

**Project FOCUS
Best Lessons
THIRD GRADE**

Title of Lesson: Cooking up Igneous Rocks

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).

S3P1. Students will investigate how heat is produced and the effects of heating and cooling, and will understand a change in temperature indicates a change in heat.

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
Igneous rock
Rock cycle

Learning Activity (Description in Steps)

Abstract (limit 100 characters): Students will observe formation of igneous rocks modeled in two different ways.

Details:

Preparation

The small mixing bowl should be refrigerated for at least an hour before the actual experiment. Fill the larger bowl with ice and place the small bowl inside of it once you have taken it out of the refrigerator.

Experiment

Pour 1/2 cup of water into the pot and bring it to a boil over the hot plate. Once water has boiled, begin adding sugar slowly, stirring constantly and making sure it is dissolving. Once all of the sugar has been added and dissolved, turn off the hot plate and pour half of the sugar/water mixture into the chilled bowl. Let the other half remain in the pot. Give both of the batches a few

minutes to cool. While letting the "rocks" cool, explain to the students how the sugar is like the minerals in rocks and ask them what they think will happen to the two different batches of rocks.

Let the students observe the differences in the two batches of rocks (if they have cooled long enough, the students may touch them). Have the students record their observations. Hold up basalt and granite and ask the students which one they think cooled quickly and which one cooled very slowly. Explain that because the chilled bowl cooled quickly only tiny crystals were formed. The mixture in the pot, however, cooled slowly and has larger crystals.

Materials Needed (Type and Quantity):

- Large mixing bowl
- Small mixing bowl (to fit inside larger bowl)
- Ice cubes
- Pot
- Hot plate
- 1/2 cup of water
- 2 1/2 cups of sugar
- Mixing spoon
- Optional: assorted igneous rocks - basalt and granite

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

- **Caution:** Keep the students away from the hot plate and boiling water.
- **Tip:** Adding food coloring would be a good way to make fun colored rocks!

Sources/References:

- 1) Originally submitted by Melissa Hirsu, edited by Jessica Valle (2010)
- 2)
- 3)