

Student directions *Sugar and Salts* activity

Learning Goals: Students will be able to:

- Identify if a compound is a salt or sugar by macroscopic observations or microscopic representations.
- Explain how using combinations of solutes changes solution characteristics or not.
- Use observations to explain ways concentration of a solute can change.
- Describe ways the formula, macroscopic observations, or microscopic representations of a compound indicates if the bonding is ionic or covalent.

Directions:

1. Describe:
 - a. Solute, solvent, and solution.
 - b. What solvent is used in the sim? Why do you think it was chosen? What types of solutes are used? What representations or tools did you use to help you decide the “type of solute”?
 - c. List each of the 5 chemicals in the simulation and identify the “type of solute” to which each belongs. Give at least one piece of evidence for each.
 - d. Which the *Micro* tab solute combinations are more complex than others? Explain.
2. What is the “concentration” specifically indicating for each “type of solute”? Make sure to include the differences between the Macro and Micro tabs.
3. Find all the ways you can change the concentration of a solute. Describe what you would do in a real lab to increase or decrease the concentration of a solution.
4. Using your text or cite other resources to describe the difference between an “ionic” and a “covalent” compound. Why is the periodic table given as an optional display? How could you use your periodic table to predict conductivity of a solution?
5. Draw pictures that would show what the following chemicals would look like on a microscopic scale if dissolved in water-
 - a. LiF
 - b. KNO₃
 - c. C₂H₅OH
 - d. MgF₂