

Chapter 3

Use with Section 1

ENRICHMENT

● Chemistry of Living Things

The Effect of Temperature on Solubility

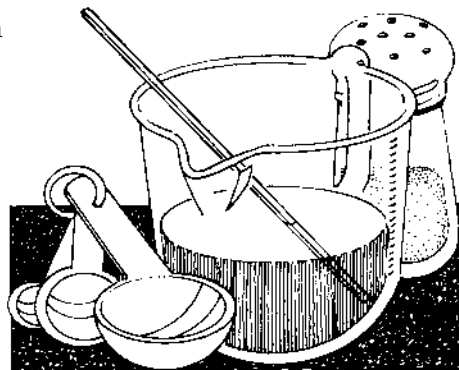
When a solid is dissolved in a liquid, the molecules of the solid mix with the molecules of the liquid. When you dissolve sugar in a cup of tea, you know it is there because of the taste, but you can't see the sugar.

In this experiment, you will see the effect of temperature on **solubility**. Solubility is the amount of a substance that dissolves in a solvent at a given temperature. The substance that is to be dissolved is called the **solute**, and the substance that it is dissolved in is called the **solvent**. In the example above, sugar is the solute and hot tea water is the solvent. When no more solute will dissolve at a given temperature, we say that the solution is **saturated**.

Materials



table salt
measuring spoons and measuring cups
a shallow pan
stirring rod
thermometer



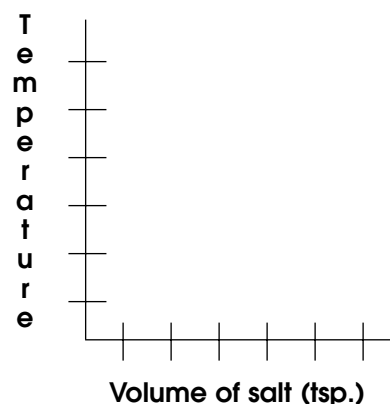
Procedure

1. Pour 1/2 cup cold tap water into a measuring cup. Measure the temperature. Add salt, 1 level teaspoon at a time, while stirring. Repeat until the solution is saturated.
2. Record the number of teaspoons used and the temperature. Discard the solution.
3. Repeat the procedure using tap water that is about room temperature.
4. Repeat, using very hot tap water. **CAUTION:** *Always be careful when handling hot objects.* After recording the data, pour the solution into the pan and allow the water to evaporate overnight.

Observations

Temperature	Teaspoons of salt (volume)

Plot your data on graph



Conclude and Apply

1. The salt seems to disappear as it goes into solution. How do we know it hasn't actually disappeared, other than taste? _____

2. If you were to use a heat source to make the water even hotter, hypothesize how the solubility of salt would be affected. _____
