

Name _____ Date _____ Class _____

CHAPTER 13 STUDY GUIDE FOR CONTENT MASTERY

States of Matter

Section 13.1 Gases

In your textbook, read about the kinetic molecular theory.

Complete each statement.

1. The kinetic molecular theory describes the behavior of gases in terms of particles in motion.
2. The kinetic molecular theory makes the following assumptions:
 - a. In a sample of a gas, the volume of the gas particles themselves is very small compared to the volume of the sample.
 - b. Because gas particles are far apart, there are no significant attractive or repulsive forces between gas particles.
 - c. Gas particles are in constant and random motion.
 - d. The collisions between gas particles are elastic; that is, no kinetic energy is lost.
3. The kinetic energy of a particle is represented by the equation $KE = \frac{1}{2}mv^2$.
4. Temperature is a measure of the average kinetic energy of the particles in a sample of matter.

In your textbook, read about explaining the behavior of gases.

For each statement below, write true or false.

- | | |
|--------------|--|
| <u>True</u> | 1. Gases are less dense than solids because there is a lot of space between the particles of a gas. |
| <u>True</u> | 2. The random motion of gas particles causes a gas to expand until it fills its container. |
| <u>False</u> | 3. The density of a gas decreases as it is compressed. |
| <u>True</u> | 4. A gas can flow into a space occupied by another gas. |
| <u>True</u> | 5. The diffusion of a gas is caused by the random motion of the particles of the gas. |
| <u>False</u> | 6. Lighter gas particles diffuse less rapidly than do heavier gas particles. |
| <u>True</u> | 7. During effusion, a gas escapes through a tiny opening into a vacuum. |
| <u>False</u> | 8. Graham's law of effusion states that the rate of effusion for a gas is directly related to the square root of its molar mass. |

Name _____ Date _____ Class _____

CHAPTER 13 STUDY GUIDE FOR CONTENT MASTERY

Section 13.2 continued

In your textbook, read about gas pressure.

Circle the letter of the choice that best completes the statement or answers the question.

13. Pressure is defined as force per unit c. area.
14. What is an instrument designed to measure atmospheric pressure? c. sphygmomanometer
15. The height of the liquid in a barometer is affected by all of the following EXCEPT the a. altitude.
16. The pressure of the gas in a manometer is directly related to which of the following quantities? b. height of the mercury column in the closed end arm
17. One atmosphere is equal to a pressure of b. 101.3 kPa.
18. The partial pressure of a gas depends on all of the following EXCEPT the b. size of the container.
19. The pressure of a sample of air in a manometer is 102.1 kPa. What is the partial pressure of nitrogen (N_2) in the sample if the combined partial pressures of the other gases is 22.4 kPa? b. 79.7 kPa

Use the figure to answer the following questions.

20. What instrument is illustrated in the figure? barometer
21. Who invented this instrument? Evangelista Torricelli
22. What are the two opposing forces that control the height of the mercury in the column? gravity and atmospheric pressure
23. What does it mean when the level of mercury drops in the column? The atmospheric pressure has increased.



Chapter 1study Guide States Of Matter

Susan McMurry



Chapter 1study Guide States Of Matter:

Unveiling the Magic of Words: A Report on "**Chapter 1study Guide States Of Matter**"

In a global defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their capability to kindle emotions, provoke contemplation, and ignite transformative change is truly awe-inspiring. Enter the realm of "**Chapter 1study Guide States Of Matter**," a mesmerizing literary masterpiece penned by a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve to the book is central themes, examine its distinctive writing style, and assess its profound affect the souls of its readers.

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