

Crystal Art

Section: Properties of Matter; Topic: Solubility

Name: _____

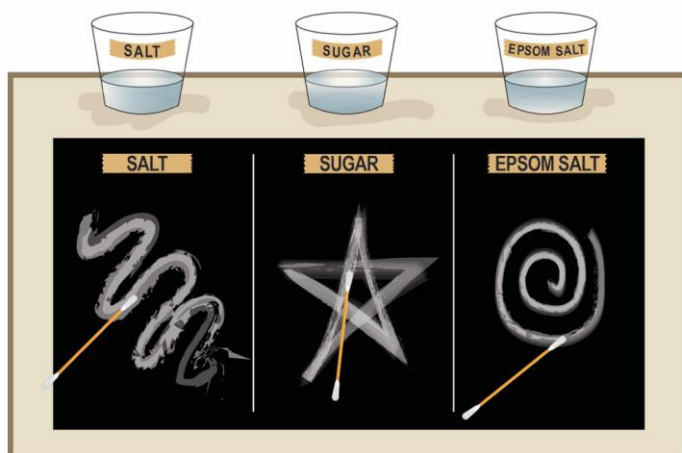
Date: _____

Inquiry Question

Write down what you'll be learning today! What do you want to understand?

Procedure

1. Divide a piece of black construction paper into three equal sections. Using the masking tape and pen, label the sections "salt," "sugar," and "Epsom salt."
2. Label the three plastic cups "salt," "sugar," and "Epsom salt."
3. Fill $\frac{1}{4}$ of each cup with warm water and place on the corresponding labeled sections of the paper.
4. Add one level teaspoon of salt into the cup labeled "salt" and stir until all the crystals dissolve. Continue to add teaspoons of salt until no additional salt can be dissolved. (You will see crystals in the water even after stirring.)
5. Repeat step 4 with the sugar and Epsom salt in their corresponding cups.
6. Dip one end of a clean cotton swab into the salt solution, and use it to paint a design into the salt section of the paper. Using new cotton swabs, do the same with the sugar and Epsom salt solutions.
7. Allow water to evaporate (about 30+ minutes) and examine the designs.



Observations, Data Collection & Analysis

Write down your observations below.

1. Record the number of teaspoons needed to completely saturate each solution.

Substance	Number of Teaspoons
SALT Sodium chloride (NaCl)	
SUGAR Sucrose (C ₁₂ H ₂₂ O ₁₁)	
EPSOM SALT Magnesium sulfate (MgO ₄ S)	

2. Which substance has the highest saturation point (dissolves the most in water)?

3. Which substance has the lowest saturation point (dissolves the least in water)?

4. What happens when you first draw on the paper with the cotton swabs? Are crystals visible? Why or why not?

5. What happens after the liquid evaporates? Are crystals visible? Why or why not?

6. What does each crystal look like? Compare the original solid crystals to what appears on the paper and draw a close-up of the “before” and “after” of each crystal sample. What are the similarities and differences? Compare and discuss with a peer.
