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

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**Lesson 3: Dissolving Fullerenes**

Some substances dissolve in water, while others require a solvent with different properties. The general solubility rule is that likes dissolve likes. This means that the more alike in their bonding type a solute is to a solvent, the more likely the solvent will dissolve the solute. Are you ready to dissolve into this lesson?

**Doing the Science**

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

2. Click on the fullerene (C60) container and drag a chunk to the empty beaker on the tabletop.

3. Click on the container of “Water.”

4. Note and record in Table 1 whether or not the C60 dissolved in the water.

5. Click the “Reset” button at the bottom of the screen.

5. Click on the fullerene (C60) container and drag a chunk to the empty beaker

6. Click the container of “Benzene.”

7. Note and record in Table 1 whether or not the C60 dissolved in the benzene.

**Table 1. Solubility of C60**

|  |  |  |
| --- | --- | --- |
| **Sample** | **Dissolve in Water? (Yes/No)** | **Dissolve in Benzene? (Yes/No)** |
| C60 |  |  |

**Do You Understand?**

1. Is the bonding in C60 more like the bonding in water or in benzene? Please explain your response.

2. Water is a polar molecule, while benzene is a nonpolar molecule. How would you classify C60, as polar or nonpolar? Please explain your response.

3. Methanol is a highly polar substance. Would you expect C60 to dissolve in a beaker filled with methanol? Please explain your response.