

Mineral Identification

Classical Conversations: Cycle 1, Week 23

GOALS

- students would that there are three kinds of rock
- student would understand the basic idea of the rock cycle

SUPPLIES

Rock cycle kit,

INTRO

- Today we are talking about rocks!
- Rocks are made of minerals- what's a mineral????? (an inorganic (not living) element or compound that is naturally formed and has a particular chemical composition, crystal structure, and physical properties.)
 - are cat minerals? are chairs minerals? is your mom a mineral? Just checking!
- Today we are going to talk about three kinds of rock! We have already learned the three kinds of rock- do you remember them? (igneous, metamorphic, and sedimentary)

Lesson

- Though it may seem like there are three kinds of rock and they all stay that way- that's not true! Minerals and rock are constantly changing and forming new things. We call this process The Rock Cycle.
- Most rocks on earth start as igneous rocks- so let's start with those!

IGNEOUS- rocks that are formed when magma cools down

- Does anyone remember what magma is?
- The upper section of the Earth's crust is made up of around 95% igneous rock.
- Examples of igneous rocks include basalt, granite, pumice, obsidian, tuff, diorite, gabbro and andesite.

It's kind of like...when wax is hot, and then it hardens as it cools. Can you think of anything else that is a liquid and then gets hard as it sits? (concrete, plaster, food let of dirty dishes ;))

Some samples we have to look at are...basalt, scoria, and granite (pass around the samples for kids to see. Are there any observations?)

Look at the picture of the rock cycle. Over time, the igneous rocks might start to wear down by the wind or by rubbing against each other, and those rocks can form new rocks. (point out igneous rocks on the rock cycle)

SEDIMENTARY- Sedimentary rocks are formed by sediment that is deposited over time, usually as layers at the bottom of lakes and oceans.

- This sediment can include minerals, small pieces of plants and other organic matter.

- sediment is compressed over a long period of time before consolidating into solid layers of rock.
- Sedimentary rocks cover the majority of the Earth's rocky surface but only make up a small percentage of the Earth's crust compared to metamorphic and igneous types of rocks.

It's kind of like... Think about a rice crispy treat, how it is made from all those rice crispy pieces being pressed together. That is like a sedimentary rock!

Some samples we have to look at are... sandstone, limestone, shale, and coal. (Pass around the samples. Any observations?)

Now let's look again at our rock cycle. Some of those igneous rocks broke down and made sedimentary rocks. But igneous and sedimentary rocks have one important thing in common- how they react to heat and pressure.

Igneous/ Sedimentary Rock + Heat & Pressure + a long time = Metamorphic Rock

METAMORPHIC- rocks that have been changed by heat and pressure

- Can someone tell us what metamorphosis means? Change! That's how we can remember what metamorphic rocks are
- It takes a long time! How long would you guess? 5 years, 100 years, or hundreds of years? (hundreds of years!)
- They are formed deep in the earth's surface but remain solid.
- Marble is a metamorphic rock that is formed from the sedimentary rock limestone.
- Slate is a metamorphic rock that is formed from the sedimentary rock mudstone.
- Granulite is a metamorphic rock that is formed from the igneous rock basalt.

It's kind of like... an egg! If we take a whole egg and put it in hot water, what will happen? (it becomes hard boiled.) Depending how long you let it boil, the insides of it will be different.

Some samples we have to look at are... slate, amphibolite, gneiss, mica schist, and marble. (Pass samples around. Any observations?)

REVIEW

Let's look again at the Rock Cycle and talk through it. Start at igneous and talk through the cycle. Let the students try.

- Can someone explain how an igneous rock becomes a sedimentary rock?
- Can someone explain how a metamorphic rock?

Sources: <http://www.sciencekids.co.nz/sciencefacts/earth/sedimentaryrocks.html>