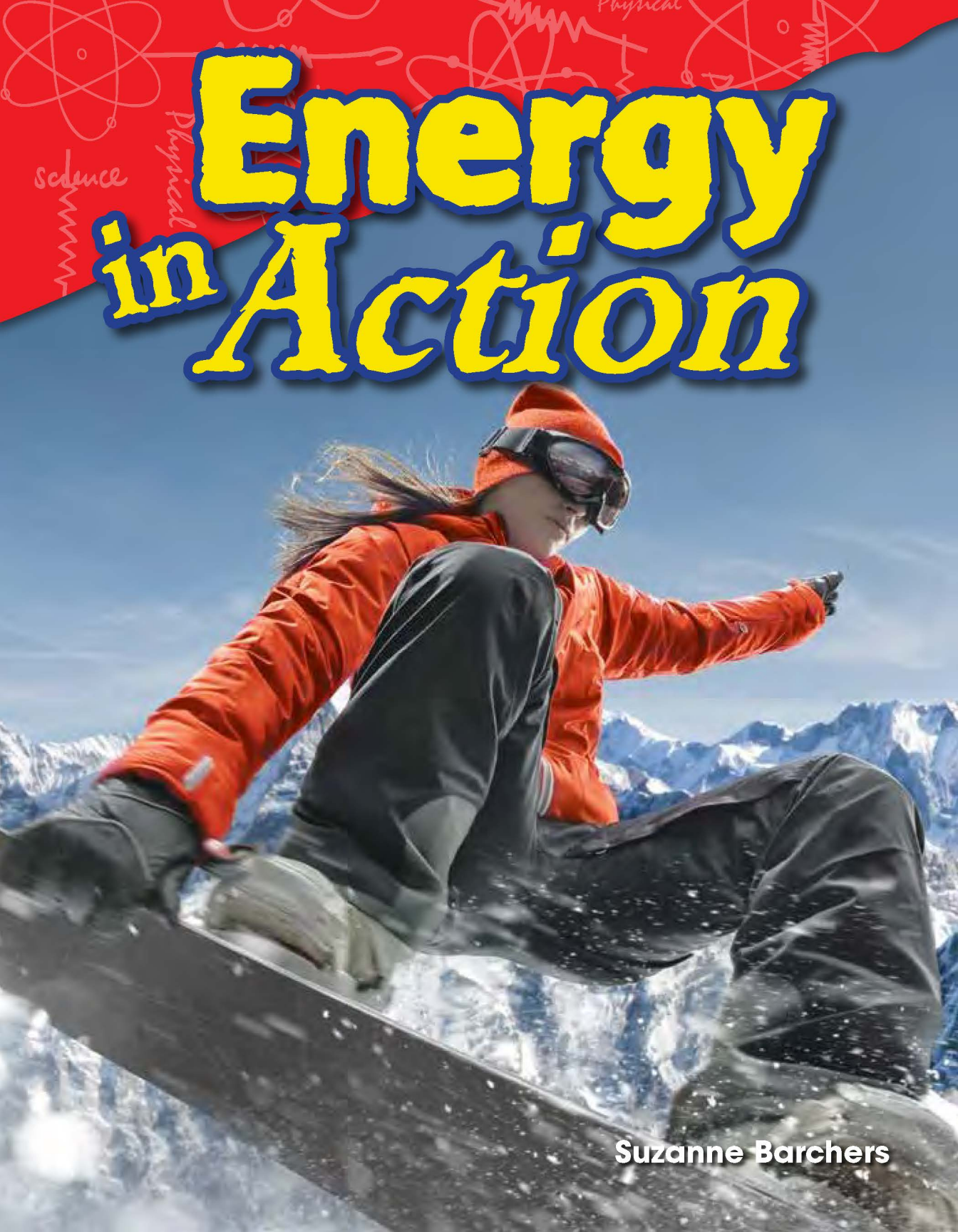
Energy in Action



Suzanne Barchers

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Feel the Power!

Brrrring! How do you feel when it's time to wake up? Do you spring out of bed? Are you charged up and ready to start your day? If so, you're full of energy. At least, that's one way to think of energy. It's the way many people think about it.



But scientists must be very precise with their words. They only use the word *energy* to describe the ability to move or change something. This kind of energy isn't something you can see or hold in your hands. But you can see what it does. You can tell that energy is working by what it does. And it does a lot!

Energy comes in many forms. Food has energy. The sun, plants, batteries, and many more things have energy. But whatever form it's in, energy is what makes things happen!



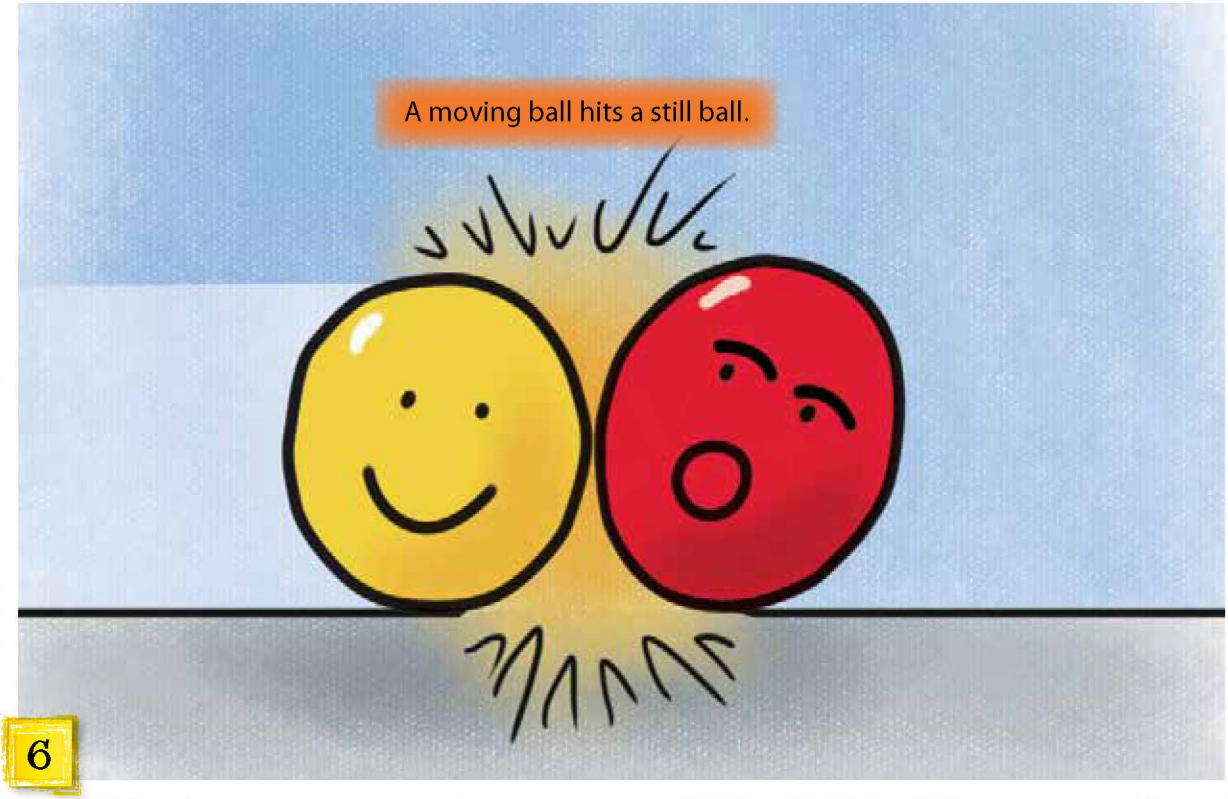


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Energy can't be created or destroyed. It's pretty mind blowing when you think about it! That means the universe has the same amount of energy it had 13.8 billion years ago when it began!

Energy comes in two forms: potential energy and kinetic energy. And it's constantly changing back and forth between these forms. You may study the energy of a star or the energy of a bowl of soup. Either way, you need to ask two questions about the object you're studying. Where is it? And is it moving?



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Energy inside stars prevents them from collapsing on themselves.

The yellow ball transfers its energy to the red ball.

The yellow ball is now still, and the red ball is in motion.

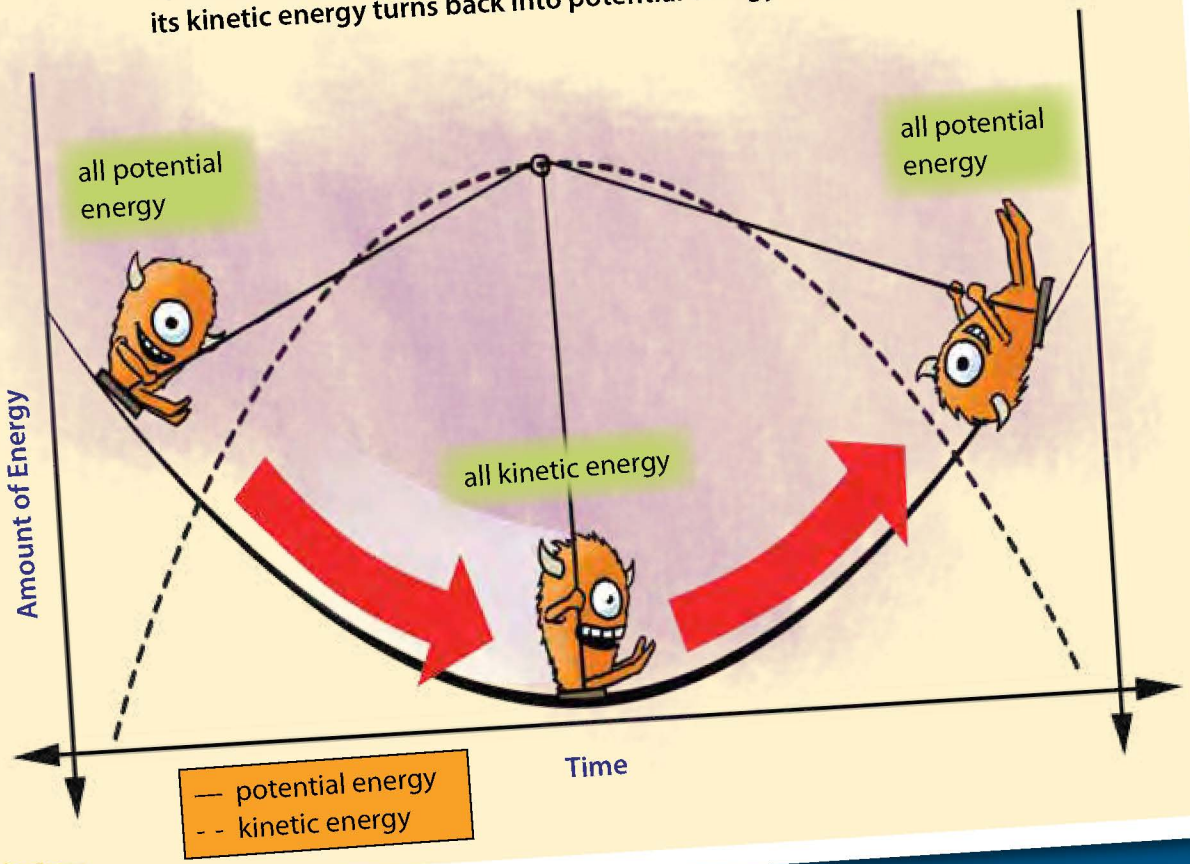


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Potential energy is related to the **position** of an object. Think about how tight a rubber band feels when it's pulled. You know that if you let it go, it will snap! It has the potential to be active. But until you let it go, the energy it has is stored. This stored energy is called *potential energy*.

Turning Potential into Kinetic

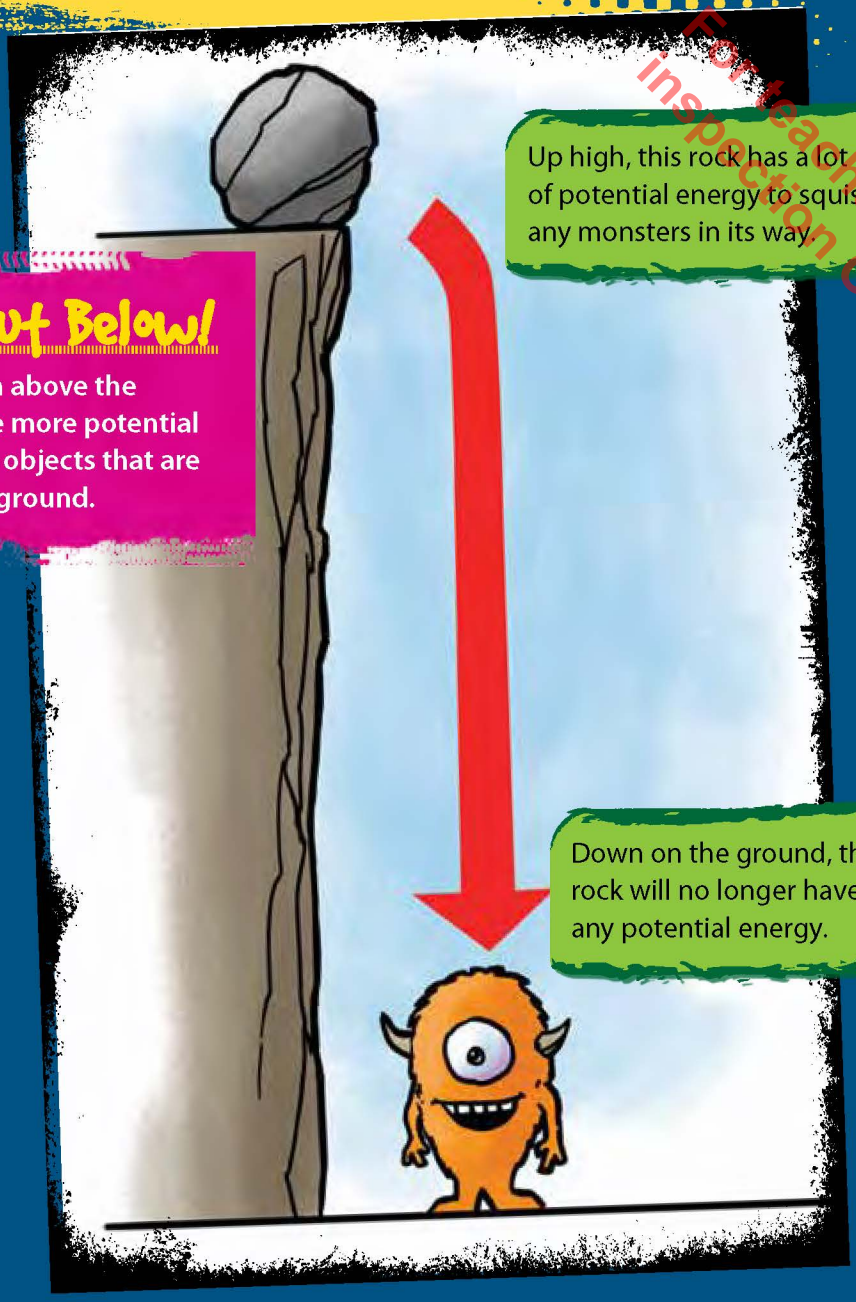
Both potential and kinetic energy are found in swinging objects. At the top of an object's path, it has potential energy. As it swings up and down, it has kinetic energy. When it reaches the top again, its kinetic energy turns back into potential energy. Whee!



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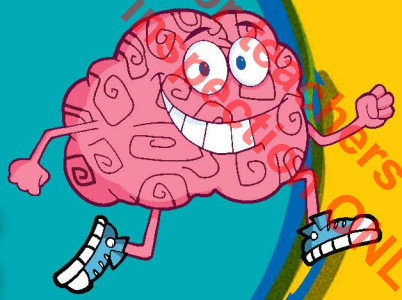
Look Out Below!

Objects high above the ground have more potential energy than objects that are close to the ground.



Kinetic energy is found wherever there is motion. When that rubber band is released, potential energy is transformed into kinetic energy. Whoosh! The rubber band goes flying! Cars, bicycles, and windmills all have kinetic energy when they move.

Think Like a Scientist



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How much potential energy does a slingshot have? Experiment and find out!

What to Get

- 2 large rubber bands
- 2 small, thin rubber bands
- 2 large marshmallows
- 4 toilet paper tubes
- hole punch
- pencil
- scissors
- tape

