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



## Lesson 1: Mixing it Up

Solutions are made up of two parts, a solvent that does the dissolving and a solute that is dissolved. If a liquid solvent dissolves a liquid solute, the liquids are said to be miscible. Are you ready to test the miscibility of various liquids?

**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. Click on the bottle containing CCl4 to add the liquid to the water in the beaker. Click the “Stir” button.

4. A solution has a uniform composition, while a heterogeneous mixture forms layers. Record in Table 1 whether the system in the beaker is a solution or heterogeneous mixture.

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

6. Repeat the process and mix the following liquids, two at a time: H2O and Hexane, H2O and Methanol, CCl4 and Hexane, CCl4 and Methanol, Hexane and Methanol. Make sure to record your results in Table 1.

**Table 1.**

|  |  |
| --- | --- |
| **Mix** | **Results (Circle your response)** |
| H2O and CCl4 | Solution Heterogeneous Mixture |
| H2O and Hexane | Solution Heterogeneous Mixture |
| H2O and Methanol | Solution Heterogeneous Mixture |
| CCl4 and Hexane | Solution Heterogeneous Mixture |
| CCl4 and Methanol | Solution Heterogeneous Mixture |
| Hexane and Methanol | 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?

2. If a mystery substance dissolves in hexane, but *not* in methanol, is the mystery substance more like H2O or more like CCl4?

3. Imagine your favorite coat got a spot of grease on one sleeve. If grease dissolves in hexane, would you expect water to remove the spot of grease from your coat’s sleeve? Please explain your response.