

**Saturday STEAM:**

**Crystal Egg  
Geodeses**



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# Facts about Geodes

A geological geode is a mass of minerals within a rock. Scientists are not completely sure of how geodes form, but they do have some theories. The idea so far is that they form in igneous rock gas bubbles. The rock around the bubble hardens, and minerals (carbonates or silicates or both) gradually deposit on all available surfaces. These dissolved minerals are contained in hydrothermal or groundwater. They can also develop in the spherical hollow places located in sedimentary strata. Common minerals found within geodes include minerals, such as:

- celestite
- agate
- jasper
- amethyst
- chalcedony



They can take thousands, even millions, of years to form. Your eggshell geode is formed through a process called sedimentation. It only takes about 15 hours!

The heated alum solution contains suspended particles of alum powder in it and as the solution cools, these particles of alum begin falling to the bottom. When the alum particles settle on the bottom, they begin crystallizing. Coating the shell with alum powder beforehand gives the suspended alum particles a surface to which they can more readily attach themselves. The particles that settle onto the interior surface of the shell crystallize quickly. Let's get to our experiment. This is very "Egg-citing." Let's get started.



# Crystal Egg Geode Experiment

## Materials Needed:

Egg Shells

White School Glue

Alum Powder

Food Coloring

## Step 1

- Clean out your eggshell with warm water and dry with a paper towel.
- Paint the inside of the shell with white school glue, about 1 teaspoon.
- Generously sprinkle the Alum powder on the shell with the glue
- Turn the half shell over and gently tap out the excess Alum powder.
- Let dry overnight.

## Step 2

- Add 2 Cups of hot water to a bowl or pyrex measuring cup.
- Dissolve 3/4 Cup Alum powder and 30 drops of food coloring.
- Place prepared egg shell in solution for 12 - 15 hours.