

Know pages 1, 4 and 6 for the quiz.

# What Is Energy?

Write the letter of the correct answer on the line at the left.

1. \_\_\_ The kinetic energy of an object is equal to one half its mass multiplied by its speed  
 A squared  
B cubed  
C to the fourth power  
D to the fifth power
2. \_\_\_ The gravitational potential energy of an object is equal to its weight multiplied by its  
A depth  
 B height  
C volume  
D diameter
3. \_\_\_ Energy is the ability to do work or cause  
A events  
 B change  
C friction  
D explosions
4. \_\_\_ Energy and work are measured in  
A newtons  
 B joules  
C hertz  
D kilograms

Fill in the blank to complete each statement.

5. When you do work on an object, some of your energy is transferred to that object.
6. Power is the rate at which energy is transferred.
7. Potential energy results from the shape or position of an object.
8. A stretched rubber band has elastic potential energy energy.
9. A change in an object's speed has a(n) greater effect on its kinetic energy than a change in its mass.
10. A mountain climber at the peak has gravitational potential energy.

# Forms of Energy

Write the letter of the correct answer on the line at the left.

- A To find an object's mechanical energy, you add its  
 A kinetic and potential energy  
B kinetic and thermal energy  
C potential and thermal energy  
D kinetic and chemical energy
- B A form of energy NOT associated with the particles of objects is  
A thermal energy  
 B mechanical energy  
C nuclear energy  
D chemical energy
- D Nuclear fusion reactions occur in  
A nuclear power plants  
B a microwave oven  
C a match that is struck  
 D the sun
- C The total potential and kinetic energy of the particles of an object is the object's  
A nuclear energy  
B electromagnetic energy  
 C thermal energy  
D mechanical energy

Fill in the blank to complete each statement.

- Mechanical energy is associated with the motion, position, or Shape of an object.
- Electromagnetic energy travels through space in the form of waves.
- Lightning is a form of electrical energy.
- The breaking of Chemical bonds in food releases energy for your body to use.
- The lower the temperature of an object, the lower its thermal energy.
- Electrical energy is the energy of electric charges.

# Energy Transformations and Conservation

Fill in the blank to complete each statement.

1. All forms of energy can be transformed into other forms of energy.
2. A change from one form of energy to another is called a(n) energy transformation.
3. When you use a match to light a candle, multiple transformations of energy occur.
4. The law of conservation of energy tells how much energy is present after electromagnetic energy changes to sound.
5. Whenever a moving object experiences friction, some of its kinetic energy is changed into thermal energy.
6. Your body changes chemical energy into Kinetic or mechanical energy when you walk upstairs.

Write the letter of the correct answer on the line at the left.

7. C Fusion reactions in the sun change nuclear energy into  
A mechanical energy  
B chemical energy  
C electromagnetic energy  
D potential energy
8. A In a pendulum, a continuous change occurs between kinetic energy and  
A potential energy  
B electromagnetic energy  
C thermal energy  
D mechanical energy
9. D A baseball in play has its lowest gravitational potential energy  
A when it is at its highest point  
B before it hits the ground  
C when the bat contacts it  
D after it hits the ground
10. A Energy can be neither destroyed nor  
A created  
B transformed  
C changed  
D transferred

**Review and Reinforce**

# What Is Energy?

Read pp. 108-113

**Understanding Main Ideas**

Answer the following questions in the spaces provided.

1. How are work and energy related?

Work is the transfer of energy.

2. How is power related to energy?

Power is the rate at which energy is transferred.

3. What are the two basic kinds of energy?

Kinetic Energy and Potential Energy

4. A girl who weighs 30 kg is inline skating at a speed of 5 m/s. What is the girl's kinetic energy?

375.0 J

5. A hat that weighs 5 newtons is hanging from a hook 1.5 meters above the floor. How much gravitational potential energy does the hat have?

7.5 J**Building Vocabulary**

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

- |  |   |
|--|---|
| 6. <u>b</u> energy                         | a. potential energy related to an object's height                     |
| 7. <u>d</u> kinetic energy                 | b. the ability to do work or cause change                             |
| 8. <u>e</u> potential energy               | c. energy associated with objects that can be compressed or stretched |
| 9. <u>a</u> gravitational potential energy | d. the energy an object has due to its motion                         |
| 10. <u>c</u> elastic potential energy      | e. energy that results from an object's position or shape             |

**Review and Reinforce**

# Forms of Energy Read pp. 114-119

**Understanding Main Ideas**

Answer the following questions in the spaces provided.

1. How can you determine an object's mechanical energy?

By adding its PE and KE.

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2. Name two forms of energy associated with the particles that make up objects.

nuclear, electrical, thermal, chemical, electromagnetic

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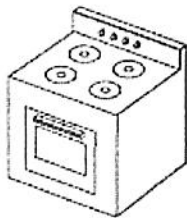
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**Building Vocabulary**

Match each illustration with the correct form(s) of energy by writing the letter or letters of the form(s) of energy on the line at the left.

- a. mechanical energy
- b. electrical energy
- c. thermal energy
- d. nuclear energy
- e. chemical energy
- f. electromagnetic energy

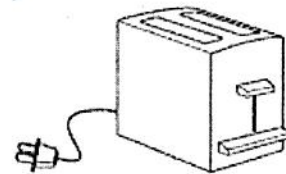
b, c, e, f 3.



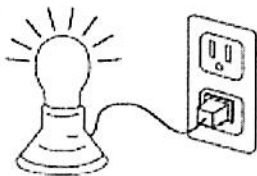
a 4.



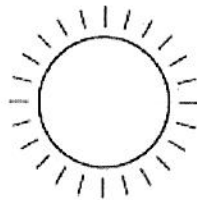
a, b, c, f 5.



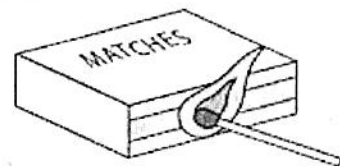
b, c, f 6.



c, d, f 7.



a, c, e, f 8.



**Review and Reinforce**

# Energy Transformations and Conservation

Read pp. 120-125

**Understanding Main Ideas**

Study the illustration below and then read the following statements. If the statement is true, write *true*. If the statement is false, change the underlined word or words to make the statement true.



1. At all points An energy transformation is occurring only at point 3.
2. The energy before, during and after is the same. In this example, the law of conservation of energy says that the ball never loses kinetic energy.
3. true As the ball rises from point 1 to point 3, it slows down.
4. true The ball has the most potential energy at point 3.
5. Point 1 The ball has the most kinetic energy as it leaves point 2.

**Building Vocabulary**

Write a definition for each of these terms on the lines below.

6. energy transformation

A change from one form of energy to another.

7. law of conservation of energy

Energy cannot be created or destroyed, just transformed from one form of energy to another.