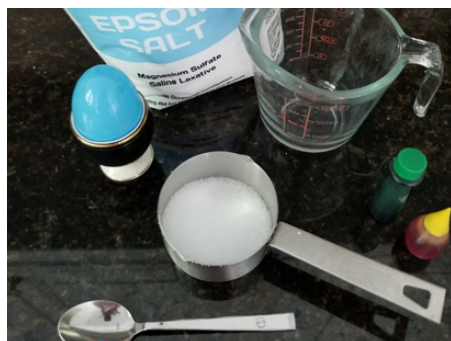


Are you looking for something to do to keep your brain active and engaged? We're here to help with Science at Home! You can conduct these fun science experiments using commonly found items. You can also visit us at the Museum's [Science at Home](#) page for additional resources.

Experiment: Eggshell Geodes—Growing Crystals in Eggshells



Materials Needed:

- 1/2 cup of water
- Microwave
- Epsom salt
- Spoon and measuring cup (1/2 cup)
- Plastic eggs (or small bowl or dish)
- Egg carton or cup to hold egg
- Refrigerator

What We've Learned

You have witnessed a process called re-crystallization. Epsom salt is crystallized magnesium sulfate. By using hot water, more of the salt crystals can dissolve as the water molecules move further apart, allowing more salt to mix in. Rapidly cooling the mixture forces the salt molecules to move out of the water and clump together forming needle-shaped crystals. You can create larger crystals by letting the solution evaporate. Try this: make a saturated solution of table salt (*don't use iodized salt*), sugar or alum, pour it in the plastic eggs and let it evaporate. It might take a few days before you can see crystals but you will notice different crystal shapes.

Instructions:



Step 1: In a microwave-safe container, heat up 1/2-cup of water in the microwave for about 2 minutes. Ask an adult to take the cup out of the microwave and place it on the counter.



Step 2: Add Epsom salt to the water; stir gently until it no longer dissolves. The solution should look cloudy. You just made a saturated salt solution, which means that no more salt can be dissolved in the water.



Step 3: Place the bottom half of a plastic egg into an egg carton so that the open part faces up. Pour some Epsom salt solution into the egg. Refrigerate for about 3 hours.



Step 4: Leave the rest of the salt solution in the cup to cool down at room temperature. After about 3 hours, you can take a spoon and scoop out some needle-shaped salt crystals.



Step 5: To speed up the crystallization process, take the plastic egg out of the fridge and add a scoop full of salt crystals from the cup that cooled down at room temperature.



To get more crystals, let the solution evaporate for a longer period of time.



Natural Connections

A bird's eggshell is made of layered calcium carbonate (Ca_2CO_3), which is a calcium salt. The shell forms during the 12-hour travel through the bird's oviduct. The process of egg mineralization starts as a fluid containing calcium and carbonate flows over the rough collagen egg membrane. Calcium and carbonate crystals get stuck on the membrane, crystallize, and form the eggshell.

Having Fun?

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