

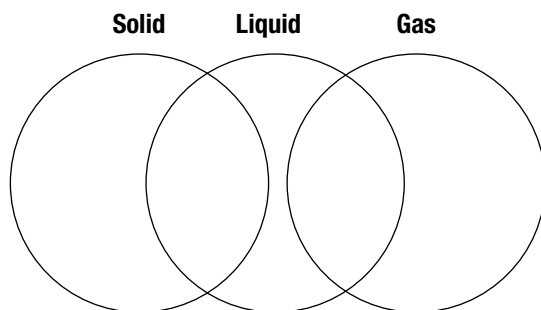
Chapter 3 States of Matter

Section 3.1 Solids, Liquids, and Gases
(pages 68–73)

This section explains how materials are classified as solids, liquids, or gases. It also describes the behavior of these three states of matter.

Reading Strategy (page 68)

Comparing and Contrasting As you read about the states of matter, replace each letter in the diagram below with one of these phrases: *definite volume, definite shape, variable volume, or variable shape*. 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.



Describing the States of Matter (pages 68–70)

1. What are three common states of matter?
 a. _____ b. _____ c. _____
2. Is the following sentence true or false? The fact that a copper wire can be bent shows that some solids do not have a definite shape.

3. Circle the letter of each phrase that describes how particles at the atomic level are arranged within most solids.
 a. randomly arranged b. packed close together
 c. arranged in a regular pattern d. spaced far apart
4. Is the following sentence true or false? A liquid takes the shape of its container. _____
5. What is the state of matter in which a material has neither a definite shape nor a definite volume? _____
6. Compare and contrast the arrangement of particles at the atomic level for a liquid and a solid. _____

7. What determines the shape and volume of a gas? _____

8. On the sun, where temperatures are extremely high, matter exists in a state known as _____.

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9. The state of matter that can exist at extremely _____ temperatures is called a Bose-Einstein condensate.

10. Complete the table about states of matter.

States of Matter		
State	Shape	Volume
	Definite	
Liquid		
		Not definite

Kinetic Theory (page 71)

11. Describe kinetic energy. _____

12. Circle the letter of the phrase that describes all particles of matter in the kinetic theory of matter.

- a. randomly arranged
- b. constant temperature
- c. in constant motion
- d. orderly arrangement

Explaining the Behavior of Gases (pages 72–73)

13. Is the following sentence true or false? There are forces of attraction among the particles in all matter. _____

14. Why can scientists ignore the forces of attraction among particles in a gas under ordinary conditions? _____

15. Is the following sentence true or false? Because of the constant motion of the particles in a gas, the gas has a definite shape and volume. _____

Explaining the Behavior of Liquids (page 73)

16. Do forces of attraction have a stronger effect on the behavior of the particles in a gas or in a liquid? _____

17. Circle the letter of each factor that affects the behavior of liquids.

- a. fixed location of particles
- b. constant motion of particles
- c. orderly arrangement of particles
- d. forces of attraction among particles

Explaining the Behavior of Solids (page 74)

18. Solids have a(n) _____ volume and shape because particles in a solid vibrate in _____ locations.