

Chapter 3 States of Matter

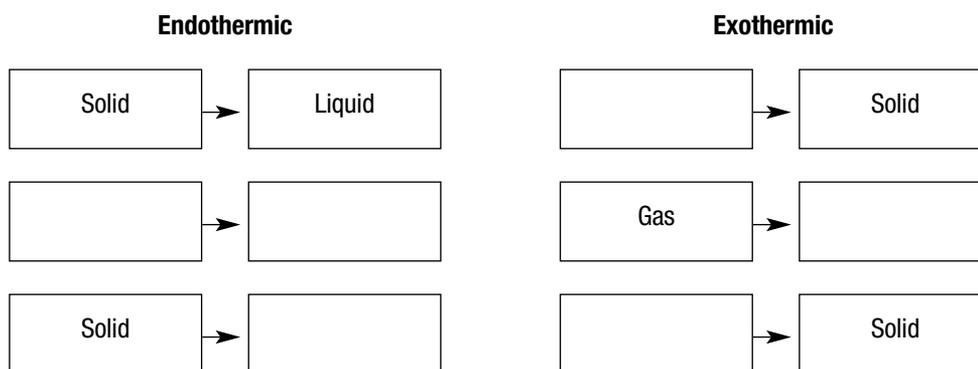
Section 3.3 Phase Changes

(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.

Term	Phase-Change
_____ 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

Chapter 3 States of Matter

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 (pages 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? _____
