



Home Lesson

Let's Rock!

Appropriate Age or Grade Level: **K to 6**
Estimated Duration: **30-45 minutes**

Objectives/Key Concepts: Learn about the rock cycle and how rocks form. After this lesson you'll be able to identify sedimentary, igneous and metamorphic rocks.

Materials:

- Model magic or clay (3 colors)
- Film canisters
- Alka-Seltzer
- Water
- Plastic tray or towel (for easier cleanup)
- Plastic butter knife
- Paper towels

Instructions:

1. Review what a rock is and be ready to explain what different rocks are (see background information below).
2. Begin with sedimentary rocks. Explain how sedimentary rocks form (see below).
3. Grab one color of clay and begin to make small, pea-sized balls. Once you have about 5-10 balls of each color, stick them together without squeezing too tightly.
4. Now flatten your mass of clay with your hand. As the pea-sized balls stick together, you've formed sedimentary rock.
5. Now move on to metamorphic rock. Explain how metamorphic rocks form (see below).
6. Roll your sedimentary rock into a flat circle, like a pizza.
7. Grab two more colors of clay and roll two more similarly-sized flat circles with each color.
8. Now take all three circles and layer them on top of each other. Then squish them down.
9. Roll that squished down clay sandwich into a tube.
10. Using a plastic knife, slice into your tube. You'll notice you cannot separate the colors from each other but you can see individual layers. You've created metamorphic rock!
11. Finally, let's create igneous rock. Explain how igneous rocks form (see below).
12. Grab a tray or towel, your film canister and half of an Alka-Seltzer tablet. It's time to make a volcano!
13. Fill your canister halfway with water and then drop in the Alka-Seltzer. The foam that comes out is your liquid hot magma. As that magma (or lava) hardens, it becomes igneous rock.
14. Feel free to make a few more volcanoes. It's fun!
15. Rocks can often change from one kind to another. Igneous rock can break down into smaller sediment that becomes sedimentary rock, which can then be buried beneath Earth's surface and changed into metamorphic rock. The cycle can continue forever, constantly changing and creating new rocks.

Background Information:

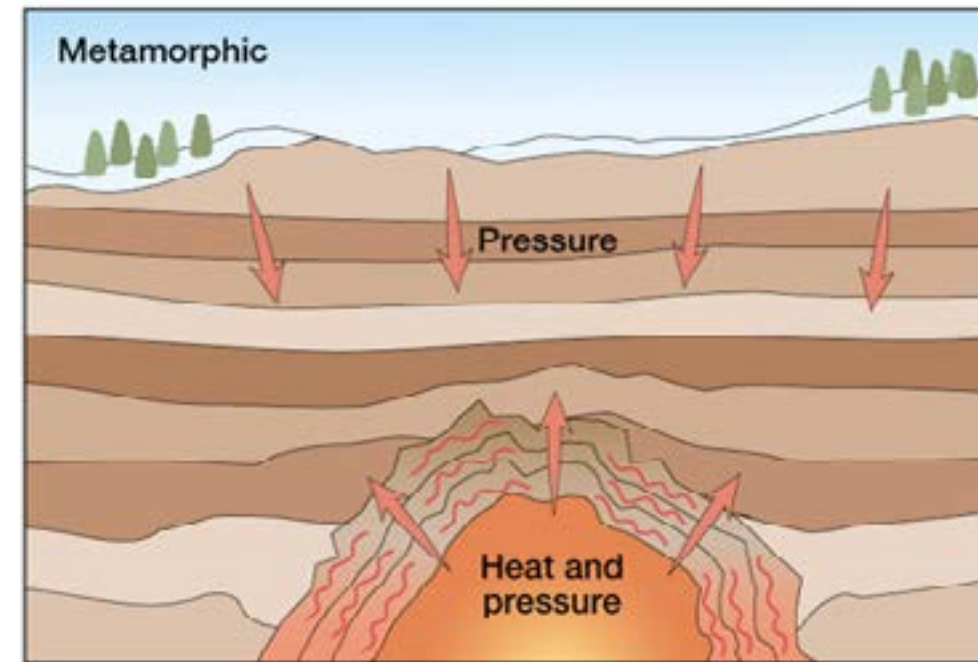
- **What is a rock?** Rocks are natural substances that are composed of solid crystals of different minerals that have been fused together into a solid lump. Rocks can be made up of only one mineral or a number of different minerals.
- **Sedimentary rock info:** Sedimentary rocks form from the eroded fragments and fine rock particles of other rocks, known as sediment. These small pieces settle, usually in low lying areas under water. Over time the sediment is compressed and as it is pushed further and further down, the water is squeezed out from between the rocks and the pieces are cemented together to form sedimentary rocks. Most fossils are found within sedimentary rock. Here in Cincinnati our bedrock is limestone. Limestone is a sedimentary rock that is filled with fossils. (Examples of sedimentary rocks: Limestone, shale, flint, sandstone)
- **Metamorphic rock info:** Metamorphic rocks form because of heat and pressure. Earth's movement can cause rocks to become buried deep within the Earth. When this happens the rocks are heated and subjected to great pressure. The heat and pressure cause the rocks to change. These rocks often form in layers. When looking at metamorphic rocks you can sometimes see streaky layers. (Examples of metamorphic rock: Marble, which forms from limestone)
- **Igneous rock:** Igneous rocks form from the solidification of magma. Magma emerges from below the Earth's surface and cools. When it cools it forms igneous rocks. Magma can cool quickly, like when it is exposed to air, or slowly, if it cools underground. (Igneous rock examples: Pumice, obsidian)

Bibliography:

http://ratw.asu.edu/aboutrocks_whatarerocks.html

<https://www.nationalgeographic.com/science/earth/inside-the-earth/rocks/>

Metamorphic Rock Formation



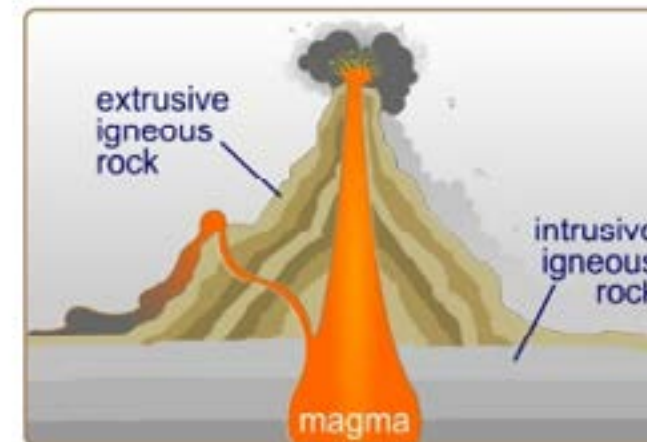
Igneous Rock Formation

Formation of igneous rocks

How are igneous rocks formed?

Deep in the ground is molten rock called **magma**. Sometimes, magma bursts through the surface causing volcanic eruptions.

Igneous rocks are formed when **magma cools and solidifies**.



- When magma cools above the surface, **extrusive igneous rocks** are formed.

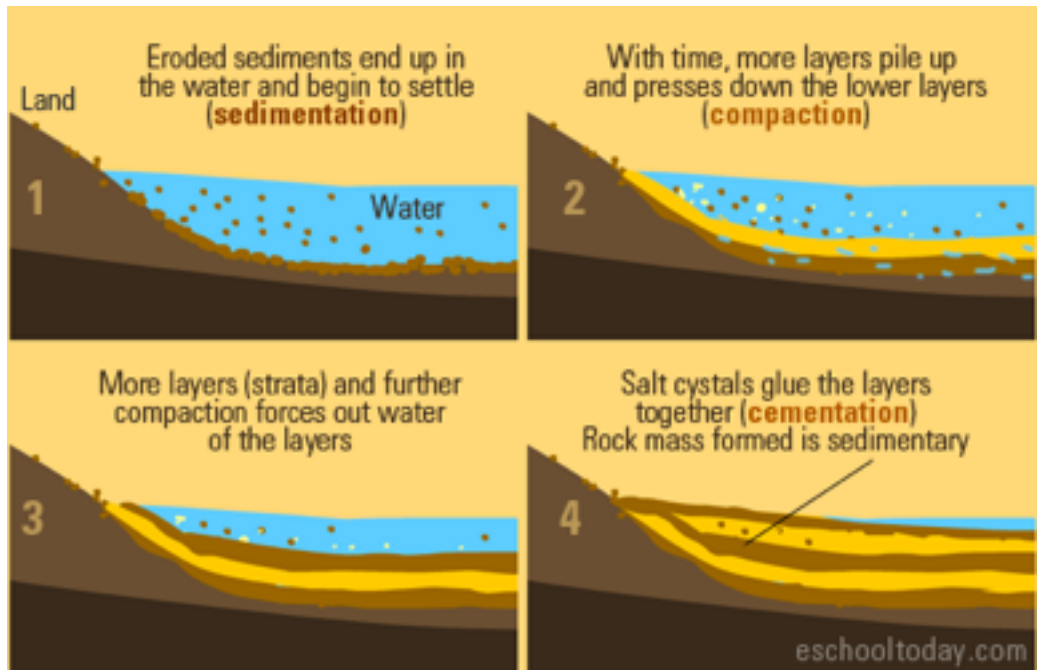
- When magma cools below the surface, **intrusive igneous rocks** are formed.

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Sedimentary Rock Formation



Rock Cycle

