

Energy and Matter (pages 58–61)

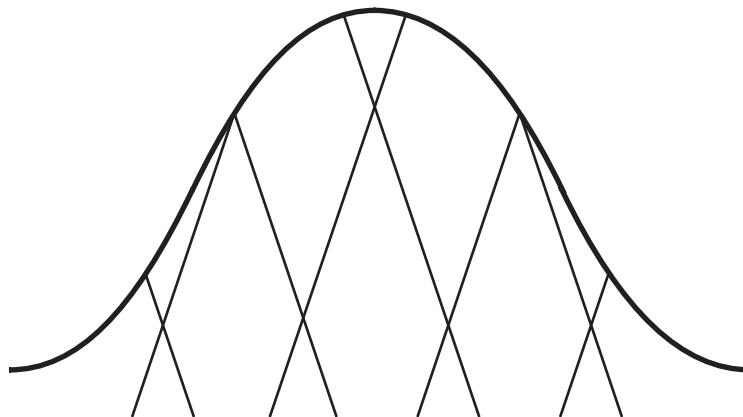
Forms of Energy (pages 58–60)

Key Concept: Forms of energy related to changes in matter may include kinetic, potential, chemical, electromagnetic, electrical, and thermal energy.

- **Kinetic energy** is the kind of energy that a moving object has. **Potential energy** is the kind of energy that is stored in an object. Your bike at the top of a hill has only potential energy. When the bike is rolling down the hill, it has kinetic energy.
- **Chemical energy** is a kind of potential energy. Chemical energy is stored in chemical bonds between atoms. When the chemical bonds break, the potential energy changes into another form of energy, such as thermal energy.
- **Electromagnetic energy** is energy that travels in waves through the air. Light and sound are electromagnetic energy. **Electrical energy** is the energy of moving electrons. Electrical energy causes a light bulb to light.

Answer the following questions. Use your textbook and the ideas above.

1. The picture shows a roller coaster. Draw an X to show where a roller coaster car would have the most potential energy.



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2. Draw a line from each term to its meaning.

Term	Meaning
chemical energy	a. energy that travels in waves through the air
electromagnetic energy	b. energy stored in chemical bonds between atoms
electrical energy	c. energy of moving electrons

Transforming Energy (page 61)

Key Concept: During a chemical change, chemical energy may be changed to other forms of energy. Other forms of energy may also be changed to chemical energy.

- Chemical energy is stored in the chemical bonds of the elements that make up wood. When wood burns, this chemical energy changes to different kinds of energy. This chemical energy changes to light and heat. Light is electromagnetic energy. Heat is thermal energy.
- Plants change energy from the sun into chemical energy. Plants store the chemical energy as sugar.

Answer the following questions. Use your textbook and the ideas above.

3. Circle the letter of each sentence that is true about the energy changes in burning wood.
- a. Light changes to heat.
 - b. Thermal energy changes to chemical energy.
 - c. Chemical energy changes to light and heat.

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4. Plants change the energy from the sun into
 - a. electrical energy.
 - b. chemical energy.
 - c. electromagnetic energy.