Each
702180	Cent-O-Gram®	311-00	311 g	1 × 0.01 g	10 × 1 g	100 × 10 g	200 × 100 g	-	\$445.00
702182	Dial-O-Gram®	310-00	310 g	$100 \times 10 \text{ g}$	-	-	$200 \times 100 \text{ g}$	$10 \times 0.01 \text{ g}$	\$538.00

OHAUS Harvard Junior™ Mechanical Balance ▲³ Unleash your young scientist!

This balance is unlike any you've ever seen in an elementary classroom. The unique design—a colorful 2-pan plastic balance with precision-engineered metal beam and zero-adjust compensator—means you get a device that's both durable and accurate.

- Interchangeable pans let students weigh a broad range of objects.
- Built-in transportation/storage lock eliminates oscillation and protects the balance's longevity.
- Multiple balances can be stacked to maximize storage.
- Built-in carrying handle allows for easy transport.

Total capacity, 2,000 g with 0.5-g readability. Includes an 8-piece metal mass set (2 each of 100-, 50-, 25-, and 10-g weights) and a teacher-developed, classroom-tested activity guide. Three-year warranty.

702094 Each \$171.00



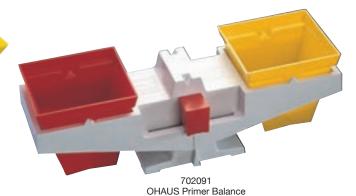
702094 OHAUS Harvard Junior Mechanical Balance

Balances



OHAUS School Balance Model SB1200. This balance is the ideal teaching tool for introducing elementary and middle school students to the science of weighing! The 2,000-g weighing capacity and 0.5-g precision allow you to weigh large objects such as books as well as small items such as paper clips, marbles, and coins. You can easily remove the interchangeable square pans $(5^1/_2\times 5^1/_2")$ for pouring, cleaning, and storing. Base size is 11" W \times 4" D \times 4 $^1/_2"$ H; wt, 1 lb. Colors may vary. Supplied with weight set.

702096 Each \$89.00



OHAUS Primer Balance A3

A simple, sturdy, inexpensive balance. For most loads, will show changes as small as 1 g. May be used with liquids or solids and in highly corrosive environments; can be washed. Features balance beam with stabilized, pivoting, 500-mL buckets, a broad tip-resistant base, sliding poise for easy zeroing, and check rod for support of off-center loads. Easily assembled. Capacity, 2 kg.

702091 Each \$64.00

Weighing Accessories



Plastic Weighing Boats

Ideal for weighing liquid or solid samples. Smooth surface and rounded corners provide for easy removal of powdered and granular samples. Recesses at the corners facilitate controlled pour-off. Suitable for all types of balances. Made of polystyrene.

702330 $1^3/4 \times ^3/_{16}$ " Pack of 500 **\$24.50 702332** $3^5/_{16} \times ^3/_4$ " Pack of 500 **\$46.95 702334** $5^1/_2 \times ^7/_8$ " Pack of 500 **\$88.15**



Metric Weight Set

Set of 54 stackable, color-coded, hexagonal weights containing twenty 1-g and 5-g weights, ten 10-g weights, and four 20-g weights. Includes a plastic storage box. For use with item #702091 OHAUS Primer Balance.

702091D Per set **\$18.15**



702091C Bar Mass Set

Bar Mass Set

Hexagonal solid steel bars that are easy to work with and accurate to 1 g. Length is proportional to mass. Set includes the following masses: two 50 g, two 100 g, one 200 g, one 500 g, and one 1,000 g.

702091C Per set \$56.30



702320 Weighing Paper, 3 × 3"

Weighing Paper

Glazed paper to protect scales and prevent contamination.

702320	3 × 3"	Pack of 500	\$9.55
702322	4 × 4"	Pack of 500	\$12.85
702324	6 × 6"	Pack of 500	\$20.20



702338 Aluminum Weighing Dishes

Aluminum Weighing Dishes

Inexpensive, disposable, 57×15 -mm aluminum-foil dishes, with crimped sides, flat bottoms, and fingertab handles on the rims. Can also be used as evaporating dishes.

702338 Pack of 100 \$11.85

Balances Spring Scales

Laboratory Equipment & Supplies

Economy Pull-Spring Scales

These spring scales provide accurate measurements in grams (g) or grams and newtons (g/N) to allow your students to easily perform force and mass measurements. Each scale includes a metal pointer, zero adjustment, suspension ring, and load hook.

702070	100 × 2 g	Each	\$7.10
702071	$250 \times 5 g$	Each	\$7.10
702072	$500 \times 10 \text{ g/5} \times 0.1 \text{ N}$	Each	\$7.10
702073	$1,000 \times 10 \text{ g/}10 \times 0.2 \text{ N}$	Each	\$7.10
70207/	$5.000 \times 100 \text{ g/50} \times 1 \text{ N}$	Fach	\$7 10

OHAUS Pull-Spring Class Pack (Grams and Newtons) A3

Buy the class pack and save time and money!

A must in middle school general science labs and high school physics labs. For use in mass activities. The Class Pack includes 1 each of 250 \times 10 g/2.5 \times 0.1 N; 500 \times 20 g/5 \times 0.2 N; 1,000 \times 25 g/10 \times 0.25 N; 2,000 \times 50 g/20 \times 0.5 N; and 5,000 \times 100 g/50 \times 1 N.

702064 Per pack \$102.00

OHAUS Pull-Spring Scales A

Scale easily adjusts to zero; accurate readings in any position. Will withstand sudden load releases without breaking. High-contrast markings make readings easy. Each scale is individually calibrated for accuracy. With ring at top and hook at bottom. Scales read in g only or g/N.

702050 100 × 1 g

Each \$37.00

702056 $250 \times 10 \text{ g}/2.5 \times 0.1 \text{ N}$ Each **\$31.00**

 500×20 g/5 \times 0.2 N 702058

Each \$31.00

702059 $1,000 \times 25 \text{ g/}10 \times 0.25 \text{ N}$ Each \$31.00

702061 $2,000 \times 50 \text{ g/}20 \times 0.5 \text{ N}$ Each **\$31.00**

702062 5,000 × 100 g/50 × 1 N

Each \$31.00

Visit Carolina.com to find more individual weights and other spring scales.



Force Meter/Spring Balances

The unique design of this instrument means that it not only weighs suspended objects but also, using the extended

rod, can measure the force pushing or pulling an object. The devices are color-coded, calibrated in grams and newtons, and have a clear, flat area on the rod so you can use a dry-wipe marker to create your own scales. Includes instructions and ideas sheet.

III SU UCUO	is and ideas since
954440	Blue (250 g)
	Each \$21.15
954441	Green (500 g)
	Each \$20.40
954442	Beige (1 kg)
	Each \$20.40
954443	Red (2 kg)
	Each \$20.40
954444	White (3 kg)
	Each \$20.40
954445	Yellow (5 kg)

Each \$20.40



954440 and 954441 Force Meter/Spring Balances



702072 Economy Pull-Spring Scale

Carolina® Metric Weight Sets—OIML Stainless Steel

These weights are suitable for all laboratory work. Supplied in a storage box. OIML class M1; stainless steel; ASTM 4-5.

Marra No.	Weight	2,000 g	1,000 g	500 g	200 g	100 g	50 g	20 g	10 g	5 g	2 g	19	500 mg	200 mg	100 mg	50 mg	20 mg	10 mg	5 mg	2 mg	1 mg	Forceps 31/4 "	Pay ant
Item No.	Description 50 × 1 g						1	1	2	1	2	1											Per set \$106.00
702360	50 × 1 g					_	_	-	2		\vdash	<u> </u>	_	_	_		_			_	_	_	_
702361	100 × 1 mg					1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	Х	\$134.00
702363	200 × 1 mg				1	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	Χ	\$155.00
702370	500 × 1 g			1	2	1	1	2	1	1	2	1											\$165.00
702372	1,000 × 1 g		1	1	2	1	1	2	1	1	2	1											\$264.00



702363 Carolina Metric Weight Set, 200 x 1 mg

702372 Carolina Metric Weight Set, 1,000 × 1 g

Carolina® Metric Weight Set-Hooked

These hooked weights are made of stainless steel and lathe-turned for maximum precision. Supplied in a storage box.

	Weight											
Item No.	Description	1,000 g	500 g	200 g	100 g	50 g	20 g	10 g	5 g	2 g	1 g	Per set
702390	1,000 × 10 g	1	1	2	1	1	2	1				\$172.00

Laboratory Equipment & Supplies Beakers

Glass

Carolina® Standard-Grade Beakers

Economical, high-quality borosilicate beakers that meet ASTM standards. All include a single metric scale and marking spot.

		9 -	
731000	10 mL	Pack of 12	\$37.25
731001	25 mL	Pack of 12	\$38.80
731003	50 mL	Pack of 12	\$37.30
731005	100 mL	Pack of 12	\$39.25
731007	150 mL	Pack of 12	\$38.90
731009	250 mL	Pack of 12	\$37.50
731010	400 mL	Pack of 6	\$22.85
731011	600 mL	Pack of 6	\$28.90
731013	1,000 mL	Pack of 6	\$54.25



731005 Carolina Standard-Grade Beaker, 100 mL



721219 Pyrex Beaker Starter Pack

Pyrex® Beaker Starter Pack

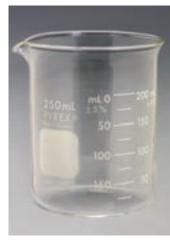
Ideal for a laboratory start-up, when you want a variety of beaker sizes but have limited storage space, or if you seldom need glassware. Pack contains one each of the 5 most popular Pyrex® beaker sizes: 50 mL, 100 mL, 250 mL, 600 mL, and 1,000 mL. Packaged in a partitioned carton for safe transit and storage.

721219 Per pack \$40.90

Pyrex® Griffin Low Form, Glass Beakers, Heavy Duty

Corning® 1003. With spout and approximate graduations. Uniformity of heavy walls and bottom plus rugged construction of the rim withstands impacts and reduces breakage. All include double-graduated metric scale.

graduated metric scale.					
721249	250 mL				
	Each	\$8.95			
	12+ Each	\$8.15			
721250	400 mL				
	Each	\$11.85			
	12+ Each	\$10.70			
721251	600 mL				
	Each	\$13.90			
	6+ Each	\$12.45			
721253	1,000 mL				
	Each	\$26.40			
	6± Fach	\$23.85			



721249 Griffin Glass Beaker, Low Form, Heavy Duty, 250 mL

Pyrex[®] Vista[™] Beakers

Corning® 70000. Standard Griffin beakers with spout, manufactured to provide balance between thermal shock resistance and mechanical strength. For convenience, the 250- through 1,000-mL beakers have a double-graduated metric scale to indicate approximate content. All sizes have an extra-large marking spot. The 10-mL size is not graduated. The beakers are designed to ASTM E-960 standards. Case quantities are available at Carolina.com.



721116 Pyrex Vista Beaker, 250 mL

10 mL	Pack of 12	\$49.60	2+ Packs Each	\$42.35
20 mL	Pack of 12	\$47.05	2+ Packs Each	\$40.75
30 mL	Pack of 12	\$41.40	2+ Packs Each	\$35.10
50 mL	Pack of 12	\$42.40	2+ Packs Each	\$36.10
100 mL	Pack of 12	\$44.50	2+ Packs Each	\$37.80
150 mL	Pack of 12	\$43.30	2+ Packs Each	\$37.00
250 mL	Pack of 12	\$42.60	2+ Packs Each	\$37.05
400 mL	Pack of 12	\$49.75	2+ Packs Each	\$42.95
600 mL	Pack of 6	\$31.95	2+ Packs Each	\$27.75
1,000 mL	Pack of 6	\$60.40	2+ Packs Each	\$52.40
	20 mL 30 mL 50 mL 100 mL 150 mL 250 mL 400 mL 600 mL	20 mL Pack of 12 30 mL Pack of 12 50 mL Pack of 12 100 mL Pack of 12 150 mL Pack of 12 250 mL Pack of 12 400 mL Pack of 6	20 mL Pack of 12 \$47.05 30 mL Pack of 12 \$41.40 50 mL Pack of 12 \$42.40 100 mL Pack of 12 \$44.50 150 mL Pack of 12 \$43.30 250 mL Pack of 12 \$42.60 400 mL Pack of 12 \$49.75 600 mL Pack of 6 \$31.95	20 mL Pack of 12 \$47.05 2+ Packs Each 30 mL Pack of 12 \$41.40 2+ Packs Each 50 mL Pack of 12 \$42.40 2+ Packs Each 100 mL Pack of 12 \$44.50 2+ Packs Each 150 mL Pack of 12 \$43.30 2+ Packs Each 250 mL Pack of 12 \$42.60 2+ Packs Each 400 mL Pack of 12 \$49.75 2+ Packs Each 600 mL Pack of 6 \$31.95 2+ Packs Each

Customer Review

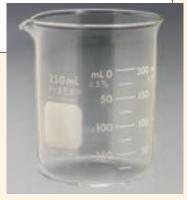
"Fragile products kept from damage by effective packing. Good timely response from Carolina personnel when I emailed with a

question about the order."

Lab Manager

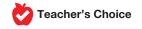
Pyrex® Griffin Glass Beakers, Low Form, Measuring

Corning® 1000. With approximate graduations. For convenience, the 250- through 4,000-mL beakers have a double-graduated metric scale to indicate approximate content. Case quantities are available at Carolina.com.



721209 Pyrex Griffin Glass Beaker, Low Form, Measuring, 250 mL

721202 721205 721206 721207 721208 721209 721210 721211 721213 721215 721217	10 mL 30 mL 50 mL 100 mL 150 mL 250 mL 400 mL 600 mL 1,000 mL 2,000 mL 4,000 mL	Each Each Each Each Each Each Each Each	\$5.70 \$5.00 \$5.00 \$5.30 \$5.00 \$5.95 \$7.25 \$13.90 \$27.40 \$85.95	12+ Each 12+ Each 12+ Each 12+ Each 12+ Each 12+ Each 12+ Each 12+ Each 8+ Each 6+ Each	\$5.30 \$4.60 \$4.60 \$4.70 \$4.70 \$5.45 \$6.80 \$13.40 \$25.30 \$78.70
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Beakers Plastic

Laboratory Equipment & Supplies



Nalgene Griffin Beakers, Low Form, Polypropylene

Nalgene® Griffin Beakers, Low Form

Beakers have easy-to-read, silk-screened graduations; size code; resin code; maximum use temperature; and "no flame" symbol for easy identification by students. Choose from polymethylpentene (PMP) or polypropylene (PP). Polypropylene features superior chemical resistance and is for general laboratory use. Polymethylpentene provides a glass-like clarity along with excellent chemical resistance and remarkable heat tolerance. Plastic beakers are not intended for use on hot plates, but both plastic beakers can withstand autoclaving. All beakers meet the ISO/DIS 7056 International Standards for laboratory plasticware beakers.

717900	PMP; 50 mL	Each	\$6.05	12+ Each	\$4.90
717902	PMP; 100 mL	Each	\$7.20	12+ Each	\$6.95
717904	PMP; 250 mL	Each	\$11.95	12+ Each	\$11.60
717906	PMP; 400 mL	Each	\$17.30	12+ Each	\$16.70
717908	PMP; 600 mL	Each	\$21.60	12+ Each	\$21.00
717910	PMP; 1,000 mL	Each	\$26.50	12+ Each	\$25.70
717870	PP; 50 mL	Each	\$4.25	12+ Each	\$4.15
717872	PP; 100 mL	Each	\$4.90	12+ Each	\$4.75
717874	PP; 250 mL	Each	\$8.55	12+ Each	\$8.45
717876	PP; 400 mL	Each	\$12.20	12+ Each	\$12.00
717878	PP; 600 mL	Each	\$15.65	12+ Each	\$15.15
717880	PP; 1,000 mL	Each	\$19.10	12+ Each	\$18.50



721480 Plastic Beaker Starter Pack, Polypropylene

Plastic Beaker Starter Pack

These plastic (polypropylene) beakers are a safe, convenient alternative to glass and even other plastic Griffin-style beakers. The innovative square ratio design makes the difference. The vertical lip around the top of each beaker helps to contain many spills that may occur with the rounded design of a Griffin-style beaker. In addition, the vertical lip allows the beakers to be stacked together to maximize storage. Each pack includes 1 each of the 5 most popular sizes: 50 mL, 100 mL, 250 mL, 600 mL, and 1,000 mL.

721480 Per pack \$29.55



Polypropylene Beakers

Polypropylene Beakers

Basic polypropylene beakers with raised graduations and tapered spout. Beakers have very good chemical resistance and are autoclavable.

717920	$25 \times 5 \text{ mL}$	Pack of 12	\$23.80
717921	$50 \times 5 \text{ mL}$	Pack of 12	\$24.40
717922	$100 \times 5 \text{ mL}$	Pack of 12	\$24.75
717923	$250 \times 10 \text{ mL}$	Pack of 6	\$20.50
717924	$500 \times 10 \text{ mL}$	Pack of 4	\$21.40
717925	$1,000 \times 25 \text{ mL}$	Pack of 3	\$21.10

Ultimate Polypropylene Beaker Set

This complete laboratory polypropylene beaker set contains 1 pack of items #717920, #717921, #717922, #717923, #717924, and #717925, a total of 49 beakers for all your needs.

717926 Per set \$115.40



721444 Polypropylene Beaker with Handle, 1,000 mL

Polypropylene Beakers with Handles

Tall form. Made of transparent, autoclavable polypropylene. Graduated in mL.

721443	500 mL (10 mL)	Each	\$9.25
721444	1,000 mL (10 mL)	Each	\$9.55
721445	2,000 mL (20 mL)	Each	\$11.40

Blenders/Bottles

Laboratory Equipment & Supplies Blenders

Waring Single-Speed Blender A

Complete with heat-resistant, 1-qt glass container, stainless-steel blades, and 2-piece removable measuring cup lid. Sand enamel base with chrome top. 120-V AC. UL® approved.

701900 Each \$385.00

Waring 2-Speed Blender A

Complete with 1-qt, stainless-steel container. Positive push-button, solid-state control. Zinc die-cast enameled base. With 3-wire power cord. 120-V AC. UL® approved.

701908 Each \$568.00



701900 Waring Single-Speed Blender



701908 Waring 2-Speed Blender

Bottles

Glass

Wheaton Redi-Pak® Clear Boston Rounds with Caps Hazard-communication and tamper-evident labels included FREE!

These narrowmouthed bottles are ideal for solvents, chemicals, and sample storage. The black phenolic caps feature a Poly-Seal® liner with a unique cone design that provides a wedge seal across the top and also across the inside diameter. The liner is stress crack resistant and offers superior torque retention. The Clear Boston Rounds are manufactured from Wheaton "800" glass that meets general USP Type III standards. To purchase Amber Boston Rounds, please visit our website at Carolina.com. Sold by the case.

Item No.	Capacity	Diam/H	Case Qty	Per Case
715751	1 oz (30 mL)	$31 \times 79 \text{ mm}$	48	\$79.45
715752	2 oz (60 mL)	$39\times94~\text{mm}$	24	\$39.35
715753	4 oz (120 mL)	$48 \times 112 \text{ mm}$	24	\$47.10
715754	8 oz (250 mL)	60 × 136 mm	12	\$38.25
715755	16 oz (500 mL)	$75 \times 168 \text{ mm}$	12	\$44.65



Visit Carolina.com for amber bottles.

715755 Wheaton Redi-Pak Clear Boston Round, 16 oz (500 mL), with Cap

Bottles

Laboratory Equipment & Supplies



716284 Glass Sampling Bottle, 125 mL



716222 Pyrex Square Glass Bottle, 500 mL

Glass Sampling Bottles

Wheaton. Borosilicate glass. Widemouthed opening speeds collection. Supplied with PTFE-lined screw caps. Caps and bottles can be autoclaved. Graduated bottles show approximate volume and have label space for pencil markings.

716284 125 mL Each \$11.05 48+ Each \$10.80

Pyrex® Square Glass Bottles

These square bottles from Corning® are durable, save up to 20% of shelf space, and are shaped to minimize glass contact during autoclaving. Bottles include orange polypropylene caps.

Item No.	Capacity	Thread	Width	Height	Each
716220	100 mL	32 GL	51 mm	109 mm	\$16.35
716221	250 mL	45 GL	64 mm	143 mm	\$17.60
716222	500 mL	45 GL	78 mm	181 mm	\$21.80
716223	1,000 mL	45 GL	94 mm	222 mm	\$28.45

Plastic

Polyethylene Widemouthed Bottles

Translucent, high-density, polyethylene bottles with natural polypropylene screw closures. Wide mouth allows for easy cleaning.

716256	125 mL	Each	\$2.15
		12+ Each	\$2.10
716257	250 mL	Each	\$2.50
		12+ Each	\$2.45
716258	500 mL	Each	\$3.75
		12+ Each	\$3.60
716259	1,000 mL	Each	\$6.90
		12+ Each	\$6.70



716258 Polyethylene Widemouthed Bottle, 500 mL

Low-Density Polyethylene Widemouthed Unitary Wash Bottles

Bottle and tubing are molded in 1 piece for strength—no leaks. Entire contents can be dispensed without tipping or shaking. Dispensing tip delivers fine stream or can be cut back to increase flow.

716580	125 mL	Each 12+ Each	\$6.10 \$5.85
716582	250 mL	Each 12+ Each	\$7.05 \$6.80
716584	500 mL	Each 12+ Each	\$8.80 \$8.60



716582 Low-Density Polyethylene Widemouthed Unitary Wash Bottle, 250 mL

High-Density Polyethylene Narrowmouthed Bottles

Translucent and rigid. Leakproof closures. Ideal for storing, shipping, and packaging liquids.

716312	125 mL	Each	\$2.15
716314	250 mL	12+ Each Each	\$2.10 \$3.20
716316	500 ml	12+ Each Each	\$3.10 \$4.35
		12+ Each	\$4.20
716318	1,000 mL	Each 12+ Fach	\$7.70 \$7.50



716312 High-Density Polyethylene Narrowmouthed Bottle, 125 mL

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.

See more bottles on the next page.



716592 Widemouthed Wash Bottle, 250 mL

716606 Safety-Labeled Wash Bottle, Water (blue)

Widemouthed Wash Bottles

Combines widemouthed convenience and easy-filling capability. Waist is slim enough to assure firm grip. Consists of 1-piece cap and nozzle plus delivery tube. Delivers single drop or needle-sharp stream. Tip can be cut back to increase delivery amount.

716592	250 mL (8 oz)	Each	\$5.40
716504	F00 ml (10 a=)	12+ Each	\$5.10 \$6.10
716594	500 mL (16 oz)	Each 6+ Each	\$5.75
716596	1,000 mL (32 oz)	Each	\$9.35
		3+ Each	\$8.55

707110 Nalgene Polypropylene Pneumatic Trough

Bottles

Safety-Labeled Wash Bottles

These wash bottles ensure leakproof dispensing of your most common solvents in the laboratory. Easyto-read, LDPE solvent-resistant printed bottles include DOT and NFPA codes and symbols, CAS numbers, protective equipment symbols, and target organ information, making your laboratory a safer place. Each bottle includes color-coded cap with wash tube. Size, 500 ml

716603	Ethanol	Each 6+ Fach	\$7.10 \$6.60
716604	Isopropanol	Each 6+ Fach	\$7.10 \$6.60
716606	Water (blue)	Each 6+ Fach	\$7.10 \$6.60
716607	Acetone (red)	Each 6+ Each	\$7.10 \$6.60
716609	Hand Soap	Each 6+ Fach	\$7.10 \$6.60
716611	Water (deionized)	Each	\$7.10
716613	Water (distilled)	6+ Each Each	\$6.60 \$7.10
716614	Bleach (yellow)	6+ Each Each 6+ Each	\$6.60 \$7.10 \$6.60

Nalgene® Polypropylene **Pneumatic Trough**

Aqua-colored trough is resilient, rustproof, lightweight, and noise free. Built-in bridge. Holds four 8-oz widemouthed bottles. Inlet connection and overflow outlet take 1/4"-diam tubing.

707110 Each \$48.95 6+ Each \$47.95

Dropping Bottles

Squat-Form Glass Dropping Bottle

Wheaton. Hood stopper. Borosilicate glass bottles with metric measure. Top arrangement insures accurate control to deliver contents drop by drop. Size, 100 mL. 716406 Each \$24.60 12+ Each \$24.10

Glass Screw-Cap Dropper Vials

Nipples and droppers are attached to caps.

Item No.	Size	Diam	Height	Pack of 12
716434	1/4 OZ	19 mm	50 mm	\$40.10
716438	1 oz	32 mm	90 mm	\$33 15



716406 Squat-Form Glass Dropping Bottle



716438 Glass Screw-Cap Dropper Vial 1 oz



716448 Amber Dropping Bottles, 1 oz

Customer Review

"Perfect when using small quantities. Very easy to use and great for any liquids."

Chemistry Student

716525 Barnes Dropping Bottle, 30 mL



Barnes Dropping Bottle, 30 mL

With bulb and pipet.

716525 Bottle

Each \$2.60 36+ Each \$2.35 Extra Pipet with Bulb 716527

Each \$1.05 100+ Each \$.95

Amber Dropping Bottles

Amber bottles help protect light-sensitive materials. These bottles come in a 1/2-oz and a 1-oz round design. Both with dropper assembly.

716446 1/2 oz Pack of 12 \$29.85 **716448** 1 oz Pack of 12 \$34.25

Bottles/Brushes



736905 Glass Medicine Droppers, Straight Tip, 41/2"

Glass Medicine Droppers

Pipets with 1-mL rubber nipples.

736903 Straight Tip, 4" Pack of 12 **\$5.05 736905** Straight Tip, 4¹/₂" Pack of 12 **\$5.20**

Plastic Medicine Dropper

Pipet with 1-mL rubber nipple. Overall length, $3^{1}/_{2}$ ". **736913** Pack of 12 **\$5.85**

Dispensing Bottles

Scienceware®. These polyethylene dispensing bottles seal well for shipping and repeated use. Tip has a 0.03" (0.76 mm) opening with a sealer cap that snaps on.

716541	1 oz	Each	\$2.00	36+ Each	\$1.90
716542	2 oz	Each	\$2.15	36+ Each	\$2.05
716543	4 oz	Each	\$2.80	36+ Each	\$2.65

Laboratory Equipment & Supplies



736913 Plastic Medicine Dropper



716543 Dispensing Bottle, 4 oz



716550 Plastic Dropping Bottle, 15 mL



716567 Drop-Dispenser Bottle, 60 mL

Plastic Dropping Bottles

Wheaton. Feature snap-fit dropping tips which can be removed for refilling. Bottles and tips are made of polyethylene and screw caps are polystyrene. Bottles have been treated to take paper labels or may be labeled with marking pen.

716549	7 mL	Each	\$2.70	36+ Each	\$2.50
716550	15 mL	Each	\$2.70	36+ Each	\$2.60
716552	30 mL	Each	\$3.10	36+ Each	\$2.90
716554	60 mL	Each	\$3.50	36+ Each	\$3.30
716556	125 ml	Fach	\$5.25	36+ Fach	\$5.05

Drop-Dispenser Bottles

Nalgene®. Low-density polyethylene. Always dispenses just 1 drop at a time, with convenient, 1-hand operation. Captive spout cap won't pop out or leak when bottle is squeezed; can't be lost.

716565	15 mL	Each	\$4.10	12+ Each	\$4.00
716566	30 mL	Each	\$4.95	12+ Each	\$4.85
716567	60 mL	Each	\$5.40	12+ Each	\$5.25
716568	125 ml	Fach	\$6.55	12+ Fach	\$6.35

Brushes

Test Tube Brushes

Natural (non-synthetic) or white, bleached nylon bristles with radial tips on galvanized wire shafts. Will not scratch your glass tubes.

Natural Bristle Test Tube Brushes

Won't scratch your glass tubes

Natural bristles with radial tips on galvanized wire shafts.

Item No.	For Tube Diameter	Overall Length	Diam/L	Each	12+ Each
706070	To 10 mm	8"	1/2/3"	\$2.30	\$2.20
706072	To 16 mm	9"	3/4/31/4"	\$2.30	\$2.25
706074	16 to 25 mm	10"	1/3"	\$2.55	\$2.45

706072 Natural Bristle Test Tube Brush

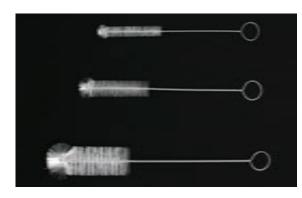


White Nylon Bristle Test Tube Brushes

Won't scratch your glass tubes

White, bleached nylon bristles with radial tips on galvanized wire shafts.

Item No.	For Tube Diameter	Overall Length	Diam/L	Each	12+ Each
706060	To 10 mm	8"	1/2/3"	\$2.30	\$2.25
706062	To 16 mm	9"	3/4/31/4"	\$2.75	\$2.70
706064	16 to 25 mm	10"	1/3"	\$3.25	\$3.10



(top to bottom) 706060, 706062, and 706064 White Nylon Bristle Test Tube Brushes

Other Brushes



706083 Labware Flask and Small Cylinder Brush



706084 Labware Large Cylinder Brush

706173 Table or Counter Brush

Flagged polystyrene bristles. Dusting face, about 4×8 ";

706173 Each **\$19.35** 12+ Each **\$18.55**

Table or Counter Brush

bristles, 21/2"; overall length, 131/4".

1044



706082 Labware Beaker Brush

Labware Wash Brushes Last longer than other bristle brushes!

Save money with these long-lasting brushes that last up to 10 times longer than other laboratory brushes and up to 20 times longer than other high-quality sponges. These extraordinary wash brushes are designed specifically for washing laboratory glassware and plasticware. The special formula foam bristles do not absorb water and do not become soggy and limp. Special formula foam will not scratch, chip, or break glassware and will not mar plasticware. Brushes are sold separately or in sets of all 3.

Item No.	Description	Dimensions	Overall Length	Each
706082	Beaker Brush	$3^{\prime\prime}~L\times 2^{1}\!/_{2}^{\prime\prime}~W$	10"	\$11.10
706083	Flask and Small Cylinder Brush	15" L \times $^{3}/_{4}$ " W	17"	\$13.00
706084	Large Cylinder Brush	$3^{\prime\prime}~L\times 2^{1}/_{2}^{\prime\prime}~W$	181/2"	\$13.00
706085	Set (1 each of the above)			\$33.05



706102 Balance Brush



706100 Beaker and Jar Brush

Balance Brush

This camel-hair, domed brush is perfect for keeping your balance free of unwanted powder and dust. Brush part, $1^{1}/_{2}$ " L, $^{3}/_{4}$ " diam; total length, $8^{3}/_{8}$ ".

706102 Each **\$17.45** 12+ Each **\$16.95**



706116 Beaker Brush

Beaker Brush

Made of white bleached nylon, $^3/_4$ "-diam plastic handle. Brush part, 5" L, $^23/_8$ " diam at base of brush tapering to 3" at tip; total length, 16".

706116 Each **\$28.05** 12+ Each **\$27.05**

Beaker and Jar Brush

Made of black china bristle on rust-resistant wire with hardwood handle. Brush part, $6"\ L,\ 3"\ diam;$ total length, 16".

706100 Each **\$12.05** 12+ Each **\$11.90**



706140 Volumetric Flask Brush

Volumetric Flask Brush

Made of white unbleached bristles on galvanized wire, mounted on spring steel with plastic handle. For 250-mL flask; brush part is $3^1/2^{"}$ L, $1^3/8^{"}$ diam.

706140 Each \$6.05 12+ Each \$5.75

Burets

Laboratory Equipment & Supplies

Burets

738050 Complete Single Buret Assembly



738151 Student-Grade **Buret Tip Assembly**



738150 Student-Grade Pinchcock Buret with Tip Assembly, 50 mL



Glass Stopcock Buret,

Complete Single Buret Assembly A

This quick, convenient buret setup contains all the necessary equipment and is more cost-effective than purchasing the items individually. Includes a 50 imes0.1-mL glass buret, a medium-size support stand with rod, and a buret clamp with coated jaws. The student-grade buret has a PTFE stopcock for long use. The base on the support stand is 5×8 " and the rod measures $20 \times 3/8$ ". The clamp opens from 3/8 to 13/8" and fits rods up to 1/2" in diameter.

738050 Per set \$80.00

Student-Grade Burets

These quality, student-grade burets are made of borosilicate glass, have white engraved markings in 0.1-mL intervals, and provide thick wall construction.

738150	Pinchcock Buret with Tip Assembly, 50 mL	Each	\$18.75
738151	Buret Tip Assembly	Each	\$5.50
738152	Glass Stopcock Buret, 50 mL	Each	\$43.95
738153	PTFE Stopcock Buret, 50 mL	Each	\$64.30



738153 Student-Grade PTFE Stopcock Buret,



738092 Pyrex Buret. Straight Stopcock with PTFE Plug



Three-Part Buret



Transparent Acrylic Buret

Pyrex® Burets, Straight Stopcock with PTFE Plug

Corning® 2122A. These burets are suitable for use in school and institutional laboratories not requiring the accuracy of Class A models. Units come complete with a PTFE stopcock plug. The tips are carefully drawn for accuracy to ensure proper drainage rate. Each buret is supplied with a dust cover. These burets have durable, colored markings.

738090 $50 \times 0.1 \text{ mL (subd)}$ Each \$169.00 **738092** $100 \times 0.2 \text{ mL (subd)}$ Each **\$203.00**

Three-Part Buret

Pyrex®. Corning® 2116. Capacity, 50 mL with graduations at 0.1-mL intervals. Overall size, about 725 mm H. Glass tip and body can be replaced in event of breakage. With PTFE No. 2 stopcock and white graduations. Supplied with dust cover.

738093 Buret **\$96.15** 12+ Each **\$90.15** Fach

738095 Replacement Tip \$8.55

Transparent Acrylic Buret

Clear, break-resistant 50-mL buret with graduations at 0.1-mL intervals. Individually calibrated. Stopcock is leakproof with self-lubricating PTFE plug. Unaffected by dilute acids and bases used as titrants, but avoid exposure to alcohol and organic solvents.

738144 Each \$77.95 4+ Each \$72.95

Burners

Laboratory Equipment & Supplies **Burners**

Alcohol



706604 Alcohol Lamp with Metal Cap and 706605 Replacement Wicks

Alcohol Lamp with Metal Cap

This burner has a metal screw-cap and metal cap for extinguishing flame and preventing evaporation. Size, 4 oz. Replacement Wicks available.

1 706604 Lamp Each \$11.50 12+ Each \$11.10 706605 Replacement Wicks

\$8.20 Pack of 12



706625 Alcohol Burner Stand

Alcohol Burner Stand A

Made of steel wire, chrome plated. Stand has a heavy wire-gauge top. Overall height is 5" to accommodate all sizes of burners. Top is 3×3 ".

706625 Each \$6.65

Carolina Teacher Tips

For Alcohol Burners and Lamps

Use 95% ethanol in our alcohol burners and lamps.



706616 Wickless Alcohol Burner

Wickless Alcohol Burner 🕰

Tip-resistant alcohol burner uses a copper-plated torch instead of a wick for even heat distribution. Even when tipped, the burner will not leak. Holds up to 95 mL of denatured alcohol and will burn for over an hour. Fach burner comes with an aluminum snuffer cap. Overall height, 3".

706616 Each \$23.00

Portable



706730 Laboratory Burner

Laboratory Burner A

A portable self-contained burner ideal for biology and chemistry labs or for field use. Includes burner head and butane cartridge. Has adjustable flame and air intake regulator. Burning time is 4 to 5 hours.

706730 Burner Each \$74.95 Replacement Cartridge (165 g) 706731 Each \$17.10



706733 Butane Micro Burner shown with 706734 Micro Burner Stand

Butane Micro Burner A

This easy-to-operate, portable butane burner delivers trigger ignition and an adjustable flame control. The easy-grip handle, with simple on/off control and steady, tip-resistant design, makes for a safe and portable burner almost anywhere in the lab or work area. The flame can reach a maximum temperature of approximately 1,300° C (2,450° F). The burner is refueled quickly and easily with Butane Fuel. Diameter of base, $3^{1}/\!_{8}";$ overall dimensions, $3^{1}/\!_{4}"$ H \times 5" L (longest part); wt, 270 g. An optional Micro Burner Stand is available. Note: Burner is shipped empty; butane fuel is required for use.

706733 Butane Micro Burner Each \$76.55 706734 Micro Burner Stand Each \$17.50 706735 Butane Fuel (3.38 oz) Each \$7.85

Burners/Carboys Bunsen

Bunsen Burner with Stabilizer Top A

For cylinder (LP) gas.

706704 Each \$27.60 12+ Each \$26.60

Bunsen Burner with Stabilizer Top A

For natural gas. Meets Federal Specs NNN-B-795. 706706 Each \$28.70 12+ Each \$27.70

Bunsen Burners A

Adjustable. With air and needle valve gas adjustments. Height, 6¹/₈"; tube diameter, ⁷/₁₆".

706709	Natural Gas	Each	\$30.85
		12+ Each	\$29.60
706710	LP	Each	\$30.85
		12∓ Fach	\$29 60

Tirrill Burner A

For natural gas, With flame stabilizer, Meets Federal Specs NNN-B-795. Leakproof needle valve adjustment.

706665 Each \$37.85 12+ Each \$36.35



High-Temperature Burner 113

For natural gas. Meker type. Produces a very hot flame as for heating platinum wire. Cap has honeycombed, monel grid that forms many uniform blue (hot) cones. One-piece, chrome-plated venturi tube. Overall height, 81/2".

706646 Each \$88.60

706646

High-Temperature Burner

Laboratory Equipment & Supplies







706706 Bunsen Burner with Stabilizer Top



706709 Bunsen Burner. Natural Gas



706665 Tirrill Burner

Burner Accessories

Gas Lighter A

Flint-type lighter designed for 1-hand operation. Produces strong sparks. Made of rust-resistant wire.

706630 Lighter Each \$4.05 10+ Each \$3.75 **706632** Renewal Flints Pack of 15 \$6.65

Piezoelectric Gas Lighter

Safe, no open flame, no fire hazard, no fuel refills, no flint striking, no batteries, Small, self-contained generator produces a burst of 6 to 8 electrical sparks at 20 kV.

706635 Each \$55.00

Burner Tubing

Flexible steel; ID, 5/16". Rubber covered for gas-tightness. Rubber connectors at both ends. Burner tubing fits all burners items #706646 through #706710.

706770 2-ft Length Each \$20.05 **706772** 3-ft Length Each \$24.35 **706774** 4-ft Length Each \$28.50





Carboys

Polypropylene **Carboys**

These heavy-duty, autoclavable polypropylene carboys get the job done. Many features make these carboys your best choice:

- · Easy to fill and pour with the offset neck
- · Easy to carry with handles
- · Leakproof, heavy-



Polypropylene Carboys

duty stopcock with boss fitting for extra strength

Front-molded graduations for easy reading even when used in a row

716390 5 L Each \$86.95 \$120.20 716391 10 L Each 716392 20 L Each \$141.05

Dispensing Jug

Scienceware®. The Dispensing Jug allows you to conveniently store up to 20 L (5 gal) of liquid that you can dispense directly from the jug. The spigot hangs over the edge of a table or shelf for easy access. Molded of high-density polyethylene, the jug features rounded corners, a sturdy handle, and a bottom grip for easier pouring. The thread-mounted spigot is made of low-density polyethylene and opens with a quarter turn. The dispensing jug is graduated in gallons. Jug dimensions are $25 \times 25 \times 38$ cm (9⁴/₅ \times 9⁴/₅ \times 15" H). The screw-capped fill opening is 52 mm (2") in diameter. A screw-capped side opening



is 26 mm (1") in diameter. The spigot extends 108 mm (41/4") from the jug. The outlet tube is 35 mm ($1^2/5$ ") L and 16 mm (3/5") in diameter.

716380 Each \$56.40

Visit Carolina.com for more carboys.

Centrifuges

Laboratory Equipment & Supplies **Centrifuges**



Hand-Driven Centrifuge

This single-speed hand-driven machine is ideal for teaching the concept of centrifugation in the classroom. It consists of a heavy-duty, cast-iron body that uses a steel pinion and worm gear. The centrifuge clamps to a table, and the head accommodates four 15-mL centrifuge tubes (included).

701816 Each \$116.00

Labnet Prism™ R Refrigerated Microcentrifuge

This compact, quiet microcentrifuge from a manufacturer with 25 years of experience attains 4° C in just 8 minutes and maintains the set temperature at maximum speed. Its large digital LCD is easy to use and read. The Prism™ R features a brushless, maintenance-free motor and an imbalance detection system that automatically shuts down 214040 Labnet operation if there is a significant imbalance. The Prism R Refrigerated solid aluminum rotor is designed for easy tube removal Microcentrifuge and can be autoclaved. Individual tube slots support tubes

along their length and contain the sample in the event of tube failure. In addition, the rotor has a domed lid to accommodate screw-cap microtubes and spin columns. Adapters for 0.5/0.6-mL and 0.2-mL PCR tubes can be purchased separately. Also available is a StripSpin Adapter that snaps on top of the rotor for spinning 0.2-mL tubes and PCR strips (2 PCR strips or sixteen 0.2-mL tubes). Two-year manufacturer's warranty.

Specifications:

Maximum Speed: 13,500 rpm Maximum G Force: $17,135 \times g$

Timer: 0.5 to 99 min or continuous (also has quick spin button

for momentary spins)

Temperature Range: -10 to 40° C

Rotor Capacity: 24 × 1.5/2.0-mL microtubes 56 dB (with compressor on) Noise Level: Dimensions: $10^{9}/_{10}$ " W × 17" D × $9^{3}/_{4}$ " H

Weight:

115 V, 50/60 Hz, 500 W Electrical:

214040 Prism R Refrigerated Microcentrifuge \$6.624.00 Each 214041 StripSpin Adapter \$130.00 Each 214042 Adapters for 0.5/0.6-mL Tubes Pack of 6 \$56.11 214043 Adapters for 0.2-mL Tubes \$55.95 Pack of 6

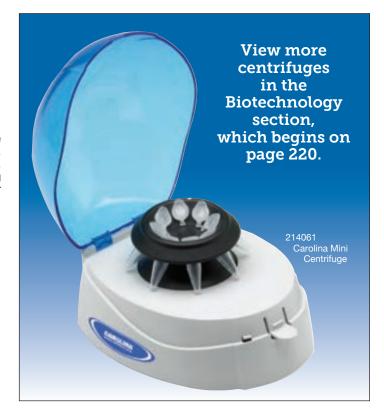


214092 Carolina Centrifuge

Carolina® Centrifuge

The centrifuge is designed for a wide range of applications in clinical and research laboratories. Its 8-position rotor accepts a variety of tubes (optional adapters may be necessary and are sold separately) and removes easily from the chamber for cleaning. The backlit LCD provides full control over run time and rotational speed. A momentary switch is provided for short spins. For safety, the centrifuge's microprocessor confirms that the lid has been closed and the safety lid lock is engaged prior to start. An advanced imbalance detection system constantly monitors balance and vibration, automatically bringing the rotor to a stop if an imbalance is detected. Twoyear warranty. Visit Carolina.com for more features and specifications.

⚠ 214092 Carolina Centrifuge Each \$511.50 214093 Centrifuge Adapters Set of 8 \$117.00



Clamps **Clamps**

707310 Small V-Jaw Clamp Holder

Small V-Jaw Clamp Holder A

For attaching extension rings and clamps to supports. Clamp accommodates rods up to 1/2" diam.

707310 Each \$12.70 12+ Each \$12.30



707362 Buret Clamp

Buret Clamp A3

Round, plastisol-coated jaws. Opens 3/8 to 13/8". Accommodates rods up to 1/2" diam. Overall length, 63/8".

707362 Each \$13.25 12+ Each \$13.00



707340 Lincoln Buret Clamp

Lincoln Buret Clamp

Stamped steel. The center-to-center distance between burets is 75/8". The overall width is 9". Will hold burets from 1/4 to 5/8" in diameter.

707340 Each \$19.70 12+ Each \$19.50



707376 Large Extension Clamp

Large Extension Clamp

Three-prong, vinyl-dipped jaws hold objects up to 31/2", operate independently, and adapt to different contours. Solid aluminum extension rod, 7/16" diam; brass pivot pin, 11" L.

707376 Each \$67.00

Laboratory Equipment & Supplies



707320 Universal Clamp Holder

Universal Clamp Holder

Constructed in 2 sections with swivel joints. Holds rods up to 1/2" diam.

707320 Each \$22.45 12+ Each \$21.50



707363 Single Buret Clamp

Single Buret Clamp

Strong die-cast clamp holds 1 buret. Spring-loaded handles hold buret securely. Rubber-covered grips prevent scratches. Accommodates rods up to 1/2" diam

707363 Each \$12.80



Hoffman Screw Compressor Clamp A

707341 Double Buret

Clamp

Strong die-cast clamp holds 2 burets at once. Spring-

loaded handles hold burets securely. Rubber-covered grips prevent scratches. Accommodates rods up to 1/2"

Double Buret Clamp

707341 Each \$17.85

diam.

Strong, heavy forged brass, nickel plated. Opening size, $\frac{1}{2} \times \frac{13}{16}$ ". Overall size, $\frac{3}{4} \times 1^{\frac{1}{8}}$ ".

707403 Hoffman Screw Compressor Clamp

707403 Each \$4.50 12+ Each \$4.40



707422 Spring Compressor Clamp

Spring Compressor Clamp

Made of very strong, flat spring brass wire with rounded edges. Nickel-plated. Size, 23/4".

707422 Each \$4.70 12+ Each \$4.55





707365 Thermometer Clamp

Thermometer Clamp

Fully adjustable, 360° rotation of jaws; clamp attaches to rods up to 3/4" diam. Overall length, 51/2".

707365 Each **\$22.65** 12+ Each **\$22.05**

Visit Carolina.com for additional clamps.



707360 Buret Clamp

Buret Clamp A

Round jaws. Adjustable from $4^1\!/_4$ to 5". Opens $^3\!/_8$ to $1^3\!/_8".$ Accommodates rods up to $^1\!/_2"$ diam.

707360 Each **\$11.65** 12+ Each **\$11.45**



Utility Clamp

Vinyl-covered, 3-prong clamp grips objects securely and does not scratch glass. Clamp rotates 360° and can be locked in any position. Jaws open to $3^{1}/_{2}^{"}$ W. Accommodates rods up to 3^{4} diam.

707377 Each \$19.70

Clamps/Cleaning Supplies



707378 Small Utility or Buret Clamp

Small Utility or Buret Clamp

Three-prong, vinyl-dipped jaws hold flat or round objects up to $2^1/2^{\shortparallel}$. Special clamp holder rotates 360° . Distance between apparatus center and support rod adjustable from $3^3/_4$ to $5^1/_2^{\shortparallel}$. Length, 7^{\shortparallel} . Comes with clamp holder.

707378 Each \$69.00

Cleaning Supplies



DuPont® Cellulose Sponge

Natural color. For all laboratory cleaning and drying. Easily cleaned. Size, 1 \times 3 $^{1}/_{2}$ \times 6".

706202 Each **\$3.35**

Cotton Balls

Convenient and easy to use; no waste. Medium. Case of 4,000.

712672 Each \$61.05



Kimwipes Cleaning Tissue

Kimwipes® Cleaning Tissue

For cleaning, drying, and polishing. Very absorbent and will not scratch or deposit lint. Packaged in pop-up dispensing box.



633953 Heavy-Duty Cleaning Towels

Heavy-Duty Cleaning Towels

White, soft, and absorbent, yet extremely durable in water or solvents. Available in pop-up dispensing box. Size, $9^{3/4} \times 16^{3/4}$ "; 100 per box.

633953 Per box \$27.80

Paper Towels

White, perforated, 2-ply paper towels for general use. 90 sheets per roll.

633954 Per roll \$3.85



See our complete line of PPE starting on page 995.



Condensers/Crucibles

Condensers

Liebig Condenser

Pyrex®. Corning® 2340. With inner tube sealed in. Recommended for distillation of high boiling liquids. The adapter end on all sizes is tooled to fit a No. 3 rubber stopper. Jacket length is 200 mm.

725612 Each \$102.25

Graham Coil-Type Condenser

The coils inside this condenser provide better cooling efficiency because of the increased surface area. Made of borosilicate glass. Size, 300 mm.

725631 Each \$73.85

Distillation/Distilling Apparatus

This complete distillation/distilling apparatus includes a 500-mL, round-bottom, borosilicate distillation flask with side tube; 300-mm Graham condenser; 250-mL Erlenmeyer flask; glass stopper; 6 \times 9" support stand with 24" rod; swivel buret clamp; extension clamp; and clamp holder. Graham condenser requires $^5/_{16}$ " tubing.

725634 Each \$244.00

Laboratory Equipment & Supplies



725612 Liebig Condenser



725631 Graham Coil-Type Condenser



725634 Distillation/Distilling Apparatus

Crucibles

Porcelain Crucibles, High Form

Porcelain crucibles come without lids. Order items #742512 and #742513 Porcelain Crucible Lids.

Item No.	Rim Diam	Bottom Diam	Height	Capacity	Each
742502	40 mm	25 mm	46 mm	30 mL	\$5.25
742503	43 mm	28 mm	58 mm	50 mL	\$7.70

Porcelain Crucible Lids

For crucibles items #742502 and #742503. Lids do not fit Coors crucibles.

742512 30 mL Each **\$2.80 742513** 50 mL Each **\$3.05**

Porcelain Crucibles, High Form

Coors 230. Glazed inside and out, except outside bottoms. Without covers.

Item No.	Diam/H	Capacity	Each
742604	35 mm/28 mm	12 mL	\$10.45
742606	40 mm/32 mm	20 mL	\$13.30

Porcelain Crucibles, Low Form

Coors 250. Glazed inside and out, except outside bottoms. Without covers.

Item No.	Diam/H	Capacity	Each
742634	41/26 mm	17 mL	\$10.45
742636	50/31 mm	30 mL	\$14.25



742502 Porcelain Crucible, High Form, 30 mL



742512 Porcelain Crucible Lid, 30 mL



742606 Porcelain Crucible, High Form, 20 mL



742634 Porcelain Crucible, Low Form, 17 ml



742688 Porcelain Crucible Cover, 54 mm

Porcelain Crucible Covers

Coors 240. For Coors 230 and 250 crucibles.

Item No.	Size	For use with	Each
742684	38 mm	Item #742604	\$16.50
742686	45 mm	Items #742606/#742634	\$17.50
742688	54 mm	Item #742636	\$18.70

Cylinders

Laboratory Equipment & Supplies Cylinders

Glass



Pyrex® Graduated Cylinders

Corning® 70075. Detachable hexagonal plastic base and clean, blue graduations. Calibrated "to contain." The 10-mL cylinder has a funnel top; the 25- to 100-mL cylinders are equipped with bumper guards.

721740	10 mL (0.1-mL grad)	Each	\$6.80	12+ Each	\$6.40
721742	25 mL (0.2-mL grad)	Each	\$7.20	12+ Each	\$6.65
721744	50 mL (1.0-mL grad)	Each	\$8.10	12+ Each	\$7.50
721746	100 mL (1.0-mL grad)	Each	\$9.75	12+ Each	\$8.95

Customer Review

"Glass is much more versatile than plastic. Never have broken one . . . with care they last and last. The plastic bumper helps."

Biology Administrator



Pyrex® Glass Graduated Cylinders, Single Metric Scale

Corning® 3022. With pourout and hexagonal base. The 100-mL capacity cylinder is in accordance with ASTM tests D 86 and D 216. Calibrated "to contain." The 10-mL cylinder has a funnel top; 25- to 1,000-mL cylinders are supplied with bumper guards. Case quantities are available at Carolina.com.

721782	10 mL	Each	\$19.75	24+ Each	\$19.05
721784	25 mL	Each	\$27.50	18+ Each	\$26.60
721786	50 mL	Each	\$28.85	18+ Each	\$27.85
721788	100 mL	Each	\$34.35	12+ Each	\$33.45
721790	250 mL	Each	\$47.40	12+ Each	\$45.80
721792	500 mL	Each	\$65.50	8+ Each	\$63.25
721794	1.000 ml	Fach	\$97.05		



721802 Pyrex Cylinder Starter Pack



Pyrex® Cylinder Starter Pack Packed in 1 box with sized inner wrapping for safe shipping and convenient storage

In need of a variety of cylinders? They're all found in 1 place. The Pyrex® Cylinder Starter Pack contains 1 each of 5 different Pyrex® Corning® 3024 glass cylinders in the most popular sizes: 10 mL, 25 mL, 50 mL, 100 mL, and 250 mL. The 10-mL cylinder has a funnel top; the 25- to 250-mL cylinders are equipped with bumper guards. Each cylinder is calibrated with white enamel graduations.

721802 Per pack \$218.10

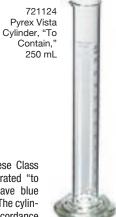


731021 Carolina Standard-Grade Cylinder, 100 mL

Carolina® Standard-Grade Cylinders

Economical, high-quality borosilicate cylinders that meet ASTM standards. All include a single metric scale.

731015	10 mL	Pack of 6	\$52.25
731017	25 mL	Pack of 6	\$55.70
731020	50 mL	Pack of 6	\$62.55
731021	100 mL	Pack of 2	\$32.15
731022	250 mL	Pack of 2	\$51.90
731023	500 mL	Pack of 2	\$74.75



Pyrex[®] Vista[™] Cylinders, "To Contain"

Corning® 70022. These Class A cylinders are calibrated "to contain" (TC) and have blue enamel graduations. The cylinder capacity is in accordance with ASTM E-1272 standards.

The 10-mL size has a funnel top for easier filling. Case quantities are available at **Carolina.com**.

721120	10 mL	Each	\$14.45
		24+ Each	\$12.15
721121	25 mL	Each	\$20.15
		18+ Each	\$18.15
721122	50 mL	Each	\$20.85
		18+ Each	\$19.80
721123	100 mL	Each	\$27.40
		12+ Each	\$23.55
721124	250 mL	Each	\$32.85
		12+ Each	\$27.60
721125	500 mL	Each	\$47.25
		8+ Each	\$40.10

Cylinders **Plastic**

Polypropylene Graduated Cylinders

These unbreakable graduated cylinders feature 1-piece construction and molded graduations. Autoclavable to 121° C. Excellent for use in chemistry, biology, and clinical labs. Chemical resistant to most acids, bases, and common solvents.

721600 10 mL (0.2-mL grad)

Each **\$4.35**

721601 25 mL (0.5-mL grad) Each **\$5.05**

721602 50 mL (1.0-mL grad)

Each **\$5.70 721603** 100 mL (1.0-mL grad)

Each **\$6.75 721604** 250 mL (2.0-mL grad

721604 250 mL (2.0-mL grad) Each **\$8.55**

721605 500 mL (5.0-mL grad) Each **\$12.85**

721606 1,000 mL (10.0-mL grad)

Each \$17.40

721607 2,000 mL (20.0-mL grad)

Each \$33.90



Laboratory Equipment & Supplies



721603 Polypropylene Graduated Cylinder, 100 mL

Ö

Durable Plastic Graduated Cylinders

Preferred choice for less-experienced students!

Made of tough, clear, non-breakable plastic, these graduated cylinders are suitable for student lab work. They are accurately calibrated and have no-drip pouring spouts. Each has a removable base for easy cleaning and storage.

Note: Not recommended for use with concentrated acids, bases, or strong organic solvents.

721610	10 mL	Each	\$1.95
		36+ Each	\$1.85
721611	25 mL	Each	\$2.20
		36+ Each	\$1.95
721612	50 mL	Each	\$2.40
		36+ Each	\$2.00
721614	250 mL	Each	\$4.45
		18+ Fach	\$4.25



721614 Durable Plastic Graduated Cylinder, 250 mL



721608 Polypropylene Cylinder Set (in use)

Polypropylene Cylinder Set

Set of 7 graduated cylinders: 10, 25, 50, 100, 250, 500, and 1,000 mL.

721608 Per set **\$27.25**

Pack



721609 Graduated Cylinder Starter Pack

Graduated Cylinder Starter

This starter pack of plastic graduated cylinders provides your students 100-, 50-, 25-, and 10-mL cylinders, as well as a 20-mL density volume finder. All cylinders come complete with plastic bases.

721609 Per pack **\$13.95**



722215 PMP Cylinder, 100 mL



722216 PMP Cylinder, 250 mL

PMP Cylinders

Glass-clear, graduated cylinders made of heat-resistant, shatterproof polymethylpentene, which can withstand temperatures of up to 350° F. Autoclavable with excellent chemical resistance.

722212	10 mL	Each	\$6.45
722213	25 mL	Each	\$7.60
722214	50 mL	Each	\$9.55
722215	100 mL	Each	\$10.30
722216	250 mL	Each	\$13.80
722217	500 mL	Each	\$18.05
722218	1.000 mL	Each	\$23.85

Desiccators





742970 Polypropylene Desiccator, 150 mm

Polypropylene Desiccator, 150 mm ¹⁄₂

Nalgene®. Cover is clear, shatterproof polycarbonate, with recessed rim design. Durable, polypropylene body is impervious to most desiccants. 140-mm aluminum plate included. OD, 71/8"; overall height, 57/8".

742970 Each \$97.00

Silica Gel

Desiccant; indicating beads turn from blue to pink when saturated with water. 500 g. **887482** Each **\$27.85**

Carolina® Living Cultures

Carolina has been the standard source for living cultures of protozoa since 1927. We have trained technicians, unsurpassed equipment, and decades of know-how, all of which contribute to the high quality of our living cultures. To view our selection of protozoan cultures, see pages 46–49 in the Living Organisms section or visit our website, Carolina.com.



742985 Dry-Keeper Desiccator Cabinets

Dry-Keeper™ Desiccator Cabinet

Scienceware®. This high-impact polystyrene cabinet is strong, rigid, and airtight when closed. Completely transparent for full visibility from any side. When opened, door disappears into a compartment underneath. Up to 5 cabinets can be safely stacked to save bench space. Includes 1 jar of silica gel desiccant. Replacement parts are available. Overall size, $8^{1}/_{4} \times 8^{7}/_{8} \times 6^{3}/_{4}$ ". Door opening, $7^{1}/_{2} \times 4^{3}/_{8}$ ".

742985 Each \$275.00



742990 Secador 1.0 Desiccator Cabinet

Secador® 1.0 Desiccator Cabinet

- Stomp out moisture with this uniquely designed desiccator
- Protect anhydrous and hygroscopic materials

The Secador® 1.0 Desiccator Cabinet protects valuable reagents or samples from ambient moisture. You can also use it to dry out specimens, pipets, or other components. The built-in hygrometer allows for a quick check of relative humidity levels. Units have patented airtight sealed construction, are transparent for easy viewing of contents, and have superior chemical resistance. Each cabinet features a sturdy latch for secure closure and a shelf for storage. These units are stackable to maximize bench space. Volume, 0.75 cu ft. Size, $8^2/5^{\circ}$ H × $13^2/5^{\circ}$ W × $16^3/10^{\circ}$ D.

742990 Each \$311.00

Dishes Dishes

Laboratory Equipment & Supplies

Carolina® Culture Dishes

Designed Specifically for the Biology Laboratory

Molded especially for us of crystal-clear, soda-lime glass. This glass gives off minute traces of salts, which are beneficial to microorganisms, and offers amoebae the proper surface tension for locomotion.

Excellent Design

Straight sides with stacking shoulders, rounded top edges for ventilation, and plano-concave bases; flat within for easy focusing and arched beneath to avoid contamination. Molded to close tolerances, the interlocking bases and rims give secure, self-aligning stacks.

Easy to Clean

Standard cleaning solutions and fine steel wool can be used. Brushes reach all surfaces easily.

Five Sizes

The $1^{1}/_{2}$ " dish accepts single cultures and handles minute quantities of medium. The $2^{1}/_{2}$ " dish replaces Syracuse watch glasses and low stenders. The $3^{1}/_{2}$ " dish is useful for culturing and isolation work with snails. The $4^{1}/_{2}$ " dish is ideal for culturing small organisms, staining, and dispensing specimens. The 8" dish is intended for stock cultures, for use as a terrarium or an aquarium, for germinating seed, etc.



11/2"-Diam Culture Dish

Ideal for individual cultures and for isolation work. Volume capacity, 6 mL.

740996 Each **\$8.65** 12+ Each **\$8.10**

21/2"-Diam Culture Dish

Excellent for basic laboratory culture applications. Small enough to use in lieu of Syracuse watch glasses or low stenders. Working capacity, 25 mL.

741000 Each **\$9.40** 12+ Each **\$8.90**

31/2"-Diam Culture Dish

Especially designed for isolation work with microorganisms, snails, and other forms that must be under constant observation. Working capacity, 100 mL.

741002 Each **\$11.25** 12+ Each **\$10.85**

41/2"-Diam Culture Dish

This is the usual dish for general laboratory use. Each will hold about 250 mL of liquid.

741004 Each **\$13.25** 12+ Each **\$12.25**

8"-Diam Culture Dish

Because of its large size, this dish can be used for both larger specimens and more numerous individual ones. Will hold about 1,500 mL of liquid.

741006 Each **\$22.35** 12+ Each **\$20.80**

Carolina Culture Dishes (left to right): 741006, 741004, 741002, 741000, and 740996



Stender Dish, Stacking Type

A low stender that needs no separate lid—each dish is a cover for the one beneath it. Dish features a supporting ledge for airtight stacking. Size, 37×25 mm.

741012

Each **\$7.85** 12+ Each **\$7.35**



History of Excellence

Designed to provide an ideal environment for the culture of microorganisms, our culture dishes have been used in biology labs around the world for more than 75 years.

Petri Dishes

Polystyrene, Disposable, Sterile Petri Dishes Petri performers

- Wide range of sizes allows multiple uses
- Nonbreakable plastic provides durability
- Excellent optical clarity and strength give superior performance

The quality of your students' work depends on the quality of their lab supplies. So protect their specimens with these strong, sterile, round dishes packed in



741246 Polystyrene, Disposable, Sterile Petri Dishes, 60 × 15 mm, Pack of 20

sealed plastic sleeves. Case quantities available on Carolina.com.

741246	60 × 15 mm	Pack of 20	\$7.10	25+ Packs Each	\$6.35
741248	$100 \times 10 \text{ mm}$	Pack of 30	\$14.00	25+ Packs Each	\$12.15
741250	$100 \times 15 \text{ mm}$	Pack of 20	\$6.70	25+ Packs Each	\$5.90
741252	100 × 20 mm	Pack of 20	\$11.85	20+ Packs Each	\$11.25
741254	150 × 15 mm	Pack of 20	\$30.85	5+ Packs Each	\$30.35

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(left to right) 741158, 741154, and 741162 Petri Culture Dishes

Petri Culture Dishes

 $Pyrex^{\circ}$ 3160. Complete units (tops and bottoms). With reinforced, beaded edges to increase resistance to breakage. Will withstand repeated sterilization. Size given is diameter of upper dish \times height of bottom dish.

741154	$60 \times 15 \text{ mm}$	Each	\$10.65	12+ Each	\$10.40
741158	$100 \times 15 \text{ mm}$	Each	\$8.80	12+ Each	\$8.50
741160	100 × 20 mm	Each	\$8.80	12+ Each	\$8.50
741162	$150 \times 15 \text{ mm}$	Each	\$22.45	12+ Each	\$21.85
741164	$150 \times 20 \text{ mm}$	Each	\$22.45	12+ Each	\$21.85

Pyrex[®] Vista[™] Petri Dishes

Corning® 70665. These flat, clear dishes made of soda-lime glass withstand repeated sterilizations (wet or dry). The edges are beaded to provide greater



721134 Pyrex Vista Petri Dishes, 100 x 15 mm

mechanical strength. The covered dish is not airtight. Bottoms also have a triangular enamel reference point for serial dilutions. Complete units; size given is diameter of top dish and height of bottom dish.

721132	$60 \times 15 \text{ mm}$	Pack of 12	\$85.50	2+ Packs Each	\$73.90
721133	100 × 10 mm	Pack of 12	\$75.40	2+ Packs Each	\$66.00
721134	$100 \times 15 \text{ mm}$	Pack of 12	\$75.40	2+ Packs Each	\$66.00
721135	$100 \times 20 \text{ mm}$	Pack of 12	\$75.40	2+ Packs Each	\$66.00
721136	$150 \times 20 \text{ mm}$	Pack of 12	\$176.55	2+ Packs Each	\$149.10



(left to right) 741330, 741332, and 741334 Polystyrene, Compartmented, Sterile Petri Dishes

Polystyrene, Compartmented, Sterile Petri Dishes

Standard round dishes (100 \times 15 mm) complete with plain tops and bottoms divided into compartments. Quantity break equals case size.

741330	"I" Plate (two 25-mL compartments)	Pack of 20	\$11.60
		25+ Packs Each	\$11.20
741332	"Y" Plate (three 15-mL compartments)	Pack of 20	\$11.60
		25+ Packs Each	\$11.20
741334	"X" Plate (four 11-mL compartments)	Pack of 20	\$11.60
		25+ Packs Fach	\$11.20

Polymethylpentene Petri Dish

Nalgene®. 100 × 15 mm. Autoclavable, transparent, shatterproof, and reusable. Superior chemical resistance.

741270 Each \$10.55

Polystyrene, Square, Integrid Petri Dish

Sterile. $100 \times 100 \times 15$ mm; capacity, 110 mL. Grid embossed on bottom. Squares of grid just fill a $10\times$ stereomicroscope field.

741470 Pack of 10 \$14.15





741270 Polymethylpentene Petri Dishes (above) and 741470 Polystyrene, Square, Integrid Petri Dishes (below)



Petri Dish Accessories

Easyplate™ Petri Dish Racks

Increase workspace and efficiently transport petri dishes with the Easyplate™ Petri Dish Rack. The rack eliminates the balancing act with petri dishes, letting you organize and quickly move them. Use this storage rack to store dishes on the bench, in an incubator, or in the refrigerator. Elastic holding devices keep the petri dishes in place. Write-on labels allow you to identify plates held in each rack. The Easyplate™ rack is manufactured from polycarbonate and is autoclavable. Use the rack to hold 100-mm petri dishes. Available in 2 sizes: the 9" size holds 48 dishes; the 14" size holds 84 dishes. Natural color.

741920 9" Each **\$206.00 741924** 14" Each **\$228.00**



741920 Easyplate Petri Dish Rack, 9"

Dishes/Filter Paper **Staining Dishes**

Laboratory Equipment & Supplies

Plastic Coplin Staining Jar

Jar has domed, shallow-thread screw-cap. Holds up to 10 standard $(25 \times 75 \text{ mm or } 1 \times 3")$ back-to-back. slides Autoclavable.

742155 Each \$9.40



742155 Plastic Coplin Staining Jar



742001 Staining Rack and Tray

Staining Rack and Tray

A general utility, stainless-steel tray and rack. Well is 8" L \times 6" W \times 11/2" D. Overall size, 9" L \times 7" W \times 1 $^{1}/_{2}$ " D.

742001 Each \$94.45 12+ Each \$92.80

Evaporating Dishes

Glass Evaporating Dish

Pyrex[®]. Corning[®] 3180. Made with flattened bottoms and pour out. Size, 80×45 mm.

742400

\$16.85 Fach \$15.95 6+ Each



742400 Glass Evaporating Dish

This smooth, white filter paper is excellent for basic filtration needs in biology or chemistry. Medium filter

Per pkg

\$5.30

\$6.90

\$8.85

\$10.15

\$13.45

\$18.80

\$28.35





742412 (left) and 742410 (right) Porcelain Evaporating Dishes

Porcelain Evaporating Dishes A

Item No.	Rim Diam	Height	Capacity	Each
742410	70 mm	28 mm	50 mL	\$4.75
742412	93 mm	20 mm	75 mL	\$5.95
742413	90 mm	35 mm	100 mL	\$6.30

Filter Paper



712803 Filter Paper, Qualitative, 12.5 cm diam

24 cm diam Filter Paper, Quantitative

Filter Paper, Qualitative

speed. Package of 100 circles. **712800** 7 cm diam

9 cm diam

11 cm diam

12.5 cm diam

15 cm diam

18 cm diam

712801

712802

712803

712804

712805

712806

This ashless, smooth, white filter paper is excellent for exact filtration needs in AP® Chemistry and other quantitative situations. Medium filter speed. Package of 100 circles.

712808 9 cm diam Per pkg \$14.70 **712810** 12.5 cm diam Per pkg \$22.05 712811 15 cm diam Per pkg \$29.10

AP® is a trademark registered and/or owned by the College Board®, which was not involved in the production of, and does 712810 Filter Paper, not endorse, these products. Quantitative, 12.5 cm diam



Filtering Kit

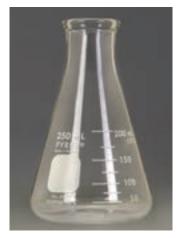
A 50% savings over individual item purchases!

An excellent kit for filtering fluids. Consists of a 500-mL filtering flask, 80-mm porcelain Buchner funnel, hand vacuum pump with gauge, pack of one hundred 70-mm filter papers, rubber stopper, and a vacuum hose. Instructions included.

712813 Per kit \$115.00



Glass



726690 Pyrex Erlenmeyer Flask, Measuring, 250 mL



726866 Pyrex Screw-Cap Erlenmeyer Flask, 125 mL

CARSLINA NOTESCATE CARSLINA 100ml TS

731028 Carolina Standard-Grade Erlenmeyer Flask, 100 mL

Carolina® Standard-Grade Erlenmeyer Flasks

Economical, high-quality borosilicate Erlenmeyer flasks that meet ASTM standards. All include a single metric scale and marking spot.

731025	25 mL	
	Pack of 12	\$35.65
731027	50 mL	
	Pack of 12	\$36.50
731028	100 mL	
	Pack of 12	\$37.35
731029	250 mL	
	Pack of 12	\$40.15
731030	500 mL	
	Pack of 6	\$28.90
731031	1,000 mL	
	Pack of 2	\$21.85



731035 Carolina Standard-Grade Widemouthed Erlenmeyer Flask, 250 mL

50 mL

Pyrex® Erlenmeyer Flasks, Measuring

Pyrex®. Corning® 4980. Narrow mouth with heavy tooled rim. White enamel graduations are approximate. Case quantities are available at Carolina.com.

Item No.	Capacity	Cork No.	Stopper No.	r	Pi	rice	
726682	25 mL	5	0	Each	\$6.65	12+ Each	\$6.35
726684	50 mL	6	1	Each	\$6.65	12+ Each	\$6.35
726686	125 mL	14	5	Each	\$6.65	12+ Each	\$6.35
726690	250 mL	14	6	Each	\$6.05	12+ Each	\$5.75
726694	500 mL	17	7	Each	\$7.45	12+ Each	\$7.15
726698	1,000 mL	N/A	9	Each	\$12.05	12+ Each	\$11.50
726702	2,000 mL	N/A	10	Each	\$27.75	8+ Each	\$26.25

Pyrex® Screw-Cap Erlenmeyer Flasks

Corning® 4985. These Erlenmeyer flasks with phenolic screw caps are ideal for culturing, mixing, and storing media. Impact-resistant caps are equipped with cemented-in, inert white rubber liners, which are resistant to steam sterilization. Flasks are graduated and include marking space.

Item No.	Capacity	Graduation Range	Graduation Interval	Approx OD × Height	Each
726866	125 mL	50-125 mL	25 mL	$68 \times 105 \text{ mm}$	\$26.45
726870	250 mL	50-200 mL	25 mL	81 × 135 mm	\$29.05
726874	500 mL	100-500 mL	50 mL	$102\times186~\text{mm}$	\$29.50
726878	1,000 mL	250-1,000 mL	50 mL	$128\times218~\text{mm}$	\$34.95

Pyrex® Erlenmeyer Flask Starter Pack



Ideal for your laboratory start-up needs or for those that use a variety of flask sizes but have limited lab space or glassware needs. Each pack contains 1 each of the 5 most popular Pyrex® flask sizes: 50 mL, 125 mL, 250 mL, 500 mL, and 1,000 mL. Packaged in a partitioned carton for safe transit and storage.

726710 Per pack \$56.35

Carolina® Standard-Grade Widemouthed Erlenmeyer Flasks

Economical, high-quality borosilicate Erlenmeyer flasks that meet ASTM standards. With heavy-duty, wide-mouthed rims, all include a single metric scale and marking spot.

731035	250 mL	
	Pack of 12	\$67.30
731036	500 mL	
	Pack of 6	\$43.40
731037	1,000 mL	
	Pack of 6	\$72.10

Pyrex[®] Vista[™] Erlenmeyer Flasks

Corning® 70980. These narrowmouthed Erlenmeyer flasks have uniform wall thickness, which provides the proper balance between mechanical strength and thermal shock resistance. Approximate graduations are in durable blue enamel. An extra large marking space is also provided. The Erlenmeyer flasks are designed to ASTM E-1404 Type 1 standards. Case quantities are available at Carolina.com

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721147	25 mL	Pack of 12 2+ Packs Each	\$64.95 \$56.40
721148	50 mL	Pack of 12	\$64.95
	00 1112	2+ Packs Each	\$56.40
721149	125 mL	Pack of 12	\$50.15
		2+ Packs Each	\$43.40
721150	250 mL	Pack of 12	\$50.80
		2+ Packs Each	\$43.80
721151	500 mL	Pack of 6	\$32.70
		2+ Packs Each	\$28.25
721152	1,000 mL	Pack of 6	\$53.50
		2+ Packs Each	\$48.25

721148 Pyrex Vista Erlenmeyer Flask, 50 mL

Flasks

Laboratory Equipment & Supplies

Pyrex[®] Vista[™] Volumetric Flasks, Class A

Corning® 70640. These volumetric flasks provide precise volume measurement. The necks are tooled for glass stoppers. The graduation line is sharp and permanent, and large blue block letters make the inscription easy to read. These volumetric flasks have been manufactured to Class A tolerances as established by ASTM E-694 for volumetric ware, ASTM E-542 for calibration of volumetric ware, and ASTM E-288 for volumetric flasks. Includes stoppers.

721156	10 mL	Each	\$24.25	12+ Each	\$20.45
721157	25 mL	Pack of 6	\$153.55	2+ Packs Each	\$128.55
721158	50 mL	Pack of 6	\$160.30	2+ Packs Each	\$134.10
721159	100 mL	Pack of 6	\$164.05	2+ Packs Each	\$136.05
721161	250 mL	Pack of 6	\$217.80	2+ Packs Each	\$183.05
721162	500 mL	Pack of 6	\$254.40	2+ Packs Each	\$211.10
721163	1,000 mL	Each	\$64.10	2+ Each	\$54.40
721164	2,000 mL	Each	\$81.35	2+ Each	\$68.75

Pyrex[®] Vista[™] Heavy-Wall Filtering Flasks

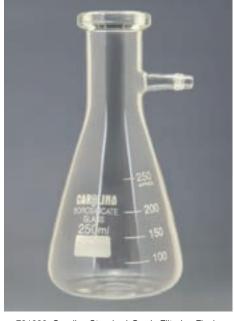
Corning® 70340. These filtering flasks have sidearm tubulations and are graduated to show approximate capacity. The neck finish affords a fit for rubber stoppers. Tubulation OD is 10 mm. The filtering flasks are designed to ASTM E-1406 Type 2 standards.

2+ Packs Each \$112.70

721153	250 mL	Pack of 6	\$98.75
		2+ Packs Each	\$85.20
721154	500 mL	Pack of 6	\$129.95



721153 Pyrex Vista Heavy-Wall Filtering Flask, 250 mL



731032 Carolina Standard-Grade Filtering Flask, 250 mL

Carolina® Standard-Grade Filtering Flasks

Economical, high-quality borosilicate filtering flasks with sidearm tubulation that meet ASTM standards. All include a single metric scale and marking spot.

731032 250 mL Pack of 2 \$29.15 731033 500 mL Pack of 2 \$36.35 731034 1,000 mL Pack of 2 \$74.85

Visit Carolina.com to view our selection of glass stoppers.

Heavy-Wall Filtering Flask without Tubulation

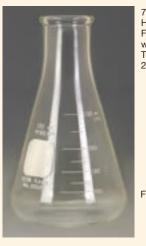
Pyrex[®]. Corning[®] 5320. Neck has heavy, uniform flange. Without stopper.

Item No.	Size	Cork No.	Stopper No.			Price	
726346	250 mL	15	6	Each	\$21.80	18+ Each	\$20.80

Heavy-Wall Filtering Flasks with Side Tubulation

Pyrex®. Corning® 5340. Made of heavy glass to withstand pressure. Without stoppers.

Item No.	Size	Cork No.	Stopper No.		ı	Price	
726386	250 mL	15	6	Each	\$23.45	18+ Each	\$22.45
726388	500 mL	17	7	Each	\$30.45	18+ Each	\$29.20
726390	1,000 mL	20	8	Each	\$61.75	12+ Each	\$60.75



721161

Pyrex Vista Volumetric Flask,

Class A, 250 mL

726346 Heavy-Wall Filtering Flask without Tubulation, 250 mL

726386 Heavy-Wall Filtering Flask with Side Tubulation, 250 mL



See more flasks on the next page.

Flasks



726060 Pyrex Florence Boiling Flask, 250 mL



721143 Pyrex Vista Round-Bottom Boiling Flask, 250 mL



725428 Pyrex Distilling Flask

Pyrex® Florence Boiling Flasks

Corning® 4060. With flat bottom and vial mouth. Without stoppers.

Item No.	Size	Cork No.	Stopper No.			Price	
726056	125 mL	7	2	Each	\$12.05	24+ Each	\$11.50
726060	250 mL	12	5	Each	\$12.05	24+ Each	\$11.50
726064	500 mL	15	6	Each	\$16.55	24+ Each	\$16.00

Pyrex® Vista™ Round-Bottom Boiling Flasks

Corning® 70320. These round-bottom boiling flasks are designed to ASTM E-1403 standards.

721143	250 mL	Pack of 2	\$51.45	2+ Packs Each	\$44.45
721145	1,000 mL	Each	\$32,20	2+ Each	\$27.75

Pyrex® Distilling Flask

Corning® 4620. Side tube 77 mm below top of neck, at 75° angle. Particularly adaptable for use with thermometers calibrated for 76-mm immersion. Uses cork no. 9 and stopper no. 3.

Item No.	Size	Cork No.	Stopper No.			Price	
725428	250 mL	9	3	Each	\$34.85	24+ Each	\$33.65

See our selection of stoppers and accessories on page 1085.



Plastic

Polymethylpentene Erlenmeyer Flasks with Screw Closure

An excellent combination of clarity, chemical resistance, impact strength, and autoclavability.

Item No.	Size		Stopper No.			Price	
726826	250 mL	14	6	Each	\$19.75	12+ Each	\$18.95
726828	500 mL	16	7	Each	\$29,40	12+ Each	\$28.40

Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.



726826 Polymethylpentene Erlenmeyer Flask with Screw Closure, 250 mL



Solid Glass Beads 6 mm (± 0.5 mm) diam. About 1,800 beads per lb. 725406 Per lb \$115.60

Funnels

Funnels

Pyrex® Short-Stem, Fluted, 60°-Angle Funnels

Corning® 6180. These short-stem funnels have depressed inside flutings to decrease filtering times.

Item No.	Top Diam	Stem Length		Filter Paper Size	Each
734084	50 mm	65	8 mm	9 cm	\$13.35
734085	65 mm	65	8 mm	11 cm	\$14.50
734086	75 mm	75	8 mm	12.5 cm	\$15.65
734087	100 mm	100	9 mm	18.5 cm	\$20.25

Polypropylene Funnel

Nalgene®. Break-resistant. External ribbing prevents airlock. 60° angle of body with internal ribs at 58° for rapid filtration. Top diam, $2^{5}/8$ "; overall length, $4^{1}/4$ ". Autoclavable. For standard filter papers. Size, 11 cm.

733000 Each \$5.45 36+ Each \$5.35

Polypropylene Funnels

Scienceware®. Specially designed with outside ridges to prevent pressure lock. Heavy duty.

734012 3" Diam Each **\$10.95 734014** 4" Diam Each **\$12.20 734016** 6" Diam Each **\$14.80**







733030 Polypropylene Powder Funnel, 65 mm diam

Laboratory Equipment & Supplies



(left to right) 733020 and 733022 Utility Funnels

Utility Funnels

Funnels are made of polypropylene (PP) or high-density polyethylene (HDPE). Inexpensive, lightweight, and designed for general use.

Item No.	Diam	Material	Pack of 12
733020	23/4"	PP	\$24.15
733021	31/2"	PP	\$27.50
733022	41/4"	PP	\$46.40
733023	5"	HDPE	\$56.35

Polypropylene Powder Funnels

Wide-stem, autoclavable, translucent funnels. Parallel stem minimizes bridging of powder. Economical, fast, and efficient.

Item No.	Diam	Stem Diam	Pack of 10
733030	65 mm	16 mm	\$41.90
733031	80 mm	22 mm	\$61.15

Separatory Funnels

Squibb Separatory Funnels

Pyrex®. Corning® 6400. Pear-shaped funnels with ground glass stopcocks and ground glass stoppers.

Polypropylene Separatory Funnels

Providing excellent clarity and very good chemical resistance, these pear-shaped polypropylene separating funnels have leak-proof threaded screw caps and polypropylene stopcocks with self-lubricating PTFE plugs. Not graduated.

734593 250 mL Each **\$32.85 734595** 500 mL Each **\$35.25**

Visit Carolina.com for our complete selection of funnels.



734593 Polypropylene Separatory Funnel, 250 mL



734585 Squibb Separatory Funnel, 250 mL



734826 Polyethylene Funnel Holder (support rod and funnel not included)

Polyethylene Funnel Holder

Linear polyethylene funnel holder and clamp includes 2 bushings for $^1/_2$ "- or $^3/_8$ "-diam support rod. Outer ring of holder supports 3 to 6" top diameter funnels; removable inner ring holds smaller funnels from 1 to 3" top diameter.

734826 Each \$17.60

Laboratory Equipment & Supplies General Supplies





713126 Heavyweight Plastic Bags

Self-Locking Plastic Bags

These handy, leakproof bags are ideal for storing dissection specimens between lab sessions. Use the $4\times6"$ size for storing Ascaris, earthworms, leeches, and grasshoppers; the $6\times9"$ size for crayfish, freshwater mussels, medium perch, and grass frogs up to 4" body length; the $9\times12"$ size for large starfish, extra-large perch, and medium fetal pigs; and the $12\times15"$ size for giant bullfrogs, large grass frogs, and large and extra-large fetal pigs. These bags are also good for holding field-collected samples and for the storage of parts.

713091	4 × 6"	Pack of 100	\$11.50
713093	6 × 9"	Pack of 100	\$13.45
713095	9 × 12"	Pack of 100	\$24.30
713097	12 × 15"	Pack of 100	\$40.00

Heavyweight Plastic Bags

Sturdy bags made of clear polyethylene film 0.003" thick. Ideal for collecting and storing living or preserved specimens.

713122	12 × 24"	Pack of 12	\$10.35
713126	18 × 24"	Pack of 12	\$13.75
713128	18 × 36"	Pack of 12	\$27.65
713132	18 × 42"	Pack of 12	\$21.80
713134	24 × 48"	Pack of 12	\$28.70



706232 (left) and 706230 (right) Polyethylene Collecting Buckets

Polyethylene Collecting Buckets

Non-contaminating white bucket with reinforced ribbing at the top. With lid.

706230	31/2 gal	Each	\$14.60
		12+ Each	\$13.85
706232	5 gal	Each	\$16.75
		12+ Each	\$15.90



644210 Candles

CAROLINA

706238 Pail Opener

Pail Opener

With this unique pail opener you only need to apply a little pressure downward to easily open the pail. Made of a bright, lightweight, superstrong aluminum. Also useful to cut and reseal lids. Size, 16" L.

706238 Each \$25.50

Candles A2

White, $5 \times {}^{3}/{}_{4}$ ". In packs of 5. **644210** Per pack **\$6.35**



General Supplies



706860 Wooden Splints

Wooden Splints

Thin, dry, softwood for general laboratory work. 500 per bundle. $5^{1}/_{2}$ " L.

706860 Per bundle **\$6.55** 12+ Bundles Each **\$6.30**



706865 Wooden Applicator Sticks

Wooden Applicator Sticks

Made of selected hardwood. 1,000 sticks per box. 6" L.

706865 Per box **\$19.70** 12+ Boxes Each **\$19.00**

Bacteriological Absorbent Cotton

Best grade. Ideal for uses where sterile cotton is not needed. 1-lb roll.

712635 Per roll **\$21.60** 12+ Rolls Each **\$20.90**



713325 Scienceware Labrat Liner

Scienceware® Labmat™ Liner

For use on lab bench or as drawer liner. Safeguards surfaces from stains, spills, and wear. Flexible plastic film back is nonskid and prevents soak-through of most solutions. 50.8 cm (20") W. Packed in 15.2-m roll in dispenser carton.

713325 Per roll \$72.25

Laboratory Equipment & Supplies



215600 Parafilm, 4" × 125-ft Roll (dispenser not included)

Parafilm®

Convenient for sealing test tubes, flasks, and other containers. Resistant to alcohol, gases, and most acids. This moisture-proof, semitransparent, flexible thermoplastic seals even irregular surfaces with ease.

713044 2" × 250-ft Roll Each **\$39.85 215600** 4" × 125-ft Roll Each **\$33.25**



711343 Triangular File, 4"

Triangular Files

Steel, triangular-shaped file; helpful accessory for deburring, cutting glass tubing, and other laboratory

711343 4" Each **\$5.60 711344** 6" Each **\$7.60**



712660 Versi-Dry Standard Lab Soakers

Versi-Dry® Standard Lab Soakers

Versi-Dry® Lab Soakers from Nalge Nunc are the best way to protect lab surfaces and equipment from liquids. These lab soakers contain thousands of Thirsty Cells® to quickly absorb spills and cushion breakable items. Use the lab soakers as drawer or tray liners or to clean up spills. They absorb 750 mL per sq m and come in a pack containing 2 rolls, each 20" × 150 ft (500 sq ft total).

712660 Per pack \$202.00

Cheesecloth

Absorbent. Excellent for cleaning glassware, making insect-proof enclosures, plugging flasks, etc. Package of 5 sq yd.

712690 Each **\$8.10** 12+ Each **\$7.85**



646205 Precision Screwdriver Set

Precision Screwdriver Set

Includes 11 screwdrivers constructed of chromeplated knurled shafts with tempered steel blades. Packaged in plastic storage container.

646205 Per set \$19.30



Carson[®] LightFlex Pro[™]

The LightFlex Pro^{TM} from Carson® is an industrial-grade LED task lamp with a fully adjustable gooseneck. It provides cool, ultra bright light and the gooseneck enables you to point that light where it's needed. With its table clamp and magnetic base, LightFlex can be attached to varied surfaces. It is powered by an AC/DC adapter (included) or 4 AA batteries (not included). Size, $22^{TM} + 3^{TM} +$

599352 Each **\$113.30**

Laboratory Equipment & SuppliesHot Plates





- . Space-saving, compact hot plate popular in middle and high school labs
- · Enamel-coated top for efficient heat transfer and easy cleanup
- One-vear warrantv

Designed specifically for educational labs, this hot plate offers high quality at a very affordable price. A white enamel, steel-top plate provides maximum heat transfer (boiling 400 mL of liquid in 23–25 min), while dual heat shields dissipate heat to keep the case cool. With its 5×5 " steel top, this compact addition to your lab equipment takes up very little space. It is UL®/CUL listed with a maximum temperature of 360° C $(680^\circ$ F). 120 V.

701016 Each \$212.00

Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.

Corning® Hot Plate Safety and precision

- Top indicator light blinks if the top is too hot to touch (more than 140° F) even when the unit is turned off
- · Low-profile design saves space on benchtops and under hoods
- Two-year warranty

Looking for safety and precision in your lab supplies? Microprocessor control, high-tech insulation, and other safety features make this Corning® Hot Plate fast, energy efficient—and accident resistant. With Corning's exclusive glass-ceramic Pyroceram® top, this lab equipment is easy to clean and resists corrosion and chemical attack. Plus, its easy-to-read controls allow precise settings. UL® approved.





Carolina® Hot Plate

- · Fast, reliable, and safe
- · Ceramic work surface
- Two-year warranty

This economical ceramic top hot plate from Carolina delivers fast, accurate results. The unit can boil 400 mL of water in approximately 25 minutes! A safety indicator LED displays when the plate is still on. Featuring a 1-piece ceramic top with advanced microprocessor controller, the hot plate includes built-in rod support and rod. Top size: 7×7 "; temperature range: 80 to 380° C. 120-V AC. CE approved.

701013 Each \$338.00



Hot Plates

Laboratory Equipment & Supplies



Corning® Digital Hot Plates

- · Easy-to-read LED displays
- Great for labs that have, or need to establish, routine protocols

Corning® brings innovation to its hot plates with digital displays for temperature settings. The temperature display is adjustable in 5° C increments and indicates when set temperature is reached. Safety features include POWER and HOT TOP icons, overheating protection, top-quality insulation, and an external spill trough to protect electronics and control knobs. These units have small footprints and low profiles to conserve lab space and easily fit inside hoods or storage cabinets. Flat, bright, white Pyroceram® ceramic tops provide uniform heating and better contrast during applications that require color-change monitoring. Tops are easy to clean and highly resistant to scratches, corrosion, and chemicals. All units are supplied with a guide to heating procedures. UL® approved.

Item No.	Model	Top Size	Temp Range	Power	Each
701021	PC-400D	5×7 "; 35 sq in (226 sq cm)	5 to 550° C	120 V, 60 Hz, 628 W, 5.3 A	\$380.00
701022	PC-600D	10 × 10"; 100 sq in (645 sq cm)	5 to 550° C	120 V, 60 Hz, 1,043 W, 8.7 A	\$650.00



Carolina® Digital Hot Plate 113

- · Digital display
- · Fast, reliable, and safe
- · Ceramic work surface
- · Two-year warranty

Better than the original! This digital hot plate delivers faster, safer, and more accurate results with its maintenance-free, 1-piece ceramic work surface and advanced microprocessor controls. The unit features an easy-to-read digital display, a simple-to-use dial for setting the temperature, and a safety indicator LED that shows when the plate is hotter than 50° C. 115-V AC. CE approved.

Item No.	Top Size	Temp Range	Each
701039	7 × 7"	Ambient +5° C to 400° C	\$356.00

New! OHAUS Guardian™ 2000 Hot Plate

- . Affordable, fast heating up to 15 L
- · Easy-to-use knob control
- · Ceramic top
- Two-year warranty

Ideal for the educational lab and other lab environments that require affordable, everyday fast heating up to 15 L, this unit offers simple knob control to easily adjust the heating. The durable metal housing includes a built-in support rod holder. Also features PET front panel, hot top indicator light, and ON/OFF switch. Ceramic top size is 4×4 ". 100–120 V.

Item No.	Top Size	Temp Range	Each
701017	4 × 4"	70 to 500° C	\$254.00

701017 **OHAUS** Guardian 2000 Hot Plate

Visit Carolina.com for new

products and current pricing.

See more hot plates on the next page.



MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov





· Commercial quality

Ideal for light-duty heating requirements. Features include 700-W, 3-ring tubular burners for fast heat up. Each burner has a custom-made infinite control. The **Single-Burner Hot Plate** measures 14" W \times 4½" H \times 12½" D, is 1,100 W, and weighs 6 lb; the **Double-Burner Hot Plate** measures 21½" W \times 4½" H \times 12½" D, has 1,650 total watts, and weighs 8½ lb. Each hot plate has a 3-prong safety cord and is rated for 120-V AC. UL® listed. Made in USA.

701004 Single-Burner Hot Plate Each \$223.00 701005 Double-Burner Hot Plate Each \$296.00

Single Electric Burner

Use this powerful, single electric burner for your laboratory heating needs. The electric coil delivers smooth, even heating. You can adjust the heat from low to high, up to 600° F. Features an indicator light that illuminates when powered "on." The portable, lightweight design takes up very little counter space, and the nonslip feet keep the unit securely in place. 1,200 W; 10 A. CETL® approved.

701010 Each \$27.25

Carolina Teacher Tips

When heating glass items on coil burners, be sure to place a ceramic wire gauze between the glass and the burner surface. This helps protect your glassware and provides a safer laboratory environment. For ceramic gauze, please see item #706900 on page 1087.

See our selection of heat-resistant gloves on page 1002.



706305A High/Low Temperature Gloves



701640 Autoclave Gloves

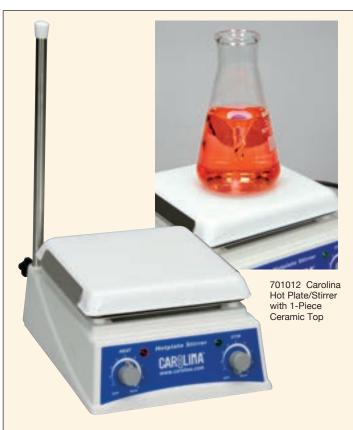


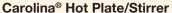
706500 Zetex Gloves

Hot Plates/Stirrers

Laboratory Equipment & Supplies

Hot Plates/Stirrers





- · Fast, reliable, and safe
- · Ceramic work surface
- Two-year warranty

Need a hot plate/stirrer that's fast, reliable, and safe? Carolina offers this economical model, which features space-efficient design and delivers accurate results. Utilizing a 1-piece ceramic top with advanced microprocessor controls and strong magnetic stirrer, the unit can boil 400 mL of water in approximately 20 minutes! A safety indicator LED displays when the plate is still on. Comes with a built-in rod support and rod; stir bar not included. 120-V AC. CE approved.

Item	Top	Stir	Temp	Each
No.	Size	Speed	Range	
701012	7 × 7"	60 to 1,500 rpm	80 to 380° C	\$545.00



701038 Carolina Digital Hot Plate/Stirrer, 7" Top

Carolina® Digital Hot Plate/Stirrer

- · Digital displays
- · Ceramic work surface
- Fast, reliable, and safe
- Two-year warranty

Better than the original! These hot plates/stirrers are fast and simple to use with easy-to-read digital displays and dials for stirring speed and heating temperatures. Each unit features a maintenance-free, 1-piece ceramic work surface containing advanced microprocessor controls and a strong magnetic stirrer. These units can boil 400 mL of water in 20 minutes! A safety indicator LED displays when the plate is hotter than 50° C. 115-V AC. CE approved.

Item No.	Top Size	Stir Speed	Temp Range	Each
701038	7 × 7"	150 to 1,500 rpm	Ambient +5° C to 400° C	\$562.00
701040	10 × 10"	150 to 1,500 rpm	Ambient +5° C to 400° C	\$727.00



Corning® Hot Plate/Stirrer

- Low-Profile Design—Uses less space on benchtops and under hoods
- Safety—Hot top indicator light blinks a warning if the top is too hot to touch (>140° F), even when the unit is turned off
- Stirring Capabilities—Exclusive closed-loop stirring monitors and regulates stirring speed

Corning® Hot Plate/Stirrer Model PC-220 has been a laboratory standard for many years. Microprocessor control combined with high-tech insulation make this hot plate/stirrer fast, consistent, and energy efficient. Easy-to-read controls allow precise settings. Corning's exclusive glass-ceramic Pyroceram® top, which measures 4×5 ", is easy to clean and resistant to corrosion and chemical attack. The stir range is 60 to 1,100 rpm. UL® approved with a 2-year warranty.

701012A Each \$537.80

See more hot plates/stirrers on the next page.

Hot Plates/ Stirrers/Hydrometers





Corning® Digital Hot Plates/Stirrers

- · Simple operation with easy-to-read digital displays
- Small footprint and low profile to conserve lab space
- Two-year warranty

Does your lab have or need to establish routine protocols? The Corning® Digital Hot Plate can help. This specialized lab equipment features precise, adjustable temperature and stir speed settings. The temperature display is adjustable in increments of 5° C and indicates when set temperature is reached. The stir speed display indicates when set speed is reached. Safety features include *POWER* and *HOT TOP* icons, overheating protection, top-quality insulation, and an external spill trough to protect electronics and control knobs.

Designed to fit easily inside hoods or storage cabinets, these hot plates and stirrers are easy to clean and highly resistant to scratches, corrosion, and chemicals. Their flat, bright, white Pyroceram® ceramic tops provide uniform heating and better contrast during applications that require monitoring for color changes. These UL®-approved units come with a guide to heating and stirring procedures, as well as the appropriate stir bar.

Item No.	Model	Top Size	Stir Speed	Temp Range	Power	Each
701025	PC-420D	5×7 "; 35 sq in (226 sq cm)	60 to 1,150 rpm	5 to 550° C	120 V, 60 Hz, 698 W, 5.9 A	\$572.00
701026	PC-620D	10×10 "; 100 sq in (645 sq cm)	60 to 1,150 rpm	5 to 550° C	120 V, 60 Hz, 1,113 W, 9.3 A	\$782.00

Hydrometers

High-Precision Specific Gravity Hydrometer

Plain-form hydrometer used to measure the density of liquid at 60° F. Specific gravity range: 1.000 to 1.070 with 0.0005 graduations. Length, 325 mm. With steel shot balast. Meets The GLOBE® Program specifications.

722570 Each \$45.45

Universal Hydrometer

Measures a full range of liquids in specific gravity and Baume; for liquids both lighter and heavier than water. Specific gravity: range, 0.700 to 2.000; divisions, 0.050. Baume: range, 10 to 70 light, 0 to 70 heavy; divisions, 1°. Length, 15". With steel shot balast.

722605 Each \$45.85

Standard Hydrometer with Jar

Range 1.000 to 1.060, subdivisions, 0.001. Length, 15 cm. With shot ballast.

722662 Each **\$25.40** 10+ Each **\$24.40**

Squibb Hydrometer with Jar

Range, 1.000 to 1.060; subdivisions, 0.002. Length, 9 cm. With shot ballast.

722660 Each **\$23.95** 10+ Each **\$22.95**

Hydrometer

Standard shape. Range, 1.000 to 1.060; subdivisions, 0.001. Length, 150 mm. With steel shot balast.

722655 Each \$13.65 10+ Each \$12.55



722660 Squibb Hydrometer with Jar



722570 High-Precision Specific Gravity Hydrometer



722605 Universal Hydrometer



722655 Hydrometer

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Incubators Incubators

Laboratory Equipment & Supplies

Carolina® Digital Incubator

For your classroom, a 21st-century incubator that operates much like your oven at home. Select the desired temperature, the unit immediately begins to heat up, then attains and maintains the selected temperature. The easy-to-see LED control panel monitors and displays the current temperature inside the chamber, which includes an internal universal

outlet for powering electrical devices. The 20-L/0.7-cu-ft capacity unit can hold up to one 2-L flask or two 500-mL flasks. Comes with 2 adjustable shelves and has a gray plastic body and see-through door for viewing the entire workspace without opening the door. Two-year warranty. 120-V AC.

701291 Each \$665.00



Digital Incubators A

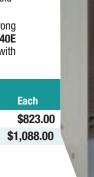
Reliable, versatile, and affordable!

These incubators break the price barrier for digital performance. Full PID microprocessor control maintains an accurate temperature setting within 1° C, even in varying ambient conditions. The unique temperature-tracking feature stores maximum process temperature deviation from set point in 0.1° units. This feature acts as a paperless chart recorder. It also helps to confirm stability or indicate any control malfunction or power loss throughout a process period.

Read the temperature from across a room with the large, special, low-glare, 4-digit LED. Selectable unit readout is in 1.0° C or 0.1° F display resolution. A continuous self-diagnostic function prompts if the control software malfunctions or the thermocouple fails. Each unit is constructed with a high-grade aluminum interior; cold-rolled, powder-coated, steel exterior; and a bronze acrylic, see-through door.

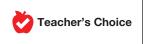
Standard equipment includes 2 shelves (1 fixed and 1 adjustable) and a 6-ft, 3-prong grounded power cord. **Model 10-140E** has 6 possible shelf positions. **Model 12-140E** has 11 possible shelf positions. Temperature range is 5° above ambient to 60° C, with control accuracy of $\pm 0.5^{\circ}$ C. Each model comes with a full, 2-year warranty.

Item No.	Model	Overall Dimensions	Chamber Dimensions	Capacity	Wt	Each
701292	10-140E	$13\times15\times10^{3/4}"$	12 × 10 × 10"	0.7 cu ft	26 lb	\$823.00
701294	12-140E	19 × 21 × 13"	18 × 16 × 12"	2.0 cu ft	44 lb	\$1,088.00





701294 Digital Incubator, Model 12-140E



Incubators/Labeling/ Materials Testing



701296 Lab Incubator, 0.7-cu-ft Capacity Model

🔥 Lab Incubators 🔥

- Durable aluminum interior makes cleanup easy
- · Compact size allows multiple placement options
- Two-year warranty

Developed for laboratories that need dependable, compact incubators. These incubators have see-through, tinted acrylic doors that let you view the entire work space without opening the doors. Each incubator has a chrome-plated adjustable shelf and a fixed bottom shelf. A laboratory thermometer is included with each. Exterior surfaces are cold-rolled steel with ivory baked-on enamel finish; interiors are aluminum. Incubators are insulated with fiberglass. Two sizes are available. The **0.7-cu-ft Capacity Model** measures $12 \times 10 \times 10$ " on the inside and $13 \times 15 \times 10^3/4$ " on the outside. The **2.0-cu-ft Capacity Model** measures $18 \times 16 \times 12$ " on the inside and $19 \times 21 \times 13$ " on the outside. The 0.7-cubic-ft model reaches a maximum temperature of 62° C. The 2.0-cubic-ft model reaches a maximum temperature of 65° C. Both units have a sensitive heat controller maintaining temperatures to $\pm 1/2^\circ$.

701296 0.7-cu-ft Capacity Model Each **\$610.00 701298** 2.0-cu-ft Capacity Model Each **\$834.00**

Labeling

Bel-Art® Write-On Label Tape

A very versatile and practical method of applying labels to surfaces of any contour and material such as glass, metal, or plastic. Labels resist moisture and most solvents and can be used under temperature conditions of -73° to 121° C. Can withstand repeated autoclaving. May be readily applied and peeled off without leaving a sticky residue. 40-yard roll.

657484 ³/₄" Wide Each **\$17.80 657485** 1" Wide Each **\$23.46**

Pressure-Sensitive Labeling Tape

Vinyl coated, white. Adheres tightly to glass, metal, plastic, or ceramic surfaces. Accepts pencil, pen, or ballpoint markings. $^{1}/_{2} \times 500^{\circ}$ roll.

657200 Each **\$7.25**



657200 Pressure-Sensitive Labeling Tape

Bel-Art® Write-On Label Tape Dispenser

The weighted base dispenser has a writing platform for left- or right-handed people. Platform also has built-in cutting edge. Finger holes in platform permit easy removal of tape. Base has foam-rubber pad and a plastic core for 3" tape reels up to 1" wide. Size, $10 \times 6 \times 4$ ".

657480 Each \$111.20

657480
Bel-Art Write-On
Label Tape Dispenser

Materials Testing

Melting Point Apparatus

The DMP100 makes melting point measurement simple, so the apparatus is ideal for use in educational chemistry labs. It also can be an indispensable benchtop tool for the modern science laboratory and for select industrial applications, such as quality control testing for the purity of pharmaceutical and other organic crystalline solids. Additional features:

- Space-saving compact design
- 4-digit LED temperature display with 0.1° C resolution
- 3 indicator lights (Heating, Fast, Slow) that advise the procedure is in process
- Heating block with plastic cover to protect the user; cover is easily removed for cleaning
- Magnifying lens that allows a view of up to 2 samples, illuminated clearly by a built-in LED light
- Adjustable "Slow Speed" temperature ramp rate from 1° C to 10° C
- "Fast Stage" temperature setting that saves time prior to carrying out the melt procedure
- Extendible metal feet that help provide an appropriate viewing angle
- "Read" button that captures the melt temperature, allowing for an accurate recording

Dimensions: $6^7/_{10}$ " L \times $6^3/_{10}$ " W \times $6^7/_{10}$ " H. 120 V, 60 Hz. Three-year warranty.

711032 Each \$1,450.00

Kimax[®] Glass Capillary Tubes, Melting Point

Kimble 34500. OD, 1.5 to 1.8 mm; approximate wall thickness, 0.2 mm. Length, 100 mm (ends open).

711040 Vial of 100 **\$15.70** 20+ Vials Each **\$15.30**



711042 Pyrex Glass Capillary Tubes, Melting Point

Pyrex® Glass Capillary Tubes, Melting Point

Corning®. ID, 1.3 to 1.6 mm; wall thickness, 0.2 mm; length, 100 mm (ends open). Non-heparinized.

711042 Vial of 100 \$13.00

Measurement

Laboratory Equipment & Supplies

Measurement

Set

Classroom Measurement Set Great buy!

This deluxe set is the perfect size for a class of students learning about measurement equivalents. Students practice measuring customary capacities, liquids, and metric conversions. Each clearly marked piece is made of durable plastic to provide years of use. Teacher's guide included.

Set includes:

Liquid Measuring Containers: cup (8 oz/250 mL), pt (16 oz/500 mL), qt (32 oz/1,000 mL)

Standard Spoons: $^{1}/_{4}$ tsp, $^{1}/_{2}$ tsp, 1 tsp, $^{1}/_{2}$ tbsp, 1 tbsp

Standard Cups: 1/4, 1/3, 1/2, 1

Measuring Jars: gill, pt, qt, $^{1}\!/_{2}$ gal, gal (also marked for metric 100 mL to 3,000 mL)

961920 Per set \$46.60



961920 Classroom Measurement Set

Compasses & Protractor



School Pencil Compass

With measuring arc, steel needle, and lead pencil. Makes an $11^{1}/_{2}^{n}$ circle.

644375 Each \$3.25

Safe-T[®] Compass

Brightly colored, shatterproof plastic compass draws circles from $^{1/4}$ to $10^{\prime\prime}$ diam. Because it has no sharp point, this compass is appropriate for young children; desks remain unscratched. Edges are ruled in inches and millimeters.

917453B Pack of 12 \$30.05

644375 School Pencil Compass







917440B 6" Professional Protractors

6" Professional Protractor

Open center; 6" ruler on straight edge. Clear plastic with permanently bonded calibrations. **917440B** Pack of 12 **\$13.95**



See more measuring supplies on the next page.

Rulers

Measurement

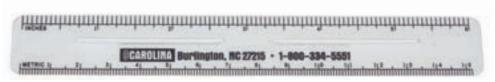


702601 White Vinyl Ruler

White Vinyl Ruler

Measures 6" x 150 mm. With Celsius and Fahrenheit scales on reverse side. Also has a number of metric and English equivalents.

702601 Pack of 12 \$9.05 10+ Packs Each \$8.45



702603 Transparent Vinyl Ruler

Transparent Vinyl Ruler

Measures 6" and 150 mm. Has 2 slots to serve as lettering guide.

702603 Pack of 12 **\$9.40** 10+ Packs Each **\$8.70**



702605 See-Through Plastic Ruler, 6'



702606 See-Through Plastic Ruler, 12"

See-Through Plastic Rulers

Flexible plastic rulers accurately scaled in sixteenths on 1 side and millimeters on the other. Contains raised edges to eliminate smearing, plumb line at each end to serve as a T-square, and a hole for hanging.

702605 6" Each \$3.55 12+ Each \$3.30 Each \$4.75 12+ Each \$4.25 **702606** 12"

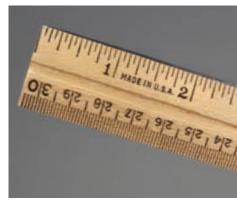


702611 Plastic Scale Rules

Plastic Scale Rule

In opaque assorted colors. Graduated in millimeters and inches. Length, 12".

702611 Pack of 12 \$12.85

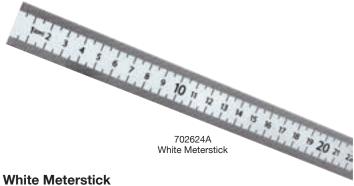


702616 12" School Ruler

12" School Ruler

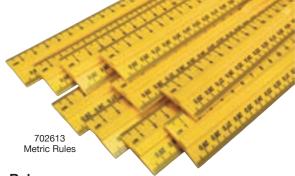
Double bevel with pencil groove: scaled in 1/16" increments on 1 bevel, millimeter on opposite. Has single metal edge on 1 side. Size, $1^{1}/8^{11}$ W \times $5/32^{11}$ thick.

702616 Each \$1.95 12+ Each \$1.85



Both edges of 1 side are graduated in decimeters, centimeters, and millimeters; the reverse side is graduated in 0.5 centimeters with each centimeter numbered.

702624A Each \$12.90



Metric Rule

Designed with molded-in handles and hot-stamped, easy-to-read markings that will not wear off. Both edges are calibrated in millimeters with 1 edge numbered in centimeters and the other numbered in millimeters.

702613 Pack of 10 \$17.65

Measurement

Laboratory Equipment & Supplies



702612 SI Relationship Rule

SI Relationship Rule

Designed with molded-in handles and hot-stamped, easy-to-read markings that will not wear off. One edge shows the relationship between decimeters, centimeters, and millimeters, and the other edge is calibrated and numbered in millimeters.

702612 Pack of 10 \$22.85



702597 Stainless-Steel Ruler

Fiberglass Tape Measure

A high-strength tape with heat-sealed markings to ensure accuracy and eliminate fade. One side is scaled in millimeters with 0.5-cm markings in a horizontal readout. The reverse side is scaled in 0.5 centimeters with colored decimeter markings in a vertical readout. Length, 150 cm. Pack of 10.

702629 Fiberglass Tape Measure

702629 Per pack \$22.05



Scaled in sixteenths on 1 edge and millimeters on the other with acid-etched graduations that will not wear off. Has nonskid backing to avoid slipping on smooth surfaces, raised edges to eliminate smearing, and a hole for hanging. Length, 12".

702597 Each \$9.40

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702619 Half-Meter Rule

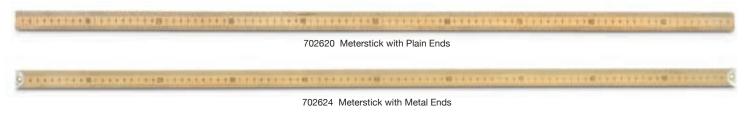
Half-Meter Rule

Varnished, hardwood 0.5-m rule with sharp black graduations. Both edges of 1 face are graduated in decimeters, centimeters, and millimeters; 1 edge of the other face in inches and eighths.

702619 Each \$4.45 12+ Each \$4.15

Carolina Has the **Right Mix of Products**

From absorbent cotton to zygospores, Carolina's product assortment can meet your needs. See the complete selection at Carolina.com.



Metersticks

Constructed of hardwood with clear lacquer finish. Both edges of 1 side are graduated in decimeters, centimeters, and millimeters; 1 edge of the other side is graduated in inches and eighths. Dimensions: 1" W \times $^5/_{16}$ " thick. Available with **Plain Ends** or **Metal Ends**.

702620 Meterstick with Plain Ends Each \$5.55 12+ Each \$5.10 702624 Meterstick with Metal Ends Each \$6.95 12+ Each \$6.45

Laboratory Equipment & Supplies Mortars & Pestles/Notebook

Measurement/



702637 Windup Meter Tape, 30 m

Windup Meter Tapes

High-quality fiberglass tape in plastic windup case. Calibrated on 1 side in inches and the other side in 1-cm increments. Useful in many outdoor activities and will not tear, rust, or stretch. Available in 10-m, 30-m, and 50-m lengths.

702636	10 m	Each	\$22.30
702637	30 m	Each	\$52.75
702638	50 m	Each	\$69.05



702677 Trundle Wheel

Trundle Wheel

Useful to measure long distances or demonstrate the relationship between circumference and diameter. The circumference of the wheel measures an accurate meter, and an audible, nonwearing clicking device is activated in either direction with each 1-m revolution. Wheel edges grip smooth surfaces, preventing slippage as the wheel rolls. A sturdy, plastic handle enables the user to walk while rolling the wheel. The scale is graduated in 1-cm divisions. Approved by the Canadian National Metric Council.

702677 Each \$43.20

Mortars & Pestles

Glass Mortars and Pestles

Extra heavy, carefully annealed. Mortars have smooth, rounded interior, no ridge. Pestles are carefully matched. Made of flint glass.

Item No.	Bowl Volume	Bowl Diam	Each	12+ Each
742880	2 oz	31/8"	\$20.60	\$19.80
742882	4 oz	31/2"	\$21.45	\$20.70

Porcelain Mortars and Pestles

Porcelain mortars with spouts.

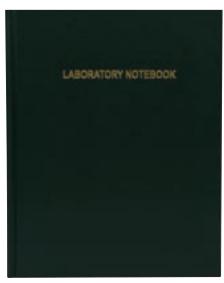
Item No.	Bowl OD	Bowl Capacity	Each
742890	80 mm	60 mL	\$10.85
742892	100 mm	130 mL	\$13.65
742894	130 mm	320 mL	\$18.80
742896	160 mm	600 mL	\$21.40



742890 Porcelain Mortar and Pestle

Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.

Notebook



657830 Nalgene Laboratory Notebook

Nalgene® Laboratory Notebook

Notebook features 100 numbered, permanently sewnin paper pages with 1/4" grid lines. Pages have spaces for dates and signatures of workers and witnesses. Other pages include instructions for keeping research records, table of contents, and a page for issuing the notebook. Brown polyethylene cover is waterproof.

657830 Each \$45.90

Oven/Pipets

Laboratory Equipment & Supplies

Oven



Gravity Convection Ovens ▲3

Designed to meet the laboratory needs of schools, research organizations, and industry. Versatile with 2 adjustable shelves; can be used for drying, baking, sterilizing, evaporating, heat treating, annealing, and testing. Exteriors are painted light gray and have hard, scratch-resistant hammered finish. Doors open with high-impact thermoplastic handles. Cabinets have heavy steel, double-wall construction. Work space is insulated from the outer cabinet with 1" of high-density mineral wool. Interiors are made of corrosive-resistant aluminized steel. Maximum temperature, 225° C (437° F). Four sizes are available (dimensions given are inner measurements).

701531	12 × 10 × 10"	Each	\$750.00
701532	$13 \times 13 \times 13$ "	Each	\$867.00
701533	18 × 16 × 12"	Each	\$1,048.00
701535	18 × 21 × 14"	Each	\$1,274.00

701533 Gravity Convection Oven, 18 × 16 × 12"

Pipets

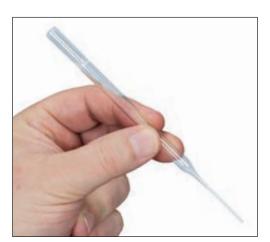
Disposable

Corning® Disposable Pasteur Pipet

One-time use eliminates the danger of cross-contaminating valuable specimens or laboratory reagents

These disposable, non-sterile, non-plugged Pasteur pipets are available in convenient packages. A constriction 1 inch below the top facilitates plugging. These pipets are ideal for rapid, non-volumetric transfer work in bacteriology, immunology, hematology, and serology studies, as well as for blood bank and clinical chemistry procedures.

736319 5³/₄" L Pack of 200 **\$29.95 736320** 9" L Pack of 200 **\$32.50**



736319 Corning Disposable Pasteur Pipet, 53/4" L

Pyrex® Disposable Glass Serological Pipets

• Sterile—each piece is individually wrapped • Plugged

Corning® 7077. These pipets—calibrated for total capacity transfer by "blow out"—offer long, slender, tapered tips to make pipetting faster and easier. All pipets have negative graduations and fire-polished tips for burr-free, even flow rates. The easy-open Steri-View wrappers (1 side paper, 1 side plastic) are printed with color-coded sizes for easy identification. **Note:** For non-sterile, non-plugged pipets, see Pyrex® Disposable Glass Serological Pipets (items #736304 to #736307).

Item No.	Capacity	Grad	Qty	Each
736300	1 mL	0.01 mL	Pack of 200	\$110.45
736301	2 mL	0.01 mL	Pack of 180	\$116.25
736302	5 mL	0.1 mL	Pack of 120	\$110.30
736303	10 mL	0.1 mL	Pack of 100	\$95.30



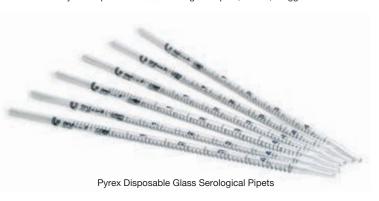
Pyrex Disposable Glass Serological Pipets, Sterile, Plugged

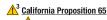
Pyrex® Disposable Glass Serological Pipets

• Non-sterile • Non-plugged

Corning® 7079. These pipets, which will transfer total capacity when "blown out," offer long, slender, tapered tips to make pipetting faster and easier. All pipets have fire-polished tips for burr-free, even flow rates. **Note:** For sterile, plugged pipets, see Pyrex® Disposable Glass Serological Pipets (items #736300 to #736303).

Item No.	Capacity	Grad	Qty	Each
736304	1 mL	0.01 mL	Pack of 50	\$22.60
736306	5 mL	0.1 mL	Pack of 30	\$22.95
736307	10 mL	0.1 mL	Pack of 20	\$16.95







736982 Microchemistry Plastic Pipet, Micro Tip

Microchemistry Plastic Pipets

Made of low-density polyethylene, which can be cleaned and reused. Can be used as a means of storing and transferring liquids; as a micro-dropper; and as a reaction vessel. Pipets are sold in packs of 100, except for item #736995, which is sold in a pack of 10. Graduated pipets are marked at 0.25 mL, 0.5 mL, 0.75 mL, and 1 mL. Total capacity includes bulb.

Item No.	Description	Grad	Overall Length	Capacity	Drops per mL	Qty	Per Pkg
736982	Micro Tip	_	53/4"	5.0 mL	50	Pack of 100	\$13.95
736984	Graduated, Small	0.25 mL	51/2"	3.0 mL	25	Pack of 100	\$7.30
736986	Graduated, Large	0.25 mL	6"	5.0 mL	25	Pack of 100	\$9.40
736988	Jumbo	_	6"	7.0 mL	22	Pack of 100	\$12.80
736990	Thin Stem	_	6"	4.0 mL	25	Pack of 100	\$13.20
736995	Super Jumbo	_	12"	23.0 mL	22	Pack of 10	\$6.10

Polystyrene, Disposable, Sterile, Serological Pipets

Corning®. Disposable polystyrene serological pipets, plugged and individually wrapped. Color-coded bands make identification by size fast and easy.

736122	$1 \times 0.01 \text{ mL}$	Pack of 50	\$23.80
736123	$2 \times 0.01 \text{ mL}$	Pack of 50	\$28.90
736124	$5 \times 0.1 \text{ mL}$	Pack of 50	\$40.25
736125	$10 \times 0.1 \text{ mL}$	Pack of 50	\$41.50
736126	$25\times0.2~\text{mL}$	Pack of 25	\$43.85

Polystyrene, Disposable, Sterile, Serological Pipets



Reusable



Pyrex® Color-Coded Mohr Pipets

Pyrex® reusable glass pipets provide the best value for your laboratory dollars. These pipets are color-coded by size for easy identification and sorting. Colored graduations are enameled onto the glass. They are calibrated to deliver total capacity without blowout. Class B.

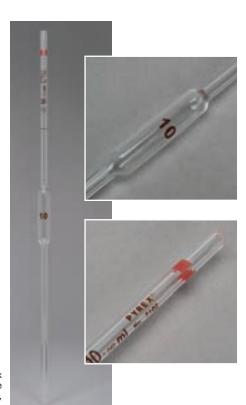
Item No.	OD	Length	Capacity	Grad	Each	12+ Each
736280	7 mm	325 mm	1 mL	0.1 mL	\$12.60	\$12.10
736282	7 mm	350 mm	1 mL	0.01 mL	\$13.75	\$13.25
736286	8 mm	350 mm	5 mL	0.1 mL	\$14.05	\$13.60
736288	10 mm	380 mm	10 mL	0.1 mL	\$16.20	\$15.65
736290	14 mm	440 mm	25 mL	0.1 mL	\$22.25	\$21.45

Pyrex® Glass Reusable Volumetric Pipets Color-coded by size for easy identification and sorting

Corning® 7102. These pipets were designed primarily for schools and laboratories that do not require Class A tolerances. The larger tip opening allows for faster delivery.

736310 10-mL Capacity Each **\$15.50 736311** 25-mL Capacity Each **\$22.95**

736288 Pyrex Color-Coded Mohr Pipet, 10 mL 736310 Pyrex Glass Reusable Volumetric Pipet, 10 mL



Pipets Accessories

Laboratory Equipment & Supplies



736866 Pipet-Aid

Pipet-Aid

Scienceware®. An economical pipetting aid that provides a safe and easy alternative to mouth pipetting. Squeeze the vinyl bulb and draw fluid into the pipet. Remove the pipet and cover the end of the pipet with a finger to control and release fluid. Tapered polyethylene chuck allows for quick removal when pipet is filled.

736866 Each \$9.85



736968 Pipet Support Rack

Pipet Support Rack

Scienceware®. A sturdy, molded polypropylene support which is steam autoclavable at 121° C (250° F). Rack holds 50 pipets in a vertical position for safe, orderly, and space-saving storage. Has top hand grips on both ends for safe moving without breakage.

736968 Each \$44.50



736934 Red Rubber Bulb

Red Rubber Bulb

For use with pipets. Excellent as injecting bulb. Size, 1 oz $(2^{3}/_{4} \times 1^{1}/_{2}"; ^{3}/_{16}" bore)$.

736934 Each \$5.10



736884 Automatic Pipet Washer

Automatic Pipet Washer

Scienceware®. Polyethylene. A unique "tube within a tube" siphon system that assures rapid, complete, automatic siphoning action over a wide range of inlet water pressures and flow rates. Minimizes the tendency of siphoning action to "stall" at certain inlet flow rates. A 12" piece of 1" ID tubing is provided for easy discharge. For pipets up to 18". Note: Basket not included.

736884 Each \$443.00



736869 FLIP Safety Pipet Filler

FLIP Safety Pipet Filler

A red, 1-piece filler for all pipets from 0.05 to 50 mL. 736869 Each \$21.65



736867 Each \$28.70

Fast-Release Pipette Pump™ III

Designed for fast and accurate 1-hand operation

Scienceware®. The optimally located thumbwheel on these pipettors allows the operator to easily aspirate or dispense as little as a drop at a time, or to blow out the pipet—yet maintain a relaxed grip. A fast-release trigger dispenses the pipet's entire contents. These pipettors are resistant to acids, alkalis, and most solvents, and can be disassembled for cleaning. A self-stabilizing collar inside the silicone chuck holds glass or plastic pipets. Available in 3 pipet volumes: 2, 10, and 25 mL, each color-coded for easy identification. Overall length, 63/4".

 736871
 For Pipets up to 2 mL (blue)
 Each
 \$28.85

 736872
 For Pipets up to 10 mL (green)
 Each
 \$29.70

 736873
 For Pipets up to 25 mL (red)
 Each
 \$41.95



Fast-Release Pipette Pump™ II

Provides easy, precise pipetting and features a rapid-release lever for zip-quick emptying. Made especially for pipets that are calibrated to the tip but not to be blown out (retains final drop). Rotating the thumbwheel draws up or dispenses liquid. Tightens to grip glass or plastic pipet securely. Sizes are color-coded.

736862

For Pipets up to 2 mL (blue) Each **\$22.90**

736863

For Pipets up to 10 mL (green)

Each **\$23.15 736864**

For Pipets up to 25 mL (red)

Each \$28.25

736862 Fast-Release Pipette Pump II, 2 mL



Customer Review

"These pumps are easy to use and really efficient. In a lab with little equipment, this gives the students a sense of using 'real' lab equipment."

High School Biology Teacher

Pumps

Pumps III

25-mL Fast-Release Pipette



Filter Pump or Aspirator

More efficient by test than other filter pumps; will produce a higher vacuum in less time, using one-third less water. All brass, polished and lacquered. Overall length, 53/8" with 3/8" IPS male thread. Use with item #711559 Red Vacuum and Pressure Tubing.

711936 Each \$26.95



711974 Nalgene Polypropylene Vacuum Filter Pump

Nalgene® Polypropylene Vacuum Filter Pump

Water-operated pump with maximum free air pumping capacity of 11.5 L/min at a water consumption rate of 6.5 L/min. With integral check valve, $^3/_8$ " NPT connecting thread, and $4^3/_4$ " length of tubing. Operates efficiently with water pressures as low as 7.5 psi for minimum water consumption. Ultimate vacuum, 28.5" Hg.

711974 Each \$20.75



752812 Hand-Operated Vacuum Pump without Gauge

Hand-Operated Vacuum Pump

Demonstrate the effect of a partial vacuum on inflated balloons and other objects with this easy-to-use pump. The pump removes 15 mL of air with each squeeze of its comfort-grip handle and pulls a vacuum down to 50 mm of mercury. A release valve lets you release the vacuum without disconnecting the pump from the line. Includes 12" of $3/_{16}$ "-ID tubing and instructions.

752812 Each \$42.90

Refrigerator/ Spatulas & Tongs

Laboratory Equipment & Supplies

Refrigerator

Compact Laboratory Refrigerator A

Keep your laboratory materials safe and fresh with this general-purpose, clear-door refrigerator. Unit has a temperature setting range of 34–64° F. Features 7 thermostat settings to keep the temperature where you need it. It has 5 removable racks and a spacious storage bin to arrange your storage space to fit your needs. This refrigerator is well suited for the maintenance of medical leeches (41–50° F). Energy-saving LED light illuminates your materials. Stainless-steel finish.

Specifications:

Capacity: 3.4 cu ft
Temperature Range: 34–64° F
Amps: 1.3 A
Power Requirements: 110-V AC

Dimensions: $33^{13}/_{100}$ " H × 19" W × $18^{1}/_{4}$ " D

701569 Each \$697.00



701569 Compact Laboratory Refrigerator

Spatulas & Tongs



702999 Lab Tools Kit

Bottle/Specimen Forceps Stainless steel, straight. 12" L.

702940 Each **\$12.75** 12+ Each **\$11.95**



Lab Tools Kit A3

Save money and time when you purchase these 6 important lab tools in 1 complete kit. Includes crucible tongs, forceps, lab scoop, spatula, test tube brush, and test tube clamp with grips.

702999 Per kit \$16.20

Stoddard Test Tube Clamp with Grips

Made of plated steel wire, with finger grips. $6^3/8$ " L. **702902** Each **\$2.55** 12+ Each **\$2.30**



Crucible Tongs

Nickel-plated. For holding large-size crucibles, from $1^{1/2}$ " up. Made from a $1^{1/4}$ " steel rod. With flattened joint where securely riveted and ample finger grips. 18" L.

702950 Each \$18.70 12+ Each \$17.45



Stoddard Test Tube Clamp

Made of plated steel wire. 5" L.

702900 Each \$2.50 12+ Each \$2.25



Laboratory Equipment & Supplies

Spatulas & Tongs

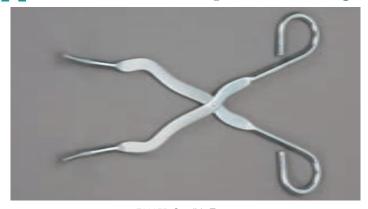


702980 Beaker Tongs

Beaker Tongs

For handling hot beakers, crucibles, etc. 50- to 1,500-mL capacity. Made of $^{1}/_{4}$ " steel rod. Jaws are plastic covered for firm gripping.

702980 Each **\$11.15** 12+ Each **\$10.45**



702955 Crucible Tongs

Crucible Tongs A

Nickel-plated. Designed with tapered, serrated tips that meet tightly for better gripping. Overall length, 10".

702955 Each \$8.30



Micro Spatula

Stainless steel, glazed finish. Both ends flattened. Handle, 0.103" diam. About 8" L with 2" L flat ends.

702700 Each \$6.05



702742 Spatula with 4 \times 1 $^{1}/_{16}$ " Blade

Spatulas

Stainless-steel blades with riveted hardwood handles.

702740 Blade $3 \times \frac{9}{16}$ " Each **\$10.45 702742** Blade $4 \times \frac{11}{16}$ " Each **\$11.20**



Micro Spoon

Stainless steel, mirror finish. Handle, 0.156" diam. About 9" L. Spoon end is $1^1\!/s$ " L \times $^9\!/_{16}$ " W. Flat end is $1^7\!/s$ " L.

702706 Each \$7.85



Wooden Test Tube Clamp

Holds test tubes $^{3}/_{4}$ to 1" in diameter. $7^{1}/_{4}$ " L.

702904 Each **\$4.40**



702708 Micro Spoon

Micro Spoon A³

Handle, 0.103" diam. $6^{3}/_{4}$ " L. Spoon end 1" L \times $^{1}/_{4}$ " W. Plastisol handle; metal parts, stainless steel.

702708 Each \$5.55



702850 Lab Scoop with Handle

Lab Scoop

Stainless-steel, $6^{1/2}$ " curved blade with 1 pointed end and 1 blunt end. Available with or without lacquered hardwood handle.

702850 Scoop with Handle Each **\$9.50 702851** Scoop Only Each **\$2.50**



Specimen Containers

Laboratory Equipment & Supplies

Specimen Containers

Glass

Wheaton Redi-Pak® Clear, Straight-Sided Jars with Caps Hazard communication and tamper-evident labels included FREE!

These specimen containers offer convenience and quality while eliminating the guesswork of matching caps with jars. The



(left to right) 715744 and 715745 Wheaton Redi-Pak Clear, Straight-Sided Jars with Caps

straight-sided jars are ideal for soil sampling and environmental applications. Manufactured from Wheaton "800" glass (meets USP Type III standards). Sold by the case.

Item No.	Capacity	Diam/H	Qty	Each
715740	60 mL (2 oz)	55/48 mm	Case of 24	\$52.95
715741	120 mL (4 oz)	60/68 mm	Case of 24	\$55.25
715743	250 mL (8 oz)	73/88 mm	Case of 12	\$41.40
715744	500 mL (16 oz)	91/95 mm	Case of 12	\$50.75
715745	1,000 mL (32 oz)	95/170 mm	Case of 12	\$62.10



(left to right) 715611, 715612, 715613, and 715614 Glass Screw-Cap Specimen Jars, Tall Form

Glass Screw-Cap Specimen Jars, Tall Form

Widemouthed, flint glass. Suitable for glass plate mounted specimens. Since the mouth is virtually the full diameter of jar, specimens can be inserted easily. **Note:** Caps not included; please use White Enamel Metal Screw Caps or Black Molded Screw Caps as indicated in the table below.

Item No.	Size	Height	Diam	Cap Diam	For Use with Caps	Pack of 12
715611	2 oz	31/4"	11/2"	38 mm	items #715644 and #715682	\$13.05
715612	4 oz	4"	2"	48 mm	items #715648 and #715686	\$16.95
715613	8 oz	51/4"	21/4"	58 mm	items #715652 and #715690	\$19.25
715614	16 oz	53/4"	27/8"	70 mm	items #715656 and #715694	\$24.60



(left to right) 715622, 715620, and 715623 Glass Screw-Cap Specimen Jars

Glass Screw-Cap Specimen Jars

Shoulder type, flint glass. The sizes are proportionately increased according to capacity. Because of the shoulder, the diameter of the jar is greater than that of the cap. Sizes are approximate. **Note:** Caps not included; please use White Enamel Metal Screw Caps or Black Molded Screw Caps as indicated in the table below.

Item No.	Size	Height	Diam	Cap Diam	For Use with Caps	Pack of 12
715620	4 oz	35/16"	2"	48 mm	items #715648 and #715686	\$17.25
715621	8 oz	4"	21/2"	58 mm	items #715652 and #715690	\$19.95
715622	16 oz	51/4"	31/8"	63 mm	items #715654 and #715692	\$27.10
715623	64 oz	81/2"	43/4"	83 mm	items #715658 and #715696	\$98.50
715625	128 oz	93/4"	61/4"	110 mm	item #715700	\$118.95



715604 Glass Screw-Cap Specimen Jar, Low Form

Glass Screw-Cap Specimen Jars, Low Form

Widemouthed, flint glass. For storing and exhibiting short, thick specimens or mounts on plastic and glass plates. **Note:** Caps not included; please use White Enamel Metal Screw Caps or Black Molded Screw Caps as indicated in the table below.

Item No.	Size	Height	Diam	Cap Diam	For Use with Caps	Pack of 12
715601	2 oz	1 ⁷ /8"	17/8"	53 mm	items #715650 and #715688	\$14.95
715602	4 oz	25/8"	23/8"	58 mm	items #715652 and #715690	\$16.50
715604	8 oz	31/8"	27/8"	70 mm	items #715656 and #715694	\$23.90
715605	16 oz	35/8"	35/8"	89 mm	items #715660 and #715698	\$26.90
715606	32 oz	63/4"	35/8"	89 mm	items #715660 and #715698	\$38.05

Specimen Containers/ Spot Plate

Laboratory Equipment & Supplies

Plastic



(left to right) 716123, 716124, and 716125 Dynalon Disposable Specimen Containers



(left to right) 715722 and 715728 Plastic Screw-Cap Specimen Jars, Low Form

Dynalon® Disposable Specimen Containers

Lightweight containers with tight-fitting lids. Molded of high-density polyethylene; non-breakable and translucent. The containers are inert and cannot be attacked by formaldehyde or weak acids or bases. Will resist freezing or boiling. Sturdy enough for reuse.

Item No.	Size	Diam/H	Qty	Each
716122	4 oz	31/8"/11/2"	Pack of 50	\$31.10
716123	8 oz	31/8"/31/4"	Pack of 50	\$34.80
716124	16 oz	35/8"/35/8"	Pack of 25	\$26.65
716125	32 oz	31/2"/51/4"	Pack of 25	\$40.65

Plastic Screw-Cap Specimen Jars, Low Form

Extra widemouthed, shatterproof. A shoulderless jar of clear rigid polystyrene. Lightweight. **Note:** Caps not included; please use White Enamel Metal Screw Caps or Black Molded Screw Caps as indicated in the table below. Not recommended for use with chemicals.

Item No.	Size	Height	Diam	Cap Diam	For Use with Caps	Pack of 12
715722	2 oz	13/4"	1 ⁷ /8"	53 mm	items #715650 and #715688	\$6.95
715724	4 oz	25/8"	2"	58 mm	items #715652 and #715690	\$9.75
715726	8 oz	31/2"	21/2"	70 mm	items #715656 and #715694	\$17.40
715728	16 oz	4"	31/4"	89 mm	items #715660 and #715698	\$23.45
715730	32 oz	41/8"	41/2"	120 mm	items #715664 and #715702	\$45,20

Caps



715660 White Enamel Metal Screw Cap, 89 mm

715682 Black Molded Screw Cap, 38 mm

Customer Review

"I've used these caps throughout my college education . . . they're sturdy and create a great airtight seal. Great for liquids and solids so you don't need to worry about anything leaking into your hands or storage container."

Biology Student

White Enamel Metal Screw Caps

With newsboard and vinyl liners. For low-form and tall-form glass and plastic screw-cap specimen jars. Sizes listed are cap diameter.

Item No.	Size	Pack of 12
715644	38 mm	\$5.90
715648	48 mm	\$7.20
715650	53 mm	\$7.35
715652	58 mm	\$7.95
715654	63 mm	\$8.65
715656	70 mm	\$11.55
715658	83 mm	\$13.55
715660	89 mm	\$14.90
715664	120 mm	\$32.55

Black Molded Screw Caps

Pulp liner with a vinyl finish. For low-form and tallform glass and plastic screw-cap specimen jars. Sizes listed are cap diameter.

Item		Pack
No.	Size	of 12
715682	38 mm	\$3,20
713002	30 11111	\$3.20
715686	48 mm	\$4.90
715688	53 mm	\$4.80
715690	58 mm	\$5.00
715692	63 mm	\$6.20
715694	70 mm	\$7.20
715696	83 mm	\$11.35
715698	89 mm	\$13.90
715700	110 mm	\$16.65
715702	120 mm	\$19.10

Spot Plate



743043 Economy Porcelain Spot Plate

Economy Porcelain Spot Plate

A white spot plate glazed on the top surface. An excellent color-reaction plate. Plate measures 115 \times 90 mm with 12 depressions. Each depression holds about 1.5 mL.

743043 Each \$13.35

Stirrers

Stirrers

Corning® Digital Stirrers

- · Easy-to-read LED displays
- Great for labs that have, or need to establish, routine protocols

Corning® brings innovation to its stirrers with digital displays for stir speed settings. The stir speed display indicates when set speed is reached. Safety features include a *POWER* icon, top-quality insulation, and an external spill trough to protect electronics and control knobs. These units have small footprints and low profiles to conserve lab space and easily fit inside hoods or storage cabinets. Flat, bright, white Pyroceram® ceramic tops provide better contrast during applications that require color-change monitoring. Tops are easy to clean and highly resistant to scratches, corrosion, and chemicals. All units are supplied with a guide to stirring procedures. Stirrers also include the appropriate stir bar. UL® approved.

Item No.	Model	Top Size	Stir Range	Power	Each
701023	PC-410D	5×7 "; 35 sq in (226 sq cm)	60 to 1,150 rpm	120 V, 60 Hz, 73 W, 0.7 A	\$410.00
701024	PC-610D	10×10 "; 100 sq in (645 sq cm)	60 to 1,150 rpm	120 V, 60 Hz, 73 W, 0.7 A	\$607.00





Corning® Scholar™ Stirrer A3

The economical Model PC-171 is a bargain. It features a compact design, vigorous stirring, an AC motor to provide longer life, and rugged construction for use in the classroom. Unit is UL $^{\circ}$ /CUL listed. This stirrer has a 5 × 5" plastic top and stirring range of 100 to 1,600 rpm; 120-V AC. Comes with a 1-year warranty.

Laboratory Equipment & Supplies

701035 Each **\$228.00**

701035 Corning Scholar Stirrer

Carolina® Mini Vortex Mixer

- Fixed 2,800-rpm speed
- Small 4 × 4" footprint
- · Fully enclosed mixing cup
- Flexible, durable, easy-to-clean contact surface that resists stains
- Sturdy, stable metal base
- Handles 30-mm tubes
- Automatic on/off—just push down
- One-year warranty

With a brand-new design that is functional, durable, and attractive, the Carolina® Mini Vortex Mixer meets all of your basic vortexing, agitation, and mixing needs at an affordable price. The fixed 2,800-rpm speed provides great mixing power, and the fully enclosed cup provides a becoming, sturdy surface. To use, simply push down on the cup head and start mixing. The small 4×4 " footprint saves valuable work space but remains stable. One-year warranty. 115 V; wt, 2 lb.

701076 Each \$262.00



See more stirrers and mixers on the next page.



Carolina® Bench Mixer Setting the new standard in vortex mixing

With advanced Q-DriveTM technology, the Carolina® Bench Mixer provides smooth instant vortexing of even the largest samples. Its unique counterbalance system creates maximum vortexing action while minimizing noise and vibration, resulting in quieter, more efficient, and longer-lasting operation. Other features include "no walk" suction feet; cold room/incubator compatibility (ambient operating range, 4 to 45° C); touch and continuous operating modes; continuously adjustable speed control from 200 to 3,200 rpm; and spill-proof electronic controls. Size, $5 \times 6^3/_{10} \times 7^{"}$; wt, 8.4 lb. 115-V AC. CSA® compliant.

701077 Each \$312.00



Accessories



701085 PTFE-Coated Magnetic Spinbar

PTFE-Coated Magnetic Spinbar

Electrically tested, seamless, leakproof. Use permanent alnico-V magnets. 2" L.

701085 Each \$12.20



701093 Spinbar Disposable Magnetic Stirring Bars, 2 × 5/16"

Spinbar[®] Disposable Magnetic Stirring Bars

These economical stirring bars have a PTFE coating. Reusable for most applications.

701091 $1 \times \frac{5}{16}$ "
Pack of 5 \$11.55
701092 $1\frac{1}{2} \times \frac{1}{3}$ "
Pack of 5 \$13.60
701093 $2 \times \frac{5}{16}$ "
Pack of 5 \$18.95



701088 Magnetic Stirring Bar Set

Magnetic Stirring Bar Set

Set of 16 PTFE-coated stirring bars. Designed to meet your requirements for a variety of sizes; bars are packed in a reusable box.

701088 Per set **\$107.95**

Glass Stirring Rods [▲]

With rounded ends. Rods are annealed.

With round	ded ends. Rods	s are anne
711303	$3 \times 125 \text{ mm}$	
	Pack of 12	\$7.20
711305	$5 \times 150 \text{ mm}$	
	Pack of 12	\$6.55
711307	$5 \times 200 \text{ mm}$	
	Pack of 12	\$7.20
711309	$6 \times 250 \text{ mm}$	
	Pack of 12	\$8.55
711311	10 × 300 mn	n
	Pack of 12	\$36.20



711312 Rubber Policeman

Rubber Policeman A

Flexible rubber blade limits stirring rod breaks and helps remove precipitates from glass containers. Fits 5-mm- and 6-mm-diam stirring rods.

711312 Pack of 12 \$8.45

Spinbar® Magnetic Stirring Bar Retriever

A 3/s"-diam, polyethylene, pick-up rod with powerful magnet sealed in 1 end and hang-up grip on other. 30.5 cm L.

701089 Each \$16.65



From 701100 PTFE-Coated "+-Shaped" Stirring Bar Set

PTFE-Coated "+-Shaped" Stirring Bar Set

This set of 5 PTFE-coated stirring bars is excellent for mixing at slow speeds for biological applications and can help improve speed and efficiency for any application. The "+" shape creates a larger vortex for complete mixing and stable, quiet operation. Set contains 1 each of the following:

 $^3/_8 \times ^3/_8$ " Bar $^{11}/_4 \times ^{11}/_4$ " Bar $^{3}/_4 \times ^3/_4$ " Bar $^{11}/_2 \times ^{11}/_2$ " Bar $^{11}/_2 \times ^{11}/_2$ " Bar $^{11}/_2 \times ^{11}/_2$ " Bar

701100 Per set \$58.60



701089 Spinbar Magnetic Stirring Bar Retriever

Stoppers

Stoppers

Rubber

Laboratory Rubber Stopper Assortments

Each assortment includes a number of solid and 1-hole stoppers. All assortments range from No. 1 through No. 6.

712486 1-lb Assortment Each \$17.60 712488 2-lb Assortment Each \$32.35 712490 5-lb Assortment Each \$50.00



Laboratory Equipment & Supplies

From 712486 1-lb Laboratory Rubber Stopper Assortment

Rubber Stoppers

Soft, pliable rubber stoppers measure 1" in length; those with holes will accept 5-mm glass tubing.

5-mm glass tubii	ng.				
Item No.	Size	Тор	Bottom	Approx. No. Per Ib	Price Per Ib
Solid					
712400	00	15 mm	10 mm	105	\$17.60
712401	0	17 mm	13 mm	77	\$17.60
712402	1	19 mm	14 mm	57	\$17.60
712403	2	20 mm	16 mm	45	\$17.60
712404	3	24 mm	18 mm	39	\$17.60
712405	4	26 mm	20 mm	33	\$17.60
712406	5	27 mm	23 mm	28	\$17.60
712408	6	32 mm	26 mm	20	\$17.60
712410	7	37 mm	30 mm	15	\$17.60
712412	8	41 mm	33 mm	12	\$17.60
712414	9	45 mm	37 mm	10	\$17.60
712416	10	50 mm	42 mm	8	\$17.60
One-Hole					
712430	00	15 mm	10 mm	105	\$17.60
712431	0	17 mm	13 mm	77	\$17.60
712432	1	19 mm	14 mm	57	\$17.60
712433	2	20 mm	16 mm	52	\$17.60
712434	3	24 mm	18 mm	39	\$17.60
712435	4	26 mm	20 mm	33	\$17.60
712436	5	27 mm	23 mm	28	\$17.60
712438	6	32 mm	26 mm	20	\$17.60
712440	7	37 mm	30 mm	15	\$17.60
712442	8	41 mm	33 mm	12	\$17.60
712444	9	45 mm	37 mm	10	\$17.60
712446	10	50 mm	42 mm	8	\$17.60
Two-Hole					
712460	00	15 mm	10 mm	105	\$17.60
712461	0	17 mm	13 mm	77	\$17.60
712462	1	19 mm	14 mm	57	\$17.60
712463	2	20 mm	16 mm	52	\$17.60
712464	3	24 mm	18 mm	39	\$17.60
712465	4	26 mm	20 mm	33	\$17.60
712466	5	27 mm	23 mm	28	\$17.60
712468	6	32 mm	26 mm	20	\$17.60
712470	7	37 mm	30 mm	15	\$17.60
712472	8	41 mm	33 mm	12	\$17.60
712474	9	45 mm	37 mm	10	\$17.60
712476	10	50 mm	42 mm	8	\$17.60

Cork



From 712032 XXXX Quality Assorted Corks

XXXX Quality Assorted Corks

Sets of 100.

712032 No. 0 to 11 (inclusive) Per set **\$18.90 712034** No. 3 to 16 (inclusive) Per set **\$40.50**

Accessories



Cork Borer Set

Set of 6 plated brass borers with handles of convenient shape. Starting at $^3/_{16}$ ", the tubes increase in size, in steps of $^1/_{16}$ to $^1/_2$ " diam, and are numbered in sequence. A steel, copper-plated punch is included.

712202 Per set **\$32.75**

Support Stands & Accessories

Laboratory Equipment & Supplies

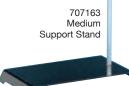
Support Stands & Accessories

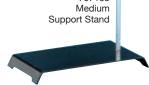
Stands

Support Stands A

Rectangular forged steel base, black enamel, with rod in end of base. Available in **Small** (base, 4×6 "; rod, 18 \times 5/16"); Medium (base, 5 \times 8"; rod, 20 \times 3/8"); Large (base, $5^{1}/2 \times 9^{"}$; rod, $24 \times {}^{1}/2^{"}$); and **Extra Large** (base, 6×11 ": rod. $36 \times \frac{1}{2}$ ").

0 / 11 ,	10u, 00 × 12).		
707161	Small	Each	\$19.40
		12+ Each	\$18.15
707163	Medium	Each	\$21.45
		12+ Each	\$20.15
707165	Large	Each	\$25.75
	3.	12+ Each	\$24.50
707167	Extra Large	Each	\$26.95
	J	12+ Each	\$25.65





Cast-Iron Support Stand A

Triangular base, black enamel, with rods. Size, 24 \times

707194 Each \$34.95



707194 Cast-Iron Support Stand

Support Stands with Rings A

A combination of support stands with sup-

Item No.	Ring Size	Support Size	Rod Height	Per Set
707169	2", 3"	4 × 6"	18"	\$35.65
707170	3", 4"	4 × 6"	18"	\$41.40
707172	3", 4", 5"	5 × 8"	24"	\$52.85

Customer Review

"This is just the caliber of support stand that I needed for my elementary school classroom for demos and activities. I plan to be back to Carolina to purchase a few more to complete my set very soon!"

Middle School Science Teacher



Support Stand with Rings

Cast-Iron "A" Support Stand A

Made of rugged cast iron for extra stability, this stand has a baked-on chemical-resistant black finish and uses a zincplated support rod. The stand has two 20-cm (79/10") support arms and holds the support rod in the center. The rod is 58 cm (23") L and 11.1 mm (7/16") in diameter.

707146 Each \$20.90



707146 Cast-Iron "A" Support Stand

Tripods



706955 Tripod

Iron. 9" H. Ring ID, 13/4"; ring OD, 31/2". Enameled ring and zincplated legs.

706955 Each \$20.85 12+ Each \$19.60



706970 Tripod

9" H. Ring OD. 43/4". Japanned iron ring and copper-plated legs.

706970 Each \$22.35 12+ Each \$21.35



706980 Tripod with Concentric Rings

Tripod with **Concentric Rings**

9" H. Japanned concentric iron rings. Larger ring OD, 5". Copperplated legs.

706980 Each \$30.20 12+ Each \$28.50

Jack



759612 Laboratory Jack

Laboratory Jack

Used to raise and lower loads up to 100 lb to any height from 3 to 12". Equipped with a chrome-plated top and base plate measuring 8×8 ".

759612 Each \$107.75

Support Stands & Accessories/Syringes

Laboratory Equipment & Supplies

Rings

Cast-Iron Support Rings A

Heavy support rings, made of chrome-plated cast iron. Fits rods up to 1/2".

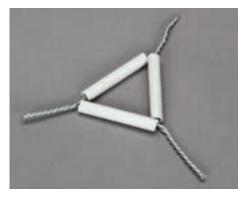
707242 2" diam Each \$8.50 707243 3" diam Each \$9.90 \$10.90 **707244** 4" diam Each **707245** 5" diam Each \$13.05

> Visit Carolina.com for more details about any product, including customer ratings and reviews, related resources for downloading, and accessories.

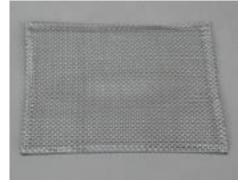


707244 Cast-Iron Support Ring, 4" diam

Wire & Gauze



706880 Triangle



706893 Wire Gauze, Plain

Wire Gauze

Ceramic fiber center, turned edges. Made of #25 wire, 10 mesh, tinned.

706902 Wire Gauze, 5 x 5"

tii ii iou.		
4 × 4"	Each	\$3.10
	10+ Each	\$2.90
5×5 "	Each	\$3.55
	10+ Each	\$3.30
6 × 6"	Each	\$4.35
	10+ Each	\$4.15
	4 × 4" 5 × 5"	5×5 " Each $10 + Each$ 6×6 " Each

Triangle

Galvanized iron wire, covered with pipe clay stem. Size, 2".

706880 Each **\$2.85** 100+ Each **\$2.75**

Wire Gauze, Plain A3

Iron wire gauze with turned edges. Size, 5×5 ". 706893 Each \$2.15

Syringes

Disposable Hypodermic Syringes

Highly useful for measuring and transferring fluids and gas samples. B-D Plastipak® made of inert polyethylene, sealed in individual sterile packets. Thin-line plunger and prominent calibration markings assure accurate measurements. Note: Sold only to schools and businesses.

697765	1 cc in ¹ / ₁₀₀ cc, Luer Slip Tip
697771	5 cc in 1/5 cc, Luer-Lok Tip
697774	10 cc in ¹ / ₅ cc, Luer-Lok Tip
697780	30 cc in 1/5 cc, Luer-Lok Tip
697783	60 cc in 1/5 cc, Luer-Lok Tip



Pack of 25	\$18.40
Pack of 15	\$19.50
Pack of 15	\$28.00
Pack of 10	\$39.50
Pack of 5	\$30.50



(from left to right) 697765, 697771, 697774, 697780, and 697783 Disposable Hypodermic Syringes

Laboratory Equipment & Supplies **Laboratory Thermometers**

Nonmercury





Immersion Thermometer



Immersion Thermometer, Plastic Back

Immersion Thermometer

Red-alcohol-filled thermometer with dual scale, °C and °F, on metal V-shaped backing. Range, -10 to 110° C, 0 to 230° F. Pack of 5.

745512 Per pack **\$19.00**

Immersion Thermometer, Plastic Back

The red-alcohol-filled thermometer is recessed in a molded plastic back to prevent breakage. Thermometer can be held after immersion in hot liquids without danger of burning students' hands. Range, -58 to 230° F and -50 to 110° C.

745513 Each \$6.00

Carolina Teacher Tips

\$16.85

\$17.05

Thermometer Storage

Please do not store thermometers flat in a drawer. Always use a thermometer rack.

Total Immersion vs. **Partial Immersion**

Immersion indicates the depth to which you must submerge the thermometer in liquid to obtain an accurate reading. Total immersion thermometers must be immersed in liquid so all of the liquid column is below the surface of the liquid during temperature reading. Partial immersion thermometers (76 mm) must be immersed only to the 76-mm mark on the thermometer to obtain an accurate reading.

Laboratory Thermometers

Laboratory Equipment & Supplies

745391 Red Spirit-Filled Partial Immersion 12" Thermometer (-10 to 150° C)



745461 Red Spirit-Filled Partial Immersion 6" Thermometer (-10 to 110° C; 0 to 230° F)

Red Spirit-Filled Thermometers Safer, mercury-free alternatives

- · Wide range of temperature measures
- . Total and partial immersion options
- · Individual containers keep items safe and clean

Red spirit-filled thermometers provide increased safety and economic pricing. They contain a petroleum-based column with red dye, which is significantly safer than mercury. These thermometers are 6" or 12" long, have 6- to 7-mm outer diameters, and the bulbs have equal or smaller diameters than the stems. They are graduated in 1° C, 2° C, or both 1° C and 2° F. Lines and numbers are permanently fused to the glass.

Item No.	Range	Divisions	Length	Immersion	Each
745380	–20 to 110° C	1°	12"	Total	\$6.65
745382	–20 to 150° C	1°	12"	Total	\$6.65
745394	–20 to 110° C, 0 to 230° F	Both	12"	Total	\$8.20
745395	–20 to 150° C, 0 to 300° F	Both	12"	Total	\$8.20
745390	–20 to 110° C	1°	12"	76 mm	\$7.00
745391	–10 to 150° C	1°	12"	76 mm	\$7.00
745396	–20 to 110° C, 0 to 230° F	Both	12"	76 mm	\$8.20
745397	–20 to 150° C, 0 to 300° F	Both	12"	76 mm	\$8.20
745460	–10 to 110° C	2°	6"	76 mm	\$7.00
745461	-10 to 110° C, 0 to 230° F	2°	6"	76 mm	\$7.00

Customer Review

"The red spirit-filled total immersion thermometers are a perfect piece of equipment for the middle school science student. They are easy to read in degrees Celsius and are reasonably priced. I would recommend the purchase of these thermometers to any middle or high school science teacher."

Middle School General Science Teacher

745434 Enviro-Safe Pocket Thermometer with Case

Enviro-Safe® Pocket Thermometers with Cases

Enviro-Safe® pocket thermometers provide the same safety as our standard Enviro-Safe® thermometers. Each thermometer is protected in a screw-capped plastic case, making them ideal for field use. Cases are either closed for maximum protection or open to allow reading while thermometers remain cased. The 6"-L thermometers are graduated in 1° C or 0.5° C divisions and all are total immersion. Lines and numbers are permanently fused to the glass.

Item No.	Туре	Range	Divisions	Each
745434	Open	–10 to 110 $^{\circ}$ C	1° C	\$16.70
745435	Open	–5 to 50° C	0.5° C	\$16.70
745430	Closed	–10 to 110 $^{\circ}$ C	1° C	\$18.00
745431	Closed	–5 to 50° C	0.5° C	\$10.45



745360 Digital Pocket Thermometer

Digital Pocket Thermometer

- Easy to read
- Multiple uses
- · Safe alternative to mercury

Compact design and simple operation make this thermometer a benefit in any laboratory. The lightweight composition and a 4¹/4" probe allow it to be used in beakers, cylinders, flasks, and tubes without worry of tipping. Additional features include an on/off switch, $^{\circ}\text{C}/^{\circ}\text{F}$ button, min/max function, and auto shutoff, plus it comes with a polycarbonate case with pocket clip and 1.5-V battery. Temperature range: -50 to 200° C and -58 to 392° F. Resolution: 0.1° C or F from -19.9 to 199.9° , otherwise 1° . Accuracy: $\pm 1^{\circ}$ C/ $\pm 2^{\circ}$ F over full range. Unit is 8" overall and comes with instructions.

745360 Each \$22.60

Thermometer Accessories



745490 No-Roll Thermometer Sleeves

No-Roll Thermometer Sleeve ▲3

Triangular sleeve fits snugly over standard lab thermometer to prevent thermometer from rolling off work surface. Pack of 25.

745490 Per pack \$16.60

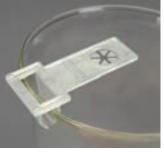


745485 Polypropylene Thermometer Rack

Polypropylene Thermometer Rack

Rack holds up to 25 thermometers in a vertical position. Hole diameters in top and middle plates are $^5/_{16}$ " (7.9 mm). Overall dimensions, $5^7/_8 \times 8^3/_8 \times 9^7/_8$ ".

745485 Each **\$69.00**



745500 Thermometer Holder

Thermometer Holder

Scienceware®. Polycarbonate holder clips onto rim of vessel. Tab has hole with grommet for holding thermometer in vessel.

745500 Each \$6.70

MARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

Laboratory Equipment & SuppliesTimers & Clocks



Count Up/Count Down Timer/

Easy to set and easy to use. Three independent, 20-hr digital display timers show hours, minutes, and seconds. Each timer features a unique signal that sounds for 60 seconds and has its own memory for storing frequently used settings. The unit also features a digital clock, time out, and stopwatch with 0.01-s accuracy. Size, $3^3/8 \times 2^1/2 \times 7^7/8$ "; wt, 3 oz. Includes AAA battery.

702682 Each \$37.25



702676 Large-Display Timer

Large-Display Timer

This timer features the largest display available on a timer (3 \times 2½"). It can be easily read from across a room. Simultaneously displays either 1 count-up channel and a clock, or 2 count-down channels. All channels have a range of 24 hours with 1-second resolution. Also indicates how much time has elapsed after a count-down alarm sounds and conveniently recalls the last timer setting for reuse. The unit has a loud alarm, is equipped with an extra-large start/stop button, and can be wall mounted or folded for bench-top use. Operates on 1 AAA battery (included). Dimensions, $5 \times 3^3/4 \times 1/2$ "; wt, 6.7 oz.

702676 Each \$48.05



666510 Automatic Timer

Automatic Timer A

Turns on and off daily without resetting. 125-V AC, 60 Hz; AC only.

666510 Each \$30.40





962106 Stopwatch

Stopwatch

An economy stopwatch with LCD display screen. Functions include split/lap time and an alarm. The clear LCD display shows hours, minutes, seconds, the day, date, and month. Excellent for use in experiments and other timed activities.

962106 Each **\$13.00 962107** Pack of 5 **\$53.40**



The Power of Carolina.com

Take advantage of our technology

- Our shopping list feature offers convenience and flexibility
- Do the work 1 time; you always have the ability to refer back
- Share a list with others or copy a shared list to your account
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Trays & Pans

Trays & Pans



629210 Wear-Ever Aluminum Dissecting Pan

Wear-Ever® Aluminum Dissecting

Ideal for use with cats, rabbits, and similar-sized specimens. Will not rust, chip, or leak. Made of 18-gauge Beacon Ware. Size, $25^3/_4 \times 17^3/_4 \times 1$ ".

629210 Each \$39.50 12+ Each \$38.30



629010 Aluminum Dissecting Pan

Aluminum Dissecting Pan

Without wax. Polished aluminum with rolled edges and rounded corners. Rustproof and corrosionresistant. Size, about $7^{1/2} \times 11^{1/4} \times 1^{1/2}$ ".

629010 Each \$12.05 12+ Each \$11.85



629360 Polyethylene Tote Tray, $14^{1}/_{8} \times 12^{1}/_{8} \times 5^{5}/_{8}$ "

Polyethylene Tote Trays

Nalgene®. Rigid, durable trays molded in high-density polyethylene. Use for soaking labware or as an ice bath. With handles for easy carrying.

629360 $14^{1/8} \times 12^{1/8} \times 5^{5/8}$ " Each \$42.50 Each **\$62.50 629362** $21^3/8 \times 17^1/8 \times 5^1/8$ "

Laboratory Equipment & Supplies



629004 Aluminum Dissecting Pan with Vinyl Dissecting Pad

Aluminum Dissecting Pan with Vinyl Dissecting Pad A

- · Aluminum tray-washable, longlasting, and rustproof
- · Versatile tray size—perfect for specimens up to fetal pig size
- Removable vinyl pad—odorless, washable, and durable
- Pad is also resealable—eliminates heating and remelting wax, plus no more cleaning wax from pins after use

Size, $13^{1}/_{8} \times 9^{3}/_{8} \times 2^{1}/_{4}$ " D.

629004 Each \$25.20 12+ Each \$23.80



Large Animal Dissection Tray

- Lightweight and durable
- · Washable, rustproof tray
- Resealable pad easily removes for washing

Designed for large animals such as sharks, cats, and rabbits. The tray is molded of heavy-gauge, high-density polyethylene for strength and rigidity. It is unbreakable, lightweight, chemical resistant, and has a skid-resistant bottom. The 16 \times 30" tray includes a 10 \times 23" **Dissecto Flex-Pad**® as a dissecting surface—no wax, no mess. Tray stacks easily for storage. Optional plastic Tray Cover fits firmly over tray to prevent moisture loss between dissection periods.

629068

Large Animal

(above); with

629069 Tray Cover (inset)

Dissection Tray

629068	Dissection Tray	Each 12+ Each	\$95.30 \$1.90
629068A	Replacement		
	Dissecto Flex-Pad	Each	\$50.85
		12+ Each	\$49.85
629069	Tray Cover	Each	\$37.70
		12+ Each	\$36.90



629380 Polypropylene Sterilizing Tray, 12 × 73/4 × 51/8"

Polypropylene Sterilizing Trays

Bel-Art®. Autoclavable (at 121°C) trays are smooth and have rounded corners. Lightweight, corrosion-proof, and tapered.

629380 $12 \times 7^3/4 \times 5^1/8^{11}$ Each \$24.30 **629382** $19 \times 10^{1/2} \times 5^{1/8}$ " Each \$40.25

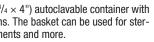


629388 Polypropylene Cleaning/Draining Basket

Polypropylene Cleaning/Draining Basket

Large $(15^3/_4 \times 11^3/_4 \times 4^{"})$ autoclavable container with square perforations. The basket can be used for sterilization of instruments and more.

629388 Each \$29.30



↑3 California Proposition 65





and 423 in the Preserved

Organisms section.

Laboratory Equipment & Supplies

Tubes & Accessories

Centrifuge Tubes

Disposable Centrifuge Tubes

These tubes with molded, raised graduations are sterile polypropylene and have plug-seal screw caps to prevent leakage. The conical tube design promotes compact, easy, and complete separation. Dimensions: 15-mL tube, 11.8 cm L, 1.7 cm OD; 50-mL tube, 11.5 cm L, 2.9 cm OD.

215085 15 mL Pack of 50 **\$47.25 215095** 50 mL Pack of 25 **\$30.00**



215085 Disposable Centrifuge Tubes, 15 mL

Test Tubes

Carolina® Standard-Grade Test Tubes

With rim. Economical, high-quality, borosilicate test tubes that meet ASTM standards.

731048 10 × 75 mm

Pack of 48 \$17.45

731049 12 × 75 mm

Pack of 48 **\$17.45**

731050 12 × 100 mm Pack of 48 **\$19.30**

731051 14 × 130 mm

Pack of 48 **\$23.95**

731052 16 × 150 mm

Pack of 48 **\$26.45**

731053 18 × 150 mm

Pack of 24 **\$15.10 731054** 20 × 150 mm

Pack of 24 **\$17.90**

731055 24 × 150 mm

Pack of 24 **\$28.95**

731056 25 × 250 mm

Pack of 24 \$34.85

731052 Carolina Standard-Grade Test Tube, 16 × 150 mm



721172 Pyrex Vista Test Tube, 15 x 125 mm

Pyrex[®] Vista[™] Test Tubes

Corning® 70800. These test tubes are well annealed, resistant to heat, and chemically stable. Rims are fire-polished. The 25-mm tubes do not have marking spots. Case quantities are available at Carolina.com.

721169	$10 \times 75 \text{ mm}$	Pack of 50	\$20.85	4+ Packs Each	\$20.30
721170	$12 \times 75 \text{ mm}$	Pack of 50	\$20.85	4+ Packs Each	\$20.30
721171	$13 \times 100 \text{ mm}$	Pack of 50	\$22.55	4+ Packs Each	\$21.75
721172	15 × 125 mm	Pack of 50	\$26.90	4+ Packs Each	\$25.90
721173	16 × 150 mm	Pack of 50	\$31.10	4+ Packs Each	\$30.30
721174	18 × 150 mm	Pack of 50	\$33.45	4+ Packs Each	\$32.00
721175	$20 \times 150 \text{ mm}$	Pack of 50	\$40.90	4+ Packs Each	\$39.60
721176	$25 \times 150 \text{ mm}$	Pack of 50	\$66.40	4+ Packs Each	\$65.40
721177	25 × 200 mm	Pack of 50	\$87.70	4+ Packs Each	\$76.60

Test Tubes

Pyrex®. Corning® 9800. With rim. Maximum chemical stability, heat resistance, and mechanical strength. Quantity break equals case size. Case quantities are available at Carolina.com.



730008 Test Tube, 13 × 100 mm

Item No.	Size	Cork No.	Stopper No.	Qty	Per Pack	+ Qty	Per Pack
730004	10 × 75 mm	0	N/A	Pack of 72	\$43.30	10+ Packs Each	\$41.85
730006	12 × 75 mm	2	N/A	Pack of 72	\$43.30	10+ Packs Each	\$41.85
730008	$13\times100\;mm$	2	N/A	Pack of 72	\$46.40	10+ Packs Each	\$44.15
730012	$15\times125~\text{mm}$	3	00	Pack of 72	\$62.80	10+ Packs Each	\$60.75
730014	$16 \times 150 \text{ mm}$	4	0	Pack of 72	\$64.80	8+ Packs Each	\$62.55
730016	18 × 150 mm	5	0	Pack of 72	\$78.25	8+ Packs Each	\$75.55
730018	$20\times150\;mm$	7	2	Pack of 72	\$83.75	8+ Packs Each	\$80.75
730024	$25\times150\;mm$	11	4	Pack of 72	\$143.30	4+ Packs Each	\$138.30
730026	$25\times200~\text{mm}$	11	4	Pack of 48	\$108.80	4+ Packs Each	\$105.10



711042 Pyrex Glass Capillary Tubes, Melting Point

Pyrex[®] Glass Capillary Tubes, Melting Point

 $\rm Corning^{\otimes}.~ID,~1.3~to~1.6~mm;~wall~thickness,~0.2~mm;~length,~100~mm~(ends~open).~Non-heparinized.$

711042 Vial of 100 \$13.00

Tubes & Accessories **Culture Tubes**

Polystyrene Culture Tubes

These non-sterile plastic culture tubes are ideal for use in routine laboratory procedures. The polystyrene tubes are transparent and can also be centrifuged; they tolerate aqueous solutions, mild bases, and weak acids, but cannot be autoclaved.

Item No.	Size	Stopper No.	Pack of 250
731350	$12\times75~\text{mm}$	N/A	\$21.25
731352	17 × 100 mm	0	\$43.60

Laboratory Equipment & Supplies



Polystyrene Culture Tubes

Tubes

Corning® 70820. These reusable rimless culture tubes offer greater convenience in plugging and rack storage. Ends are fire-polished. The 25-mm OD tubes do not have marking spots.

721183 Pyrex Vista Rimless Culture Tube, 16 × 125 mm

Pyrex[®] Vista[™] Rimless Culture

9.80 7.30
2.20
9.20 6.50
2.95 6.50
2.95 2.05
7.80 4.95
0.40 0.40
5.10 8.25
9.00 8.70 6.70

Disposable Culture Tubes

Pyrex®. Made of borosilicate glass to reduce pH changes and contaminants potentially leached from soda glass. Without lip.

Item No.	Size	Cork No.	Stopper No.	Pack of 250	+ Qty	Per Pack
731435	10 × 75 mm	0	N/A	\$20.65	4+ Packs Each	\$20.15
731437	$13 \times 100 \text{ mm}$	3	N/A	\$25.10	4+ Packs Each	\$24.60
731439	$16 \times 100 \text{ mm}$	4	0	\$31.15	4+ Packs Each	\$30.65
731441	16 × 125 mm	4	0	\$36.25	4+ Packs Each	\$35.55
731443	$16 \times 150 \text{ mm}$	4	0	\$45.10	4+ Packs Each	\$44.10
731445	18 × 150 mm	5	1	\$56.80	2+ Packs Each	\$56.25
731447	20 × 150 mm	7	2	\$88.85	2+ Packs Each	\$85.85





721192 Pyrex Vista Screw-Cap Culture Tube, 16 x 125 mm



731505 Screw-Cap Bacteriological Culture Tube, 16 x 125 mm

Pyrex[®] Vista[™] Screw-Cap Culture Tubes

Corning® 70825. These culture tubes are supplied with deep-form phenolic caps to facilitate handling and sealing after autoclaving. The blue enamel marking spot gives an excellent surface for pencil notations. Pencil marks are easily erased.

721190	$13 \times 100 \text{ mm}$	Pack of 50	\$73.30	4+ Packs Each	\$63.55
721191	16 × 100 mm	Pack of 50	\$99.25	4+ Packs Each	\$86.00
721192	16 × 125 mm	Pack of 50	\$99.25	4+ Packs Each	\$86.00
721193	$16 \times 150 \text{ mm}$	Pack of 50	\$99.25	4+ Packs Each	\$86.00
721194	20 × 125 mm	Pack of 50	\$117.20	4+ Packs Each	\$101.00
721195	20 × 150 mm	Pack of 50	\$136.65	4+ Packs Each	\$118.45
721196	$25 \times 150 \text{ mm}$	Pack of 50	\$152.95	4+ Packs Each	\$132.45

Screw-Cap Bacteriological Culture Tubes

Pyrex® 9825. With deep-form phenolic caps. Caps have glued-in white rubber liners.

731501	13 × 100 mm	Each	\$2.20	144+ Each	\$2.10
731505	$16 \times 125 \text{ mm}$	Each	\$2.85	144+ Each	\$2.75
731509	16 × 150 mm	Each	\$2.85	144+ Each	\$2.75
731513	20 × 150 mm	Each	\$4.05	96+ Each	\$3.80

Carolina® Standard-Grade Culture Tubes with Caps

Economical, high-quality, reusable, borosilicate culture tubes that meet ASTM standards. All include black phenolic screw caps and are autoclavable to 220° F.

731038	$12 \times 100 \text{ mm}$	Pack of 24	\$14.65
731039	16 × 100 mm	Pack of 24	\$14.65
731040	$16 \times 125 \text{ mm}$	Pack of 24	\$21.45
731041	$16 \times 150 \text{ mm}$	Pack of 12	7
731043	$25 \times 100 \text{ mm}$	Pack of 12	
731045	$25 \times 150 \text{ mm}$	Pack of 12	\$16.55



731039 Carolina Standard-Grade Culture Tube with Cap, 16 × 100 mm

Laboratory Equipment & Supplies

Tubes & Accessories



Kim-Kap Polypropylene, Disposable Closures

Kim-Kap® Polypropylene, Disposable Closures

Autoclavable. For culture tubes.

731480 For 13-mm OD Tubes Pack of 100 **\$14.05 731482** For 16-mm OD Tubes Pack of 100 **\$14.95**

Visit Carolina.com for our complete selection of Kim-Kap® closures.

Sterilize loops, needles, and culture tube mouths quickly and easily. 703401 Loop Holder Attachment See the Carolina® Infrared Bacteria Sterilizer on page 77.

Fermentation Tubes

Small Fermentation Tubes

The outside diameter of this vertical tube with closed, rounded top is 12 to 13 mm and the length is 110 mm. The outside diameter of the bulb is 28 mm. With bulb.

732340 Without Glass Foot Each **\$17.20 732345** With Glass Foot Each **\$32.95**

Graduated Fermentation Tube, 5 mL

Kimax $^{\circ}$. With foot. Similar to item #732345 Small Fermentation Tube, but graduated from 0 to 5 mL in 0.1-mL increments.

732360 Each \$75.90

Large Fermentation Tube

The outside diameter of this vertical tube with closed, rounded top is 15 mm and the length is 145 mm. The outside diameter of the bulb is 33 mm. With bulb and glass foot.

732350 Each \$60.10





732360 Graduated Fermentation Tube, 5 mL

Durham Fermentation Tubes

For standard microbiological fermentation testing where the volume of produced gas does not need to be measured quantitatively, but rather whether gas was produced or not produced from the fermentation reaction. Unit includes a $6\times50\text{-mm}$ test tube (without lip) inverted inside a $16\times125\text{-mm}$ screw-cap test tube plus rubber-lined cap.

732373 Pack of 10 \$45.00



732373 Durham Fermentation Tubes

Tubes & Accessories

Accessories

Racks



731876 Test Tube Rack

Test Tube Rack

A test tube rack with 6 holes, 25-mm diam, in top plate and corresponding wells in the base. Six vertical pins for tube drying. Size, $9^{1/2} \times 3 \times 3^{5/8}$ ".

731876 Each \$11.60

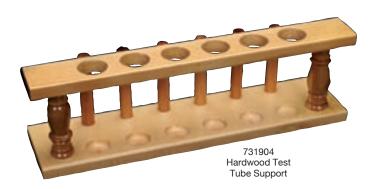


731886 Economy Test Tube Rack

Economy Test Tube Rack

A low-cost rack that's great for student use. This polyethylene rack features two 25-mm holes and four 18-mm holes; it also includes 6 drying pins. Overall size, $9^{1/2} \times 3 \times 3^{1/2}$ ".

731886 Each \$6.15



Hardwood Test Tube Support

Made of $^5/_{16}$ " hardwood with drying pins and heavy base. Six holes; 6 pins. For test tubes up to 25 mm in diameter.

731904 Each \$14.10 12+ Each \$13.50

Laboratory Equipment & Supplies



Economy Test Tube Rack

This economy test tube rack is made of sturdy, high-impact plastic and holds 12 test tubes up to 20 mm in diameter. Dimensions, $9 \times 2^3/4 \times 5$ ".

731880 Each **\$7.30**



731920 Hardwood Test Tube Support

Hardwood Test Tube Support

Made of 5/16" hardwood. For 12 tubes.

731920 For Tubes 20 mm or Less Each **\$15.95** 12+ Each **\$14.95 731922** For Tubes 25 mm or Less Each **\$18.95** 12+ Each **\$17.95**



731912 Hardwood Test Tube Support

Hardwood Test Tube Support

Made of $^5\!/_{16}"$ hardwood with 2 shelves and drying pins. Thirteen holes; 6 pins. Top holes are 20 mm in diameter. Middle shelf holes, 25 mm in diameter.

731912 Each **\$20.95** 12+ Each **\$19.75**

See more tubes and accessories on the next page.

Laboratory Equipment & Supplies

Tubes & Accessories



Cube Test Tube Rack

This autoclavable, polypropylene test tube rack holds tubes of 4 different diameters. Rack accommodates 40 tubes (12 mm), 24 tubes (16 mm), 20 tubes (20 mm), or 8 tubes (25 mm).

732105 Each \$25.15

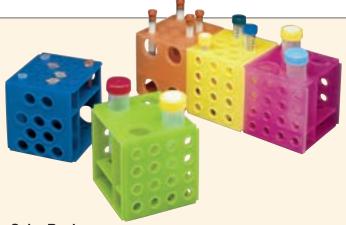


731962 and 731964 Poxygrid Half-Size Test Tube Racks

Poxygrid® Half-Size Test Tube Racks

Scienceware®. Heat-cured, thermo-setting epoxy coating on welded steel wire racks offers superior performance in protecting from rust and corrosion. Coating is unaffected by organic solvents. Salts, weak acids, and weak alkalis have no effect. Excellent abrasion resistance. Can be used in temperature ranges of -370° to 250° F.

Item No.	For Tubes	No. Holes	Rows	Each
731962	10 to 13 mm	36	6 × 6	\$31.00
731963	15 to 16 mm	24	6 × 4	\$31.00
731964	18 to 20 mm	20	5×4	\$31.00



Cube Racks

- · Interlocking on all sides
- · Design your own extended rack

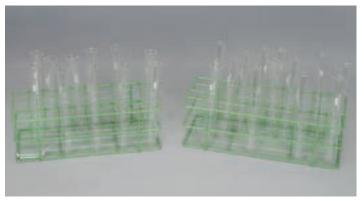
Constructed of autoclavable polypropylene, these laboratory racks slide together on any side allowing the user to work with different tubes on as many connected racks as desired. These cube racks are perfect for 50-mL tubes, 15-mL conical tubes, test tubes, or microcentrifuge tubes. Each rack accommodates 4 tubes (29 mm), 10 tubes (16 mm), 12 tubes (12 mm), or 16 tubes (11 mm). Available in packs of 5 with assorted colors (as pictured).

732104 Per pack \$65.95

Customer Review

"Great price, great product. Easily created customized racks are great for the classroom."

Middle School Chemistry Teacher



731952 and 731953 Poxygrid Wire Test Tube Racks

Poxygrid® Wire Test Tube Racks

Scienceware®. Steel welded wire. Stackable, autoclavable. With square holes and 3 tiers; epoxy coated. Can be used in temperature ranges of –223° to 121° C.

Item No.	Color	For Tubes	No. Holes	Each
731952	Green	20 to 24 mm	40	\$49.95
731953	Green	18 to 20 mm	40	\$44.65
731955	Green	15 to 16 mm	72	\$44.65
731967	Blue	18 to 20 mm	80	\$49.95
731968	Blue	22 to 25 mm	80	\$49.95

Tubes & Accessories



731873 No-Wire Test Tube Rack

No-Wire[™] Test Tube Racks

Scienceware®. An economical alternative to wire racks. Constructed of a special blend of autoclavable polypropylene. Interlocking feet allow stacking of racks during storage or may be disassembled for long-term storage. Submersible; white. Size, $9^7/_{10} \times 4^1/_{10} \times 2^1/_{2}$ " H.

Item No.	For Tubes	No. Holes	Each
731871	13 mm	90	\$20.60
731872	16 mm	60	\$20.60
731873	20 mm	40	\$20.60
731887	25 mm	24	\$20.60
731888	30 mm	21	\$20.60

Laboratory Equipment & Supplies



731975 Unwire Half-Rack

Unwire[™] Half-Racks

Nalgene®. More space-efficient than full-sized test tube racks. Save valuable space on bench tops, in incubators, refrigerators, and freezers. Fits easily in ice or water bath and will not float. Can be stored in lab drawer. White.

Item No.	For Tubes	No. Holes	Each
731975	13 mm	36	\$21.50
731976	16 mm	36	\$22.35
731977	20 mm	20	\$23.35
731978	30 mm	9	\$23.35



731979 Economy Plastic Test Tube Rack

Economy Plastic Test Tube Racks

This selection of autoclavable plastic racks offers flexibility and value. Racks can be stacked or easily disassembled to conserve storage space.

Item No.	For Tubes	No. Holes	Each
731979	13 mm	90	\$13.60
731980	16 mm	60	\$13.60
731984	25 mm	24	\$13.60



731943 Polypropylene Test Tube Basket

Polypropylene Test Tube Basket

Holds tubes for storage, sterilization, or incubation. Sturdy, 1-piece molded construction; can be autoclaved at 121° C. No rust or corrosion is possible and danger of tube breakage is reduced. Sides are tapered for nesting and compact storage. Size, $6\times6\times6$ ".

731943 Each \$28.85

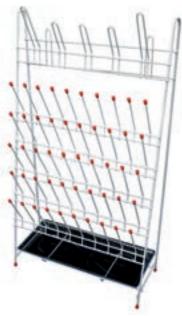


731897 Poxygrid Draining Rack

Poxygrid® Draining Rack

Scienceware®. Epoxy-coated, steel-wire drain stand for test tubes and larger-neck glassware items. The top row holds 12 straight pins and the bottom 3 rows consist of hairpin-looped wire supports. Tray at bottom catches dripping water. May be used freestanding or hung on wall. Size, $16^3/4 \times 6^1/2 \times 19$ ".

731897 Each \$135.00



731896 Economy Draining Rack

Economy Draining Rack

Holds up to 50 pieces on rubber-tipped pins and 5 pieces of large glassware on hairpin-looped supports. Includes drain pan. May be used freestanding or hung on wall. Measures 26" H \times 14" W \times 5" D.

731896 Each \$72.00

Laboratory Equipment & Supplies Tubes & Accessories/Tubing



731899 Draining Rack

Draining Rack

A wall rack suitable for draining and drying laboratory apparatus. Contains 90 drying pins: 72 pins are 3" L and 18 pins are 5" L. Size, $20 \times 20 \times 6$ ".

731899 Each \$214.45



Glass

Pyrex® Hard-Glass Tubing

Designed for laboratory glass blowing. The same glass as used in Pyrex® laboratory glassware. Supplied in 5-ft lengths. The dimensions stated are outside diameters, with ± 0.43 mm.

711145 5 mm (13 pieces/lb)

Per lb \$21.55

711146 6 mm (9 pieces/lb)

Per lb **\$21.55**



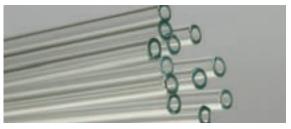


731895 Draining Drying Rack

Draining Drying Rack

Use this rack to drain, dry, and store test tubes, beakers, flasks, and other laboratory glassware. Can be used standing up, lying down, or mounted to the wall. An integral galvanized drain pan keeps your counter dry. The black vinyl coating cushions your glassware and protects the heavy-gauge wire from rusting. Capacity, 90 pieces of glassware on 72 pins 3" L and 18 pins 5" L. Size, $18^{1}/2 \times 7^{1}/8 \times 19$ ".

731895 Each \$214.00



711185 Flint-Glass Apparatus Tubing, 5 mm

Flint-Glass Apparatus Tubing

Fine-quality flint glass makes bending, blowing, and sealing of soft glass apparatus easy. Sold by the pound and supplied in 24" lengths.

Item No.	OD	Ft per lb	Qty	Per Ib
711185	5 mm	45	23	\$16.00
711186	6 mm	33	18	\$13.35

Accessory

Glass Tubing Cutter

Griffin-type cutter made of die-cast zinc alloy and nickel-plated. Spring-loaded to stay open until used. Cuts tubing up to $1^{1}/_{2}$ " (38 mm) in diameter. To replace hard-ened steel cutting wheel, just push out steel pin.

711342 Each \$18.35



711342 Glass Tubing Cutter

Tubing Plastic

711521 Tygon Laboratory Tubing, 1/8" bore

Tygon[®] Laboratory Tubing

The most consistently reliable tubing for the transfer of liquids and gases, Tygon® Laboratory Tubing handles virtually all inorganic chemicals found in today's laboratories. Crystal clear, flexible, nonoxidizing, and noncontaminating. Autoclavable; can be sterilized at 15 psi for 30 minutes. PVC based.

Item No.	Bore	Wall	Length	Each
711521	1/8"	1/16"	50 ft	\$62.50
711523	3/16"	1/16"	50 ft	\$89.25
711525	1/4"	1/16"	50 ft	\$109.45
711527	5/16"	1/16"	50 ft	\$132.10
711529	3/8"	1/16"	50 ft	\$146.95

Laboratory Equipment & Supplies

Rubber



711559 Red Vacuum and Pressure Tubing

Red Vacuum and Pressure Tubing

Laboratory grade. Machine made, smooth. Bore, $^{1}/_{4}$ "; wall, $^{1}/_{8}$ "; 50 ft.

711559 Each \$98.60

Rubber Tubing Assortment

Assortment includes 10 ft each of $^{1}/_{8}$ "-, $^{3}/_{16}$ "-, $^{1}/_{4}$ "-, and $^{3}/_{8}$ "-bore, red, rubber tubing.

711448 Per pkg \$46.90

Carolina also offers 10-ft lengths of Tygon® Laboratory Tubing, Amber Rubber Tubing, and Red Rubber Tubing at Carolina.com.



711555 Amber Rubber Tubing, 1/4" bore

Amber Rubber Tubing

Surgical grade, intravenous. Handmade, inside wall specially treated.

Item No.	Bore	Wall	Length	Each
711553	3/16"	1/16"	50 ft	\$62.95
711555	1/4"	1/16"	50 ft	\$66.05
711557	5/16"	1/16"	50 ft	\$84.50



711565 Red Rubber Tubing, 1/4" bore

Red Rubber Tubing

Laboratory grade. Machine made, very flexible.

Item No.	Bore	Wall	Length	Each
711565	1/4"	1/16"	50 ft	\$69.95
711567	5/16"	1/16"	50 ft	\$77.50

Connecting Tubes



711850 Tubing Connector Kit

Tubing Connector Kit

Kit consists of 55-piece assortment of connectors and clamps needed in daily lab routines or for industrial applications. Kit includes 14 Y connectors, 12 quick disconnectors, 12 straight connectors, 3 dura clamps, and 14 T connectors.

711850 Per kit \$135.05

Y-Shaped Polypropylene Connecting Tubes

Unbreakable. No flash inside of tube.

711833 3/16" Each \$2.65 711835 1/4" Each \$3.10 711837 3/8" Each \$3.30



711835 Y-Shaped Polypropylene Connecting Tube, 1/4"

Laboratory Equipment & SuppliesVials

Screw-Cap



715064 Glass Screw-Cap Vials, 4 dram

Glass Screw-Cap Vials

With black, molded caps.

Item No.	Size	Diam/H	Qty	Per Pack
715060	1/2 dram	12/35 mm	Pack of 36	\$32.30
715061	1 dram	15/45 mm	Pack of 36	\$32.70
715062	2 dram	17/60 mm	Pack of 36	\$35.45
715063	3 dram	19/65 mm	Pack of 24	\$27.35
715064	4 dram	21/70 mm	Pack of 24	\$32.95
715065	6 dram	23/85 mm	Pack of 12	\$20.40
715066	8 dram	25/95 mm	Pack of 12	\$20.40

715072 Glass Screw-Cap Vials, 6 dram

Glass Screw-Cap Vials

Flint glass, with black molded caps.

Item No.	Size	Diam/H	Pack of 24
715070	4 dram	28/56 mm	\$39.75
715072	6 dram	28/69 mm	\$53.95

Carolina Teacher Tips

1 dram = 3.7 mL

Shell



715050 Glass Shell Vial, 1/2 dram

Glass Shell Vials

Plain glazed tops, straight sides, flat bottoms. **Note: Stopper/closure not included.**

Item No.	Size	Cork No.	Stopper No.	Pack of 144
715050	1/2 dram	1	00	\$34.50
715051	1 dram	4	00	\$36.25
715052	2 dram	5	0	\$66.95
715054	4 dram	8	2	\$71.75
715056	8 dram	10	3	\$153.55

Watch Glasses

Watch Glasses

Pyrex®. Corning® 9985. Heavier than ordinary watch glasses and fire polished on the edges.

742352	75 mm	
	Each	\$3.95
	144+ Each	\$3.75
742354	90 mm	
	Each	\$4.45
	144+ Fach	\$4.25

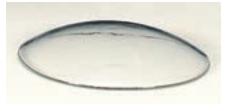
Economy Watch Glasses

These economy flint watch glasses have polished edges and come in 3 sizes.

pononoa	agoo ana oo	110 111 0 012
742366	75 mm	
	Pack of 12	\$16.75
742368	90 mm	
	Pack of 12	\$23.60
742370	100 mm	
	Pack of 12	\$27.20



(left to right) 742352 and 742354 Watch Glasses



742368 Economy Watch Glass, 90 mm



742300 Square Watch Glass

Square Watch Glass Size, 15/8" sq. Plain.

742300 Each \$6.30 12+ Each \$6.00



742320 Syracuse Watch Glass, Plain

Syracuse Watch Glass, Plain

Grooved for stacking, with smooth edges. Size, 25/8" diam.

742320 Each **\$7.05** 48+ Each **\$6.85**

Water Baths Water Baths

Laboratory Equipment & Supplies





Labnet Digital Dry Bath

This updated, economically priced digital dry bath features microprocessor control and easy calibration. Just set the temperature using the dual digital display; no need to check the thermometer and readjust the temperature. Timer can be set in 1-min increments for 99 hr 59 min or for continuous operation. Temperature range, ambient +5 to 150° C; resolution, 0.1° C; accuracy, $\pm 0.3^\circ$ C. Dimensions, $8^3/_{10}\times 12^4/_{10}\times 4^7/_{10}$ ". Wt, 7 lb. 115-V AC, 50/60 Hz. Comes with power cord, block lifter, and lid; **Block with Holes** must be purchased separately. Three-year manufacturer's warranty. CE/CSA® compliant.

 216259
 Dry Bath
 Each
 \$525.00

 216262
 Block with Holes (for 20 × 1.5-mL Tubes)
 Each
 \$163.00

Revolutionary Science Digital Water Bath

From the makers of the popular Revolutionary Science Centrifuge RS-102 (item #214072)

Accurate and affordable, this 5-L water bath has a durable polypropylene exterior that is resistant to dents and chemical attacks of virtually all kinds. The chamber, also polypropylene, does not corrode and does not bend or distort during use. A large 3-digit temperature display makes adjusting the bath temperature fast and easy. Comes with lid. Settings are automatically saved during power interruptions. Revolutionary Science is an ISO 9001:2008-certified company. Made in USA. Visit Carolina.com for more features and specifications.

216244 Each \$599.95



See additional water baths on pages 282 and 283, in the Equipment & Labware section of Biotechnology.



Carolina® Water Bath

Our 9-L water bath with stainless-steel tank is ideal for molecular biology and teaching labs. It has a temperature adjustment knob and features a temperature range from ambient to 82° C with lid off and from ambient to 93° C with lid on. Temperature control is $\pm 0.5^\circ$. Illuminated on/off switch. Tub inner dimensions, $11^1/_2 \times 9^1/_2 \times 6^{"}$; tub outside dimensions, $16 \times 11^1/_2 \times 7^{"}$. 110-V AC. Bath may look different from picture.

216248 Each \$655.00

Laboratory Equipment & Supplies

Water Purification



701743 Bantam Ultrapure Cartridge

Bantam Deionizer

Continuous flow at atmospheric pressure with direct reading purity meter. Pedestal base can be removed for wall mounting. Includes 3-ft (91-cm) plastic tube for inlet water line connections, inlet flow adjustment valve, drain valve, purity meter, cord, and plug. 120-V AC. Order the Bantam **Ultrapure Cartridge** or **High-Capacity Cartridge** for use with this unit.

 701741
 Deionizer
 Each
 \$1,710.00

 701743
 Ultrapure Cartridge
 Each
 \$210.00

 701744
 High-Capacity Cartridge
 Each
 \$201.00



701741 Bantam Deionizer



Water Purification

701744 Bantam High-Capacity Cartridge

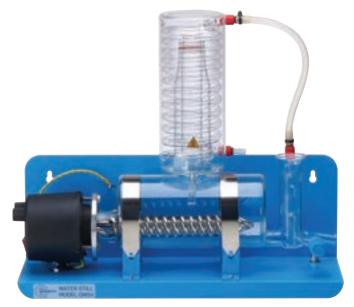


701701 Countertop Distiller

Countertop Distiller

Produces high-quality water by steam distillation. Ordinary tap water is heated to 212° F, killing any bacteria or viruses that are present. Effectively removes contaminants such as bacteria, particles, dissolved solids, and gases. Produces 1 gal of distilled water every 4 hours. Automatic shutoff after 1-gal cycle. BPA-free storage bottle included. Compact size, $15^{1}/4^{\circ}$ H \times 15" W \times 9 $^{3}/4$ " D; wt, 11.43 lb. 120-V AC, 60 Hz. Carbon Filter Bags sold separately.

701701 Countertop Distiller Each \$787.00 ^ 701701A Carbon Filter Bags Pack of 6 \$110.00



701705 Quickfit QWS4 Water Still

Quickfit® QWS4 Water Still A

Easy-to-operate still produces up to 4 L/hr of distilled water. Horizontal borosilicate glass boiler is fitted with a 3-Kw chromium-plated heater. Cool distillate is ensured by a high-efficiency coil condenser. The QWS4 Water Still is compact in size with a strong metal stand for bench or wall mounting. Condenser plumbing connections are via screwthread connectors, so hose can be fitted or removed safely without excessive force. Size, $19^1/_2 \times 17^1/_2 \times 6^{\prime\prime}$. 220 V, UL® listed.

701705 Each \$2,763.00





Laboratory Furniture

Shipping-Important, Please Read

Most furniture must be shipped by motor freight. The purchaser is responsible for unloading the truck, so please make sure the delivery location has a loading dock. If the delivery location has no loading dock, liftgate service or inside delivery should be requested in advance when the order is placed. These services come with special handling charges that can be obtained from the Carolina Quotations Department by calling 800.334.5551. Some furniture may be shipped in several pieces and requires assembly.

Receiving Your Order

- Count cartons and note any exceptions on the freight bill. Sign only for the number of cartons you receive. Call Carolina's Customer Service at 800.334.5551 immediately to report a shortage.
- 2. Inspect for damage and note any crushed or open cartons on the freight bill. Retain damaged shipping cartons and merchandise and notify Carolina within 10 days. If concealed damage is found, keep the carton and merchandise together at the initial receiving point. Then call Customer Service within 10 days for an inspection report. If this procedure is followed, Carolina can better assist you in obtaining replacement materials.
- Locate the packing list. It will either be on the outside of a carton (in a packing list envelope) or inside a carton (marked "packing list enclosed").
- 4. Open all cartons labeled "Mixed" and empty all contents onto a clean, flat surface. Be careful when discarding packing materials, because small items could be mistakenly thrown away.
- Record any errors on the packing list and save for future reference.
- Call Customer Service at 800.334.5551 and let us know of any discrepancies. When calling, please have your packing list in hand, as it contains valuable information that will assure prompt handling.

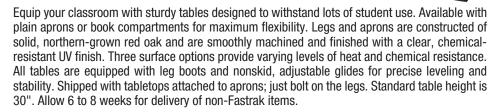
Returns-Important, Please Read

If you need to return any item, contact Customer Service at 800.334.5551 before doing so. Have your purchase order number and our order number accessible when you call. Customer Service will issue you a Return Authorization Number and provide any further instructions for returning your merchandise. Please do not return anything without first contacting Customer Service. Returns for living materials will only be accepted with product manager's approval. For returns of drop-shipped items (such as furniture and equipment), a 25% restocking fee will apply if the product is returned for any reason other than shipping damage or manufacturing defect. You are responsible for shipping the product back to the manufacturer in resaleable condition and in the original packaging. It also will be your responsibility to pay the return shipping fee. We will credit your account or your credit card once the item has been returned and processed.

Student Tables

Exceptional Quality at an Affordable Price

- Built for years of dependable service
- · Choice of 3 tabletop surfaces
- Easy to assemble



Tabletop Options

GOOD

11/4" Plastic-Laminate Top

A quality black top widely used for student science tables. It offers an excellent work surface that wears exceptionally well under normal use. Plastic laminate has superior resistance to scratching and limited resistance to high temperatures and severe chemicals. Tabletop construction consists of permanently bonding a 0.05"-thick sheet of Pionite® ARP high-pressure laminate to a 45-lb-density, industrial-grade, particleboard core. The underside is covered with a 0.04"-thick, brown phenolic backer sheet to properly balance the panel, maximizing its resistance to warping. Technical data: Exceeds 1,800 wear cycles and 66" impact resistance. The edges of the top are finished with vandal-resistant T-molding. The corners have a 13/4" radius.

BETTER

1¹/₄" Chemical-Resistant Laminate Top

A quality black top that incorporates the decorative features of high-pressure laminate into a durable, chemical-resistant surfacing. The surface is more durable and chemical resistant than plastic laminate, even after the surface has been scratched. A 3-mm PVC molding is applied with heat-sensitive adhesive to create an attractive, waterproof, durable edge.

BEST

1" Solid Epoxy Resin Top

Our quality black, solid-surface epoxy resin top is impervious to normal laboratory chemicals and heat. Its monolithic composition eliminates the possibility of swelling, delamination, and exposure of the substrate. Its soft, low-glare surface is simple to clean. It is not affected by exposure to these common laboratory chemicals: nitric acid (70%), acetic acid (glacial), hydrochloric acid (20%), sulfuric acid (60%), methyl alcohol, toluene, benzene, and other chemicals. The top is molded from modified epoxy resins and is completely oven cured during processing in order to provide many years of dependable use. It is extremely durable and completely impervious to moisture. Exposed edges and corners are finished with a $^1/_8{}^{\shortparallel}$ bevel.

Laboratory Furniture

Student Tables



Student Tables with Plain Aprons*

11/4" Plastic-Laminate Top

Dimensions 48" W \times 24" D \times 30" H 54" W × 24" D × 30" H 60" W \times 24" D \times 30" H 72" W × 24" D × 30" H 60" W \times 30" D \times 30" H 72" W \times 30" D \times 30" H 72" W \times 42" D \times 30" H

	Item No.	Wt	Each
	705140	75 lb	\$514.00
	705142	80 lb	\$578.00
	705148	90 lb	\$587.00
	705144	105 lb	\$754.00
	705606	110 lb	\$781.00
	705608	130 lb	\$850.00
	705146	185 lb	\$1,014.00

11/4" Chemical-Resistant **Laminate Top**

	Item No.	Wt	Each
	705131	75 lb	\$548.00
 .	705132	80 lb	\$587.00
 .	705134	90 lb	\$610.00
	705136	105 lb	\$828.00
	705626	110 lb	\$906.00
	705628	130 lb	\$1,010.00
	705138	185 lb	\$1,255.00

1" Solid Epoxy Resin Top

	Item No.	Wt	Each
	705560	110 lb	\$880.00
	705562	120 lb	\$944.00
	705564	130 lb	\$1,007.00
	705566	160 lb	\$1,396.00
	705572	170 lb	\$1,395.00
	705574	205 lb	\$1,570.00
	705582	285 lb	\$1,973.00

Student Tables with Book Compartments*

Dimensions
48" W × 24" D × 30" H
54" W \times 24" D \times 30" H
60" W \times 24" D \times 30" H
60" W × 30" D × 30" H

	Item No.	Wt	Each
	705141	80 lb	\$610.00
	705143	90 lb	\$627.00
٩	705149	100 lb	\$634.00

11/4" Plastic-Laminate Top

	Item No.	Wt	Each
	705141	80 lb	\$610.00
 .	705143	90 lb	\$627.00
₽	705149	100 lb	\$634.00
 .	705607	120 lb	\$908.00

11/4" Chemical-Resistant **Laminate Top**

	Item No.	Wt	Each
	705130	80 lb	\$661.00
	705133	90 lb	\$662.00
	705135	100 lb	\$754.00
	705627	120 lb	\$975.00

1" Solid Epoxy Resin Top

	Item No.	Wt	Each
	705561	120 lb	\$921.00
 .	705563	130 lb	\$996.00
	705565	150 lb	\$1,078.00
	705573	185 lb	\$1,571.00

^{*}Allow 6 to 8 weeks for delivery of non-Fastrak items.



Our $^{13}\!/_{16}"$ D \times $4^{1}\!/_{2}"$ H table aprons have heavy-duty, 13-gauge steel corner braces that span the height of the apron and are dadoed and screwed into the apron. Each 21/4"-sq leg is held in place with a 5/16" hanger bolt, nut, and lock washer to ensure a tight fit.



Our tables all come with thick rubber leg boots. These boots protect the legs from water and chemicals used to clean floors. Make sure the tables you buy include boots.



Tops are attached by inserting screws through a minimum of 10 pocket holes. This results in an extremely strong connection that adds to the stability of the table.

Fastrak

Items marked Fastrak ship in 5 days or less for limited quantities (30 or fewer tables and 6 or fewer cabinets). Offer does not apply to items requiring modification or customized features. Purchase orders containing Fastrak and other oak furniture will ship at standard delivery times to avoid excessive shipping charges.

To see all available sizes, go to Carolina.com.

Student Tables/Classroom Service Centers & Workstations

Laboratory Furniture



705174 2-Student Table with Book Compartments and Drawers over Cupboard

2-Student Tables with Storage Ideal for biology!

Constructed of solid oak and oak veneer with a 11/4"-thick chemical-resistant laminate top. The table features a spacious, lockable cupboard with an adjustable shelf and rubber base molding. The unit is available with a plain apron, 2 book compartments, or 2 locking drawers over the cupboard. Shipped assembled from factory; allow 6 to 8 weeks for delivery.

Dimensions:

 Overall:
 66" W × 24" D × 30" H

 Cabinet OD:
 24" W × 22" D × 29" H

 Book Compartments:
 12" W × 13" D × 3" H

 Drawers:
 $11^{1}/_{2}$ " W × 18" D × $5^{1}/_{2}$ " H

705172 Plain Apron and Full Cupboard (265 lb)
 Each
 \$1,570.00 705173 Book Compartments and Full Cupboard (265 lb)
 Each
 \$1,662.00 705174 Book Compartments and Drawers over Cupboard (280 lb)
 Each
 \$1,995.00

Classroom Service Centers & Workstations

Ideal for chemistry and physics!

Each unit is constructed of solid oak and oak veneers and is finished with a clear, chemical-resistant UV finish that shows off the beauty of the wood. Each service center features a 1"-thick, solid epoxy resin top for excellent chemical resistance. Units are available in double-sided or single-sided design and with a choice of full cupboard or cupboard and drawers. Single-sided unit includes 2 combination cold-water and gas fixtures, 2 rod sockets, epoxy sink, 2 book compartments, and 1 GFI AC electrical outlet. Double-sided units include 2 combination coldwater and gas fixtures, 2 rod sockets, epoxy sink, 4 book compartments, and 2 GFI AC electrical outlets. These stations function as stand-alone units or can be grouped together to form a continuous row of workstations. Shipped unassembled from factory; allow 6 to 8 weeks for delivery.





Forward Vision I 4-Student Workstations

The unique layout of these workstations allows the instructor to see the students, fixtures, and storage areas from the front of the classroom. The students all work from the same side of the workstation, while the storage area is on the opposite side. Stations are equipped with an epoxy resin sink (12" W \times 8" D \times 6" H), 2 combination coldwater and gas fixtures, and 2 GFI AC duplex electrical receptacles. The top is 1"-thick, black, solid epoxy resin with drip groove. The 2 storage cabinets (24" W \times 16" D \times 35" H) include 2 adjustable shelves for flexible storage. The mechanical area between the storage cabinets is accessed from the front through an 18"-W removable panel. Dimensions: 96" W \times 50" D \times 36" H. Also available with flat top. Shipped unassembled from factory; allow 6 to 8 weeks for delivery of item #705301. **Note:** Flat-top unit comes without water and gas assemblies.

705301 Workstation with Flat Top (605 lb) Each \$4,970.00 ₹705303 Workstation (620 lb) Each \$5,557.00

Forward Vision II 4-Student Workstations

This workstation is compact enough so that multiple units fit in a small classroom. It is designed so that all students face the teacher, allowing more effective communication with the class. The workstation's ample work surface is made of chemical-resistant phenolic resin. Stations are equipped with a solid epoxy resin sink (12" W \times 8" L \times 6" D), 2 combination cold-water and gas fixtures, and 2 GFI AC duplex electrical receptacles. Locking cabinets provide extra storage space, and side-mounted hooks hold book bags off the floor. Dimensions: 88" W \times 46" D \times 36" H. Shipped unassembled from factory; allow 6 to 8 weeks for delivery of item #705309. **Note:** Flat-top unit comes without water and gas assemblies.

705308 Workstation (540 lb) Each **\$5,677.00 705309** Workstation with Flat Top (532 lb) Each **\$5,006.00**



Laboratory Furniture

Classroom Service Centers & Workstations/Instructor's Desks

Octagonal Workstation with Pedestal Base

A finely crafted unit made of solid oak and oak veneers, this unit is a convenient 4-student workstation for installation throughout the classroom for maximum space efficiency. It contains a 1"-thick, black, solid epoxy resin top with a $16\times16\times7$ " solid epoxy resin sink (with strainer, stopper, and trap) located in the center. The apron comes equipped with 4 lockable drawers and 4 GFI-protected outlets. The center pedestal has a removable panel to access utilities. Accessories include 2 combination cold-water and gas fixtures and 4 rod sockets. Available in 36" height with 56"-diam top. Shipped unassembled from factory; allow 6 to 8 weeks for delivery. Wt, 480 lb.

705190 Each \$5,559.00

705190 Octagonal Workstation with Pedestal Base

Instructor's Desks

Instructor's Desks

Unit is constructed of solid oak and oak veneer with a 1"-thick, black, chemical-resistant, solid epoxy resin top. It features a cupboard, large file drawer, 3 standard size drawers, and a pullout writing board. The drawers are constructed using dovetail joinery for long life. Locks are provided for the cupboard and all drawers. The unit is equipped with a combination cold-water and gas fixture, an epoxy resin sink (14" W \times 10" D \times 6" H) with chemical-resistant trap, an AC duplex electrical receptacle, a 3 /4" upright rod with crossbar, and rubber base molding. Dimensions: Overall, 60" W \times 30" D \times 36" H; full-height cupboard cabinet; file drawer, 13^{1} /2" W \times 18" D \times 4" H; shipping wt, 485 lb. Available with sink on right or left. Shipped unassembled from factory. **Note:** Flat-top unit comes without rod sockets or water and gas assemblies.

705125 Sink on Right Each \$4,470.00 705126 Sink on Left Each \$4,556.00 705126A Flat Top Each \$3,960.00



Deluxe Instructor's Desks Extra workspace!

Construction is identical to items #705125, #705126, and #705126A Instructor's Desks, but this desk is larger and has additional features. It is equipped with a cold- and hot-water gooseneck faucet, an epoxy resin sink (18" W \times 15" D \times 11" H) with a chemical-resistant trap, a double gas cock, an AC duplex electrical receptacle, and two $^3/_4$ "-diam upright rods with crossbar. Dimensions: Overall, 96" W \times 30" D \times 36" H; full-height cupboard cabinet; 2 small drawers (inside), $14^{57}/_{100}$ " W \times 18" D \times 4½" H; Shipping wt, 680 lb. Shipped unassembled from factory; allow 6 to 8 weeks for delivery of item #705128A. Available with sink on right or left. **Note:** Flat-top unit comes without rod sockets or water and gas assemblies.

705126 Instructor's Desk with Sink on Left

705127 Sink on Right Each \$6,018.00 705128 Sink on Left Each \$6,018.00 705128A Flat Top Each \$5,132.00

Instructor's Desks

Laboratory Furniture



ADA Instructor's/Student Desks

Unit is constructed of solid oak and oak veneer with your choice of a 3/4" Phenolic **Resin Top** or 1" solid **Epoxy Resin Top**. Features a roll-under sink (14" $W \times 10$ " D \times 5" H) with a paddle-handle cold-water and gas multiservice fixture. Wide enough for a wheelchair; the 34" height meets ADA requirements. Unit also includes a duplex outlet, locking file drawer, 3 small drawers with lock, pullout writing board, rod socket, and greenlaw arm. Dimensions: 72" W \times 30" D \times 34" H. Shipped unassembled from factory; allow 6 to 8 weeks for delivery.

705265 Phenolic Resin Top (430 lb) Each **\$4,672.00** 705266 Epoxy Resin Top (475 lb) Each \$4,881.00



Teacher's Work Desk

This all-purpose desk matches the rest of your furniture, with its select hardwoods, oak veneers, and a chemical-resistant UV finish that provides a smooth, beautiful surface. The unit features a 11/4" black high-pressure laminate top with 2 grommet holes for threading power cords. Each end is equipped with a file drawer and 2 small drawers—all lockable—and a center pencil drawer topping the 26"-W knee space in between. Dimensions: 60" W \times 30" D \times 30" H; shipping wt, 355 lb. Shipped unassembled from factory; allow 6 to 8 weeks for delivery.

705267 Each \$3,435.00



Instructor's Desk Attachment

Constructed of solid oak and oak veneer and designed to be used with any of our Instructor's Desks (items #705125, #705126, #705126A, #705127, #705128, #705128A, #705265, #705266, and #705267). Unit is equipped with a 1"-thick, black, solid epoxy resin top and features a large file drawer $(13^7/16^{\circ})$ W \times $18^1/18^{\circ}$ D \times 10³/₁₆" H), 2 storage drawers (13⁷/₁₆" W \times 18¹/₆" D \times 3¹⁵/₁₆" H), a pencil drawer (197/16" W \times 181/16" D \times 215/16" H), and a pullout writing shelf. Dimensions: 48" W \times 30" D \times 30" H; shipping wt, 300 lb. Can be installed on the right or left side of the Instructor's Desk. Shipped from factory; allow 6 to 8 weeks for delivery.

705113 Each \$2,591.00



Fastrak

Items marked Fastrak ship in 5 days or less for limited quantities (30 or fewer tables and 6 or fewer cabinets). Offer does not apply to items requiring modification or customized features. Purchase orders containing Fastrak and other oak furniture will ship at standard delivery times to avoid excessive shipping charges.

Laboratory Furniture Service Units

Cleanup Sink Bench

This unit is constructed of hardwood and oak veneers with a 1-piece top and sink molded of polyolefin. Polyolefin is extremely chemical resistant, easy to clean, highly impact resistant to reduce glassware breakage, and will not crack when exposed to dry ice. A long, grooved, sloping counter leads to a large center sink $(24^1/{\rm z}"~W\times 18^1/{\rm z}"~D\times 14"~H).$ Unit includes a mixing faucet for hot and cold water. Outer cabinets feature 2 adjustable shelves. The unit is equipped with pulls, locks, and rubber base molding. Dimensions: $55^1/{\rm z}"~W\times 28"~D\times 36^1/{\rm z}"~H$; shipping wt, 298 lb. Shipped unassembled from factory.

705328 Each **\$4,807.00**





705327A Wall Service Bench with 4 Doors/4 Drawers



705327B Wall Service Bench with 2 Doors/8 Drawers

Wall Service Benches

Need all your services in 1 place or looking to add a wall of cabinets that includes services? The Wall Service Bench offers storage and services all in 1 unit. Constructed of solid hardwood and oak veneer plywood, this unit features a 1"-thick solid epoxy resin top with an epoxy resin sink (18" W \times 15" D \times 11" H) and 2 combination cold-water and gas fixtures. The sink area allows access to the plumbing and provides a large storage space with 2 GFI-protected AC duplex electrical outlets. The sink area has enough space to allow 2 tables (24" D) to be butted against the unit for use as a peninsula work area. The outer ends of the unit offer 4 storage solutions. All doors have locks and ADA-compliant pulls. Unit is finished natural with a clear, chemical-resistant UV finish and includes rubber base molding. Dimensions: 108" W \times 24" D \times 36" H. Shipped unassembled from factory; allow 6 to 8 weeks for delivery.

 705327
 4 Doors (626 lb)
 Each
 \$7,012.00

 705327A
 4 Doors/4 Drawers (647 lb)
 Each
 \$7,587.00

 705327B
 2 Doors/8 Drawers (668 lb)
 Each
 \$8,113.00

Mobile Tables

Laboratory Furniture

Mobile Lab Tables

Mobile Lab Table

Constructed of select hardwood and hardwood veneer, this table has lockable sliding doors mounted in unbreakable aluminum glides. This table is equipped with heavy-duty, ball bearing casters that swivel and have brakes. The $1^1/4$ "-thick tabletop is constructed of plastic laminate with rounded corners and is bound with plastic bumper molding to protect edges. The unit contains a stainless-steel sink (15" W \times 13" D \times 5" H), hand pump, GFI AC duplex electrical receptacle, 25-ft extension cord, 2 water bottles, connecting hoses, two $^3/4$ " upright rods, and a $^1/2$ " crossbar with clamps. Dimensions: 48" W \times 24" D \times 36" H; shipping wt, 185 lb. Shipped from factory.



Customer Review

"The private school where I teach bought 2 of these for our chemistry lab. Each one is large enough for 3–4 students to participate in a lab. They are very solid. Some minor assembly is required (faucet and wheels)."

Middle School Earth/Environmental Science Teacher



Bare Bones Mobile Lab Table

Carefully constructed of solid oak and oak veneer, this unit is finished with a clear, chemical-resistant UV finish that shows off the beautiful wood grain. The table features lockable sliding doors, mounted in unbreakable aluminum glides, and a fixed shelf. The $1^{1}/4^{\circ}$ -thick tabletop is constructed of plastic laminate with rounded corners and is bound with plastic bumper molding to protect edges. It is equipped with 4° heavy-duty, ball-bearing casters that swivel and have brakes. Dimensions: 48° W \times 24° D \times 36° H. Shipping wt, 180 lb. Shipped from factory.

705116 Each **\$1,160.00**



Mobile Lab Tables with Drop Leaves

Identical to the Mobile Lab Table (item #705115), except contains two $1^{1/4}$ "-thick, drop-leaf extensions that measure 12×24 ". This table is also supplied with 2 tote trays and propane burner with stand (these are not included in the Mobile Lab Table [item #705115]). Dimensions, including extended top: 72" W \times 24" D \times 36" H; shipping wt, 230 lb. Shipped from factory.

705117 With Water and Upright Assemblies (310 lb) Each \$2,341.00 Without Water and Upright Assemblies, Flat Top (230 lb) Each \$2,147.00

Mobile Lab Tables

- · No external plumbing needed
- Easy to move

705120

Table

Mobile Lab

· Versatile storage options

This self-contained demonstration center features a built-in, stainless-steel sink, hand pump, GFI AC duplex electrical receptacle, two 2-gal water bottles, uprights with crossbar, and 25-ft extension cord. The table is made of solid oak and oak veneer with a clear, chemical-resistant UV finish. The top is black, $1^1/4^n$ -thick chemical-resistant laminate. Unit is equipped with lockable sliding doors, which conceal 4 drawers, as well as a storage compartment for large equipment. Table has heavy-duty, ball bearing casters that swivel and have brakes. Dimensions: Overall, 48" W × 28" D × 36" H; sink, 15" W × 13" L × 5" D; shipping wt, 215 lb. Shipped from factory.

705120 With Water and Upright Assemblies Each \$2,423.00
Without Water and Upright Assemblies, Flat Top Each \$2,363.00

Laboratory Furniture

Mobile Science Lab Workstation

This unique mobile workstation allows 5 students and a teacher to conduct live science experiments in a classroom or lab setting. Simply fill the freshwater tank and slide it into the cabinet; the electric pump and heater do the rest. Includes fold-down tabletop that allows unit to roll through a single door. Additional features:

- 5-gal freshwater tank and 7-gal wastewater tank
- 14 × 10 × 10" stainless-steel sink
- Adjustable 110-V, 13-A water heater (heats 95 to 155° F)
- . Hot and cold water fixture
- Chemical- and heat-resistant 1/2" marine application countertop
- · Safety lock casters for easy mobility
- Aluminum bar frame construction with solid plastic panels

Options include an **Electric Foot Switch** for hands-free water operation and a 5-ft Flexible Fill Hose for easier freshwater tank filling. Workstation dimensions: top folded down, $61^{1}/_{2}$ " W × $24^{1}/_{4}$ " D × 33" H; top extended, $61^{1}/_{2}$ " W × $43^{1}/_{4}$ " D × 33" H; shipping wt, 250 lb. Shipped from factory; allow 1 to 2 weeks for delivery.

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704360	Black Workstation	Each	\$5,875.00
704361	White Workstation	Each	\$5,874.00
704362	Gray Workstation	Each	\$5,874.00
704363	Maple Workstation	Each	\$5,875.00
704364	Red Workstation	Each	\$5,874.00
704365	Blue Workstation	Each	\$5,874.00
704366	Electric Foot Switch	Each	\$263.00
704367	Flexible Fill Hose	Each	\$67.50

Mobile Tables/Storage Cabinets



Storage Cabinets



705470 Door Base Cabinet, 705473 Epoxy Top, and 705475 Rubber Base Molding (above)



705471 Door/Drawer Base Cabinet, 705473 Epoxy Top, and 705475 Rubber Base Molding (above)



Base Cabinets and Tops

Cabinets are constructed of solid hardwood, solid oak, and oak veneers and offer a choice of 3 styles. All cabinets measure 36" W \times 22" D \times 35" H and are finished natural with a clear, chemical-resistant UV finish. Complete the base cabinets with black, 1"-thick solid epoxy resin tops-the most chemical- and heat-resistant tops available. Tops include 4" backsplash. Tops and rubber base molding are sold separately. Rubber base molding is sold by the foot. Note: When ordering 1 cabinet, use the item #705473 top option; when joining 2 cabinets, use the item #705474 option, resulting in a 1" overhang on each side of the cabinet(s). Shipped from factory; allow 6 to 8 weeks for delivery.

705470 Door Base Cabinet (150 lb)

Each \$851.00

705471 Door/Drawer Base Cabinet (170 lb)

Each \$1,247.00

705472 Drawer Base Cabinet (200 lb)

Each \$1,537.00

Epoxy Top (38" W \times 24" D; 77 lb) 705473

\$695.00 Each

705474 Epoxy Top (74" W \times 24" D; 140 lb)

Each **\$1,255.00**

705475 Rubber Base Molding (1 ft; 1 lb)

\$6.00 Each

Shipping—Important, Please Read

Most furniture must be shipped by motor freight. The purchaser is responsible for unloading the truck, so please make sure the delivery location has a loading dock. If the delivery location has no loading dock, liftgate service or inside delivery should be requested in advance when the order is placed. These services come with special handling charges that can be obtained from the Carolina Quotations Department by calling 800.334.5551. Some furniture may be shipped in several pieces and requires assembly.

Storage Cabinets

Wall-Mounted Storage Cabinets

Constructed of solid oak and oak veneer, these cabinets are finished with a clear, chemical-resistant UV finish that shows off the beautiful wood. Cabinets contain 2 adjustable shelves and lockable, hinged doors mounted with institutional hinges. Available with solid oak doors or oak-framed, glazed doors with $^3/_{16}$ "-thick tempered glass in the following dimensions. Allow 6 to 8 weeks for delivery.

Item No.	Dimensions	Wt	Each		
Solid Oak Doors					
705661	36" W \times 12" D \times 30" H	140 lb	\$752.00		
705663	48" W × 12" D × 30" H	150 lb	\$830.00		
Oak-Framed Glass Doors					
705666	30" W \times 12" D \times 30" H	120 lb	\$921.00		
705667	36" W \times 12" D \times 30" H	130 lb	\$958.00		
705669	48" W \times 12" D \times 30" H	135 lb	\$1,027.00		



705167 Microscope Storage Cabinet (in use)

Microscope Storage Cabinets

- Provide safe, secure storage
- · Accommodate various sizes of microscopes
- · Include removable dividers for added flexibility

These cabinets are made of solid hardwood and oak veneers, using dowel construction. The natural, transparent UV finish highlights the beauty of the wood. All feature solid oak-framed glazed doors with $^3/_{16}"$ tempered glass and are equipped with 3-point locking handles. Microscopes are stored safely and conveniently on 1 fixed shelf and 3 adjustable shelves. Available in 2 sizes: 20-microscope cabinet and 30-microscope cabinet. Compartments accommodate microscopes measuring up to $7^1/_4"$ W \times 14" D \times 14" H. Shipped from factory; allow 6 to 8 weeks for delivery of non-Fastrak items. Some assembly required. **Note:** Proper installation requires that these cabinets be anchored to a wall or other cabinets to improve stability and ensure smooth door movement.

	Item No.					
	705167	36" W \times 16" D \times 84" H	20	290 lb	\$2,162.00	
Ģ	705168	48" W × 16" D × 84" H	30	326 lb	\$2,255.00	

Laboratory Furniture



705661 Wall-Mounted Storage Cabinet with Solid Oak Doors







Skeleton Cabinets

Constructed of solid oak and oak veneer, these cabinets are finished with a clear, chemical-resistant UV finish that shows off the beautiful wood. The cabinets are available in 2 models. The **Rolling Model** is designed for a skeleton on a rolling stand, and the **Hanging Model** is designed with a retractable glide for hanging skeletons. Both cabinets are equipped with a lockable, wood-framed glass door and 1 adjustable shelf for extra storage above (Rolling Model) or below (Hanging Model) the skeleton. Dimensions: 24" W × 22" D × 84" H; shipping wt, 200 lb. Shipped from factory; allow 6 to 8 weeks for delivery.

705695 Rolling Model Each \$1,536.00 705697 Hanging Model Each \$1,661.00

705695 Skeleton Cabinet, Rolling Model (in use)

See more storage cabinets on the next page.

Laboratory Furniture

Storage Cabinets



705382 Wall Storage Cabinet with Oak-Framed Glass Doors (in use)

Storage Cabinet with Tote Trays

Constructed of solid oak and oak veneer using dowel construction and finished with a chemical-resistant UV finish. The cabinet is designed with hinged, oak doors and supplied with 48 plastic tote trays. **Note:** Proper installation requires that this cabinet be anchored to a wall or other cabinets to improve stability and ensure smooth door move*ment.* Dimensions: 48" W \times 22" D \times 84" H; shipping wt, 490 lb. Shipped from factory.

705384 705384A Storage Cabinet with Tote Trays Each \$4,324.00 Replacement Tray

Each \$39.00

705384 Storage Cabinet

with Tote Trays

Wall Storage Cabinets

Constructed of solid oak and oak veneer using dowel construction and finished with a chemical-resistant UV finish. The glass doors feature cope and rail oak-frame design with 3/16" safety glass, tempered and heat treated to crumble into small, safe pieces when broken. The glass is attached with a rubber gasket that is pushed into a dado in the frame to allow easy removal of the glass, if necessary. Features a 3-point locking system, 4 adjustable shelves, and 1 fixed shelf. Note: Proper installation requires that these cabinets be anchored to a wall or other cabinets to improve stability and ensure smooth door movement. Shipped from factory.

	Item No.	Dimensions	Wt	Each		
	Hinged Oak Doors					
ļĢ	705377	48" W \times 22" D \times 84" H	410 lb	\$2,104.00		
	Oak-Framed Gla	ss Doors				
Ģ	705382	48" W \times 22" D \times 84" H	390 lb	\$2,815.00		

View more wall storage cabinets at Carolina.com.



Tote Tray Storage Cabinet

A great storage solution for multiple activities. Constructed in oak with a natural finish, the unit includes 24 tote trays, 3 adjustable shelves, and a lock for security. Note: Proper installation requires that this cabinet be anchored to a wall or other cabinets to improve stability and ensure smooth door movement. Dimensions: Overall, 48" W \times 22" D \times 84" H; tote trays, 16 $^5/_8$ " D \times 13 $^1/_8$ " W \times 3 $^1/_2$ " H; shipping wt, 445 lb. Shipped from factory; allow 6 to 8 weeks for delivery.

705373 Each \$3,350.00

Storage by Gratnells

Storage by Gratnells®

Tote Tray Cabinet

Constructed of solid maple framing and birch ply panels, this tall cabinet is designed to accommodate Gratnells® Storage Trays. The cabinet interior is equipped to handle 60 of the small 3"-D trays or 30 of the medium 6"-D trays (can also accommodate the large 12"-D trays). Cabinet features heavy-duty chrome, 5-knuckle hinges, chrome wire pulls, and a master-keyed lock. Finished with multiple coats of durable, natural catalyzed varnish. *The fully extendable trays are sold separately.* Shipped from factory. *Note: Proper installation requires this cabinet be anchored to a wall or other cabinets to improve stability and ensure smooth door movement.* Dimensions: $43^{1}/_{2}$ " W × 19" D × 84" H; shipping wt, 375 lb.

705383 Each \$2.770.00

Gratnells® Storage Trays

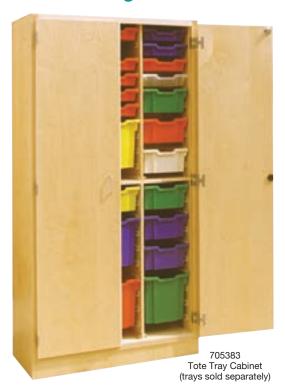
Winner of the 1992 Worlddidac Silver Award for tray design. A continuous ribbed edge keeps the tray sides from squeezing in. The front handle cutout allows the contents to be seen, and the flat fronts create a safer grip surface. The 20% talc

filling gives greater rigidity and more fire resistance than nonfilled trays. The trays are nestable for storage purposes;

by rotating 180°, trays are stackable to hold specimens. Ribs are incorporated in the base to add rigidity to the bottom of the trays. Five colors (green, blue, yellow, red, and translucent).

Item





Laboratory Furniture

No.	Color	Each			
Small (12 ¹ / ₄ × 16 ³ / ₄ × 3" D)					
705270	Green	\$16.00			
705270A	Blue	\$16.00			
705270B	Yellow	\$16.00			
705270C	Red	\$16.00			
705270D	Translucent	\$16.00			
Medium (12 ¹ / ₄ × 16 ³ / ₄ × 6" D)					
705271	Green	\$22.50			
705271A	Blue	\$22.50			
705271B	Yellow	\$22.50			
705271C	Red	\$22.50			
705271D	Translucent	\$22.50			
Large (12 ¹ / ₄ × 16 ³ / ₄ × 12 ^{II} D)					
705272	Green	\$28.00			
705272A	Blue	\$28.00			
705272B	Yellow	\$28.00			
705272C	Red	\$28.00			
705272D	Translucent	\$28.00			



Gratnells® Stationary Storage Frame

For stationary storage. This 3-column unit is for storing Gratnells® trays (sold separately) for future use. The 1"-sq, epoxy-coated steel tubing rack with patented tray runner adjustment slots make this unit versatile and resistant to damage. This $41^1/2$ " W × 17" D × 72" H model holds 17 small, 9 medium, or 5 large trays per column. Order 1 pair of Storage Frame Runners (item #705295) per tray. Assembly required.

705287 Each \$640.00

705287 Gratnells Stationary Storage Frame (trays and runners sold separately)

Gratnells® Storage Tray Clip-On Lid

This custom-designed lid clips on the tray under the rim so the tray can be slid into the special runners without hindering insertion or retrieval of the tray from the rack storage unit.

705275 Each \$7.45



Storage Frame Runners

Nylon-coated steel runners for the Gratnells® stationary and movable storage units prevent trays from flipping while in the storage rack. Patented bend-up lug prevents the runners from being knocked out of the rack when a tray is not inserted. Sold in pairs (1 left and 1 right).

705295 Per pair \$10.00

See more Gratnells® storage on the next page.

Laboratory Furniture Storage by Gratnells/Mobile Storage Cabinets



Gratnells® Trolley Storage Carts

Movable storage rack carts designed for Gratnells® trays (sold separately). With this 1-, 2-, or 3-column rack system, you can transport materials to and from the classroom. The tough nylon coating over the 1"-sq steel tubing rack supported by 80-mm, high-density casters make the rack system highly resistant to wear and damage. Each column holds 6 small, 3 medium, or 2 large trays. Order 1 pair of Storage Frame Runners (item #705295) per tray. Assembly required.

705291 1 Column (15 × 17 × 34") Each **\$423.00 705292** 2 Column (28 × 17 × 34") Each **\$482.00 705293** 3 Column (40 × 17 × 34") Each **\$621.00**

Mobile Storage Cabinets





Mobile Tote Tray Storage Cabinet

Store various materials or student projects with these convenient totes in a mobile storage cabinet. Constructed of oak veneers and solid oak, this storage cabinet rolls easily on 4" locking swivel casters. The 2 lockable doors swing 270° and conceal 21 tote trays measuring 19" D \times 14¹/₄" W \times 3¹/₂" H. Plastic laminate top can double as a work surface. Overall dimensions, 48" W \times 24" D \times 41¹/₂" H; shipping wt, 231 lb. Shipped from factory.

705158 Storage Cabinet Each \$2,594.00
705384A Replacement Tray Each \$39.00

Mobile Microscope Storage Cabinet

- Easy to move from room to room
- Safe, convenient storage
- Provides added work or demonstration space

Constructed of solid oak and oak veneer, this cabinet has lockable swinging doors on both sides and heavy-duty casters that swivel and have brakes. The unit contains removable wire dividers to provide 24 individual spaces (each $6^3/4^{\shortparallel}$ W \times 10" D \times 15 $^1/2^{\shortparallel}$ H) for microscopes. The $1^1/4^{\shortparallel}$ -thick, plastic-laminate top can be used as an auxiliary work surface. Dimensions: 48" W \times 24" D \times 40" H; shipping wt, 220 lb. Shipped from factory.

1114 CAROLINA®

Mobile Storage Cabinets



Mobile Balance Storage Cabinet

A safe, convenient way to store various school balances. Constructed of solid oak and oak-veneered plywood with lockable sliding doors and heavy-duty casters that swivel and have brakes. Unit is supplied with 4 adjustable shelves to allow maximum use of available space. The $1^{1}/4^{\shortparallel}$, black plastic-laminate top can be used as an auxiliary work surface. Dimensions: 48" W \times 24" D \times 40" H; shipping wt, 230 lb. Shipped from factory.



Fastrak

Items marked Fastrak ship in 5 days or less for limited quantities (30 or fewer tables and 6 or fewer cabinets). Offer does not apply to items requiring modification or customized features. Purchase orders containing Fastrak and other oak furniture will ship at standard delivery times to avoid excessive shipping charges.

Laboratory Furniture



Mobile Lab Carts

This compact cart can be used as a storage area, as a mobile demonstration table, or as an extended work surface. The unit is constructed of solid oak and oak veneer and features locking doors that conceal the storage area. It is equipped with an adjustable shelf and 4 heavy-duty casters that swivel and have brakes. Dimensions: 36" W \times 24" D \times 36" H; shipping wt, 140 lb. Available with 11/4"-thick **Plastic-Laminate Top** or 11/4"-thick **Chemical-Resistant Laminate Top**. Shipped from factory.

705162 Plastic-Laminate Top705164 Chemical-Resistant Laminate TopEach\$1,306.00Each\$1,130.00



Write-n-Roll Mobile Storage Unit

A versatile mobile unit that can be used anywhere storage and mobility are needed. The 10-position adjustable top has a 3-mm, black PVC edge, perfect for holding large books and papers. The top is made of $^3/_4$ " white markerboard so you can use it to display messages or demonstrate drawing techniques. Directly beneath the top is a 19 \times 25" storage area for flat items like paper and books. Constructed of oak and select hardwood veneers, the cabinet opens to reveal even more storage inside. The left side of the cabinet has 5 tote trays (inside dimensions, $13 \times 17^1/_2 \times 3^1/_2$ ") adjustable on $1^1/_2$ " centers. The right side features 3 drawers (inside dimensions, $13 \times 17 \times 2^1/_2$ ") with adjustable glides on $^1/_2$ " centers. The cabinet rolls easily on 4" swivel casters with brakes. Dimensions: 36" W \times 24" D \times 36" H; shipping wt, 175 lb. Shipped from factory; allow 6 to 8 weeks for delivery.

705169 Each \$2,255.00

Laboratory Furniture

Carts



Deep Ledge Utility Cart

Three sturdy polymer shelves hold up to 150 lb each and are stain resistant and easy to clean. The shelves also feature a raised $2^3/4$ " rim, which contains spills, and built-in Microban® antimicrobial protection, which inhibits the growth of bacteria, mold, mildew, and fungi that cause odors, stains, and product degradation. NSF listed. Overall size is $21^1/2 \times 32^3/4 \times 41$ ". Wt, 38 lb. Shipped from factory; allow 2 weeks for delivery. Available in blue only.

704440 Each \$422.30





Lakeside Stainless-Steel Laboratory Carts

Durable frame with protective bumpers on legs and handles. Ideal for constant use with light or moderate loads. Equipped with 3 shelves $(15^1/2 \times 24^{11})$ with a 1" lip on 3 sides of the top and middle shelves, and four $3^1/2$ " rubber, swivel casters. Shipped via UPS.



Economy 2-Shelf Lab Cart

Equipped with two 18 \times 24" shelves, this lab cart has a 400-lb carrying capacity; shelf clearance of 26"; 4"-diam easy-rolling swivel casters; and a lifetime warranty. Constructed of rugged polyethylene, it resists stain and odor, and will not chip, crack, dent, or rust. Easy to assemble—no tools required! Available in 2 colors. Dimensions: 18" W \times 24" L \times 34" H; wt, 24 lb. Shipped unassembled from the manufacturer via small package carrier.

704781

Economy 2-Shelf Lab Cart, Gray (in use)

704780 Black Each **\$253.00 704781** Gray Each **\$253.00**



Lakeside Stainless-Steel Medium-Duty Laboratory Cart

Guard rails on each shelf. Overall size is $19 \times 31 \times 33^{1/4}$ ". Shelf size is 18×27 "; clearance between shelves, 9". Has 20-gauge stainless-steel top, 16-gauge stainless-steel uprights, and handle. With 4" swivel casters. Carrying capacity, 500 lb. Not autoclavable. Shipping wt, 45 lb.

705010 Each **\$1,024.00**



Economy 3-Shelf Lab Cart

Equipped with three 18 \times 24" shelves, this lab cart has a 400-lb carrying capacity; shelf clearance of 12"; 4"-diam easy-rolling swivel casters; and a lifetime warranty. Constructed of rugged polyethylene, it resists stain and odor, and will not chip, crack, dent, or rust. Easy to assemble—no tools required! Dimensions: 18" W \times 24" L \times 34" H; wt, 27 lb. Shipped unassembled from the manufacturer via small package carrier.

704785 Black Each **\$318.00 704786** Gray Each **\$318.00**

Carts/Stools & Chairs

Laboratory Furniture



Three-Tub-Shelf Utility Cart

Equipped with three 18" W \times 24" L \times 2 3 /₄" D tub-shelves, this utility cart features a 400-lb carrying capacity; shelf clearance of 12"; 4"-diam easy-rolling swivel casters; and a lifetime warranty. Constructed of rugged polyethylene, it will not chip, crack, dent, or rust. Easy to assemble. Dimensions: 18" W \times 24" L \times 40 1 /₂" H; wt, 29 lb. Shipped unassembled from the manufacturer via small package carrier.

704790 Black Each **\$303.00 704791** Gray Each **\$303.00**



Mobile Demo Carts

Multi-purpose laboratory cart designed for the transportation of equipment and supplies from storage rooms to the classroom or laboratory. The unit is constructed of solid oak with $2^1/4^n$ -sq legs securely fastened to a $4^1/2^n$ -H apron using $5^1/16^n$ hanger bolts and heavy-duty, 13-gauge steel corner braces. The cart is also braced by leg stretchers and an auxiliary oak plywood shelf. The cart rolls easily on 3" ball-bearing swivel casters with brakes. Dimensions: 36" W × 24" D × 30" H; shipping wt, 95 lb. Available with a $1^1/4^n$ -thick **Plastic-Laminate Top** or $1^1/4^n$ -thick **Chemical-Resistant Laminate Top**. Shipped from factory.

₹ 705188 Plastic-Laminate Top Each \$808.00 Chemical-Resistant Laminate Top Each \$868.00

Stools & Chairs

Laboratory Stools

Attractive and economical, these stools feature a seam-welded, tubular-steel frame finished in gray enamel; a 13"-diam polypropylene seat; and a reinforced footring. Available in 2 fixed heights and a 19 to 27" adjustable-height model. Shipped from factory.





Oak Laboratory Stools

Constructed of solid oak with a natural finish. Available in 3 heights. Shipped from factory.

Item No.	Height	Wt	Each
705042	18"	11 lb	\$136.00
705041	24"	12 lb	\$140.00
705040	30"	14 lb	\$148.00



See more stools and chairs on the next page.

Stools & Chairs

Seat Your Entire Classroom on a **Small Budget**

Steel Lab Stools

- · Economical prices suit many budgets
- · Design is lightweight yet durable
- Versatile sizes fit any workstation or table
 Safe, stable seating prevents accidents

Constructed of a gray-enameled, seam-welded, tubular 18-gauge steel frame and a 14"-diam seat with channeled footrest. Stools are available in fixed-leg or adjustable-height models, which extend from 19 to 27" H. Choose from tempered hardboard or vinyl-upholstered seats. Also available with adjustable backrests. Shipped from factory; allow 3 to 4 weeks for delivery.



Stool with Hardboard Seat

Item No.	Height	Wt	Each
705060	18"	10 lb	\$86.00
705061	24"	11 lb	\$92.00
705063	19 to 27"	12 lb	\$109.00



Stool with Hardboard Seat and Backrest

Item No.	Height	Wt	Each
705068	18"	15 lb	\$132.00
705069	24"	16 lb	\$138.00
705071	19 to 27"	17 lb	\$159.00



Stool with Upholstered Seat

Item No.	Height	Wt	Each
705064	18"	10 lb	\$92.00
705065	24"	11 lb	\$99.00
705067	19 to 27"	12 lb	\$132.00



Stool with Upholstered Seat and Backrest

Item No.	Height	Wt	Each
705072	18"	14 lb	\$153.00
705073	24"	15 lb	\$155.00
705075	19 to 27"	16 lb	\$166.00



Adjustable Steel Stool A

Constructed of a 4-leg, tubular steel base with a 16" leg spread and a 13"-diam steel seat. Stool has black finish. Features pneumatic adjustment from 19¹/₂ to 243/4". Equipped with steel glides. Shipping wt, 15 lb. Shipped from factory.

705030A Each \$486.00



705025 Step Stool

Step Stool A

This circular step stool has spring-loaded, retractable casters and 2-tier platforms with rubber safety treads that provide sure, safe footing. Constructed of a heavygauge steel frame with environmentally safe, powder epoxy finish. The stool is 14" H and $15^{1}/_{2}$ " in diameter at the base. Capacity, 500 lb. Shipping wt, 11 lb.

705025 Each \$167.00

Visit Carolina.com for additional stools.



Fume Hoods

Fume Hoods

Labconco Basic[™] 47 Fume Hood

- · Designed for the school science laboratory
- Removable blower motor mounts on top of the hood or in a remote location
- Tempered, 3/16" glass sash protects the operator while providing excellent visibility
- Two-piece baffle is adjustable to handle lighter- and heavier-than-air vapors
- · Bright work area is achieved with a vapor-proof, LED light fixture
- · Durable, epoxy-coated, 16-gauge steel liner resists chemical exposure

The Labconco Basic[™] 47 Fume Hood is simple in design but fully equipped to handle the most rigorous demands of your science laboratory. The automatic bypass system reduces face velocity fluctuations and ensures efficient removal of fumes. The concealed counterbalancing sash weight makes sash position control effortless. The Basic[™] hood size is ideal for rooms with ceiling heights below 8 ft and for shallow countertops.

The **4-ft Basic**TM **47 Fume Hood** is equipped with a $^{1}/_{3}$ -hp blower motor; this hood overcomes a maximum external static pressure of 0.25 $^{1}H_{2}$ 0 at 100-fpm face velocity (720 CFM). The hood comes with a 10"-diam PVC exhaust collar for connection to an external duct system. The right-side service panel is factory prepared for up to 3 service fixtures and 2 duplex receptacles. Requires installation, ductwork, external wiring, base cabinet, and work surface (see accessories listed below). Electrical requirements: 115 V, 60 Hz. **Note:** *Prices shown are per cabinet.*

	Item No.	Name	Dimensions	Wt	Each
	705590	4-ft Basic 47 Fume Hood	47" W × 25" D × 53" H	370 lb	\$7,995.00
	705592	Epoxy Work Surface for Basic 47	48" W × 30" D	110 lb	\$2,395.00
	705594	Standard Base Cabinet for Basic 47	48" W \times 22" D \times 35 $^{1}/_{2}$ " H	260 lb	\$2,395.00
<u>^</u> 1	705596	Acid Cabinet for Basic 47	48" W \times 22" D \times 35 $^{1}/_{2}$ " H	260 lb	\$2,725.00
	705598	Cold-Water Service Fixture Kit		4 lb	\$395.00
	705598A	Gas Service Fixture Kit		4 lb	\$425.00
	705598B	Duplex Electrical Receptacle with GFI		4 lb	\$127.00
	705598C	Cup Sink and Turret Kit	$3"~W\times 6"~D$ (cup sink)	5 lb	\$755.00
	705598D	Hot-Water Service Fixture Kit		4 lb	\$475.00
	705598E	Air Service Fixture Kit		4 lb	\$440.00
	705598F	Vacuum Service Fixture Kit		4 lb	\$440.00



Go to Carolina.com for additional fume hoods.

646360 Portable Demonstration Fume Hood

Carolina Pledge: Excellent Customer Support

Our products are guaranteed. You may return an item for a replacement, a refund, or credit up to 180 days from the date of purchase. Conditions and exclusions apply. See **Carolina.com/returns** for details.



Laboratory Furniture

Kit Index

About this index

This index is designed to help you quickly find the kits you need based on instructional topic. Here's how to use it:

- 1. Find your topic in the alphabetical list.
- 2. Select your kit.
- 3. Turn to the indicated page for more information.

About our hands-on activity kits

Our kits foster student success by providing you with engaging activities, content-rich materials, and thoroughly tested procedures. Carolina kits ease your workload by providing the instructional materials and supplies needed to conduct the activities, while respecting your time and budget.

Acids, Bases, and pH
Carolina Chemistry Topic Bundles: Acids, Bases, and pH 892
Carolina ChemKits: Exploring Acids and Bases
Carolina ChemKits: Understanding pH Measurement
Carolina Chemonstrations: Nylon Synthesis Kit
Carolina Chemonstrations: Rainbow Indicators Kit899, 902
Carolina Investigations for Use with AP Chemistry:
Concentration of Acetic Acid in Household Vinegar Kit 882, 888
Carolina Investigations for Use with AP Chemistry:
Evaluating the Extent of Buffering Capacity of Various Household Products Kit882, 888
Carolina Investigations for Use with AP Chemistry:
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Carolina's Perfect Solution® Specimens

The tissues and organs of Carolina's Perfect Solution® specimens retain their natural texture and vivid color, allowing your students to easily identify structures and learn anatomy. These specimens are also safe, producing no dangerous off-gassing and requiring no special disposal.

See pages 356–401.

Anatomy (Organ)-Bloodstain Patterns

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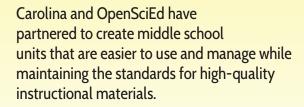
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