



## HERE'S ANOTHER USE FOR EGGS IN YOUR KITCHEN – GROWING FANCY CRYSTAL GEODES! BUT WHAT IS A GEODE?

A real geode is a rock with sparkly crystals inside. Geodes form in the hollow spaces of buried rocks, like volcanic rocks such as old lava flows. As a lava flow cools, bubbles form and hot mineral-filled water trickles into the space. A thin coat or shell is created on the inside of the hollow cavity. As the fluid keeps cooling, large mineral crystals form on the inside of the shell. The growth of these minerals is called “crystallization.”

Growing a real geode can take millions of years, but this experiment is much faster, so get crackin’!

### INGREDIENTS

- 1 Egg
- White, liquid craft glue
- Small paint brush
- 2 tablespoons +  $\frac{3}{4}$  cup Alum powder
- 2 cups almost-boiling hot water
- Glass containers or jars
- Food colouring
- Plastic or rubber gloves
- Paper towel

### INSTRUCTIONS

1. Crack an egg lengthwise in a bowl and empty the shell. (Make scrambled eggs!)
2. Fill another bowl with warm water and gently rinse the shell. Dry with a paper towel.
3. Paint the inside of the shell with craft glue – don’t forget the cracked edges.
4. Sprinkle 2 tablespoons of alum powder onto the glue until completely coated. Tap to remove excess powder.
5. Put the shell on a plate to let it dry overnight.
6. Pour 2 cups of very hot water into a container.
7. Add  $\frac{3}{4}$  cup of alum powder into the water. Stir until completely dissolved.
8. Add 30-40 drops of food colouring to the container. Let cool for 30 minutes.
9. Gently lower the eggshell to the bottom of the containers, alum-side up.
10. Leave overnight.
11. Carefully remove the crystallized eggshell from the solution and let it dry on paper towel. Voila!

### HOW IT WORKS

In this experiment, the alum powder acts as the source for the crystals that grow on the inside of the shell. As the hot alum solution cools, the alum powder settles to the bottom of the container and begins crystallizing on the eggshell. Coating the eggshell beforehand gives the alum powder (the crystals!) a rough surface so they have something to stick to and start growing from.

Geologists and engineers at SRC look closely at rock samples to find out what they contain and if they have any minerals, such as diamonds, gold, uranium and potash. This information helps mining companies decide whether they can start mining for more or need to keep looking in other places.

**DISCLAIMER:** Wear gloves to protect your hands from food colouring and when handling alum (**don't eat it – that's gross!**). While every reasonable effort is made to provide experiments that are safe, adult supervision is recommended at all times when experiments are performed. Safety gear, such as gloves and glasses, may be required.

