

Chapter 8 Solutions, Acids, and Bases

Section 8.2 Solubility and Concentration**(pages 235–239)**

This section explains solubility, the factors affecting solubility, and different ways of expressing the concentration of a solution.

Reading Strategy (page 235)

Previewing Before you read the section, rewrite the topic headings as *how*, *why*, and *what* questions. As you read, write an answer to each question. 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.

Question	Answer
What is solubility?	Solubility is the maximum amount of solute that dissolves in a given amount of solvent at a given temperature.
What factors affect solubility?	Solvent, temperature, and pressure
How can the concentration of solutions be expressed?	Percent by volume, percent by mass, molarity

Solubility (pages 235–237)

- _____ **Solubility** _____ is the maximum amount of a solute that dissolves in a given amount of solvent at a constant temperature.
- List the following solutes in order from most soluble to least soluble in water: table salt, baking soda, table sugar.
 - _____ **Table sugar** _____
 - _____ **Table salt** _____
 - _____ **Baking soda** _____
- A **saturated solution** _____ is a solution that contains as much solute as the solvent can hold at a given temperature.
- A solution that has less than the maximum amount of solute that can be dissolved is called a(n) **unsaturated solution** _____.
- Is the following sentence true or false? It is impossible for a solution to contain more solute than the solvent can hold at a given temperature.
_____ **false** _____

Chapter 8 Solutions, Acids, and Bases**Factors Affecting Solubility (page 237)**

6. Circle the letters of factors that affect the solubility of a solute.
- a. polarity of the solvent
 - b. amount of solvent
 - c. pressure
7. Is the following statement true or false? In general, the solubility of solids increases as the solvent temperature increases.
- _____ **true** _____
8. In general, the solubility of gases decreases as the solvent temperature _____ . Circle the correct answer.
- increases** decreases stays the same
9. In general, the solubility of a gas increases as pressure _____. Circle the correct answer.
- increases** decreases stays the same

Concentration of Solutions (pages 238–239)

10. The **concentration of a solution** is the amount of a solute dissolved in a given amount of solution.
11. Circle the letters that identify ways to express the concentration of a solution.
- a. density
 - b. percent by volume**
 - c. molarity**
12. Complete the equation.
- $$\text{Percent by volume} = \frac{\text{Volume of solute}}{\text{Volume of solution}} \times 100\%$$
13. Write the equation used to calculate percent by mass.
- $$\text{Percent by mass} = \frac{\text{Mass of solute}}{\text{Mass of solution}} \times 100\%$$
14. Is this sentence true or false? Molarity is the number of moles of a solvent per liter of solution. _____ **false** _____