Salt Stalactites

Overview: Crystals can grow within a jar on a piece of string, as we say with the laundry soap crystals and rock candy, but what about outside? Today's experiment will allow you to make some of those spectacular arrangements of minerals that you may find in caverns, called stalactites.

What to Learn: The secret to getting this experiment to work has to do with the capillary action of the water as it gets drawn *up* the string, against the force of gravity. A *stalactite* is a formation of minerals found in a cave that is formed when water drips down and leaves a bit of mineral behind. Most frequently these minerals are limestone, such as in the spectacular formations of Carlsbad Caverns.

Materials

- two clean glass jars
- yarn or string
- Epsom salts
- water
- tin foil or cook sheet
- adult help, sauce pot, and a stove.

Lab Time

1. Make a supersaturated solution with warm water and Epsom salts (magnesium sulfate). Add enough salt to the point that it no longer dissolves.
2. Fill two empty glass jars with the solution.
3. Place the jars on a cookie sheet about a foot apart.
4. Suspend a piece of yarn or string between the jars.
5. Wait for three days, and record all observations in the data table.

Salt Stalactites Observations

Time	Est. Number of Crystals	Drawing
1 day		
3 days		
5 days		

Reading

This lab uses Epsom salts (magnesium sulfate) as the basic crystalline molecule that will precipitate from a supersaturated solution. This solution will be created much in the same way as previous crystal labs. The difference here is that we'll suspend the crystals from a piece of yarn or string. This lab takes about 3 days from the time you make your solution to observe the crystals in their full form as long as your solution is fully saturated.

Exercises

1. What is the solute in today's experiment?
    a. Sodium chloride
    b. Sugar
    c. Magnesium sulfate
    d. Borax
2. True or False: If this solution can dissolve more salt, it has reached its point of saturation.
    a. True
    b. False
3. True or False: All minerals are crystals.
    a. True
    b. False

Answers to Exercises: Salt Stalactites

1. What is the solute in today's experiment? (magnesium sulfate)
2. True or False: If this solution can dissolve more salt, it has reached its point of saturation. (False)
3. True or False: All minerals are crystals. (True)