Name _____ Class _____ Date _____

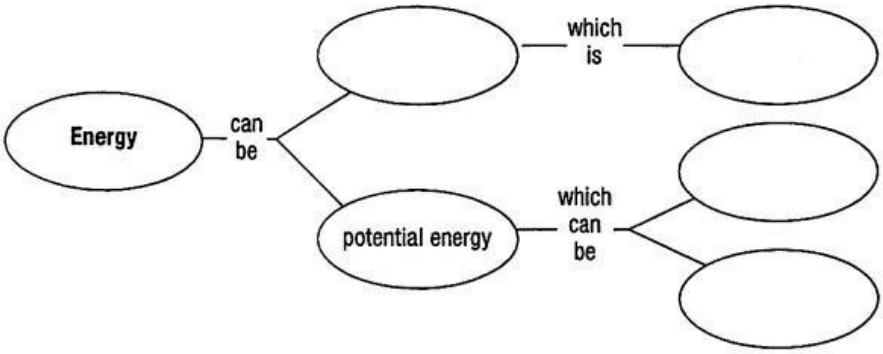
Section 15.1 Energy and Its Forms

(pages 446–452)

This section describes how energy and work are related. Kinetic energy and potential energy are defined, and examples are shown for calculating these forms of energy. Examples of various types of energy are discussed.

Reading Strategy (page 446)

Building Vocabulary As you read, complete the concept map with vocabulary terms and definitions from this section. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.



Energy and Work (page 447)

1. What is energy? _____
2. When work is done on an object, _____ is transferred to that object.
3. Circle the letter of each sentence that is true about work and energy.
   a. Energy in food is converted into muscle movement.
   b. Energy is transferred when work is done.
   c. Both work and energy are usually measured in joules.
   d. One joule equals one meter per newton.

Kinetic Energy (pages 447–448)

4. The energy of motion is called _____.
5. Is the following sentence true or false? You can determine the kinetic energy of an object if you know its mass and its volume.
   _____
6. Write the formula used to calculate an object's kinetic energy.
   _____
7. Calculate the kinetic energy of a 0.25-kg toy car traveling at a constant velocity of 2 m/s. _____
   _____

Potential Energy (pages 448–450)

8. What is potential energy? _____

_____

9. Is the following sentence true or false? The work done by a rock climber going up a cliff decreases her potential energy.

_____

10. An object's gravitational potential energy depends on its _____, its _____, and the acceleration due to gravity.

11. Is the following sentence true or false? Gravitational potential energy of an object increases as its height increases.

_____

12. The potential energy of an object that is stretched or compressed is known as _____.

13. Complete the table about potential energy.

Potential Energy		
Type	**Description**	**Example**
Gravitational		
	Stretched or compressed objects	

Forms of Energy (pages 450–452)

For numbers 14 through 19, write the letter of the form of energy that best matches the description.

Descriptions

_____ 14. Energy stored in gasoline, coal, and wood

_____ 15. The sum of an object's potential energy and kinetic energy, excluding atomic-scale movements

_____ 16. Produces the sun's heat and light

_____ 17. Travels through space in the form of waves

_____ 18. Produces lightning bolts

_____ 19. Increases as atoms within an object move faster

Forms of Energy

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