Cross-Curricular Activities Connected to Life Science, Grade 3

The following activities from ***Life in Ecosystems,*** integrate math, social studies, English Language Arts (ELA), art, and more into life science topics. These cross-curricular connections help students see how science is related to their lives, and the world they live in. These activities reinforce and extend ideas about the amazing diversity of life in the ecosystems we live in and are perfect for learning-from-home lesson plans. Permission is granted to incorporate these activities into teacher and parent lesson plans.

Biodiversity (ELA and Science)

Students can learn more about the biodiversity of Earth by researching an organism of their choice. Students should find out about the life cycle of the organism and its basic needs. Ask them to create a visual or write a story to share their findings with their classmates.

Name Game (ELA)

Have students research collective nouns for groups of different animals, such as a gaggle of geese, herd of deer, or pod of dolphins. Create a bulletin board with the nouns and pictures of the animal groups.

Ecosystem Guest Speaker (Social Studies)

Invite a naturalist, zookeeper, pet shop owner, or aquarist to your classroom. Ask them to discuss how ecosystems and life cycles relate to their jobs.

Pond Water Ecosystem (Science)

Find a video clip to show the diversity of microscopic life that can be found in a drop of pond water. If you have access to a microscope, collect some pond water or encourage students to bring some in, and look at a drop of the water using a microscope. You may find it helpful to use a depression slide and Protoslo® for optimal viewing of the organisms.

Unique Life Cycle (Science and ELA)

Explore the unique and very long-life cycle of a cicada. Discuss the stages of the cycle and compare and contrast them to stages of the other life cycles the class has already discussed. Emphasize the length of the cicada's life cycle (17 years). Show a video clip that displays the cicadas emerging from the ground and finishing their life cycle. Have students imagine that the cicadas emerged this year. Starting from today, have them create a timeline displaying when the next generation of cicadas will emerge.

Variation Fractions (Math)

Have students collect data on the various traits being displayed by their plants. For example, have students count the number of tall plants, dwarf plants, purple stems, non-purple stems, green leaves, and yellow leaves. Have them use fractions to represent this data, and then compare the fractions. By looking at the numerators and denominators, students can determine which fractions are larger or smaller and represent these comparisons by using the <, >, or = signs.

Exploring Variation in Our Schoolyard Habitat (Science)

If you designated an outdoor observation area at your school for this unit, bring students outside to explore the organisms that live there. Supply hand lenses and sketch paper, and have students diagram any variations they notice in the organisms they find.

Traits in Our Local Ecosystem (Science and ELA)

Have students further explore inherited and acquired traits by assigning groups an animal that can be found in your local ecosystem. Have groups research their animal to find information on inherited traits, acquired traits, and behaviors and what the offspring are called (baby, kit, foal, etc.). Encourage groups create a flyer or poster to share this information with the class.

Color Me Different (Art)

Find a coloring page of a butterfly online or in a book. Print or make a copy for each student. Find images of different butterflies online or in books. Provide art supplies, and have students design a butterfly offspring. Allow them to design and color their butterfly however they would like. Place the butterflies around the room, and as a class analyze the variations among the butterflies.

Arctic Adaptations (ELA and Geography)

Take students on a digital field trip to the Arctic. Have them research different Arctic animals and some of the adaptations they have for living in the Arctic. You may wish to set up stations to explore adaptations such as camouflage, insulation, webbed feet, fins, or large paws. Challenge students to compare the animals in the Arctic to animals in their local ecosystem.

Amazing Adaptations (ELA and Science)

Locate some videos on amazing adaptations, such as those of the pistol shrimp, African bullfrogs, Australian grass trees, camels, giant kelp, addax antelopes, hummingbirds, and great white sharks. Challenge students to think about how the amazing adaptations allow the organisms to survive in their ecosystems. Encourage students to research additional amazing adaptations and create a classroom display of their research.

Winged Camouflage (Science)

Have students research different butterflies and moths that have wing patterns and coloration for camouflage. The atlas moth, owl butterfly, lichen moth, and brimstone butterfly are just a few examples of these masters of camouflage.

The Savage Beak (Engineering)

Ask pairs of students to experiment with different tools to design a beak adapted to eating small rodents, such as mice. Pairs should apply what they have learned about beak adaptations from Investigation B of this lesson.

Endangered (Literacy and Social Studies)

Read Parrots Over Puerto Rico by Susan L. Roth and Cindy Trumbore to the class. Discuss what "endangered" means and explain that endangered organisms are at risk of going extinct, like dinosaurs did. Discuss how close to extinction these parrots were and how scientists, with the help of the Puerto Rican people, were able to help these birds repopulate the island.

Have students research endangered animals or plants in the United States or around the world. Students should choose one endangered species and record a few facts about it, such as where the organism can be found, approximately how many are left, and why they are endangered. Have students present their findings about the endangered species to the class.

Citizen Science (Community Connections)

Choose one of the many citizen science opportunities available, and get your students collecting data on ecosystems in their community. Citizen science projects include noting when trees bloom, monitoring streams, and observing backyard bird feeders. SciStarter, the Cornell Lab of Ornithology, and Journey North are good places to start your search for projects. Reach out to local researchers and naturalists in your community to find additional opportunities for students to contribute to ecosystem monitoring.

State Fossil Hunt (ELA and Science)

Almost every state has a state fossil. Allow time for students to research your state's fossil. They should draw an example of the fossil and infer what present-day organism it is most like. Ask students to construct a logical argument explaining why they chose the present-day organism that they did.

Change Over Time (Science)

NASA Visible Earth has a wide catalog of satellite images and animations of Earth. Display several of these images to show students how Earth changes over time. You might show images of algae blooms, fires, light pollution, or the effects of hurricanes. Choose a topic as a class or invite students to research topics that interest them. Have a class discussion about how humans influence Earth's ecosystems.

Making Fossils (Art)

Delve more deeply into fossils by sharing a video clip about fossils and discussing some of the different types of fossils with the class:

- Trace fossils such as footprints, scat (coprolites), and nests can help explain animal behaviors.
- A mold fossil is created when an organism dissolves away, leaving just an imprint of the organism.
- A cast fossil is created when a mold gets filled in with minerals and other materials, leaving a 3-D replica of the organism in stone.
- A true form fossil is created when an organism or part of an organism that is fully intact is preserved in material such as amber, ice, or tar. Examples include a fly caught in amber, and a woolly mammoth frozen in ice.

Students can create trace fossils by leaving their own footprint or an "animal" footprint behind. They can create molds by leaving an imprint of their "animal's" body behind. Models of true form fossils can be made by leaving the entire animal figurine behind. Cast fossils would require a toy animal skeleton to be left behind to create a mold that would then be filled in to leave a 3-D impression. Students can do this investigation inside using clay or modeling dough, or outside in the soil.

Many museums loan out fossil kits; search "fossil kit loans for the classroom" for more information. If your school is near a college or university, invite a guest from the archaeology or paleontology department to speak to your class.

Keystone Species (Science)

Introduce keystone species, which are organisms that have a major influence on the way an ecosystem works. Provide images of and information about various keystone species, such as sharks, jaguars, honeybees, sea otters, wolves, beavers, and fig trees. Ask students to predict what might happen if keystone species were removed from an ecosystem, explain how scientists determine the criteria for a keystone species, or describe what makes an organism a keystone species for its particular ecosystem.

Invasive Species (ELA and Science)

Assign groups of students an invasive species to research. Have students find out about the native habitat of the species, how it spread to other environments, and the damage it has caused. Encourage students to research efforts to control or get rid of the invasive species. Students can create a visual to make others aware of their invasive species or write a letter to their principal or local representative about an invasive species affecting your local community.

Biomes (ELA and Science)

Have students learn more about the world's biomes and the organisms that call them home. Your class could focus on one biome, or you could assign groups of student's different biomes to research. Encourage students to create a visual that showcases the plants and animals found there, as well as environmental factors such as temperature and rainfall that make each biome unique. You may also have students find out what problems are facing the biomes they researched.

Continuing the Plant Life Cycle (Science)

Students can continue to observe their Wisconsin Fast Plants and act as pollinators to produce the next generation. Because Wisconsin Fast Plants do not self-pollinate, students will need to pick up pollen from one plant using a cotton swab and transfer that pollen to another plants. Guide this process to be sure that all plants are pollinated. Twenty days after pollination, remove the plants from their reservoirs, and allow them to dry for five days. Harvest the seeds by removing each seed pod and gently rolling the dry seedpod between your fingers. Do this over a paper towel to catch the seeds. Plant the seeds after harvesting, or store the seeds in a cool, dry place for future use.

Improvement to Schoolyard Habitat (Engineering and Community Connections)

Extend what students have learned in this unit by encouraging them to design an ecosystem improvement for a habitat on the school grounds. Have groups research the problems and solutions to their improvement and create blueprints of their proposed design. The National Wildlife Federation has many resources on creating or improving a wildlife-friendly habitat on school grounds.