

Chapter 3 – States of Matter

Vocabulary and Section Summary**Chemical Properties****VOCABULARY**

In your own words, write a definition of the following terms in the space provided.

1. chemical property

2. chemical change

SECTION SUMMARY

Read the following section summary.

- Chemical properties describe a substance based on its ability to change into a new substance that has different properties.
- Chemical properties can be observed only when a chemical change might happen.
- Examples of chemical properties are flammability and reactivity.
- New substances form as a result of a chemical change.
- Unlike a chemical change, a physical change does not alter the identity of a substance.

Skills Worksheet

Directed Reading A**Section: Three States of Matter**

1. What are the three most familiar states of matter?

2. What is a state of matter?

PARTICLES OF MATTER

3. Matter is made up of _____ and _____.

Match the correct description with the correct state of matter. Write the letter in the space provided.

- | | |
|--|------------------|
| _____ 4. Particles do not move fast enough to overcome the strong attraction between them. | a. solid |
| _____ 5. Particles move independently of each other. | b. liquid |
| _____ 6. Particles are close together but can slide past one another. | c. gas |
| _____ 7. Particles are close together and vibrate in place. | |
| _____ 8. Particles move fast enough to overcome nearly all of the attraction between them. | |

SOLIDS

- _____ 9. The particles of matter that make up a solid
- a. have a weaker attraction than those of a liquid.
 - b. do not move at all.
 - c. do not move fast enough to overcome the force of attraction.
 - d. move from place to place.

Directed Reading A *continued*

10. What is a solid?

11. How are the particles in a crystalline solid arranged?

12. How are the particles in an amorphous solid arranged?

LIQUIDS

13. How do the particles of a liquid make it possible to pour juice into a glass?

14. A beaker and a cylinder each contain 350 mL of juice. What does this show you about the properties of a liquid?

15. Liquids tend to form spherical droplets because of _____
tension.

16. Water has a lower _____ than honey.

GASES

17. What is a gas?

18. How is it possible for one tank of helium to fill 700 balloons?

Skills Worksheet

Directed Reading A

Section: Behavior of Gases

DESCRIBING GAS BEHAVIOR

_____ 1. What state of matter is helium?

- a. solid
- b. liquid
- c. gas
- d. plasma

2. A measure of how fast the particles in an object are moving

is the _____.

3. Why is more gas needed to fill helium balloons on a cold day?

4. The amount of space that an object takes up is the _____.

5. The volume of any gas depends upon the size of

the _____.

6. The amount of force exerted on a given area is

called _____.

7. Why does the basketball have greater pressure than the beachball?

GAS BEHAVIOR LAWS

_____ 8. Lifting a piston on a cylinder of gas shows that when the pressure of the gas

- a. increases, the temperature increases.
- b. decreases, the volume increases.
- c. decreases, the volume decreases.
- d. increases, the volume increases.

Directed Reading A *continued*

_____ **9.** All of the following remain constant for Charles's law EXCEPT

- a.** the type of piston.
- b.** the amount of gas.
- c.** the volume of the gas.
- d.** the pressure.

10. The relationship between the volume and pressure of a gas is

called _____.

11. Weather balloons are only partially inflated before they're released into the atmosphere. Why is that?

12. Putting a balloon in the freezer is one way to

demonstrate _____.

13. The relationship between the volume and the temperature of a gas when

pressure remains constant is known as _____.

Skills Worksheet

Directed Reading A

Section: Changes of State ENERGY AND CHANGES OF STATE

- _____ 1. Which has the most energy?
 - a. particles in steam
 - b. particles in liquid water
 - c. particles in ice
 - d. particles in freezing water
2. When a substance changes from one physical form to another, we say the substance has had a(n) _____.
3. List the five changes of state.

MELTING: SOLID TO LIQUID

4. Could you use gallium to make jewelry? Why or why not?

5. The temperature at which a substance changes from solid to liquid is the _____ of the substance.
6. Melting is considered a(n) _____ change because energy is gained by the substance as it changes state.

FREEZING: LIQUID TO SOLID

7. A substance's _____ is the temperature at which it changes from a liquid to a solid.

Directed Reading A *continued*

8. What happens if energy is added or removed from a glass of ice water?

9. Freezing is considered a(n) _____ change because energy is removed from the substance.

EVAPORATION: LIQUID TO GAS

Match the correct definition with the correct term. Write the letter in the space provided.

_____ 10. the change of a substance from a liquid to a gas

a. boiling point

b. vapor pressure

_____ 11. the change of state from a liquid to a gas when the vapor pressure equals the atmospheric pressure

c. evaporation

d. boiling

_____ 12. the pressure inside the bubbles of a boiling liquid

_____ 13. the temperature at which a liquid boils

14. As you go higher above sea level, the _____ decreases and the _____ of a substance gets lower.

CONDENSATION: GAS TO LIQUID

15. The change of state from a gas to a liquid is _____.

16. At a given pressure, the condensation point for a substance is the same as its _____.

17. For a substance to change from a gas to a liquid, particles must _____.

Directed Reading A *continued*

SUBLIMATION: SOLID TO GAS

18. Solid carbon dioxide isn't ice. So why is it called "dry ice"?

19. The change of state from a solid to a gas is called _____.

CHANGE OF TEMPERATURE VS. CHANGE OF STATE

20. The speed of the particles in a substance changes when the

_____ changes.

21. The temperature of a substance does not change before the

_____ is complete.