Cave Formations

Caves are home to some very interesting geological formations. There are many different kinds of caves too. There are caves made mostly of limestone, ice caves, and underwater caves. Most scientists think caves are formed in two ways, through centuries of water seeping its way through the earth and from bacteria eating away at our earth's interior. We are going to look at how water and bacteria create these fascinating cave formations. Join us while we create some of these cave crystals ourselves.* Here's how:

Materials needed: Epsom salt Hot tap water A large container for mixing A spoon 2 small glass containers such as beakers or baby food jars
A piece of heavy cotton cord or string, 15-20 cm long Aluminum foil
Paper clips

This activity takes about three to five days to complete.

1.) Pour hot water into the large container. Use equal amounts of water as the two glass beakers or baby food jars. 2.) Add Epsom salt to the hot water while stirring continuously. Keep stirring in Epsom salt until no more will dissolve. This will take quite a bit of Epsom salt. 3.) Pour the concentrated Epsom salt solution into each of the two glass containers. Fill within two centimeters of the rim.

4.) Put the two glass containers in an area where they won't be disturbed. Place them about 8-10 cm apart. Put the ends of the string into each of the containers and let the string sag a little in the middle. Put paper clips on the ends of the string in the solution so they stay underwater. The Epsom salt should move slowly along the cords from both sides to the middle. Here it will start to drip; place a piece of aluminum foil under this spot.

5.) Don't disturb this for several days. As the water begins to evaporate the Epsom salt will stay on the cord, in much the same manner as a stalactite forms. In a week your stalactite should be about one centimeter long. Below on the aluminum foil there should be forming a stalagmite.

6.) Tell your students that these cave formations take thousands of years because the amount of dissolved minerals is small and the evaporation process takes a very long time.

In conclusion, you have conducted an experiment that shows how cave formations develop. These cave formations take hundreds of thousands of years to form and continue to form today. As the water slowly evaporates it leaves these minerals, mostly calcium carbonate, behind. This is how the crystals form. The reason it takes so much longer in the cave for the water to evaporate than in your classroom experiment is because the air inside the cave is much more humid, and the groundwater infiltration through the bedrock happens at a much slower rate than the water wicking up the string.

**This activity was adapted, with permission, from Water, Stones, and Fossil Bones*