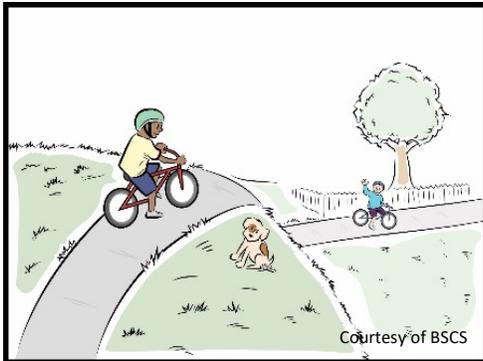


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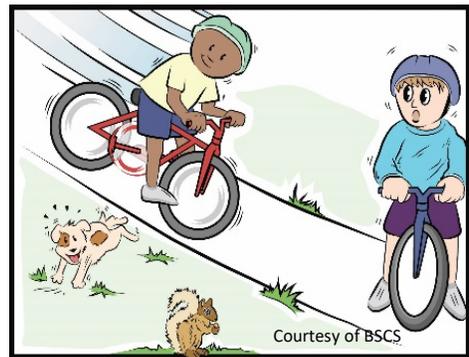
### Mumford and Leroy's Big Crash, Part 4

Mumford and Leroy sure had a big crash! I'm glad no one was hurt. Energy and its many costumes were a big part of this crash. Can you think of how energy was involved?

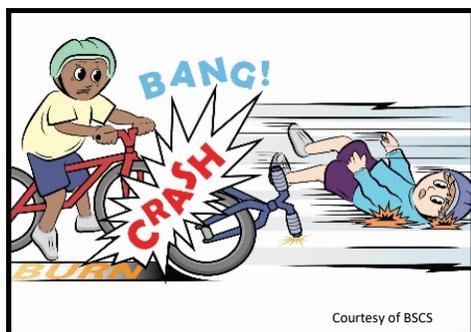


Mumford started out with potential energy because he was sitting on his bike at the top of a big hill. He wasn't moving, so he had no kinetic energy.

When Mumford started riding down the hill, his bike went faster and faster. The faster he moved, the more kinetic energy he had. As his speed and kinetic energy increased, his potential energy decreased. Why? Because he was getting closer to the bottom of the hill.



When Mumford started riding down the hill,



When Mumford crashed into Leroy, Mumford's speed suddenly decreased, and Mumford slowed down until he stopped. At the same time, Leroy started to move. Some of Mumford's kinetic energy transferred to Leroy, and Leroy skidded across the sidewalk. This is called **energy transfer**.

Can you detect all of the ways energy moved away from the collision? Besides Mumford's potential and kinetic energy and Leroy's kinetic energy, what other kinds of energy can you detect? Think about all of the ways you can detect energy around you. Then look again at the picture of Mumford and Leroy's big crash and see if you can detect other forms of energy. Be an energy detective!



Did you notice what happened when Mumford and Leroy collided on their bikes? There was a loud CRASH, and sparks flew off Leroy's bike when it hit the sidewalk. Leroy felt heat when he skidded across the pavement, and it looks like the sidewalk and Mumford's bike might have warmed up too. Notice the word *BURN* where Mumford's bike left skid marks. Energy moved or transferred away from the crash and changed costumes many times.

Not all of Mumford's kinetic energy transferred to Leroy and his bike. During the collision, some of kinetic energy changed to the sound of the crash, the light from the sparks, the heat Leroy felt as he skidded across the sidewalk, and the heat that came from Mumford's tires when his bike skidded to a stop. **Sound**, **light**, and **heat** are different kinds of energy we can detect.

All of the energy in the crash came from somewhere and went somewhere. It may seem like Mumford created or made energy the moment he started speeding down the hill on his bike. But before Mumford even started moving, he had **potential energy** at the top of the hill. Mumford's potential energy changed costumes and turned into kinetic energy when he started speeding down the hill.

It may seem that Mumford destroyed his energy when he crashed into Leroy. Mumford was moving really fast and had a lot of kinetic energy riding down

that hill! Then all of a sudden, he crashed into Leroy and stopped. Mumford may have destroyed his bike, but he didn't destroy his kinetic energy! That energy transferred to Leroy, and Leroy began to move. Some energy also moved away from the crash as sound, light, and heat.

Energy was present before, during, and after Mumford and Leroy's crash. It may have looked different, but it was still energy. Sometimes you detected energy as the motion of the bikes. At other times, you detected energy as light, heat, or the sound of the crash. And even though you couldn't see it, energy was present as potential energy when Mumford was sitting still on his bike at the top of the hill!

Energy has many different costumes!