

Factors that affect Solubility

Read Section 8.2 in your textbook (start at p. 359) to complete the following sheet.

1. Solubility is defined as:
2. Circle the correct term to complete the following sentences.
 - a. A small amount of sugar is put in water. The sugar dissolves, meaning it is soluble/insoluble in water. Sugar is the solute/solvent, while water is the solute/solvent. Since only a little bit of sugar is present in the solubility/solution, it is referred to as unsaturated/saturated. Sugar has a very low/high solubility, meaning a lot of it can dissolve in water.
 - b. Oil and vinegar cannot dissolve/soluble in each other. They are soluble/insoluble. When we put them together, we would see two/one layer(s). This makes a heterogeneous/homogeneous solution.
3. Read p. 369. There are 3 ways to affect the rate of dissolving. Describe each briefly and provide an example of each.
 - a.
 - b.
 - c.
4. When a solution forms, particles of the solute are attracted to particles of the solvent. Water is called the “universal solvent” and it is very good at dissolving substances.
 - a. Draw a single labelled water molecule.
 - b. Draw 5 water molecules. Indicate where hydrogen bonding takes place.
5. Most ionic compounds are soluble in water. Use NaCl as an example and show how water breaks up sodium chloride into Na^+ and Cl^- ions.

6. Most ionic compounds are soluble in water, but not all.
 - a. What two factors determine whether an ionic compound is soluble in water?
 - b. Compare MgF_2 and MgI_2 . Why is MgI_2 more soluble?
 - c. Compare MgO and MgF_2 . Why is MgF_2 more soluble?

7. For all molecular or covalent compounds, the solubility depends on how polar the molecule is.
 - a. Why will sucrose dissolve in water?
 - b. Why will vegetable oil not dissolve in water?

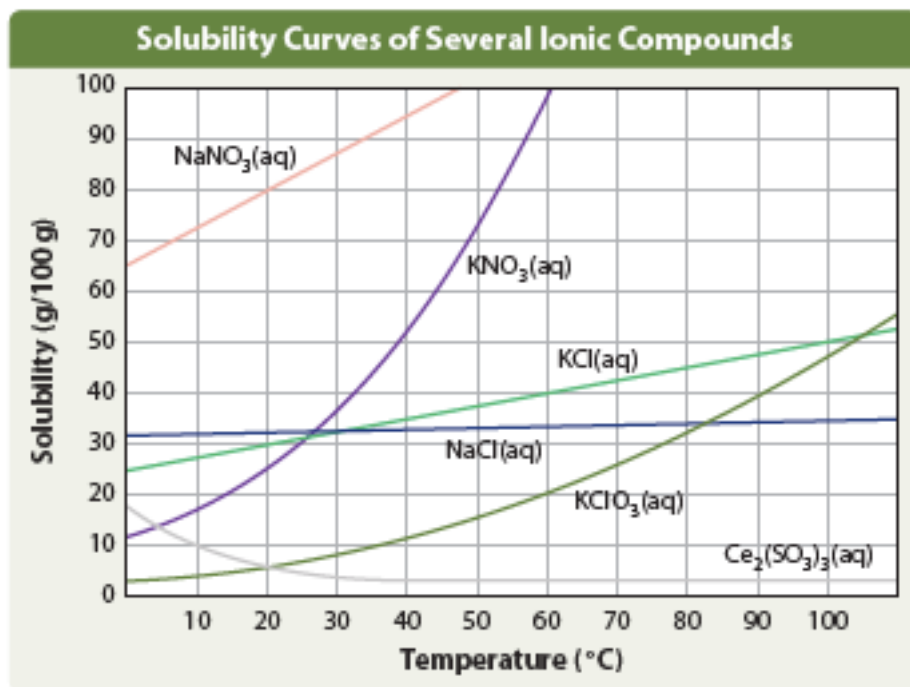
8. Complete the table.

Table 8.5 Predictions Using the Generalization "Like Dissolves Like"

		SOLUTE	
		Polar or Ionic	Non-polar
SOLVENT	Polar		
	Non-polar		

(Chemistry 11, MHR)

9. Look at the following graph. (Chemistry 11, MHR)
 - a. What generally happens when you increase temperature?



- b. Which state (solid, liquid or gas) is least affected by temperature?

10. Complete p. 368 #7,9,10,11.

Which one will dissolve in water?



OBVIOUSLY

