Name:	Date:

Chemistry ~ *Ms. Hart* <u>Class:</u> Anions or Cations



8.2 Classwork - Factors Affecting Solubility

Brain Stretching:

- 1. What kind of solvent will dissolve a polar solute? Give examples.
- 2. What kind of solvent will dissolve a nonpolar solute? Give examples.
- 3. Waterproof mascara won't wash off with water, what might be a good substance to use to wash it off your face? Why?
- 4. What happens to the solubility of solids and gases when the temperature of a solution is increased?
- 5. What happens to the solubility of solids and gases when the pressure on a solution is increased?
- 6. What does the phrase *"like dissolves like"* tell you about when something will dissolve and when it will not?

PRACTICE PROBLEMS!

- Most polar substances are soluble in water because water molecules are (1) nonpolar
 (2) covalent
 (3) polar
 (4) inorganic
- 2) Nonpolar solvents will most easily dissolve solids that are
 (1) ionic
 (2) covalent
 (3) nonpolar
 (4) polar
- 3) As the temperature rises, the solubility of all gases in water(1) decreases(2) increases(3) remains the same(4) depends on the gas
- 4) Under which conditions are gases most soluble in water?
 (1) high temperature and high pressure
 (2) high temperature and low pressure
 (3) low temperature and high pressure
 (4) low temperature and low pressure
- 5) Scientists who study aquatic ecosystems are often interested in the concentration of dissolved oxygen in water. Oxygen, O2, has a very low solubility in water, and therefore its solubility is usually expressed in units of milligrams per 1000.grams of water at 1.0 atmosphere. The graph below shows a solubility curve of oxygen in water.



- 6) Explain, in terms of molecular polarity, why oxygen gas has low solubility in water. Your response must include *both* oxygen and water. [1]
- 7. Oil and vinegar is a very popular condiment used on sandwiches and salads. It is *not a solution*.a. Using the properties of solutions, give *two* reasons why oil and vinegar is *not* considered a solution.

 - b. In terms of polarity, explain why the oil and vinegar do not dissolve in each other.

8. In terms of distribution of charges, why is it that a polar substance will dissolve in a polar solvent, but not in a nonpolar solvent? **You may need to review the definitions of polar and nonpolar to answer this question**.

9. In at least three sentences, name three factors that affect the solubility of solids, liquids, and gases.