

**Project FOCUS
Best Lessons
THIRD GRADE**

Title of Lesson: The Sweetest Rock Cycle!

Theme: Earth/Space Science

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

Performance Standard(s) Covered (enter codes):

S3CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities utilizing safe laboratory procedures.

c. Identify and practice accepted safety procedures in manipulating science materials and equipment

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).

d. Determine how water and wind can change rocks and soil over time using observation and research..

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
sedimentary rock
igneous rock
metamorphic rock
rock cyle
magma
weathering
melting

Learning Activity (Description in Steps)

Abstract (limit 100 characters): Students learn about the three different types of rocks, how they are formed, and the rock cycle.

Details:

Before class, make bags of 15 chocolate chips, bags of 15 white chocolate chips, and bags of 15 butterscotch or peanut butter chips. Each student gets one bag of 15 chips and there should be one of each type per group.

1. Go over the the different types of rocks (METAMORPHIC, SEDIMENTARY, and IGNEOUS) as well as how they are formed from minerals and other materials.
2. Separate the students into groups of three.
3. Each group should be given their materials.
4. Each student should take one bag of chips (MINERALS) and using HEAT and PRESSURE, they should melt all of the chips into one chunk.
5. Ask the students which type of rock they just created. Since it was made with heat and pressure, they should say METAMORPHIC.
6. One at a time, the students should open up their bag, put their "rock" on the waxed paper, fold the paper over and use PRESSURE to flatten it.
7. The other two group members should take turns and do the same.
8. Once all three are stuck together into a layered rock, ask the student what type of rock they have made. They should say SEDIMENTARY.
9. Have students break the rock apart into pieces again and place all the pieces into the clean plastic bag and seal it. Explain how in doing this, they are WEATHERING the rock.
10. One or a couple at a time, place the bags into the hot water until the pieces MELT back together. The hot water is like MAGMA melting the rocks into one rock.
11. After taking the rock out of the how water, place the bag in an ice bath to solidify the new rock. Ask the students what type of rock they have created. They should say IGNEOUS.

Materials Needed (Type and Quantity):

ziplock bags
chocolate chips
white chocolate chips
peanut butter or butterscotch chips
wax paper
styrofoam cups
hot plate
ice
water
paper towels
tongs or some utensil to remove the bags from the hot water

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

I had the students record what happened after each step and they drew pictures as well. I was able to get ice from the cafeteria right before my class which made things very easy. Splurge and get the Nestle brand of chocolate chips; the cheap brands don't melt as easily and it takes way longer.

Make sure the students understand they are supposed to use heat as well as pressure when originally melting the chips. In my class, at first they only used pressure and were smacking their bags with books and just turning the pieces into crumbs.

We were running out of time at the end of class, so I did the melting of the chips for them in the hot water and when they returned from lunch they were able to see their igneous rocks: so make sure you allocate your time well!

Sources/References:

- 1) Based on a lesson plan by Debbie Bassett**
- 2) Originally submitted by Sara J. Hague**
- 3) Resubmitted by Jessica Valle**