

Name _____

Section 16.1 Guided Reading: Use textbook pages 518-524 to answer the following.

1. What are the three factors that affect how fast a substance will dissolve?
 - a.
 - b.
 - c.
2. Why does stirring increase the rate of dissolving?
3. Does stirring affect the amount of substance that can dissolve?
4. Why does an increase in temperature allow for a faster rate of dissolving?
5. How does particle size affect the rate of dissolving?
6. What is a **saturated solution**?
7. Look at Figure 16.2 and read its caption. Explain what it means to have “a state of dynamic equilibrium” in a saturated solution.
8. What is **solubility**?
9. What is an **unsaturated solution**?
10. What does it mean to be **miscible**? To what state of matter does this relate?

What does it mean to be immiscible?
11. Hypothesize: Why are some liquids miscible in each other while others are not? How could you predict it?
12. How would you describe the relationship between temperature and the solubility of **most** solid substances?

13. Look at the solubility curve in the “Interpret Graphs” box on page 521 of the text (Figure 16.5). This graph depicts the solubility of various substances at different temperatures. The points on the line represent points of **saturation**. Use this graph to answer the following questions:
- What happens to the solubility of KNO_3 as the temperature increases? _____
 - Which substance exhibits the least change in solubility as temperature increases? _____
 - If a solution of KBr is saturated at 20°C , how much of the salt is dissolved in the solution? _____
 - If this same KBr solution is heated to 50°C , how much additional KBr needs to be added to keep the solution saturated? _____
14. What is a **supersaturated solution**?
15. Hypothesize: A saturated solution of KNO_3 is made by dissolving 120 g of the salt and heating to 70°C . The solution is allowed to cool to 50°C . Once this happens, the solution is now said to be supersaturated. If crystallization occurs, how much of the salt would you expect to fall out of solution? (Use Figure 16.5)
16. Describe the effect of temperature on the solubility of gases.
17. Explain thermal pollution and how it affects aquatic animals and plant life.
18. Why does soda get “flat” once the bottle is opened?
19. What do you think would get “flat” faster – cold soda or warm soda?