**“Starburst Rock Cycle”** Jacob Duvall

Time: 1 Class Periods (50 minutes)

Grade Level: 6th

**Materials:**

**-3 Different colored Starburst per student (375) -Sprinkles -Plastic Bags -Microwave -Scissors -Plates**

**Background**:

This lesson will follow the introductory and note centric lesson that familiarizes the students with the rock cycle. This lab seeks to provide a hands on method for the students to observe and actively partake in creating the rock cycle themselves. The three main types of rock—sedimentary, metamorphic, and igneous—are perpetually changing form through processes such as melting, cooling, compressing, weathering, and eroding. The students will simulate these processes and observe the changes that follow.

**North Carolina Essential Science Objectives:**

**6.E.2: Understand the structure of the Earth and how interactions of constructive and destructive forces have resulted in changes in the structure of the Earth over time and the effects of the lithosphere**

**6.E.2.3: Explain how the formation of soil is related to the parent rock type and the environment in which it develops.**

**Objectives:**

Students will simulate the rock cycle using starburst candy.

*I can*: Name the 3 main types of rocks.

*I can*: List the forces it takes to create each type of rock

**Vocabulary:**

**-Sediment -Sedimentary Rock -Weathering -Erosion -Metamorphic Rock -Magma -Igneous Rock**

**Essential Question:**

**“How can something like rocks have a cycle?”**

**Engage: (5-10 Minutes)**

**Do-Now:** “List as many ways as you can that rocks can change or be changed.”

*AIG: “Is a rock alive or dead. Explain your answer.”*

*ESL: Translate Do-Now onto a separate sheet of paper.*

*EC: Offer direct communication during the Do-Now time to gauge understanding.*

[Allow time for students to respond—a few minutes][Take Responses] This question should start a conversation about how rocks are constantly changing, albeit on a geological timescale, not a human one. Some of the ways in which rocks change to think about would be: all types of weathering, mechanical and chemical, human interactions, animal interactions, heat, pressure, cooling, freezing.

**Explore: (Remaining Class Period)**

Students will be told that they will be exploring the rock cycle using starburst candy (cheers and hurrahs). The entire process will be exploratory with occasional guidance by the teacher. Each student will receive a lab handout (attached after the lesson) explaining each step, *but with the classes that need more guidance, there will be pauses between each step so I can model the actions that need to be taken to successfully complete the lab.*

In brief, the lab will proceed as follows:

-Each student receives 3 different colored starburst (rocks)

-The rocks are weathered and eroded, either by hands or by clean scissors

-The eroded rocks become sediment, which then can have minerals added to it

-The sediment is compacted into a sedimentary rock using just hands and light pressure

-The sedimentary rock becomes metamorphic by using vast pressure with a text book

-Metamorphic rock becomes magma through melting (microwave)

-Magma becomes igneous rock after cooling (on a paper plate)

Students will have a question to answer and an observation to make after every step detailed above. There will also be a semi-complete rock cycle diagram which the students will be filling out as they move through the lab procedure. The diagram will show the chaotic nature of the rock cycle, as it is not a one-way system.

**Explain: (Between each “step” of the lab procedure)**

Use this time to model the step as well as insert content about what would actually be happening in the rock cycle on a geological timescale.

Sediments: Created by weathering and erosion of rocks. Things like rain, natural disasters, human interactions, etc.

Sedimentary Rocks: Created by vast amounts of pressure, like on the bottom of a river or ocean.

Metamorphic Rock: Good time to bring back up plate tectonics and boundaries where plates can move beneath each other and be exposed to the heat of the Earth’s Mantle.

Magma: Reinforce what magma is again. What does it become on Earth’s surface?

Igneous Rock: What happens when magma cools quickly? How would that happen? Hitting a water source? What about when it cools slowly? Crystal formation!

How would the cycle restart? Does it have to go in order? How can it skip a step, for example, from sedimentary rock to magma?

**Elaborate: (Elaborate while circulating the room)**

Take opportunities to gauge understanding for individual students and to extend learning to higher-level questions*. Where would this be happening on our planet? How long do you think this process would take on a geological timescale? Why is the rock cycle important for Earth?*

**Evaluate**: **(Summative after lesson and formatively during lesson)**

Collect lab handouts for a summative grade after the completion of the lab and circulate the room for a formative assessment of understanding. Ensure that students are absorbing the content behind the lab, and not just going through the motions to eventually reach the point where they can eat the candy—although that part is fun! And somewhat gross.