Kinetic Energy

As you continue to learn about energy, you'll become more familiar with the idea of energy as the ability to do work, which in turn implies movement. When a car drives down the highway, the car is doing work because it moves from one location to another. When you run the bases in a baseball game, you are doing work, too. A force must be present for work to be done, and a movement or displacement must occur. Energy doesn't always cause movement, though. That's because energy can be stored, waiting to be released at another time.

When the ball moves down the slide, it has kinetic energy.

Objects can store potential energy based on their position or their chemical composition. Once an object releases that energy and begins to move, the energy is transformed from potential energy to kinetic energy.

Kinetic energy is the energy of motion and movement. Several different forces can cause an object to move. Let's look at an example. Imagine that a ball is placed at the top of a slide. If you bump it with your finger, what will happen? The ball will roll down the slide. Two forces at work in this scenario cause the ball to move. The first force is a push, the bump from your finger, which causes the ball to move forward. The second force is gravity, which keeps the ball rolling down the slide toward the ground.

Kinetic energy is related to the mass of the object and the velocity at which it moves. As the velocity of a moving object increases, so does its kinetic energy. Also, the greater an object's mass, the greater its kinetic energy.

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Answer the following questions IN COMPLETE SENTENCES as you are reading.

1. Why does a car do work when it drives down a highway?

2. What must be present for work to be done? And what must occur?

3. Does energy always cause movement? Explain.

4. How does energy transform from potential to kinetic energy?

5. What exactly is kinetic energy?

6. What two forces will cause a ball to roll down the slide if pushed? Explain each force and how it works.

7. Explain how mass and velocity relate to kinetic energy.