

## 37.4: Procedures

You will combine a variety of substances.

### Comparing Solutes

1. Record which solid solute you predict will be the most dissolved, and which solid solute you predict will be the least dissolved.
2. Draw a table in which to record your *comparing solutes* data. **Do not fill in data until you have read the instructions for obtaining that data.**

Table 37.4.1: Comparing Solutes

Solid	Initial Temperature	Final Temperature	Classify
KCl			
NaCl			
Sugar			
Baking Soda			

3. Use the grease pencil to label each beaker with the name of the solute you intend to add to the beaker. Add 100 mL of cold water from the graduated cylinder into each of the 250 mL beakers. Measure and record the initial temperature of the water in each beaker.
4. Label the paper cups: “KCl”, “NaCl”, “Sugar”, and “Baking Soda”. Then add 5 grams of each solid solute into the corresponding paper cups.
5. All 4 team members will be needed in this step. At exactly the same time, add each solid solute to each corresponding beaker of water and begin stirring the contents with a plastic spoon, while holding the thermometer steady; **do not use the thermometer for stirring**. All team members should stir at the same rate. Stir the contents in the beakers for 2 minutes; then stop stirring and allow the contents in the beakers to settle while you measure and record the final temperature of the contents in each beaker.
6. Once the contents in the beakers have been allowed to settle for at least 30 seconds, classify each substance (homogeneous solution, heterogeneous suspension, or saturated solution). Record your answers in your *comparing solutes* data table.

### Clean-up

- Pour contents from beakers into a sink and thoroughly flush sink with water
- Wash the beakers, spoons, and thermometers
- Use a dry paper towel to remove any residue from each paper cup

### Comparing Liquid Solvents

7. Record which liquid solvent you predict will dissolve the most sugar and which solvent you predict will dissolve the least amount of sugar.
8. Draw a table in which to record your *comparing solvents* data. Read the instructions for obtaining the data.

Table 37.4.2: Comparing Solvents

Liquid	Initial Temperature	Final Temperature	Classify
Vegetable Oil			
91% Isopropyl Alcohol			
Water			
Hydrogen Peroxide			

9. Use the grease pencil to label each 250 mL beaker with the name of the liquid you intend to add to the beaker. Measure 100 mL of each liquid into the corresponding beaker; do not use the graduated cylinder to measure the oil. Measure and record the initial temperature of the liquid in each beaker.
10. Measure 5 grams of granulated sugar into each paper cup.
11. At exactly the same time, add the sugar to each beaker of liquid and begin stirring the contents with a plastic spoon, while holding the thermometer steady; **do not use the thermometer for stirring**. All team members should stir at the same rate. Stir the contents in the beakers for 2 minutes; then stop stirring and allow the contents in the beakers to settle while you measure and record the final temperature of the contents in each beaker.
12. Once the contents in the beakers have been allowed to settle for at least 30 seconds, classify each substance (homogeneous solution, heterogeneous suspension, or saturated solution). Record your answers in your *comparing solvents* data table.

### Clean-up

- Dispose of contents in beakers as directed by your instructor
- **Wash, rinse, and completely dry all beakers, thermometers, and plastic spoons**
- **Discard paper cups in trash**
- **Clean your laboratory table top**

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