

**Chapter 3 States of Matter**

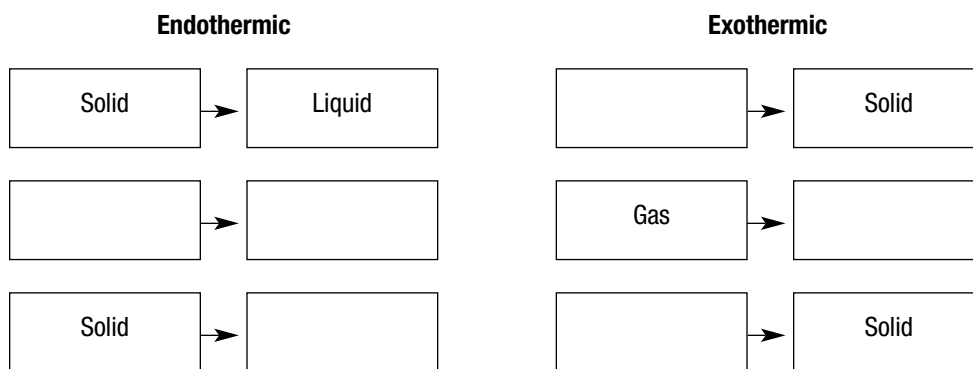
**Section 3.3 Phase Changes**

**(pages 84–91)**

*This section explains what happens when a substance changes from one state of matter to another and describes six phase changes.*

**Reading Strategy (page 84)**

**Summarizing** As you read, complete the description of energy flow during phase changes in the diagram below. 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.



**Characteristics of Phase Changes (pages 84–86)**

1. What is a phase change? \_\_\_\_\_

*Match each term with the letter of the phase-change description that best describes it.*

<b>Term</b>	<b>Phase-Change</b>
_____ 2. freezing	a. Solid to gas
_____ 3. sublimation	b. Liquid to gas
_____ 4. condensation	c. Gas to solid
_____ 5. melting	d. Liquid to solid
_____ 6. deposition	e. Gas to liquid
_____ 7. vaporization	f. Solid to liquid

8. What happens to the temperature of a substance during a phase change? \_\_\_\_\_

9. Is the following sentence true or false? The temperature at which a substance freezes is lower than the temperature at which it melts. \_\_\_\_\_

10. Circle the letter that describes the behavior of a substance during a phase change.

- |  |                                      |
|--|--------------------------------------|
| a. neither absorbs nor releases energy | b. always absorbs energy             |
| c. always releases energy              | d. either absorbs or releases energy |

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11. A substance absorbs energy from its surroundings during a(n) \_\_\_\_\_ change.
12. The energy absorbed by one gram of ice as it melts is known as the \_\_\_\_\_ for water.
13. As water freezes, it releases heat to its surroundings. Freezing is an example of a(n) \_\_\_\_\_ change.

**Melting and Freezing (page 88)**

14. Is the following sentence true or false? Water molecules have a more orderly arrangement in ice than in liquid water. \_\_\_\_\_
15. When liquid water freezes, the average kinetic energy of its molecules \_\_\_\_\_, and the arrangement of the molecules becomes more orderly.

**Vaporization and Condensation (page 88–90)**

16. Vaporization is the phase change in which a substance changes from a(n) \_\_\_\_\_ into a(n) \_\_\_\_\_.
17. The energy absorbed by one gram of water as it changes from its liquid phase into water vapor is known as the \_\_\_\_\_ for water.
18. Is the following sentence true or false? When water vapor collects above the liquid in a closed container, the pressure caused by the collisions of this vapor and the walls of the container is called vapor pressure. \_\_\_\_\_
19. The phase change in which a substance changes from a gas into a liquid is called \_\_\_\_\_.
20. Compare and contrast the processes of evaporation and boiling by completing the table below.

Evaporation and Boiling			
Process	Phase Change	Where It Occurs	Temperature
Evaporation			
Boiling			

21. Is the following sentence true or false? A gas absorbs energy as it changes into a liquid. \_\_\_\_\_

**Sublimation and Deposition (page 91)**

22. Dry ice can change directly from a solid to a gas without forming a liquid first. This process is an example of \_\_\_\_\_.
23. What is deposition? \_\_\_\_\_  
\_\_\_\_\_