Earth's Foundations

Stay at Home Field Study!

Medina County Park District

Earth's Foundations is a study of what our world is built upon. When standing outside, a shoe is likely to be on top of pavement, gravel, grass, or dirt. This is the top layer of Earth's Foundations. Below this layer, a study will reveal hundreds, thousands, and even millions of years of soil and rock. These layers are the foundation of the earth that we see. In this field study, we focus on rocks, their characteristics, and how they are made. The study also looks at soil and how it is made.

Earth's Foundations Activities

Follow along for activities that you can do in your own home or backyard to learn about soil and rocks.

Rock Matching

Rocks have certain characteristics that make them unique. What things make you unique? These are your characteristics:

_____

_____

_____

Rock characteristics are descriptions of what can be observed when looking at a rock. Common characteristics of rocks include: ***luster***, which describes how shiny or dull a rock is; ***color***, which refers to the color of minerals in the rock; ***texture***, which defines the rock as rough or smooth; and ***pattern***, which describes how minerals are arranged (ex. spots or stripes).

Example: This rock is dull (not shiny or lustrous), gray with spots of black and brown, and is rough to touch.

Find a rock outside. *Describe its characteristics:*

_____

_____

_____

_____

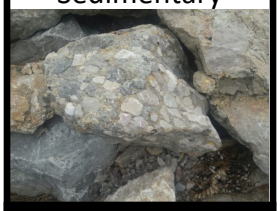
Draw your rock here:

How Rocks are Made

All rocks are made of minerals. Minerals are building blocks. When added together, different minerals make different rocks. Draw a line from the rock to the description of how it is made. Check your answer!

Metamorphic

Sedimentary



Igneous

A. Bits of rock, mineral, or organisms that become pressed and stuck together to form a rock

B. Liquid rock, magma (underground), or lava (above ground) that cools to form a rock

C. Rock that, through heat and pressure, is transformed into a new rock

Answer Key: Metamorphic (C), Sedimentary (A), Igneous (B)

Make Your Own Rock!

With the help and permission of an adult, try making your own rock.

- Eat a piece of chocolate. The ingredients in chocolate have to be liquefied and then cooled to make chocolate. This process is similar to the formation of igneous rock.
- Take different colors of Starburst candies, unwrap each candy, then press them together. This process is similar to the formation of sedimentary rock.
    - With warm hands, take those same candies and roll them together into a ball. The "mineral" layers will mix with heat and pressure similar to metamorphic rock.
    - With permission and help, put the candy ball in the microwave. Heat it just long enough for it to melt. Let it cool. This is similar to the formation of igneous rock.
- Try making rock Rice Crispy treats using this NASA recipe: https://www.jpl.nasa.gov/edu/pdfs/ediblerocks_recipes.pdf

Draw your candy rock here:

How Soil is Made

The process of making soil is similar to baking cookies. When the right ingredients are mixed, soil is made.

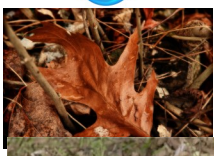
Different inorganic (non-living) particles must be mixed. These particles include sand, silt, and clay.

Sand is the largest, ⟶ silt ⟶, and clay is smallest.

These soil ingredients mixed with air, water, and organic material (living things like leaves), over time, make soil. Unlike a cookie, soil can take 100 years or more to make. Soil formation is a slow process.

Draw a line from each soil ingredient to its matching chocolate chip cookie ingredient!

Water



Organic Material

Silt

Clay

Sand

Chocolate Chips

Sugar

Flour

Eggs and Butter

Vanilla Extract

Answer Key: Water = Vanilla Extract, Organic Material = Eggs and Butter, Silt = Sugar, Clay = Flour, Sand = Chocolate Chips

Draw what you see here:

<u>Do a Soil Study</u>

Find a spot in your backyard with dirt and grass. Use a ruler to measure a square that is one foot long on each side. Take ten minutes to observe your square very closely. What do you see?

Do you see animals such as worms or beetles?

Do you see other organic material such as dead leaves?

Do you see water?

Do you see inorganic material such as pebbles?

Draw what you see here! ⟵