# Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



## Lesson 2: Mixing Different Phases

Solvents dissolve solutes. If a solid solute dissolves in a liquid solvent, the solid looks like it “disappears” into the liquid. However, the liquid merely breaks up the solid into pieces too small to be seen to form a solution. If the solid remains undissolved, the system is a heterogeneous mixture.

**Doing the Science**

1. Start the Solution Simulation by clicking on the “Sim” tab.

2. Click on the bottle containing H2O to add the liquid to the beaker.

3. Note that all of the solids are in white containers on the top shelf.

4. Click on the bottle containing I2 to add the solid to the water in the beaker. Click the “Stir” button.

5. A solution has a uniform composition with no solid remaining, while in a heterogeneous mixture the solid remains undissolved on the bottom of the beaker. Record in Table 1 whether the system in the beaker is a solution or heterogeneous mixture.

6. Click the “Reset” button to begin your next mixing.

7. Repeat the process and mix H2O with each of the solids, one at a time. Make sure to record your results in Table 1.

8. Repeat the process again, this time mixing CCl4 with each of the solids, one at a time. Make sure to record your results in Table 1.

**Table 1.**

|  |  |  |
| --- | --- | --- |
| **Solvent** | **Solute** | **Results (Circle your response)** |
| H2O | I2 |  Solution Heterogeneous Mixture |
| H2O | KCl |  Solution Heterogeneous Mixture |
| H2O | KNO3 |  Solution Heterogeneous Mixture |
| H2O | NaCl |  Solution Heterogeneous Mixture |
| H2O | Na2CO3 |  Solution Heterogeneous Mixture |
| H2O | CaCO3 |  Solution Heterogeneous Mixture |
| H2O | Mystery Solid |  Solution Heterogeneous Mixture |
| CCl4 | I2 |  Solution Heterogeneous Mixture |
| CCl4 | KCl |  Solution Heterogeneous Mixture |
| CCl4 | KNO3 |  Solution Heterogeneous Mixture |
| CCl4 | NaCl |  Solution Heterogeneous Mixture |
| CCl4 | Na2CO3 |  Solution Heterogeneous Mixture |
| CCl4 | CaCO3 |  Solution Heterogeneous Mixture |
| CCl4 | Mystery Solid |  Solution Heterogeneous Mixture |

**Do You Understand?**

1. A general “rule of thumb” in investigating solutions is that “like substances dissolve other like substances.” If this is the case, which of the substances you tested are most alike? Which substances are most different?