

**Project FOCUS
Best Lessons
THIRD GRADE**

Title of Lesson: Mineral Crystal Formation

Theme: Earth/Space Science

Unit Number: **Unit Title:** Rocks, Minerals, Soil and Fossils

Performance Standard(s) Covered (enter code):

S3E1. Students will investigate the physical attributes of rocks and soils.

a. Explain the difference between a rock and a mineral.

b. Recognize the physical attributes of rocks and minerals using observation (shape, color, texture), measurement, and simple tests (hardness).

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Rock
Mineral
Crystal
Crystallize

Learning Activity (Description in Steps)

Abstract (limit 100 characters): Students will learn about crystals and their formation, and then get a chance to create their own.

Details:

1. Read about crystals to the children and explore their knowledge of rocks and crystals.
2. Give each child half of a pipe cleaner. Instruct the student to bend the pipe cleaner into any shape of his/her choice. Help each child tie a piece of string to the pipe cleaner.
3. Give each child a pencil and plastic cup (Write their name on the side before you hand it to them). Help them then tie the other end of the string to the center of the pencil. (Make sure the pipe cleaner will not touch the bottom of the cup when the pencil is placed on top of the cup). Place the pencil on the rim of the cup.
4. Next, ask a volunteer to help you measure the Epsom salt (add 1 cup of Epsom salt for every 2 cups of water). Have the students to record observations of the Epsom salt.
5. Ask the children to observe what happens as you stir the salt and water until the salt is dissolved. Have them record their observations.

Optional: Add desired food coloring. This just helps you see the crystals better when they grow.

6. Pour salt water into each student's cup until the pipe cleaner is completely submerged in water.

7. Place the cups in the sunlight and wait 2-3 days to see crystal formation on pipe cleaners. Have students record their observations. Discuss as a class.

Materials Needed (Type and Quantity):

- Pitcher
- Transparent plastic cups - 1 per student
- Pencils or popsicle sticks - 1 per student
- Hot Water
- Pipe cleaners - 1/2 per student
- Epsom Salt (1 cup Epsom salt per 2 cups of water)
- String or yarn
- Food coloring

Notes and Tips (suggested changes, alternative methods, cautions):

- **Tip: Try this experiment on your own before attempting it with students. Depending on the temperature and humidity of your classroom, you may need to adjust the amount of salt in the water or increase the number of days you allow the crystals to grow.**
- **Tip: The hotter the water, the better the crystals will turn out. Lukewarm water will dissappoint.**
- **Optional: If the students do not have science journals, provide the students with a worksheet that asks very specific questions about their observations.**
- **Optional: A similar version of this experiment could be performed using pie pans. To do so, provide each student with one pie pan, the bottom of which should be covered in black construction paper for maximum visibility of crystals. Cover the paper with a thin layer of the salt water solution and wait a few days for it to evaporate. This version has less spectacular results, but requires much less effort and may be ideal for larger classrooms.**

Sources/References:

- 1) Originally submitted by Beth Banta, edited by Jessica Valle (2010)
- 2)
- 3)