

Water Unit Part II: Review

1. Explain why three teaspoons of sugar will dissolve in a cup of hot tea, but not in the same amount of iced tea.
2. If the solubility of sucrose (sugar) in water at room temperature is 2.0 g/mL, which is the minimum amount of sugar that will dissolve in
 - a. 100 mL of water
 - b. 355 mL (12 oz.) of water
 - c. 946 mL (1 quart) of water
3. Explain the difference between saturated and unsaturated.
4. You are given a solution of KNO_3 of an unknown concentration. What will happen if you add a crystal of KNO_3 if the solution is ...
 - a. Unsaturated?
 - b. Saturated?
 - c. Supersaturated?
5. A 35-g sample of ethanol is dissolved in 115 grams of water. What is the percent concentration of the ethanol in the solution?
6. You are given 55 gram of a sugar water solution that is labeled 20% sugar by mass. How many grams of sugar are in the solution? How many grams of water?
7. What makes a water molecule polar?
8. Which region of a polar water molecule will be attracted to a
 - a. K^+ ion
 - b. Br^- ion
9. List three symptoms of heavy metal poisoning.
10. List two sources of human exposure to
 - a. Lead
 - b. Mercury
11. What ion is found in most bases?
12. What element is found in most acids?
13. Classify each sample as acidic, basic or chemically neutral:
 - a. Seawater (pH = 8.6)
 - b. Drain Cleaner (pH = 13.0)
 - c. Vinegar (pH = 2.7)
 - d. Pure Water (pH = 7.0)
14. How many times more acidic is a solution at pH 2.0 than a solution at pH 4.0?
15. List three negative effects that an inappropriate pH level could have on aquatic organisms.
16. Explain the difference between a polar and nonpolar molecule.
17. Why does table salt (NaCl) dissolve in water but not in cooking oil?
18. Explain the phrase "like dissolves like."
19. Explain why you cannot completely clean greasy dishes with just plain water.
20. How does the solubility of oxygen change if the temperature of water increases?