Name _____ Date _____ Class _____

CHAPTER 13 CHAPTER ASSESSMENT

States of Matter

Reviewing Vocabulary

Match the definition in Column A with the term in Column B.

Column A		Column B
i	1. A measure of the resistance of a liquid to flow	a. barometer
e	2. The energy required to increase the surface area of a liquid by a given amount	b. Dalton's law of partial pressure
d	3. Force per unit area	c. phase diagram
j	4. The model describing the behavior of gases in terms of particles in motion	d. pressure
a	5. An instrument used to measure atmospheric pressure	e. surface tension
f	6. A measure of the average kinetic energy of the particles in a sample of matter	f. temperature
b	7. States that the total pressure of a mixture of gases is equal to the sum of the pressures of each gas in the mixture	g. elastic collisions
k	8. The temperature at which a crystalline solid becomes a liquid	h. vapor pressure
h	9. The pressure exerted by a vapor over a liquid	i. viscosity
c	10. A graph that shows in which phase a substance exists under different conditions of temperature and pressure	j. kinetic-molecular theory
g	11. Collisions between gas particles in which no kinetic energy is lost	k. melting point
s	12. The movement of one material through another	l. Graham's law of effusion
n	13. The process by which a substance changes from a gas or vapor to a solid without first becoming a liquid	m. amorphous solid
p	14. A solid whose atoms, ions, or molecules are arranged in an orderly, geometric, three-dimensional structure	n. deposition
r	15. Temperature at which a liquid becomes a crystalline solid	o. boiling point
l	16. States that the rate of effusion for a gas is inversely proportional to the square root of its molar mass	p. crystalline solid
o	17. Temperature at which the vapor pressure of a liquid equals the external or atmospheric pressure	q. sublimation
q	18. The process by which a solid changes directly to a gas without first becoming a liquid	r. freezing point
m	19. A solid in which the particles are not arranged in a regular, repeating pattern	s. diffusion

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CHAPTER 13 CHAPTER ASSESSMENT

Understanding Main Ideas (Part A)

In the space at the left, write *true* if the statement is true; if the statement is false, change the italicized word or phrase to make it true.

true — 1. At a given temperature, all gas particles have the same *average kinetic energy*.

random — 2. A gas expands until it fills its container because its particles are in constant and *uniform* motion.

true — 3. Gases flow because there are *no significant* forces of attraction or repulsion between gas particles.

true — 4. The height that mercury reaches in the tube of a manometer *does not depend* on the diameter of the tube.

Surfactants — 5. *Unit cells* are compounds that lower the surface tension of water.

true — 6. A liquid is less fluid than a gas because the particles of a liquid have *greater* intermolecular forces.

depends — 7. The viscosity of a liquid *does not depend* on the strength of intermolecular forces.

true — 8. The electrical conductivities of metallic solids are *better* than the conductivities of molecular solids.

Triple point — 9. *Vaporization* is the point on a phase diagram that represents the temperature and pressure at which three phases of a substance can coexist.

evaporation — 10. When vaporization occurs only at the surface of a liquid, the process is called *condensation*.

pascal (Pa) — 11. The SI unit of pressure is the *atmosphere (atm)*.

Answer the following questions.

12. What happens to the density of a gas as it is compressed? Why?

When a gas is compressed, its particles, which have not decreased in mass, occupy a smaller volume. Thus, the density ratio of mass to volume increases.

13. Differentiate among dispersion forces, dipole–dipole forces, and hydrogen bonds.

Dispersion forces are weak forces that result from temporary shifts in the density of electrons in electron clouds. Dipole–dipole forces are stronger attractions between oppositely charged regions of polar molecules. Hydrogen bonds are dipole–dipole attractions between molecules containing a hydrogen atom bonded to a small, highly electronegative atom with at least one electron pair.