

13**STATES OF MATTER****Vocabulary Review**

Each clue describes a vocabulary term. Read the clues and write the letters of each term on the lines.

1. Clue: the energy an object has because of its motion.

_____ ○ _____

2. Clue: results from the force exerted by a gas per unit surface area of an object.

_____ ○ _____

3. Clue: the process in which molecules of a liquid escape from the surface of a liquid that is not boiling.

_____ ○ _____

4. Clue: the temperature at which the vapor pressure of a liquid is just equal to the external pressure.

○ _____

5. Clue: sample in which particles are arranged in an orderly, repeating, three-dimensional pattern.

_____ ○ _____

6. Clue: two or more different molecular forms of the same element in the same physical state.

_____ ○ _____ ○ _____

7. Clue: the temperature at which a solid changes into a liquid.

○ _____

8. Clue: the SI unit of pressure.

_____ ○ _____

Write the letters found inside the circles on the lines below. Then unscramble them to find the name of a device for measuring the atmospheric pressure.

Scrambled Letters:

Solution:

13**STATES OF MATTER****Practice Problems**

In your notebook, answer the following questions or solve the following problems.

SECTION 13.1 THE NATURE OF GASES

1. How would the reading on a barometer change if you were to take one on a trip from Los Angeles to Lake Tahoe, which is at a much higher altitude?
2. The height of a column of mercury in a barometer is 754.3 mm. What is the atmospheric pressure in atm? In kPa?
3. How does the average kinetic energy of the helium atoms in a balloon change as the helium gas is heated from -100.0°C to 73°C ?

SECTION 13.2 THE NATURE OF LIQUIDS

1. In general, how do the intermolecular attractions between particles in a gas compare with those between particles in a liquid?
2. The normal boiling point of ethanol is 78.5°C . The normal boiling point of water is 100°C . At 75°C , which liquid, ethanol or water, has the greater vapor pressure? Explain.

SECTION 13.3 THE NATURE OF SOLIDS

1. How does the crystalline structure of graphite compare with that of diamond?
2. Why is diamond classified as an allotrope of carbon?
4. Which type of solid is likely to have the lowest melting point—an ionic solid or a molecular solid? Explain.
5. Give an example of a crystalline solid. What is a crystal?

SECTION 13.4 CHANGES OF STATE

To answer the following questions, refer to the phase diagram shown in Figure 13.15 of your textbook.

1. How does the melting point of water change as the pressure increases?
2. What does the line separating the solid phase from the vapor phase represent?
3. What does the line separating the liquid phase from the vapor phase represent?
4. What is the vapor pressure of liquid water at 100°C ?