Name_____ Period _____ Date _____

STEM Sims

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 (C_{60}) 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 C_{60} dissolved in the water.
5. Click the "Reset" button at the bottom of the screen.
5. Click on the fullerene (C_{60}) 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 C_{60} dissolved in the benzene.

Table 1. Solubility of C_{60}

Sample	Dissolve in Water? (Yes/No)	Dissolve in Benzene? (Yes/No)
C_{60}		

Do You Understand?

1. Is the bonding in C_{60} 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 C_{60}, as polar or nonpolar? Please explain your response.

3. Methanol is a highly polar substance. Would you expect C_{60} to dissolve in a beaker filled with methanol? Please explain your response.