

Best Lesson

Grade Level:

Third

Title of Lesson:

Creating Crayon Rocks

Unit Title:

Earth and Science

Performance Standard(s) Covered:

S3E1. Students will investigate the physical attributes of rocks.

- b. Recognize the physical attributes of rocks and minerals using observation (shape, color, texture), measurement, and simple tests (hardness).
- d. Determine how the environment can change and create rocks over time using observation and research.

Essential Question:

- How does the environment create different types of rocks?

Objective:

The goal of the lesson is to allow the children to apply forces observed in nature to create and change different types of rocks.

Key Words and Terms:

- Sedimentary Rocks
- Metamorphic Rocks
- Igneous Rocks
- Pressure
- Heat

Learning Activity

Abstract (limit 100 characters):

The children will learn how the different types of rocks are formed by actively applying pressure and heat to rock precursors (crayons) and observing the results. They will predict how each environmental factor changes the rock morphology and what type of rock is produced.

Materials Needed:

- Crayon shavings (at least three different colours).
- Containers for each crayon shaving.
- Spoon
- Aluminum foil
- Hot/boiling water

Safety Concerns:

- Hot/boiling water.

Procedure:

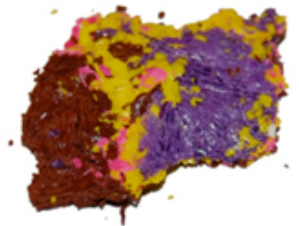
As you do the activity, explain how each rock is formed in nature and ask the children to predict how they will create each rock with the materials given. Relate the formation of each rock to what the children are actively doing to achieve their rock.

Preparation:

- Make enough crayon shavings for the experiment.
- Cut aluminum foils into squares (6"x6")
 - Make sure that it is big enough to completely wrap the rock.
- Split the children into groups of 4-5.
- Place crayon shavings of different colours and spoon in the middle of each table.
- Give each child his/her own piece of aluminum foil.
- Either assign each child a rock or each group a rock.

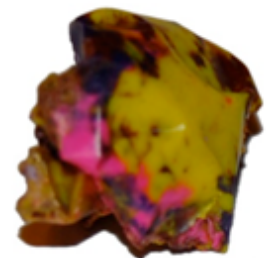
Sedimentary Rocks

- Sprinkle crayon shavings onto an aluminum square, layering each colour on top of each other.
- Fold the aluminum foil up tightly around the shavings and then apply pressure on it.
- Carefully unfold the foil and remove the sedimentary rock – it can be brittle.



Metamorphic Rocks

- Take another square of aluminum; pile all four colours of the crayon shavings in center.
- Fold up the sides of the aluminum foil to make a boat.
- Let an adult carefully place the boat into hot/boiling water for 15-20 seconds, just until the shavings have started to melt.
- Quickly remove the boat and fold the foil in half so that the shavings are compressed a bit. Let it cool and solidify and then open the foil and remove the metamorphic rock.



Igneous Rocks

- Repeat the steps for making the metamorphic rock, except leave the aluminum foil boat floating on the hot water for a minute or more until all of the crayon sediments have melted.
- Take a spoon and stir the shavings until they are all mixed together.
- Remove the boat and let the crayon cool and solidify.



Notes and Tips:

- Using a crayon sharpener to get crayon shavings is inefficient. A box cutter is much faster.
- For the hot water, using a hot plate is preferred but a crock-pot will also work. However, be sure to have enough time for the crock-pot to heat up and for the crayons to melt.
- Be sure to fairly assign rocks to the kids (numbering them off, choosing a number out of a hat, etc.) to get an even distribution of each rock.
- The activity can be done individually, however, it can get *very* messy with the crayon shavings. Instead, I allowed one group to do one rock and I distributed the crayon shavings in order to prevent spillage.

References:

<http://mommaowlslab.blogspot.com/2012/01/science-thursday-crayon-rocks.html>