

CANDY CORE SAMPLES

Raccoon Creek Explorers Activity #22

Candy Core Sample Supplies:

- An assortment of different mini candy bars like Snickers, MilkyWay, Reese's, etc.
- 1 or 2 clear plastic straws
- scissors



Time: about 20-30 minutes

Vocabulary:

Geology: The study of the physical features and history of Earth.

Sedimentary Rock: Rocks formed from years of sediment compacting together.

Metamorphic Rock: Rocks formed from great heat and pressure inside the earth's crust.

Igneous Rock: Rocks formed through the cooling of magma or lava.

Stratification: the formation of layers, or strata, in rock.

Tectonic Plate: gigantic pieces of the earth's crust which are constantly moving and shifting, very slowly, over time.

Mineral: A solid substance that occurs naturally and is consistent throughout. Minerals can be represented by a chemical formula.

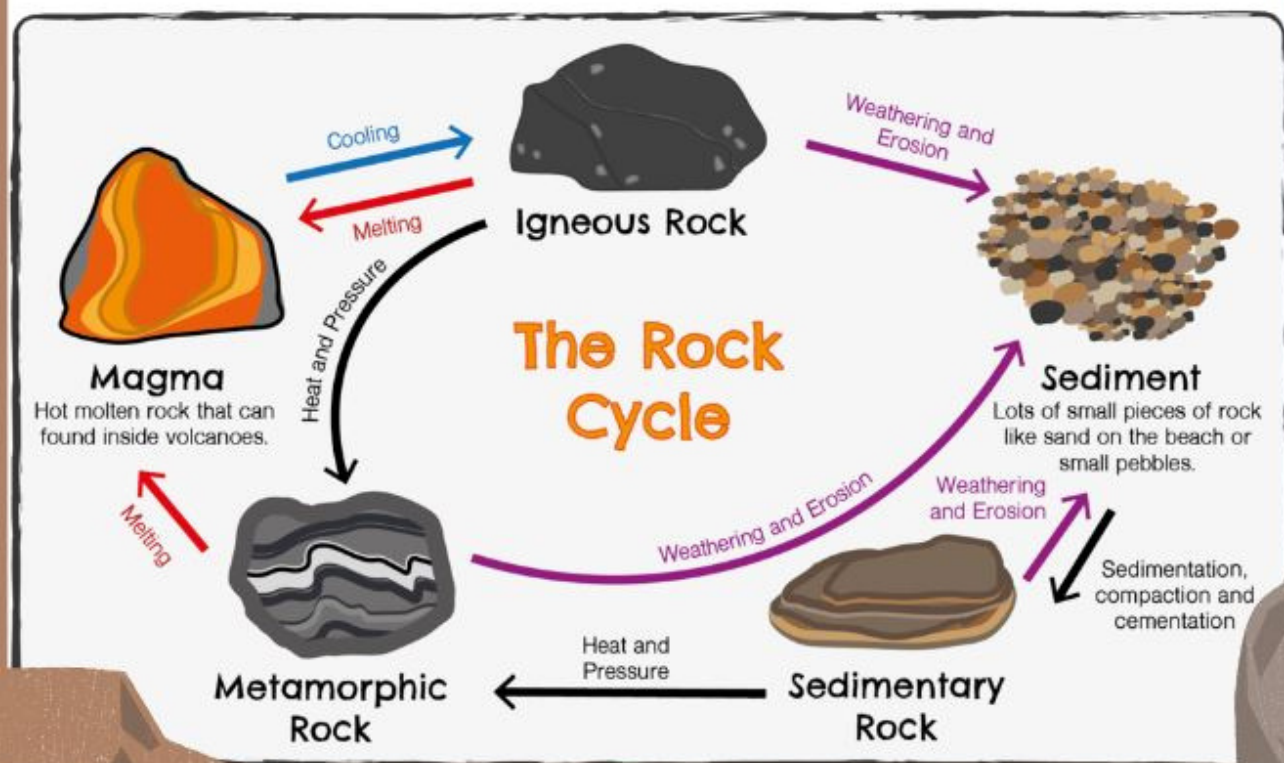
Rock: A naturally occurring solid substance made up of different minerals. . Can't be represented by a chemical formula.



Background

Have you ever looked at a beautiful mountain range or tropic island and wondered how they formed? Maybe you're curious about how scientists study ancient history or fossils? The answer lies with geology! The earth is made up of several layers. The top layer is called the crust, and it's made up of large pieces of earth called tectonic plates. These plates move very, very slowly over time. Sometimes they run into each other or slide against one another. This movement can push up huge pieces of earth, forming mountains! These plates are also responsible for the very slow movement of continents over thousands and millions of years!

Another important part of geology is the rock cycle. This is the process by which different kinds of rock are formed. There are three types of rock: Sedimentary rocks form when sediments, things like sand, silt, dirt, or small pieces of eroded rock are deposited on the earth's surface. Over time, layers and layers of sediment build up and become compacted, forming sedimentary rocks. Igneous rocks are formed when rocks are melted into magma and then cooled, such as in a volcano. Metamorphic rocks form when sedimentary or igneous rocks are exposed to extreme heat and pressure, which changes the structure of the rock.





Background:

Geologists study the rock cycle and tectonic plates to learn about the earth and its history. Because rocks and earth are deposited in layers, we know the oldest rocks are at the bottom, while younger rocks are on the surface.

Sometimes, when tectonic plates form mountains, these layers are pushed up and can be observed, or erosion washes away surface material and exposes the layers. Other times, scientists take core samples by drilling out and removing a long, cylindrical piece of earth so they can see the layers. Scientists can look at the fossils and minerals in the layers and use carbon dating to figure out how old each layer is, what life may have been like at that time, and the order in which events happened. For instance, Finding a layer of volcanic ash in between a 2 million year old layer of rock and a 1 million year old layer tells us that a volcano erupted sometime between 1 and 2 million years ago!

Today, we'll take some candy core samples to look at the layers and think about the order they were constructed in.





Lets Start!

- 1) Unwrap your candy bars and place them on a plate or other flat surface. This experiment works best when the candy is slightly warmer than room temperature, soft but not melting. You may need to place the candy in the refrigerator or on a sunny windowsill to reach the right temperature.
- 2) Carefully poke a straw through the top of the candy bar, all the way through the bottom.
- 3) Twist the straw back and forth to make sure it has gone all the way through. Then, either pull the straw back out or pick up the candy and push it all the way through.
- 4) Once you have removed the straw from the candy, wipe off the outside with a damp paper towel and cut it just above your sample.
- 5) Set your sample aside and continue the same process with the other candy bars.
- 6) Once you have a few samples, or you've sampled all of your candy, compare the core samples.





Apply:

- Can you clearly see the different layers of each candy bar?
- If these layers were rock, which layer would be oldest, and which would be youngest?
- What would it look like if two candy bars collided like tectonic plates sometimes do? What if one candy bar slid over top of another, what would the layers look like? What would the layers look like if they smooshed together to create a mountain?
- Do you think you could tell which core sample came from which candy bar if you didn't already know? You could test your friends or family to see if they can match them up!

Wrap Up

Geologists use large drills to take core samples of soil and rocks on earth. They examine the layers in these samples to learn about earth's history, like what the climate was like at a specific time, what the environment looked like, and what kind of plants and animals were living there. Scientists also take core samples of other planets to study them! Previous NASA missions took core samples from the moon, and the Mars Perseverance Rover will take core samples from Mars! It's exciting to think what we could learn from them!

