**Energy**

Energy is often defined as the ability to do work. Work Occurs when a force is applied to an object and the object moves a distance. Work is measured in a unit called joules (J).

**Potential Energy**

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Matter can possess energy in many forms. Sometimes the energy is in storage waiting to be released. This type of energy is called potential energy. Potential energy can be stored due to the matter’s position or due to its chemical composition. For example, a massive rock that is about to fall off the edge of a cliff has great potential energy because of its position. A book placed on an upper shelf has more potential energy than it would have if placed on a lower shelf.

The potential energy due to an object’s elevated position is called gravitational potential energy. The amount of gravitational potential energy is equal to the amount of work done to lift the object upward against the downward pull of gravity. We do work every time we lift an object against the downward pull of Earth’s gravity.

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Chemical energy is another type of stored or potential energy. A battery has chemical energy, which can be transformed to heat and light energy when it is part of an electrical circuit. Wood, coal, and gasoline all have potential energy, which can be transformed into heat and light energy when they burn or undergo the chemical change called combustion. Even the food we eat contains energy stored as chemical energy. Our bodies release this energy by slowly breaking apart the chemicals that make up the food.

**Kinetic Energy**

Kinetic energy is the energy of motion. Energy can change from potential energy to kinetic energy. As in the case of a roller coaster’s energy, the car has the greatest potential energy at the top just after going over the hill. As the car rolls down the hill, the potential energy decreases as the speed and kinetic energy increase. The potential energy is transformed into kinetic energy as the car rolls downhill.