

Chapter 3 States of Matter

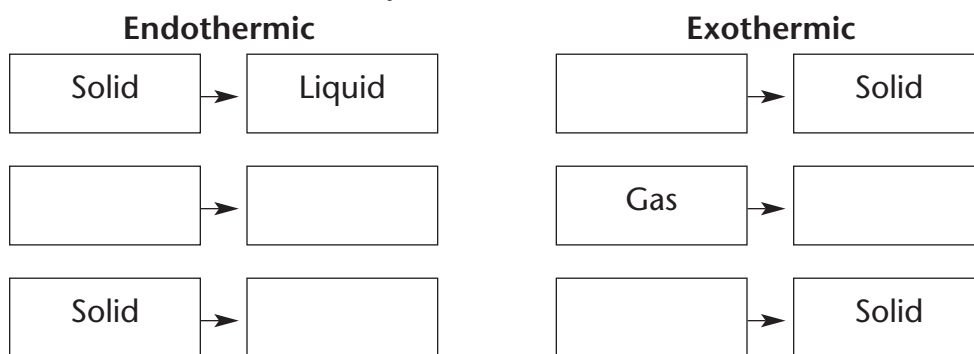
Section 3.3 Phase Changes

(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. A _____ is the reversible physical change that takes place when a substance changes from one state of matter to another.

Match each term with the letter of the phase change 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. Does the temperature of a substance increase, decrease, or remain constant during a phase change?

9. A substance absorbs energy from its surroundings during a(n) _____ change. Circle the correct answer.

exothermic endothermic hydrothermic

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10. The energy absorbed by one gram of ice as it melts is known as the _____ for water. Circle the correct answer.

heat of fusion heat of condensation heat of vaporization

11. As water freezes, it releases heat to its surroundings. Freezing is an example of a(n) _____ change.

Melting and Freezing (page 88)

12. Is the following sentence true or false? Water molecules have a more orderly arrangement in ice than in liquid water. _____

13. When liquid water freezes, the average kinetic energy of its molecules _____.

Vaporization and Condensation (pages 88–90)

14. Use the words in the box below to fill in the blanks.

gas	liquid
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Vaporization is the phase change in which a substance changes from a(n) _____ into a(n) _____.

15. The energy absorbed by one gram of water as it changes from its liquid phase into water vapor is known as the _____ for water.

16. 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. _____

17. The phase change in which a substance changes from a gas into a liquid is called _____.

18. Is the following sentence true or false? A gas absorbs energy as it changes into a liquid. _____

Sublimation and Deposition (page 91)

19. Dry ice can change directly from a solid to a gas without forming a liquid first. This process is an example of _____.

20. _____ is the phase change in which a substance changes directly from a gas to a solid without changing to a liquid first.