

Name _____ Date _____ Class _____

Content Vocabulary

Energy Transformations

Directions: Define each term below. Then answer each question or respond to each statement on the lines provided. Use complete sentences.

1. friction _____

2. law of conservation of energy _____

3. radiant _____

4. How does thermal energy result from friction?

5. Give an example to explain the law of conservation of energy.

6. Which example requires the use of radiant energy—starting a microwave or riding a bicycle? Explain.

Lesson Outline

Energy Transformations

A. Changes Between Forms of Energy

1. A microwave oven changes electrical energy to _____ energy.
2. The changes from electrical energy to radiant energy to thermal energy are called energy _____.

B. Changes Between Kinetic and Potential Energy

1. When you throw a ball upward, the ball has its greatest speed and the most _____ energy when it first leaves your hand.
2. As the ball reaches its highest point, the ball gains its greatest _____ energy.
3. As the ball moves downward, _____ energy decreases and _____ energy increases.

C. The Law of Conservation of Energy

1. According to the _____, energy can be transformed from one form into another or transferred from one region to another, but energy cannot be created or destroyed.
2. _____ is a force that resists the sliding of one surface over another.
 - a. There is always some _____ between any surfaces that are in contact with each other.
 - b. As you pedal a bicycle, you do _____ and transfer _____ to the bicycle.
 - c. Because of _____ between moving parts of a bicycle, some of the work you do changes to _____ energy.
 - d. One way to reduce friction is to apply a(n) _____ to surfaces that rub against each other.
 - e. When you apply brakes on a bicycle, the bicycle's _____ energy is not destroyed; instead, the bicycle's _____ energy is transformed into thermal energy. The _____ amount of energy remains the same.

Lesson Outline continued

D. Using Energy

1. You use _____ energy for cooking and heating.
2. Gas stoves and furnaces change _____ energy from natural gas into thermal energy.
3. During photosynthesis, plants transform _____ energy from the Sun into chemical energy stored in food.
4. Your body changes the chemical energy stored in food into _____ energy as you move and into _____ energy, which keeps your body temperature high.
5. A television transforms _____ energy into sound energy and _____ energy.
6. Many devices you use every day are powered by _____ energy from electrical power plants.
7. With battery-powered devices, _____ energy is transformed into electrical energy for power.
8. When energy changes form, some _____ energy is always released. Scientists often refer to this energy that cannot be used as _____.
9. Cars transform most of the chemical energy in gasoline into _____ energy.