Name _____

Date _____

The Sport of Curling

Have you ever heard of the sport curling? Many people have not, but it is an Olympic sport!

Curling is played on ice. There are two teams, each with four players. The object of the game is to get your team's "stones" closest to the center of a bull's-eye located at the opposite end of the ice. You can push each stone only once.

One player starts by pushing a stone down the ice. Just like a soccer ball, the stone needs a force to make it move. The law of inertia states that an object at rest will remain at rest until the object is acted upon by force.

Like any game, there are obstacles each team must overcome. The ice is covered in tiny water droplets. When those stone slides over these tiny droplets, friction is produced. Friction slows the stone's movement. This makes it difficult for the stone to travel fast enough and far enough to make it to the bull's-eye.

This is where strategy and skill come in. Players can control the stone by manipulating the ice. They use broomlike sticks to sweep the ice in front of the stone as it moves. This sweeping raises the temperature of the water droplets a bit and allows the stone to move farther and faster.

Each team has eight stones to play. Where a stone comes to rest is assigned a predetermined point value. The team with the highest score after all stones have been played wins. The next time there is a Winter Olympics, check out curling!

Questions:

1. What must occur for an object to move?

2. Where does friction occur in curling?

3. What does sweeping the ice do in curling?

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El deporte del curling

¿Has oído hablar de un deporte llamado curling? Mucha gente no, pero es un deporte olímpico.

El curling se juega sobre hielo. Hay dos equipos, cada uno formado por cuatro jugadores. El objetivo del juego es colocar las "piedras" de tu equipo lo más cerca posible del centro de una diana situada en el extremo opuesto del hielo. Puedes empujar cada piedra solamente una vez.

Un jugador comienza por empujar una piedra por el hielo. Al igual que un balón de fútbol, la piedra requiere una fuerza que la mueva. La ley de la inercia establece que un objeto en reposo permanecerá en reposo hasta que una fuerza actúe sobre el objeto.

Como en cualquier juego, hay obstáculos que cada equipo debe superar. El hielo está cubierto por diminutas gotas de agua. Cuando estas piedras se deslizan sobre estas gotas diminutas, se produce fricción. La fricción frena el movimiento de la piedra. Esto dificulta que la piedra viaje con la velocidad y distancia suficiente para llegar a la diana.

Es aquí donde entran en juego la estrategia y la habilidad. Los jugadores pueden controlar la piedra manipulando el hielo. Usan palos parecidos a escobas para barrer el hielo frente a la piedra a medida que avanza. Este barrido eleva ligeramente la temperatura de las gotas de agua y permite que la piedra avance más lejos y con mayor rapidez.

Cada equipo lanza ocho piedras. Cuando se detiene la piedra, se le asigna una cantidad predeterminada de puntos dependiendo de su posición. El equipo con mayor cantidad de puntos después de lanzar todas las piedras es el ganador. En los próximos Juegos Olímpicos de invierno, no te pierdas el curling.

Preguntas:

1. ¿Qué debe ocurrir para que un objeto se mueva?

2. ¿Dónde ocurre la fricción en el curling?

3. ¿Qué se logra al barrer el hielo en el curling?

Crédito: Gemenacom/Shutterstock.com

Gravity

Everything that goes up must come down. Watch a boulder roll down a hill. Drop a pencil and it will fall to the ground. Jump as high as you can, but you will always return to Earth.

All objects pull on each other with a special force. This special force is called **gravity**. When you drop something, it falls to the ground because gravity pulls it toward Earth.

Friction

Two things rubbing together create friction. **Friction** (frik-shən) is a force that makes moving objects slow down or stop. The smooth plastic surface of a slide lets you zoom to the ground. There is little friction when your clothing rubs against the slide. If the surface was rough, like sandpaper, you might not slide at all. Rough surfaces create more friction.

Mass also creates more friction. Pushing one book across the floor is pretty easy. Pushing a whole bookcase across the floor is much harder. There is a lot more friction because the bookcase has more mass.

What Do You Know?

Answer the following questions in complete sentences in your science notebook. Use evidence from what you have read in this brochure.

1. What effect can a force have on an object?

2. What is the main idea of the information under the subtitle “Gravity”?

3. Use evidence from the text to explain why you are able to zoom to the ground on the surface of a slide.

4. Use information from the text to explain the meaning of friction.

5. What is the purpose of the text in the parentheses next to the words “motion” and “friction.”

6. Use an example from the text as evidence to explain why a smooth surface is able to move quickly when rubbed against another smooth surface.

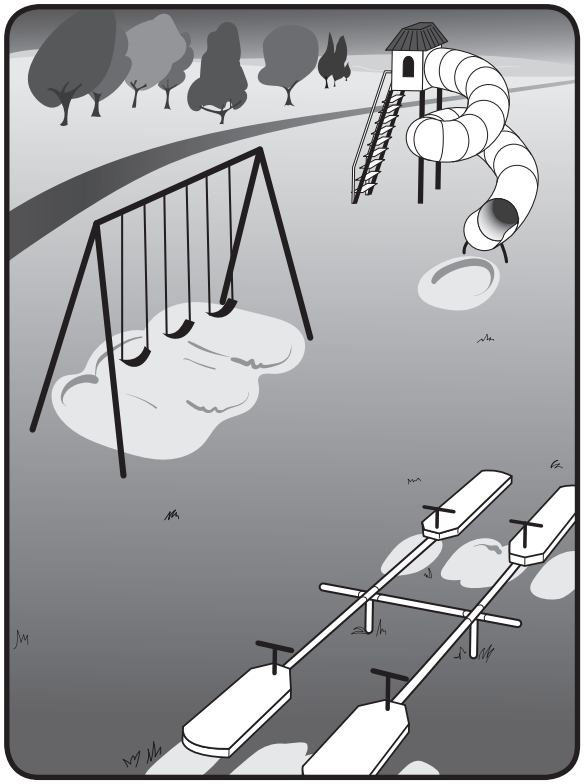
7. Why does the author most likely include the section called “On the Move: Make the Connection”?

8. What evidence does the author give to show that more mass causes more friction?

9. Research gravity on the Moon using the Internet or a nonfiction book. Explain the similarities and differences between the force of gravity on the Moon and the force of gravity on Earth.

Literacy and Science 2C:

Forces and Motion



Forces and motion are examples of physical science. What is physical science? Physical science is the study of what things are made of and how things work. Everything we do involves physical science.

Gravedad
Todo lo que sube tiene que bajar. Ve cómo rueda una roca colina abajo. Suelta un lápiz y caerá al suelo. Salta tan alto como puedas, pero siempre regresarás a la Tierra.

Todos los objetos se atraen mediante una fuerza especial. Esta fuerza especial se conoce como **gravedad**. Cuando sueltas algo, cae al suelo porque la gravedad tira del objeto hacia la Tierra.

Fricción
Dos objetos que se rozan crean fricción. **La fricción** es una fuerza que hace que los objetos en movimiento se frenen o detengan. La superficie de plástico liso de un tobogán te permite descender velozmente al suelo. Hay poca fricción cuando tu ropa frota contra el tobogán. Si la superficie fuera áspera, como una lija, es probable que no pudiera deslizarte. Las superficies ásperas crean más fricción.

La masa también produce más fricción. Es fácil empujar un libro por el piso. Empujar todo un librero por el piso es mucho más difícil. La fricción es mucho mayor porque el librero tiene más masa.

¿Qué sabes?
Responde a las siguientes preguntas con oraciones completas en tu cuaderno de ciencias. Usa evidencia de lo que han leído en este folleto.

1. ¿Qué efecto puede tener una fuerza sobre un objeto?

2. ¿Cuál es la idea principal de la información bajo el subtítulo “Gravedad”?

3. Usa evidencia del texto para explicar por qué puedes deslizarte hacia el suelo sobre la superficie de un tobogán.

4. Usa información del texto para explicar el significado de la fricción.

5. ¿Cuál es el propósito del texto entre paréntesis junto a las palabras “movimiento” y “fricción”?

6. Usa un ejemplo del texto como evidencia para explicar por qué una superficie lisa puede moverse rápidamente al frotarla contra otra superficie lisa.

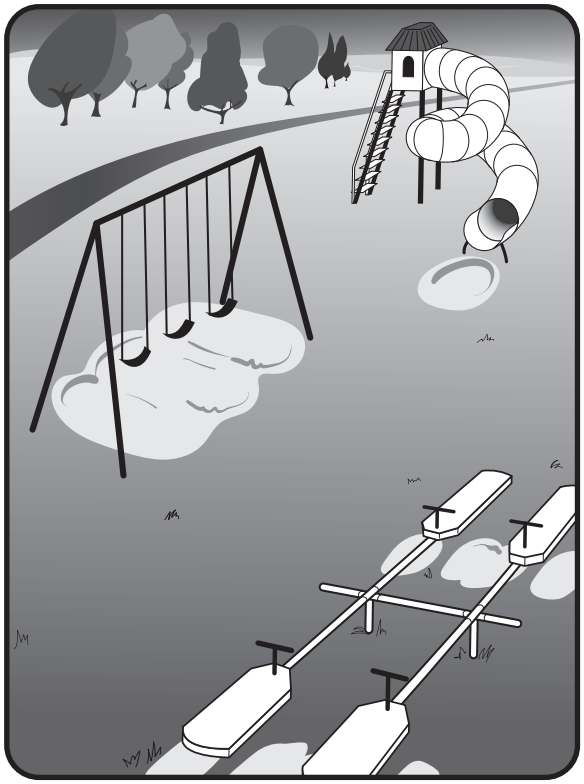
7. ¿Por qué es más probable que el autor incluya la sección titulada “En movimiento: haz la conexión”?

8. ¿Qué evidencia presenta el autor para mostrar que una masa más grande produce más fricción?

9. Investiga sobre la gravedad en la Luna en Internet o en un libro que no sea de ficción. Explica las semejanzas y diferencias entre la fuerza de gravedad en la Luna y la fuerza de gravedad en la Tierra.

Conocimientos básicos y ciencia 2C:

Fuerzas y movimiento

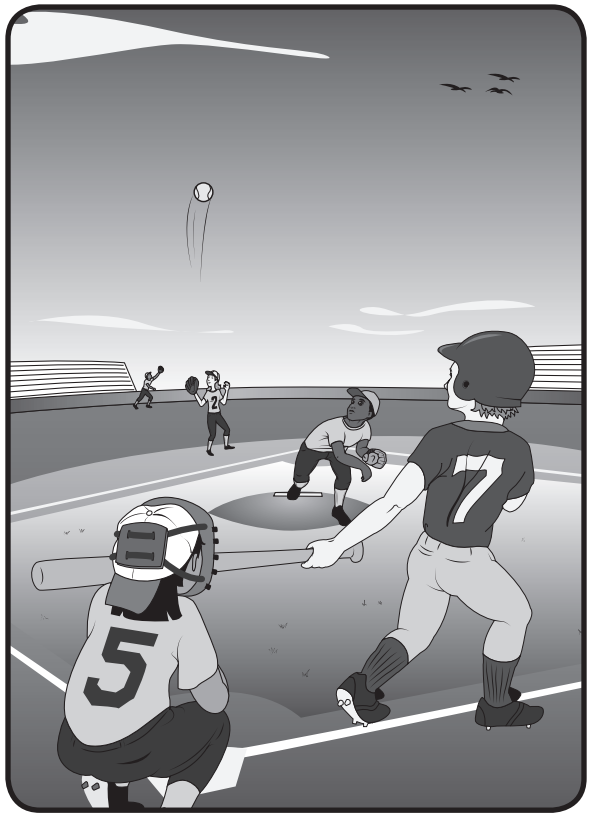


Las fuerzas y el movimiento son ejemplos de ciencia física. ¿Qué es la ciencia física? La ciencia física estudia de qué están hechas las cosas y cómo funcionan. Todo lo que hacemos comprende ciencia física.

What Is Motion?

Motion (mo-shən) is when something moves from one place to another.

There are almost as many ways to move as there are things that move. A hot air balloon moves up, and a parachute moves down. You might run to the left or hop to the right. A sprinter runs forward to reach the finish line, and a baseball player runs backward to make a catch. Everywhere you look, something is moving. The world is in motion.



Panel 2

Things move at different speeds. Sometimes motion is so slow you can hardly notice it. An hour hand moving around a clock is very slow. Other times, motion is very fast. Think about how fast a shooting star flashes across the night sky. **Speed** is how fast or slow something moves. Cars on a road are faster than bikes. A plane is faster than a train.

ON THE MOVE:

Make the Connection

Explore the different ways things move in the world around you.

1. List moving things you see around your school or your neighborhood. How do they move? Write a description for each item on your list.
2. Which things moved in different ways?
3. Did everything move at the same speed?

Panel 3

What Is Force?

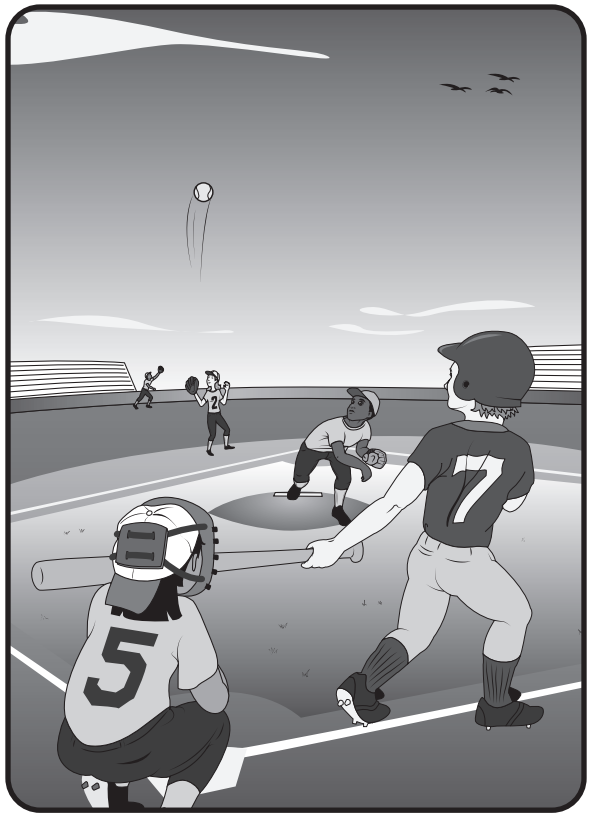
Everything moves because of force. Forces cause objects to start moving or to stop moving. You use force when you push or pull an object.

Force can even cause objects to change direction. Blow a soap bubble and it will move straight out from the wand. Your breath was the force that pushed it. Right away, though, the wind may push the bubble in another direction. The wind exerted a force that changed the bubble's path.

Panel 4

¿Qué es el movimiento?
El **movimiento** es cuando algo pasa de un lugar a otro.

Hay casi tantas formas de mover como cosas que se mueven. Un globo aerostático sube y un paracaídas baja. Puedes correr hacia la izquierda o saltar hacia la derecha. Un velocista corre hacia delante para llegar a la meta y un jugador de béisbol corre hacia atrás para atrapar la pelota. Donde sea que mires, algo se mueve. El mundo está en movimiento.



Panel 2

Las cosas se mueven a distintas velocidades. Algunas veces, el movimiento es tan lento que apenas puedes percibirlo. El movimiento de la manecilla de las horas en un reloj es muy lento. Otras veces, el movimiento es muy rápido. Piensa en la rapidez con la que una estrella fugaz surca el cielo nocturno. La **velocidad** es la rapidez con lo que algo se mueve. Los automóviles en una calle son más rápidos que las bicicletas. Una avión es más rápido que un tren.

EN MOVIMIENTO:

Haz la conexión

Explora las diferentes maneras en que se mueven las cosas en el mundo que te rodea.

1. Elabora una lista de objetos en movimiento que veas cerca de tu escuela o vecindario. ¿Cómo se mueven? Escribe una descripción para cada elemento en la lista.
2. ¿Qué cosas se movieron de distintas maneras?
3. ¿Se movió todo a la misma velocidad?

Panel 3

¿Qué es la fuerza?
Todo se mueve debido a la fuerza. La fuerza hace que los objetos comiencen a moverse o dejen de moverse. Usas fuerza al empujar un objeto o tirar de él.

La fuerza incluso puede causar que los objetos cambien de dirección. Sopla una burbuja de jabón y se separará de la vara. Su aliento fue la fuerza que la empujó. Sin embargo, el viento de inmediato podría empujar la burbuja en otra dirección. El viento ejerció una fuerza que cambió la trayectoria de la burbuja.

Panel 4

Name _____

Date _____

Clowning Around

Many people love to laugh at clowns. Clowns dress in silly ways and act goofy. They try to make people laugh. Sometimes clowns act alone. Other times, they work together. You may have seen many clowns at a circus or a parade spill out of a clown car.

The act begins with a small car driving very slowly into view. The car stops, and one clown gets out. As the seconds tick by, clown after clown exits the car. The audience is amazed that all those clowns could fit in one tiny car!

After the final clown exits the car, the driver steps back into the vehicle. Waving goodbye to the crowd, he speeds away. The other clowns chase after the car.

Mass is how much matter is in an object. Mass has a direct result on how fast something can move. The clown car approaches slowly because all the clowns inside have a lot of mass. It speeds away because only one clown is inside. Think about a time you walked down the hallway with your class. Was it an easy walk? Were you out of breath? Now imagine walking to class with your backpack full of heavy books. Was it still an easy walk? Could you walk as fast as you did without the backpack on? How did the mass of the backpack affect your walk?

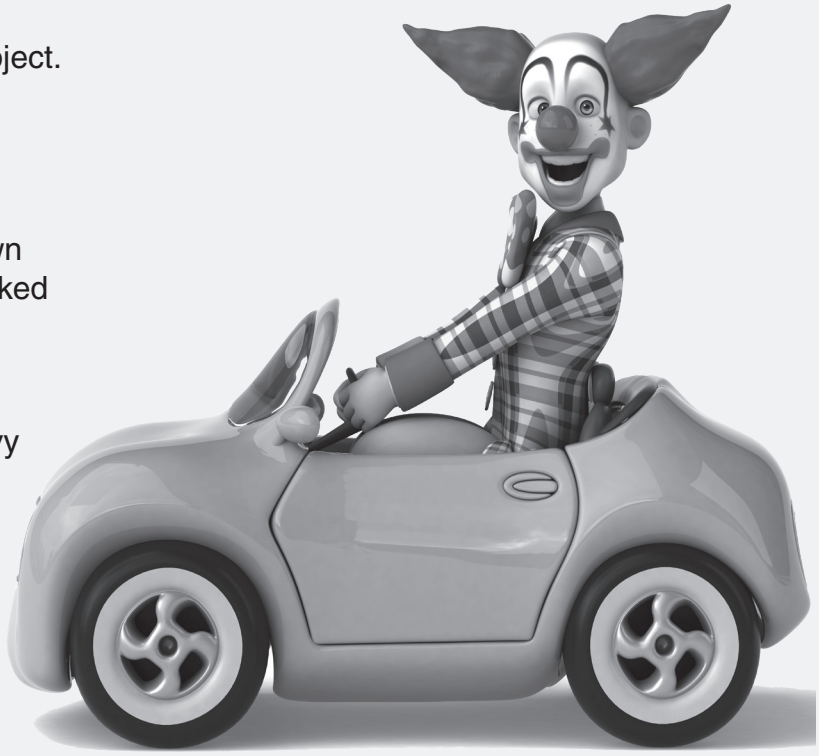
The next time you pack up your backpack, think about how the mass of the items in it will affect how you move.

Questions:

1. How does the mass of the full clown car affect the amount of friction acting on the car?

2. Which would be harder to move: an empty shopping cart or a full one?

3. Imagine a clown car has eight clowns inside. Two clowns get out and sit on top of the car. Will the car move faster or slower? Explain your reasoning.



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Nombre _____

Fecha _____

Payasadas

A muchas personas les gusta reír con los payasos. Los payasos se visten de maneras tontas y hacen boberías. Intentan hacer reír a las personas. Algunos payasos actúan solos. Otras veces, trabajan juntos. Quizá hayas visto en un circo o en un desfile cómo salen muchos payasos de un vehículo.

El espectáculo comienza con un vehículo pequeño que llega lentamente. El vehículo se detiene y sale un payaso. Conforme pasan los segundos, sale payaso tras payaso del vehículo. El público queda asombrado por el hecho de que tantos payasos cupieran en un vehículo pequeño.

Después de que el último payaso sale del vehículo, el conductor vuelve a subir a él. Se despide del público y se va a toda velocidad. Los otros payasos persiguen el vehículo.

La masa es la cantidad de materia en un objeto. La masa tiene un efecto directo en la velocidad con la que algo puede moverse. El vehículo de payasos se aproxima con lentitud porque todos los payasos en el interior tienen mucha masa. Se aleja con rapidez porque solo hay un payaso en el interior. Piensa en una vez que caminaste por el pasillo con tu grupo. ¿Fue una caminata sencilla? ¿Te quedaste sin aliento? Ahora imagina que caminas a clase con la mochila llena de libros pesados. ¿Fue todavía una caminata sencilla? ¿Podrías caminar con la misma rapidez que sin la mochila? ¿Cómo afectó la masa de la mochila a la caminata?

La próxima vez que prepares la mochila, piensa en cómo la masa de los artículos en ella afectarán tu movimiento.

Preguntas:

1. ¿De qué manera la masa del vehículo para payasos lleno afecta la cantidad de fricción que actúa sobre el vehículo?

2. ¿Qué sería más difícil de mover: un carrito de compras vacío o uno lleno?

3. Imagina que un vehículo tiene ocho payasos en el interior. Dos payasos se bajan y se sientan sobre el vehículo. ¿El vehículo se movería más rápido o más lento? Explica tu razonamiento.

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Name _____

Date _____

Amazing Roller Coasters

Swoosh! Imagine a roller coaster racing along its track. It takes off like rocket, then dips and turns. It even goes upside down! Would you believe that magnets play a big role in how roller coasters work? It's true!

From the beginning of your journey on a roller coaster, magnets play an important part. To keep the cars of the coaster at rest, pairs of magnets are set up with their opposite poles facing each other. These opposite poles attract, or pull together. This guarantees that the roller coaster is secure on its track. As the ride starts, one magnet of each pair is turned around. Now the same poles of each magnet are facing each other. These magnets now repel, or push away from each other. This push sets the coaster in motion along the track.

Electromagnets help keep a roller coaster moving. An electromagnet is a device that uses an electric current to produce a magnetic field. Electromagnets transfer electricity to the coaster's motor. Motors run on electricity. The motor is used to pull the cars up the first steep hills. Electromagnets also keep the roller coaster soaring at high speeds. They lock the seatbelts that keep you safely in your seat.

As the ride comes to an end, magnets are still at work. Electromagnets help the roller coaster slow and come to a complete stop. Electricity triggers the brake to close. Then strong magnets clamp together to hold the brake in place.

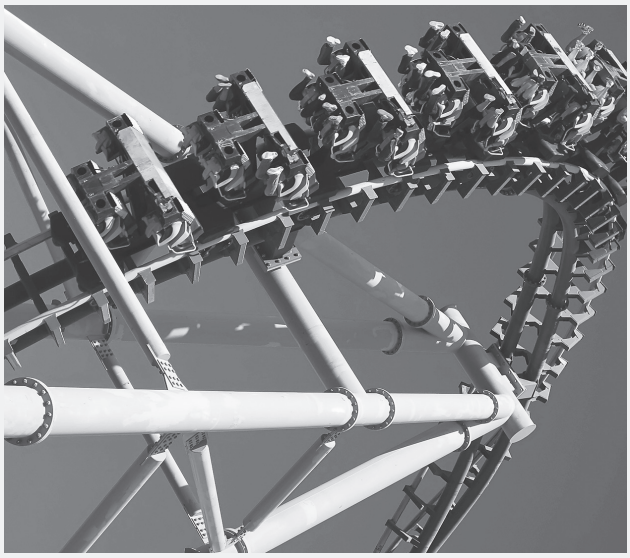
As you can see, magnets and electricity work together to play important roles in how roller coasters work. Can you think of other devices that use both electricity and magnets?

Questions:

1. What is an electromagnet?

2. How does an electromagnet keep riders safe on a roller coaster?

3. Once the roller coaster starts, why are the magnets turned so that the same poles are facing each other?



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Nombre _____

Fecha _____

Montañas rusas asombrosas

¡Zum! Imagina una carro de montaña rusa que corre a toda velocidad por su pista. Arranca como un cohete y, luego, desciende y gira. ¡Incluso va de cabeza! ¿Creerías que los imanes tienen un papel muy importante en cómo funcionan las montañas rusas? ¡Es cierto!

Desde que comienza tu viaje en una montaña rusa, los imanes tienen una función importante. Para mantener los carros de la montaña rusa en reposo, los pares de imanes se disponen con los polos opuestos frente a frente. Estos polos opuestos de atraen o unen. Esto garantiza que el carro de la montaña rusa se mantenga seguro en la pista. Al comenzar el viaje, se gira uno de los imanes de cada par. Ahora, los mismos polos de cada imán están uno hacia el otro. Estos imanes se repelen o rechazan. Este empuje impulsa el carro por la pista.

Los electroimanes ayudan a que el carro de la montaña rusa siga moviéndose. Un electroimán es un dispositivo que usa una corriente eléctrica para producir un campo magnético. Los electroimanes transfieren electricidad al motor de la montaña rusa. Los motores funcionan con electricidad. El motor se usa para subir los carros por las primeras pendientes pronunciadas. Los electroimanes también mantienen la montaña rusa moviéndose a alta velocidad. Enganchan los cinturones de seguridad que te mantienen seguro en tu asiento.

Cuando el viaje termina, los imanes siguen trabajando. Los electroimanes ayudan a frenar y detener la montaña rusa. La electricidad activa el cierre de los frenos. Luego, poderosos imanes se unen para mantener el freno en su lugar.

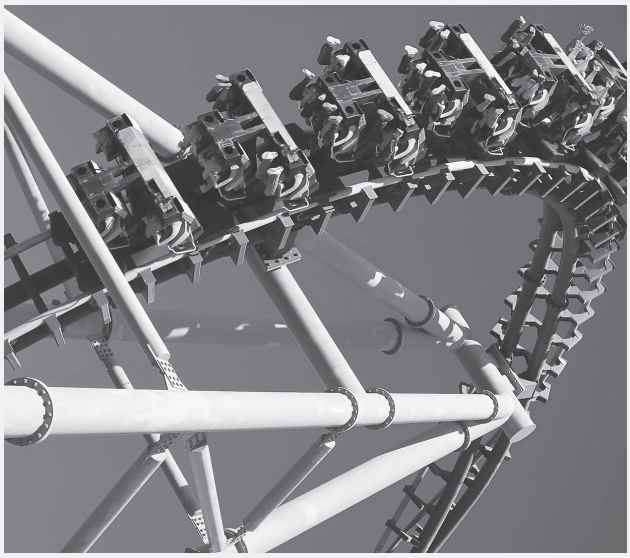
Como puedes ver, los imanes y la electricidad trabajan en conjunto para realizar acciones importantes en el funcionamiento de las montañas rusas. ¿Puedes pensar en otros dispositivos que utilizan electricidad e imanes?

Preguntas:

1. ¿Qué es un electroimán?

2. ¿Cómo mantiene un electroimán seguro a los pasajeros de una montaña rusa?

3. Después de que arranca la montaña rusa, ¿por qué se giran los imanes para que los polos iguales apunten uno hacia el otro?



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Take-Home Science

Dear Family,

Our class is beginning an inquiry science unit. Inquiry science is all about questions, active explorations, drawing, writing, and recording what you see and do to build an understanding of science. Young children are natural scientists. Scientists question everything. Once scientists answer one question, they move without blinking to the next question.

Take-Home Science is an exciting part of our program because it's one way we can better connect home and school. With everyone working together, we can reinforce the science concepts that your student is exploring in the classroom. Here's how Take-Home Science works.

Your student will bring home an investigation sheet that explains an activity related to the science unit the class is studying. The activity is designed so that everyone in the household—younger and older children alike—can work together to learn about science.

A section of the investigation sheet explains the science words and ideas that will be explored during the activity. These science words and ideas are not new to your student because the activity follows a lesson in which those same concepts were explored.

The activities are simple and can be completed within 20 minutes using items normally found in the home. A section of the investigation sheet is for your student to complete and bring back to school. In class, students will have the opportunity to share their experiences and results with one another.

The activities are intended to be quick, informal, and fun. Enjoy!

GO EXPLORING!

Credit: Cathy Keifer/Shutterstock.com

Take-Home Science

What's the Charge?

In class you learned that opposites attract. Investigate items to find out if they attract each other. Rub a plastic pen or balloon on your shirt or hair to negatively charge it, and then touch it to different items to see what it attracts!

Challenge: Determine whether items are attracted to a negatively charged plastic pen or balloon.
Who: You and any person who will help (like brothers, sisters, parents, or friends).
What to look for: Items that are attracted to the negative charge will move forward (or pull toward) the balloon or pen.
What to record: On the chart on the back of this sheet, list the items you test and the outcome of your test.
What to report: Bring your completed chart to class. Be prepared to share what you have found.

Credit: exopixel/Shutterstock.com

Equipment

- 5 Grains of rice
- 5 Pieces of cereal
- 1 Plastic pen or an inflated balloon
- 1 Sheet of paper
- 1 Small piece of aluminum foil
- 1 Small piece of plastic wrap
- Bed sheets
- Your hair

Vocabulary

attract: When a force causes something to pull toward it.

electric charge: When particles cause an electromagnetic field that either attracts or repels other particles.

observe: To use your senses in a special way to get a better understanding of something.

repel: When a force causes something to push away from it.

static electricity: The buildup of electric charges on a surface.

Take-Home Science

Name _____

Date _____

What to Do:

1. Create a negative electrostatic charge on a plastic pen or an inflated balloon by vigorously rubbing it on your shirt for at least 30 seconds.

2. Slowly bring the pen or balloon close to the different materials to see if it attracts them. Record the result of your test in the chart below by adding a check mark in the correct column.

3. Use the blank rows at the bottom of the chart to add other objects you would like to test.

Object	Attracted	Repelled	No movement
Aluminum foil			
Bed sheets			
Cereal			
Paper			
Plastic wrap			
Rice			
Your hair			

Ciencia para llevar a casa

Querida familia:

Nuestra clase está comenzando una unidad de ciencia inquisitiva. La ciencia inquisitiva se trata de preguntas, exploraciones activas, dibujos, redacciones y grabaciones de lo que ven y hacen para crear un mayor entendimiento de la ciencia. Los niños pequeños son científicos naturales. Los científicos cuestionan todo. Cuando los científicos responden una pregunta, pasan sin titubear a la siguiente.

Ciencia para llevar a casa es una parte emocionante de nuestro programa porque es una forma en que podemos conectar mejor la escuela y nuestro hogar. Si todos trabajan juntos, podemos reforzar los conceptos científicos que el alumno explora en el aula. Así funciona la ciencia para llevar a casa.

El alumno llevará a casa una hoja de investigación que explica una actividad relacionada con la unidad de ciencia que la clase está estudiando. La actividad está diseñada para que todos los miembros de la familia (hijos más pequeños y más grandes por igual) puedan trabajar juntos para aprender sobre ciencia.

Una sección de la hoja de investigación explica la terminología científica y las ideas que se explorarán durante la actividad. Esta terminología científica y las ideas no son nuevas para el alumno, ya que la actividad sigue a una clase en la que se exploraron esos mismos conceptos.

Las actividades son simples y se pueden completar en 20 minutos con artículos que se hallan normalmente en una casa. Una sección de la hoja de investigación está dedicada para que el alumno la complete y la lleve a la escuela. En clase, los alumnos tendrán la oportunidad de compartir sus experiencias y resultados con los compañeros.

Las actividades deben ser rápidas, informales y divertidas. ¡A disfrutar!

¡SALGAN A EXPLORAR!

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Ciencia para llevar a casa

¿Cuál es la carga?

En clase aprendiste que los polos opuestos se atraen. Investiga objetos para ver si se atraen. Frota un bolígrafo de plástico o un globo contra tu camisa o cabello para darle una carga negativa y, luego, ponlo en contacto con diversos objetos para ver qué atrae.

Reto: Determina si los objetos son atraídos por un bolígrafo de plástico o globo con carga negativa.
Quién: Tú y cualquier persona que ayudará (por ejemplo, hermanos, hermanas, padres o amigos).
Qué buscar: Los objetos atraídos por la carga negativa se moverán hacia el globo o bolígrafo.
Qué registrar: En la tabla en el reverso de esta hoja, indica los objetos que probaste y los resultados de la prueba.
Qué informar: Lleva la tabla con datos a la clase. Prepárate para presentar tus hallazgos.

Crédito: exopixel/Shutterstock.com

Equipo

- 5 granos de arroz
- 5 trozos de cereal
- 1 bolígrafo de plástico o globo inflado
- 1 hoja de papel
- 1 trozo pequeño de papel de aluminio
- 1 trozo pequeño de película de plástico
- Sábanas
- Tu cabello

Vocabulario

atraer: cuando una fuerza hace que algo se dirija hacia ella.

carga eléctrica: cuando las partículas causan un campo electromagnético que atrae o repele otras partículas.

observar: usar los sentidos de una manera especial para entender mejor algo.

repeler: cuando una fuerza provoca que algo se aleje de ella.

electricidad estática: la acumulación de cargas eléctricas en una superficie.

Ciencia para llevar a casa

Nombre _____

Fecha _____

Qué hacer:

1. Crea una carga electrostática negativa en un bolígrafo de plástico o globo inflado frotándolo vigorosamente contra tu camisa durante 30 segundos o más.

2. Acerca el bolígrafo o globo lentamente a distintos materiales para ver si los atrae. Registra el resultado de la prueba en la siguiente tabla, añadiendo una marca en la columna correcta.

3. Use las filas en blanco al final de la tabla para añadir otros objetos que te gustaría probar.

Objeto	Atraído	Repelido	Sin movimiento
Papel de aluminio			
Sábanas			
Cereal			
Papel			
Película de plástico			
Arroz			
Tu cabello			

Teacher Sheet: Science in the News Article Report

To help students understand a concept, it is often helpful to associate it with an event or phenomenon. Depending on the topic, students may be able to draw connections to recent events in the news or to historical events in your area. Using a literacy tool like an article report is a helpful way to bring in literacy, reading comprehension, and science topics at any grade level.

Science in the News articles can be assigned at any point during a unit to assist students in seeing the "real-world connection" to a particular concept. These articles should be provided by the teacher in lower grades, but students in grades 3–5 may be ready for the challenge of selecting their own articles independently. The following guidelines will help you find appropriate articles. If you ask students to locate their own articles, you may wish to provide some of these guidelines along with the specific requirements for the assignment. Students at all grades are provided with an article report sheet to help them analyze their article and draw connections between it and the unit concepts. For students in grades 3–5, a rubric is provided in this appendix to help them to evaluate an article for bias and credibility.

1. Choose a topic that aligns with content

- Look for an article that will be engaging to students. It might be helpful to use local news sources or current events. Try to find a topic that students will be able to relate to and find interesting. For example, students will find greater interest in relating chemical reactions to cooking than in a laboratory setting.

2. Seek appropriate articles

- Typical news sites contain text that is likely too complex for elementary students. Use a search engine to find websites that provide kid-friendly news. Many of these websites align their content by grade level and cover a variety of topics.
- Though news is more frequently updated on websites, it is also possible to use text sources, such as kid-friendly newspapers or magazines.

3. Determine the credibility of the source

- It is very important to choose an article from a credible source to avoid bias and false news. Use the credibility rubric to assess sources before selecting articles.

4. Read the article

- Once you have chosen an article of interest, read it to determine its connection to the unit content. Take note of any new or unfamiliar terms so they can be reviewed later.

Differentiation Strategy If you are selecting the article, consider editing the text to differentiate instruction.

5. Ask students to read the article and complete an article report sheet. Remind them to:

- Provide information about where the article was found.
- Answer questions about the current event and draw connections to what they have learned during the unit.

Science in the News: Article Report

Name: _____

Date: _____

Title of article: _____

Author: _____

Date published: _____

Source: _____

Type of news: ___ Local ___ National ___ International

1. Summarize your article. What happened? When did it happen? Who was involved? Where did it happen? Why did it happen? _____

2. Why is this article important? _____

3. What did you learn from this article? Was anything surprising? _____

Name: _____

Date: _____

Write one question you have after reading the article. _____

_____

_____

_____

How does this article relate to the topics covered in this unit? _____

_____

_____

_____

Science in the News: Article Credibility Rubric

Directions: Use the rubric to determine the credibility of your Science in the News article.

Criteria	3	2	1	Rating
Author	The author's name is easy to find.	Author's name is not easy to find.	The author's name cannot be found.	
Source/ Publisher	The source of the article is well-known and contains many news reports.	The source of the article does not contain many news reports. I have never heard of the publisher.	The source of this article does not have many news reports.	
Update frequency	This event occurred recently.	This event occurred within the past five years.	This event occurred many years ago.	
Opinion/ Bias	The article reports on an event and does not provide opinion.	The article contains facts, but also the author's opinion.	The article contains the author's opinion and presents information that may not be fact.	
Science Impact	Scientific findings and results appear to be accurate and has strong evidence for support.	The scientific findings might be exaggerated and do not have evidence. I do not understand the scientific findings.	The science discussed in the article is incorrect and there is no evidence.	

1. Do you think this news article is credible? Explain why or why not. _____

_____

_____

The Sport of Curling

Have you ever heard of the sport curling? Many people have not, but it is an Olympic sport!

Curling is played on ice. There are two teams, each with four players. The object of the game is to get your team's "stones" closest to the center of a bull's-eye located at the opposite end of the ice. You can push each stone only once.

One player starts by pushing a stone down the ice. Just like a soccer ball, the stone needs a force to make it move. The law of inertia states that an object at rest will remain at rest until the object is acted upon by force.

Like any game, there are obstacles each team must overcome. The ice is covered in tiny water droplets. When those stone slides over these tiny droplets, friction is produced. Friction slows the stone's movement. This makes it difficult for the stone to travel fast enough and far enough to make it to the bull's-eye.

This is where strategy and skill come in. Players can control the stone by manipulating the ice. They use broomlike sticks to sweep the ice in front of the stone as it moves. This sweeping raises the temperature of the water droplets a bit and allows the stone to move farther and faster.

Each team has eight stones to play. Where a stone comes to rest is assigned a predetermined point value. The team with the highest score after all stones have been played wins.

The next time there is a Winter Olympics, check out curling!

Questions:

1. What must occur for an object to move? *(A force must act upon it.)*

2. Where does friction occur in curling? *(Water droplets on the surface of the ice cause friction as the stone moves over them.)*

3. What does sweeping the ice do in curling? *(It smooths the ice, reduces friction, and helps the stone move closer to the bull's-eye.)*

Credit: Gemenacom/Shutterstock.com

What Do You Know?

Answer the following questions in complete sentences in your science notebook. Use evidence from what you have read in this brochure.

1. What effect can a force have on an object? *(A force can cause an object to start moving, stop moving, or change direction.)*

2. What is the main idea of the information under the subtitle "Gravity"? *(This section defines and gives examples of the force of gravity.)*

3. Use evidence from the text to explain why you are able to zoom to the ground on the surface of a slide. *(The smooth plastic surface of a slide has little friction.)*

4. Use information from the text to explain the meaning of friction. *(Friction is a force that makes moving objects slow down or stop.)*

5. What is the purpose of the text in the parentheses next to the words "motion" and "friction"? *(The purpose of the text in the parentheses is to show the reader how to pronounce the words.)*

6. Use an example from the text as evidence to explain why a smooth surface is able to move quickly when rubbed against another smooth surface. *(The author states that a smooth plastic surface such as a slide lets someone zoom to the ground because there is little friction when smooth clothing rubs against the smooth slide, and you can move more quickly [panel 5].)*

7. Why does the author most likely include the section called "On the Move: Make the Connection?" *(The author most likely included that section so the reader can make a connection to real-life examples of motion.)*

8. What evidence does the author give to show that more mass causes more friction? *(The author compares how easy it is to move a book across the floor to how difficult it is to move a heavy bookcase across the floor as evidence that more mass causes more friction.)*

9. Research gravity on the Moon using the Internet or a nonfiction book. Explain the similarities and differences between the force of gravity on the Moon and the force of gravity on Earth. *(Answers will vary.)*

Clowning Around

Many people love to laugh at clowns. Clowns dress in silly ways and act goofy. They try to make people laugh. Sometimes clowns act alone. Other times, they work together. You may have seen many clowns at a circus or a parade spill out of a clown car.

The act begins with a small car driving very slowly into view. The car stops, and one clown gets out. As the seconds tick by, clown after clown exits the car. The audience is amazed that all those clowns could fit in one tiny car!

After the final clown exits the car, the driver steps back into the vehicle. Waving goodbye to the crowd, he speeds away. The other clowns chase after the car.

Mass is how much matter is in an object. Mass has a direct result on how fast something can move. The clown car approaches slowly because all the clowns inside have a lot of mass. It speeds away because only one clown is inside. Think about a time you walked down the hallway with your class. Was it an easy walk? Were you out of breath? Now imagine walking to class with your backpack full of heavy books. Was it still an easy walk? Could you walk as fast as you did without the backpack on? How did the mass of the backpack affect your walk?

The next time you pack up your backpack, think about how the mass of the items in it will affect how you move.

Questions:

1. How does the mass of the full clown car affect the amount of friction acting on the car? *(The mass of the full car pushes down and causes more friction.)*

2. Which would be harder to move: an empty shopping cart or a full one? *(A full cart would be harder to move.)*

3. Imagine a clown car has eight clowns inside. Two clowns get out and sit on top of the car. Will the car move faster or slower? Explain your reasoning. *(The car will move at the same speed because the mass did not change.)*

Credit: By Julien Tromeur/Shutterstock.com

Amazing Roller Coasters

Swoosh! Imagine a roller coaster racing along its track. It takes off like rocket, then dips and turns. It even goes upside down! Would you believe that magnets play a big role in how roller coasters work? It's true!

From the beginning of your journey on a roller coaster, magnets play an important part. To keep the cars of the coaster at rest, pairs of magnets are set up with their opposite poles facing each other. These opposite poles attract, or pull together. This guarantees that the roller coaster is secure on its track. As the ride starts, one magnet of each pair is turned around. Now the same poles of each magnet are facing each other. These magnets now repel, or push away from each other. This push sets the coaster in motion along the track.

Electromagnets help keep a roller coaster moving. An electromagnet is a device that uses an electric current to produce a magnetic field. Electromagnets transfer electricity to the coaster's motor. Motors run on electricity. The motor is used to pull the cars up the first steep hills. Electromagnets also keep the roller coaster soaring at high speeds. They lock the seatbelts that keep you safely in your seat.

As the ride comes to an end, magnets are still at work. Electromagnets help the roller coaster slow and come to a complete stop. Electricity triggers the brake to close. Then strong magnets clamp together to hold the brake in place.

As you can see, magnets and electricity work together to play important roles in how roller coasters work. Can you think of other devices that use both electricity and magnets?

Questions:

1. What is an electromagnet? *(An electromagnet is a device that uses electric currents to produce a magnetic field.)*

2. How does an electromagnet keep riders safe on a roller coaster? *(Electromagnets ensure the brakes and seatbelts work.)*

3. Once the roller coaster starts, why are the magnets turned so that the same poles are facing each other? *(Like poles repel. Switching the position of the magnets sets the ride in motion as the repelling poles push the roller coaster forward.)*

Credit: Jose Angel Astor Roch/Shutterstock.com