**Lab: Igneous, Sedimentary, and Metamorphic Rock Cycle**

**Purpose/Objective:**

This activity is an introduction to the rock cycle by using wax crayons. Crayons have the ability to be ground into small particles (weathered), heated, cooled and compressed just like rocks. However, unlike rocks, all these processes can be done safely and at reasonable temperatures. Using crayons you will create sedimentary, metamorphic, and igneous crayons.

**Materials:**

Crayons – at least three different colors of wax crayons, at least one stick per student

Source of very hot water

Aluminum Foil

Wax Paper/Paper Plate

Container to hold hot water

Simple scrapping device (popsicle stick, plastic knifes….)

**Procedures:**

**To make a *SEDIMENTARY* Crayon:**

1. You need to make small, particles sized sediments out of your crayons. These can be scraped from a new crayons (which can also be considered an igneous crayon), a sedimentary block of crayon, a metamorphic block of crayon or an igneous block of crayon. Scrape crayons with plastic knives or other grating tools onto wax paper.
2. Press down on this pile until the particles to stick together.
	1. Folding the sediments inside the wax paper will help keep the sediments together.
	2. Stepping (not stomping!!!) on your encased pile will help this process along.
3. Your coherent bunch of crayon sediments is now equivalent to a sedimentary crayon.
4. Complete the Data Table for Sedimentary Rocks/Crayons. Use the sedimentary rock samples and textbook provided as necessary.

**To make a *METAMORPHIC* Crayon:**

1. Place your previously formed sedimentary crayon into a piece of aluminum foil (shaped into a bowl or boat).
2. Float this foil on hot water.
3. Watch as the heat from the water transfers to the foil and to the crayons. The crayons should start to melt.
4. Remove the foil when the crayon wax is soft to the touch and the colors start to melt but do not completely mix.
5. Let your crayons cool in the foil. Partially melted and cooled crayons are now equivalent to metamorphic crayons.
6. Complete the Data Table for Metamorphic Rocks/Crayons. Use the metamorphic rock samples and textbook provided as necessary.

**To make an *IGNEOUS* Crayon:**

1. Place your aluminum foil boat of metamorphic crayon back into the hot water.
2. Watch as the heat from the water transfers to the foil and to the crayons. The crayons should start to melt.
3. The crayons should be allowed to melt until a smooth liquid forms and the colors have completely mixed.
4. Carefully remove molten crayon wax and let cool. Your totally melted and cooled crayons are now equivalent to igneous crayons.
5. Complete the Data Table for Igneous Rocks/Crayons. Use the igneous rock samples and textbook provided as necessary.

**What’s going on?**

This crayon cycle is designed to ***MODEL*** the rock cycle. The rock cycle is a continuing process that has occurred throughout geologic time. One type of rock can become another rock type over time. This process can be thought of as a cycle and can be diagramed (see below). The particles that constitute an igneous rock held in one’s hands today may become part of a sedimentary or metamorphic rock in the distant future. Very little rock on the surface of the earth has remained fixed in its original rock type. Most rocks have undergone several iterations of the rock cycle.

**Follow Up:**

1. Ensure that your data table is completed.
2. Complete the Rock Cycle Diagram on the back of the Data Table, using the textbook/class notes as necessary.