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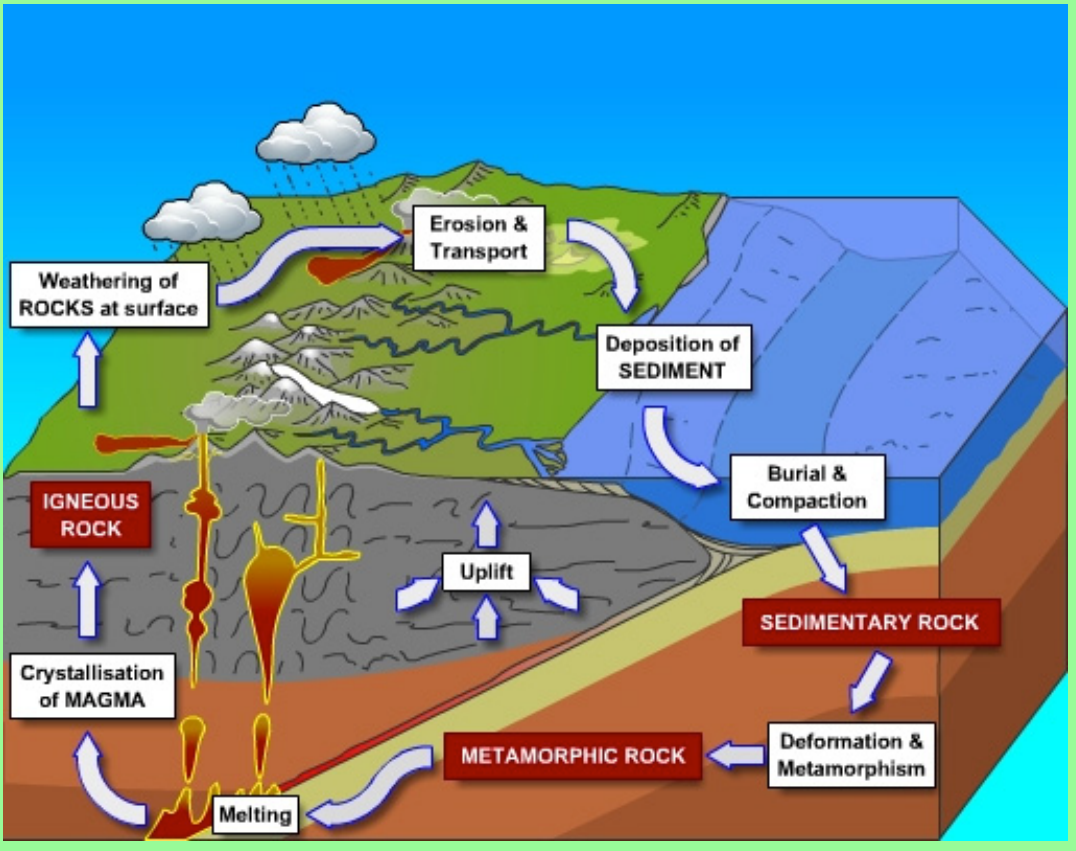
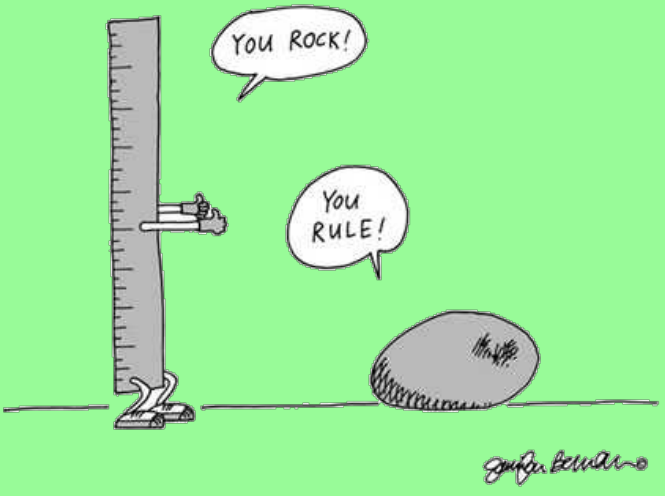
Rocks and the Rock Cycle



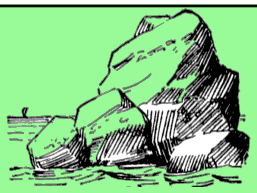
Rock Families

Now that we know about minerals, lets chip away at the rocks that they form!

Rocks have been grouped into three major families based on how they are formed.



1. **Igneous**
2. **Sedimentary**
3. **Metamorphic**



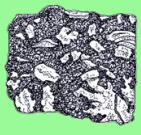
Igneous Rocks

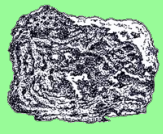
When hot magma and hot lava cool down enough to solidify, we end up with an Igneous rock.

Magma is simply melted rock found below the Earth's crust, where temperatures and pressures are high.

At such high temperatures, any rock can melt into magma that can make room for itself by pushing away other rocks or melting them.

We end up with these igneous rocks on the surface when the magma is pushed up through cracks in the crust.





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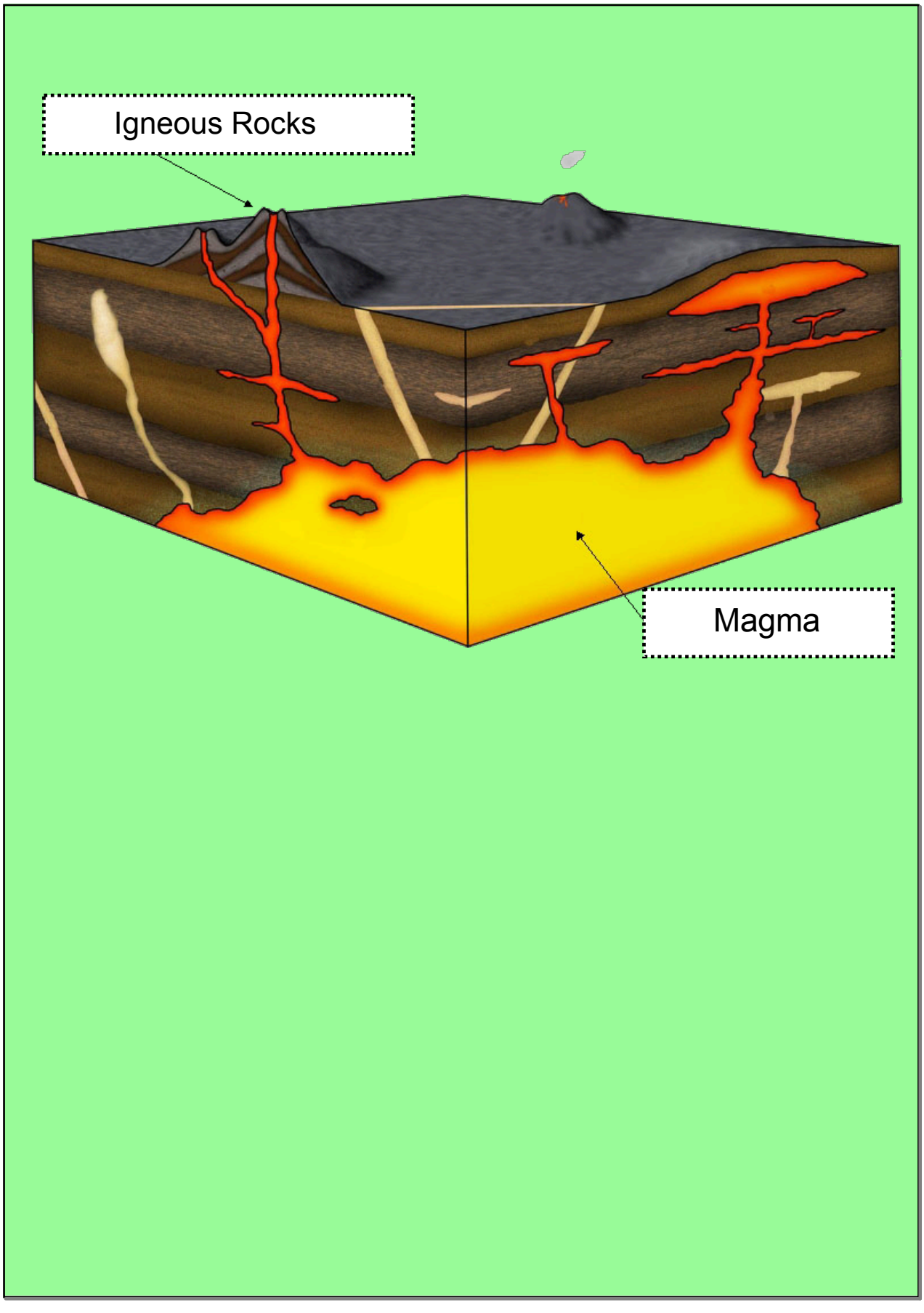
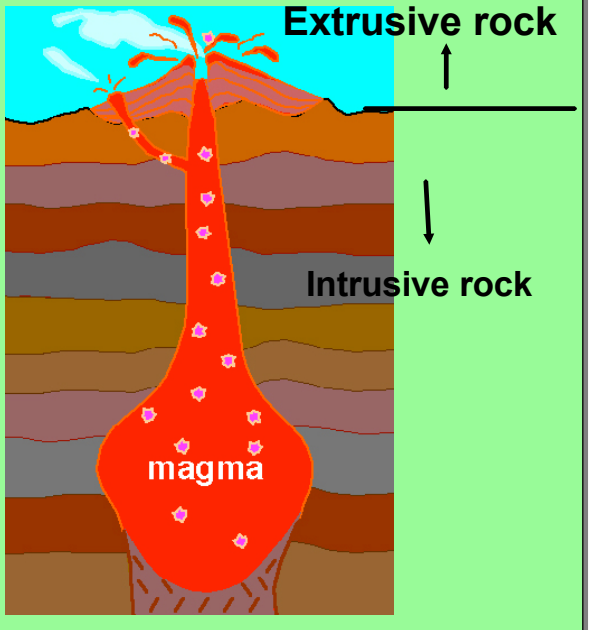


Igneous Rocks

Igneous rocks can form above and below Earth's surface so they can be classified into two different categories.

If the magma cooled down below the surface, an **intrusive rock** will form.

If the magma breaks through the surface before it cools down, like from a volcanic eruption, the rock that forms is an **extrusive rock**.



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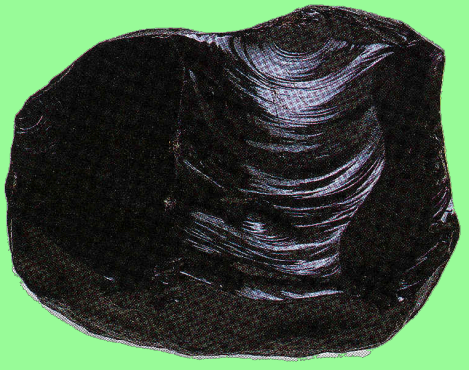
Igneous Rocks

This granite is an intrusive rock because it formed very deep down in the Earth's Crust.



This obsidian is an extrusive rock because it formed on the surface when lava cooled.

Igneous Rocks

Magma can contain solidified crystals that can been seen in solidified rock. As rocks can cool at different rates, the look of the crystals can be different.

Sedimentary Rocks

Sedimentary rocks are made from sediment.

Sediment is a loose material like bits of rocks, minerals, plant and animal remains.

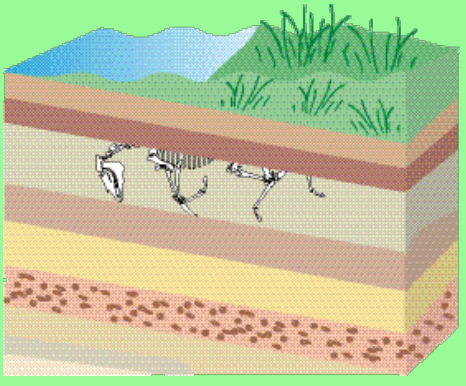
The sediments become so closely packed together that they form a rock.

Sedimentary Rocks

How do they form?

Rock sediment settles on the surface and over time, will start to pile on top of itself. Larger and heavier fragments settle on the bottom, with the loose bits settling on the top. This is why wind and water can change formations - the loose sediment is easy to move.

As sediment settles, it creates layers. These layers are called **beds**.

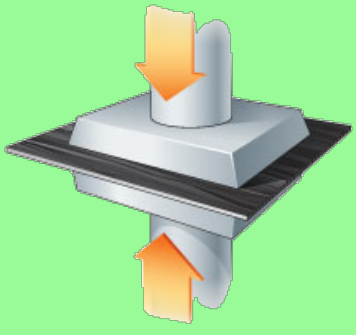


Sedimentary Rocks

How does it become rock?

Water and additional layers of sediment create a weight on top of each layer of sediment and squeezes them together. This process is called **compaction**.

Sometimes, minerals will dissolve as the water soaks into the rock and forms a natural cement that sticks the larger pieces of sediment together.



Sedimentary Rocks

Shale: formed from clay or mud

Sandstone: formed from sand

Conglomerate: pebbles and stones cemented together

Limestone!

Limestone is one of the most common and useful sedimentary rocks. Many are made up of sediment from the remains of organic things called **fossils**.

Limestone has its own class called **organic sedimentary rock** because it is made from organic matter.

This organic matter came from ocean animals who's shells are made from minerals. When the animals died, their shells lay on the ocean floor and become part of a sedimentary rock.

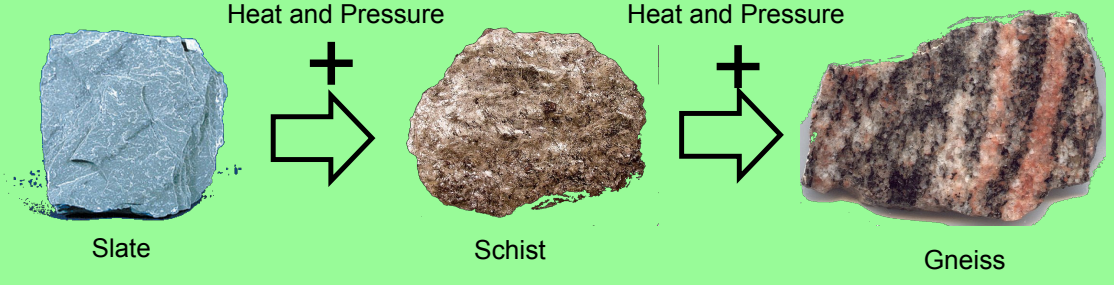
Metamorphic Rocks

Did you know that rocks can change their form?

A **metamorphic rock** is a rock that has changed its form. This type of rock can occur below the surface when high pressure and heat cause the **parent rock** to change its form.

The amount of pressure that is applied will determine the type of rock that is formed.

Shale can change many different times depending on the pressure and temperature!

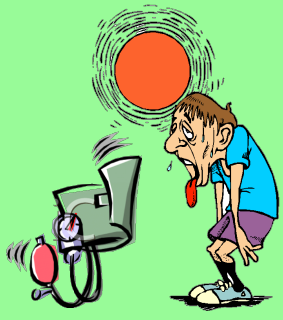


Metamorphic Rocks

A

Granite
(Igneous)

B



Heat and Pressure

C

Gneiss
(Metamorphic)

A + B = C

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http://www.kidsgeo.com/geology-games/rocks-game.php

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