

Energy, Work, & Simple Machines

Section I: Nature of Energy



Energy is everywhere around us, and it makes everything happen. Every change that occurs, large or small, requires energy. Energy is the ability to cause change, and energy can transfer from one form to another. Our main source of energy is the sun. Light energy from the sun hits the earth and is used

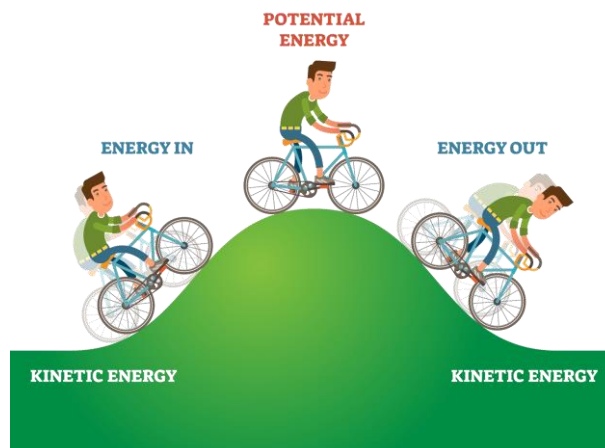
by plants. Plants make food by using light energy, which is chemical energy that is used by both plants and animals. Our bodies use energy so that we can move and grow. There are many other forms of energy, including electrical energy, chemical energy, thermal energy, radiant energy, and nuclear energy.

Energy is often thought of as either energy that is moving or energy that is stored. **Kinetic energy** is the energy something has when it is in motion.

The measure of kinetic energy depends on the mass and velocity of a moving object. **Potential energy** is energy that is stored, and it depends on an object's position rather than its motion. It means that the stored energy in an object has the potential to work, or that the stored energy can be released. Energy does not

have to involve motion; even motionless objects can have stored or potential energy, meaning the object has the potential to cause change.

KINETIC ENERGY & POTENTIAL ENERGY

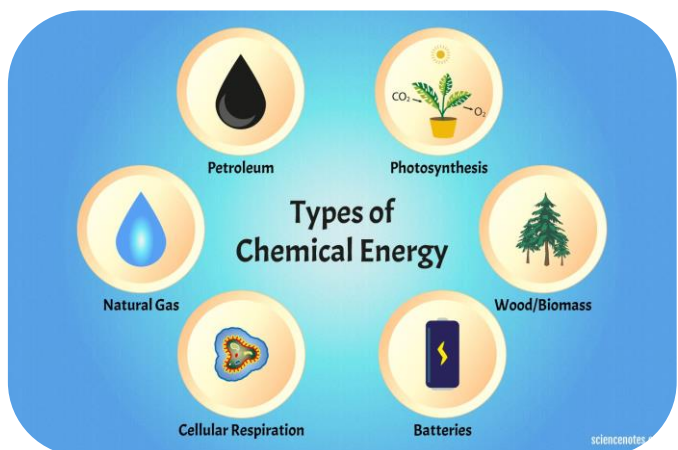


Energy can be stored in other ways as well. **Elastic potential energy** is energy that can be stored in something that can be stretched or compressed like a rubber band or a spring. A trampoline uses elastic potential energy. The base of it that you jump on acts as a rubber band that bounces you upward.

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Section I: Nature of Energy Continued

Gravity is the pull of one object on another. **Gravitational potential energy** is the energy stored in an object due to its position and height. The higher an object is in the air and the heavier it is, the more gravitational potential energy it has. The gravitational potential energy is greatest at the highest point on a roller coaster.



Chemical potential energy is energy that is stored in chemical bonds. It's found in plants, batteries, food, coal, propane, and oil.

Review:

1. List four types of energy.
2. Compare potential energy to kinetic energy.
3. Explain elastic potential energy.