Karen Brown
Earth Science
Grade: 3
“Discovering Rocks”

Objective/Purpose:
The main purpose of this lesson is to introduce the students to the study of rocks, minerals, and fossils. Students will examine many different types of rock and determine their distinguishing characteristics. Next, students will discuss uses of rock and also learn that the Earth is composed of rock. A fun treat will then be used to help teach the layers of the Earth.

QCC Standard:
• Classifies rocks according to the manner in which they are formed. Knows the primary groups of rocks (igneous, metamorphic and sedimentary) and knows that characteristics of rock types are a direct result of how they are formed.
• Compares and contrasts rocks and minerals.
• (Inquiry) Actively engages in the learning process via hands-on/minds-on science activities and experiences.
• (Inquiry) Asks questions, classifies objects and events, communicates with others, makes inferences and predictions, uses estimation and measurement, uses evidence to construct explanations, makes sketches and diagrams to explain ideas, and organizes data into tables and charts to interpret and formulate simple hypotheses.

Time Requirement:
This activity required one class period (approximately 1 hour).

Materials:
• an assortment of rocks
• caramel apples (one per student)
• a knife
• Ziploc bags

Procedure:
To begin the lesson, pass out several rocks to each student in the classroom. Make sure that each student has a set of rocks that are assorted. (Seperating the rocks into individual Ziploc bags makes this quite easy.) Have each student pick out one rock that they would like to examine. Have them write down as many defining characteristics (at least 5) of the rock as they can think of. This can include the color, size, shape, texture, and more. Allow the students to observe their rock with a magnifying glass and make a prediction of how their rock was formed. Encourage the students to think scientifically and remind them that there is no such thing as a stupid answer. Next, ask the students to choose another rock out of their bag. Next, have the students observe and record whether each of the characteristics they have written could be used to describe their second rock. Ask them to predict whether this rock was formed the same
way as the first rock. Continue on with this process until the students have observed and recorded observations about each rock in their bag.

Once finished, introduce the method of using word webs to record similarities and differences among the rocks that the students observed. (A Venn diagram would also be effective in comparing characteristics of the rocks.) Next, allow students to share their predictions of how their rock has been formed. Brainstorm different uses of rock, and as a class compose a list of objects in Athens that are made of rock.

Now you can lead into a discussion of how the Earth is made of rock. Talk about how there are four main layers of the Earth. The outer covering is the soil and its many components. Directly beneath lies the thin layer known as the crust. Lying below the Earth’s crust is the thick mantle which surrounds the innermost layer, the core. Explain that over time the older, lower layers of soil are compacted and turned into a type of rock known as sedimentary rock. The deeper layers of sedimentary rock are then turned into metamorphic rock due to both heat and pressure. Explain that heat and pressure are both greatest at the very center of the Earth. The very center of the Earth is composed of liquid rock because of the extreme heat and pressure found there. This liquid rock is the magma that erupts out of volcanoes. Igneous rocks are created when this magma cools and hardens. The comparisons and explorations of sedimentary, igneous, and metamorphic rock can be continued in the next lesson (with other best lessons).

However, to help students grasp the layers of the Earth, they can be given a treat of a caramel apple. Cut each apple in half and have the students imagine that the Earth is being cut in half. Next, ask each student to draw one half of their apple on a page. Demonstrate on the board to label the caramel coating, the skin, the flesh, and the seeds like they were the four layers of the Earth. Afterwards, the students have a treat to enjoy and are ready to continue on in the unit.

Assessment:
This activity would be based heavily on participation. Each student should successfully have completed an apple diagram of the Earth’s layers and have a list of defining characteristics of their rocks.

Background:
I got the idea for this lesson off of the Rock Hounds web site. The idea for the lesson was submitted by Tammy Payton.