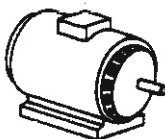
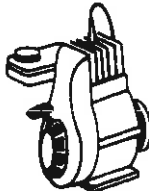
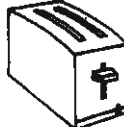



CHAPTER 4.2 REVIEW

Energy Conversions

Show the energy conversions that take place by filling in the blanks.

In a(n)	starting energy	is converted to	final energy
 1. Electric motor	_____		_____
 2. Gas motor	_____		_____
 3. Toaster	_____		_____
 4. Light bulb	_____		_____

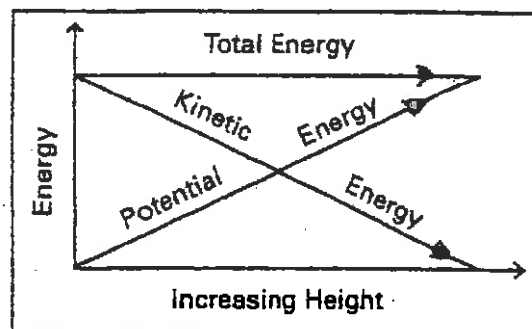
■ Building Vocabulary Skills: Applying Definitions

Decide whether each item below describes kinetic energy or potential energy. If the item describes kinetic energy, write KE in the space before the number. If the item describes potential energy, write PE.

- _____ 1. an airplane circling in preparation for a landing
- _____ 2. a pile of coal that will be used for fuel
- _____ 3. a flag blowing in the wind
- _____ 4. a hatbox stored on the top shelf of a closet
- _____ 5. an unlit firecracker

1. There are two types of mechanical energy, kinetic energy and _____ energy.
2. The energy an object has because of its position is _____ energy.
3. According to the law of conservation of energy, energy can change from one form to another, but the _____ is conserved.
4. The potential energy of a roller coaster _____ as it goes downhill.
 - a. increases
 - b. decreases
 - c. stays the same
5. A roller coaster has the least amount of kinetic energy when it _____.
 - a. goes downhill
 - b. climbs uphill
 - c. reaches the top of the hill

The diagram shows the mechanical energy of a moving roller coaster.



6. The roller coaster is going _____.
 - a. uphill
 - b. downhill
 - c. over the top of a hill
7. According to the law of conservation of energy, when the roller coaster climbs uphill, mechanical energy is converted from kinetic energy to _____ energy, but the total amount of energy _____.

Match the number of the words with the letter of the phrase that best explains them.

- | | |
|---------------------------------|---|
| _____ 1) mechanical energy | a. flow of electric current |
| _____ 2) chemical energy | b. causes changes in temperature |
| _____ 3) electric energy | c. due to position or motion |
| _____ 4) heat energy | d. caused by changes in the nuclei of atoms |
| _____ 5) electromagnetic energy | e. changes one kind of matter into another |
| _____ 6) nuclear energy | f. spreads out and passes through space |

Directed Reading for
Content Mastery

Section 1 ■ Work and Machines

Section 2 ■ Describing Energy

Directions: Determine whether the italicized term makes each statement true or false. If the statement is true, write **true** in the blank. If the statement is false, write the term that makes the statement true.

- _____ 1. When a *force* is applied through a distance, work is done.
- _____ 2. A device that makes *energy* easier is a machine.
- _____ 3. The work done to a machine is *input* work.
- _____ 4. A device that does work with only one movement is a *simple machine*.
- _____ 5. The *efficiency* is the number of times a machine multiplies the input force.

Directions: Use these words to fill in the blanks below. Words may be used more than once.

energy

more

less

gravitational potential

kinetic

joule

chemical

6. Two baseballs have the same mass. The ball that is closer to the ground has _____ gravitational potential energy than the other ball does.
7. Two trucks have the same velocity but different mass. The truck with the greater mass has _____ kinetic energy than the other truck does.
8. _____ is the ability to cause change.
9. A _____ is a unit of measure of all forms of energy.
10. When an object falls, some of its _____ energy changes to _____ energy.
11. The _____ energy of an object depends on its mass and height.
12. The energy of food and other fuels is _____ potential energy.

Chapter
Test A

Work and Energy

I. Testing Concepts

Directions: In the blank at the left, write the letter of the term that best completes each statement.

- _____ 1. _____ energy is the energy an object has because of its motion.
a. Kinetic b. Potential c. Chemical d. Magnetic
- _____ 2. Work is the transfer of _____ that occurs when a force makes an object move.
a. space b. time c. energy d. density
- _____ 3. _____ energy is stored energy due to position.
a. Kinetic b. Potential c. Chemical d. Magnetic
- _____ 4. If work stays the same and distance is increased, then _____ force will be needed.
a. less b. more c. the same d. no
- _____ 5. Energy stored in chemical bonds is called _____.
a. elastic potential energy c. kinetic energy
b. chemical potential energy d. none of these
- _____ 6. Anything that can fall has stored energy called _____.
a. elastic potential energy c. kinetic energy
b. chemical potential energy d. gravitational potential energy

Directions: Identify each statement as **true** or **false**. If the statement is false, change the underlined word(s) to make it true.

- _____ 7. Mechanical energy is the total amount of potential and kinetic energy in a system.

- _____ 8. The amount of work done depends on the amount of force exerted and the distance over which the force is applied.

- _____ 9. Energy has different states, such as electrical, chemical, and thermal.

- _____ 10. Kinetic energy depends on mass and volume.

- _____ 11. A machine is a device that makes work harder.

- _____ 12. $GPE = mga$

POTENTIAL AND KINETIC ENERGY: MAKING THINGS HAPPEN

TRUE AND FALSE: Correct the false statements by changing the underlined word (s).

1. Kinetic energy is another word for stored up energy.
2. A person standing still with two heavy bundles is doing a large amount of work.
3. The two bundles referred in question 2 have potential energy.
4. A moving truck has kinetic energy.
5. If you hit a volleyball up into the air, you are increasing its potential energy.
6. If you hit a volleyball up into the air, you are increasing its kinetic energy.
7. As you stretch a rubber band, its kinetic energy increases.
8. If you climb a ladder your potential energy increases.
9. A flashlight battery demonstrates that it has kinetic energy.
10. As an airplane picks up speed, its kinetic energy increases.

COMPLETION:

1. Energy is the ability to do _____ and _____.
2. Energy of motion is known as _____ energy.
3. Work is said to be going on whenever something is made to _____.

4. When a bow and arrow is held, just before it is released, you are looking at an example of _____ energy.
5. Potential energy is another name for _____ energy.
6. As a roller coaster climbs the first hill, its potential energy is _____.
7. Suppose you decide to dive into a swimming pool. From the peak of your dive until you hit the water, your _____ energy increases.
8. Your beating heart is an example of _____ energy.
9. The greater the number of volts in a battery, the greater its _____ energy.
10. An unlit match has _____ energy.

POTENTIAL VS. KINETIC: For each of the following situations, state whether the PE and KE each **INCREASE, DECREASE, OR REMAIN THE SAME.**

1. An elevator descends from the 10th floor to the 3rd floor at a constant speed.
2. A rocket ship blasts off for outer space with an increasing speed.
3. A train moves along a track at a steady speed of 90 km per hour.
4. A roller coaster comes down its first hill.
5. A rubber band is shot out of your hand.