

# Eggshell Geodes

**Overview:** Geodes are some of the most amazing minerals we find underground. We're going to dissolve alum in water and place the solution into an eggshell. In real life, minerals are dissolved in groundwater and placed in a gas bubble pocket. In both cases, you will be left with a geode.

**What to Learn:** Geodes are formed from gas bubbles in flowing lava. Up close, a geode is a crystallized mineral deposit that is usually very dull and ordinary-looking on the outside. When you crack open a geode, however, it's like being inside a crystal cave. We'll use an eggshell to simulate a gas bubble in flowing lava.

## Materials

- hot water
- plastic cup for water
- plastic spoon
- copper sulfate crystals
- 4 eggshell halves, cleaned or 2 plastic eggshells
- empty egg carton
- handheld magnifier

## Lab Time

1. Fill the plastic cup two-thirds full with hot water. Remember, be careful!
2. Pour a spoonful of copper sulfate into the cup.
3. Stir these crystals with the spoon until you can't see them anymore. Add a little more copper sulfate at a time and continue stirring. When the crystals don't dissolve any more into the liquid, you can stop.
4. Open two plastic eggs or four clean eggshells and place them upright in an empty egg carton.
5. Fill each of the eggshells with the copper sulfate solution that you have made. Make sure not to overfill the eggshells!
6. Carefully set aside and record your observations on the next page as the solution evaporates over the several days.
7. When the solution has evaporated completely, you have your own homemade geodes!

# Eggshell Geodes: Data and Observations

	Day 1, write your observations here
	Day 2, write your observations here
	Day 3, write your observations here

## Exercises

1. Circle the three ingredients for a geode:
  - a. Oxygen
  - b. Water
  - c. Asteroid dust
  - d. Empty space
  - e. Minerals

**Answers to Exercises: Eggshell Geodes**

1. Circle the three ingredients for a geode? (water, minerals, and a space for it to fill)