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Reaping Rock

Lesson plan for grades K – 6
Length of lesson: 31-60 minutes
Adapted by: Cherish Park, Environmental Science Institute, November 2011

SOURCES AND RESOURCES:

- NASA – A Teacher's Guide with Activities & "My Own Rock Chart" http://www.nasa.gov/pdf/180564main_ETM.Reaping.Rocks.pdf
- NASA - Moon ABCs Fact Sheet http://www.nasa.gov/pdf/180556main_ETM.Moon.ABCs.Fact.Sheet.pdf

POTENTIAL CONCEPTS TEKS ADDRESSED THROUGH THIS LESSON:

§112.11. Science, Kindergarten: 7A
§112.12. Science, Grade 1: 7A
§112.13. Science, Grade 2: 7A
§112.18. Science, Grade 6: 10A

PERFORMANCE OBJECTIVES:

Students will be able to:

- Describe the rock by its shape, size, color, texture and where it was found
- Classify the rocks in three different categories: sedimentary, igneous, metamorphic
- Make predictions about the origin of rocks based on their characteristics

MATERIALS (per group of four):

- Different types of rocks
- Empty egg carton, box or other type of collection tray (to separate the rocks)
- Labels (to label where the rocks were found)
- Magnifying lens or stereo microscope
- A Science journal for recording data and observations
- "My Own Rock Chart"
- Moon ABCs Fact Sheet

ENGAGE

The teacher may show pictures or the actual igneous, sedimentary, and metamorphic rocks to introduce the three categories of rocks

  - Igneous – rocks formed when magma cools and hardens either below the surface(for example, granite) or on the surface during volcanic event (for example, basalt)

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- Sedimentary – rocks formed by the collection, compaction, and cementation of mineral grains, rock fragments and sand that are moved by wind, water or ice to the site of deposition
- Metamorphic – rocks formed when heat and/or pressure deep within the planet changes the mineral composition and gran size of existing rocks (for example, metamorphism changes limestone into marble)

Students may be provided with "My Own Rock Chart" or they can make a chart that includes space for them to describe shape, size, color, texture, and location of the rock found for every rock that they will be observing.

EXPLORE:

1. Divide students into small groups, each with each one of the materials listed above.
2. Students may use the "My Own Rock Chart" provided for this lesson or simply make a chart in their science journal. If the students are being provided with "My Own Rock Chart," they made need multiple sheets.
3. Display the rocks on the egg carton and label where the rock was found.
4. Without using any equipment, students should observe the physical characteristics of the rock and record their observation either on the chart or in their scientific journal.
5. Use either a magnifying glass or a stereo microscope or both, to observe the rocks in more detail. What can you see under the magnification that you were not able to see before? Record the observation including its shape, size, color, texture, and the location the rock was found.

EXPLAIN:

Discuss the following questions and responses can be written in student science journals:

- What are the three categories of rocks? Describe each category.
- How did the students classify the rocks into the three different categories? Examples:
  - Compare the shape, size, color, structure of the rocks to classify them into different categories.
  - What are the similarities with the rocks that fall under the same category? What are some of the differences of the rocks that fall under the same category? Can you infer and discuss the differences?

ELABORATE:

- As a class, go over the Moon ABCs Fact Sheet provided about in "Sources and Resources" and work on the Brain Buster on the sheet.
- Go through the rock chart completed during this exercise and predict the characteristics of the rocks that may be found on the Moon.
- Predict how the rocks on the Moon might have formed based on your knowledge of the Moon and the process of rock formation on Earth.