**Rock Candy @ Home Lab Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Background**

Three types of solutions can be made with a given solute and solvent: unsaturated, saturated, and supersaturated. An **unsaturated solution** has not reached its limit of solubility for a solute at a given temperature. A **saturated solution** has reached its limit of solubility for a solute at a given temperature. Any additional solute just falls to the bottom of the container without dissolving. A **supersaturated solution** holds more dissolved solute than it normally would at a given temperature. When making rock candy, this is done by raising the temperature to the boiling point of water, dissolving a lot of sugar, and then allowing the solution to cool undisturbed. If undisturbed at room temperature, the solution retains the extra dissolved solute at the higher temperature; however, if more crystals of the solute are added, they also act as seed crystals (nucleation sites for crystal formation). As the solution evaporates slowly in a dust-free environment (dust can also become nucleation sites), the crystals grow larger as excess dissolved solute crystallizes.

**Procedure:**

<https://www.stevespanglerscience.com/lab/experiments/homemade-rock-candy/>

Note:

* Also, you can make it on the stove instead of the microwave
* you can add flavoring too when you add the food coloring.

**Post-Lab Questions:**

1. Draw a picture of your rock candy lab set-up.
   1. Label all parts
2. What was the solute?
3. What was the solvent?
4. When was the rocky candy solution unsaturated? Explain.
5. What is the difference between a saturated and a supersaturated solution?
6. Why is it necessary to heat a solvent in order to make a supersaturated solution?
7. At what point in this lab did your solution become supersaturated?
8. Besides increasing the temperature of the water, describe another way you could get sugar to dissolve in water faster.
9. Extra credit: Picture evidence that you did the lab!