

# Rocks Lesson Plan

## Science Standards Addressed (From the Colorado Department of Education)

<http://www.cde.state.co.us/scripts/allstandards/COStandards.asp?glid=0&std2=4&glid2=9>

### Standard 3: Earth Systems Science

1st Grade:

- a) Identify and represent similarities and differences such as the texture, size, color, and shape of various materials on Earth (DOK 1-2)
- b) Sort, group, and classify Earth's materials based on observations and explorations (DOK 1-2)

3rd Grade:

- a) Investigate and identify two or more ways that Earth's materials can be broken down and/or combined in different ways such as minerals into rocks, rock cycle, formation of soil, and sand (DOK 1-2)
- b) Use evidence to develop a scientific explanation about one or more processes that break down and/or combine Earth materials (DOK 1-3)
- c) Utilize a variety of media sources to collect and analyze data around Earth's materials and the processes by which they are formed (DOK 1-2)

### Objective:

Our planet is made of rock. There are three major types of rocks, igneous, metamorphic, and sedimentary. This lesson is designed to teach 1<sup>st</sup> or 3<sup>rd</sup> grade students about these rocks types. In addition, rocks are made from minerals, which is the fourth “type” of rock explored in this lesson. The lesson uses many examples of each type of rock, so the the students can see and feel the differences between the various types. For example, a sedimentary rock, which is made from already existing rocks that were compressed together, often has distinct “layers” in it. When the students see this, it becomes more clear how the rock was formed from the “squishing” together of other rocks. The test at the end of this lesson is a great tool to see how much the students learned through the various rock activities. It can be administered as both a pre and post test to measure the students knowledge going into the unit, and how much they learned at the end.

### Vocabulary

- Molten Rock
- Hardness
- Luster
- Temperature
- Pressure
- Color
- Sediment

- Erosion

## Materials

- 3-4 starburst candies for each student
- Wax paper
- A rock kit available from the Colorado School of Mines Geology Museum (for more information: [http://www.mines.edu/Services\\_Provided\\_by\\_the\\_Museum\\_](http://www.mines.edu/Services_Provided_by_the_Museum_) )
- Optional: Magnifying glasses for each student

## Procedure

The procedure is divided up into two activities. “Edible Rocks” is a fun way to teach students how sedimentary rocks are formed. “Rock Exploration” uses the rock kit from the School of Mines, and allows students to observe, touch, and compare igneous, metamorphic, and sedimentary rocks, as well as minerals.

### Edible Rocks

1. Distribute 3-4 starburst candies to each student, along with a small piece of wax paper.
2. Instruct the students to unwrap the candies, but do not eat them!
3. Begin by pointing out how each candy has it's own distinct shape and color.
4. Using the wax paper to avoid getting the candies stuck to the desk, instruct the students to stack their candies, and then to squeeze them together as hard as they can.
5. Point out how they are applying pressure to the candies, similar to how pressure is applied to rocks to compact them together during the formation of sedimentary rocks.
6. After a few minutes of applying pressure to the candies, stop and ask the students what they observe about the shape and color of their candies. Are they able to separate out the individual starbursts anymore? Has the shape and color of the candies changed?
7. When you are done, the students may eat their newly formed sedimentary rocks.

### Rock Exploration

The rock kit from Mines comes with four bins, each containing a different type of rock (igneous, metamorphic, sedimentary, or mineral). Have the students gather in a circle on the floor. Open the bins one at a time, and for each bin pass out some of the specimens inside. Have the students pass around the different types of rocks, possibly using hand-held magnifying glasses (if available) to get a closer look at the rocks. As the students are examining the rocks, create a circle diagram on the board. Write the name of the current type of rock in the middle, and ask the students for various properties they notice about each type of rock. After all four types have been examined, you can have the class compare and contrast the 4 circle diagrams to summarize the similarities and differences they learned about the various rock types.

# Rocks Unit Pre-test/Post-test

## Section 1. Definitions

Write the correct word from the word bank on the line next to its correct definition. Each word will only be used once.

**Igneous      Sedimentary      Metamorphic      Minerals**

\_\_\_\_\_

Are the building blocks of rocks and soil.

\_\_\_\_\_

A type of rock formed from molten rock, which is lava or magma.

\_\_\_\_\_

A type of rock formed from already existing rocks on the Earth's surface that were eroded, compacted, and cemented together.

\_\_\_\_\_

A type of rock formed from already existing rocks that were combined through high temperatures and high pressure.

## Section 2. Vocabulary

Draw a line matching the vocabulary word on the left to its correct definition on the right.

Molten Rock

How easily something can be broken

Hardness

Liquefied rock

Luster

Small pieces of rock

Temperature

The force of compression or squeezing something

Pressure

The process of breaking rocks down

Color

Measure of how hot or cold something is

Sediment

How shiny something is in light

Erosion

Overall color of a specimen