Geology/Rocks Study Guide

What is the difference between a **rock** and a **mineral**?

Rocks are made from combinations of minerals.

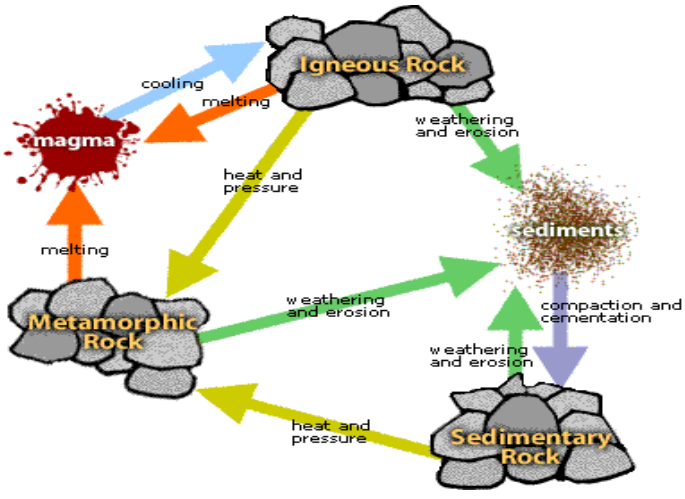
Minerals are made from combinations of elements, made of crystals, and are inorganic.

- To say that a mineral is inorganic means that it does not consist of anything that used to be living. It also means that the mineral does not decompose.

Three Types of Rocks

1. igneous
2. sedimentary
3. metamorphic

These rocks are always changing as part of the rock cycle.



Erosion- is the movement of weathered materials.

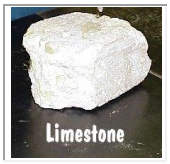
Weathering- is the wearing down of materials.

Igneous- (ignis-fire) rocks that are made from **cooling magma or lava**

Some Common Igneous Rocks			
Name	Image	Color	Texture
Granite		Pink/Gray	Intrusive
Gabbro		Dark Gray to Black	Intrusive
Rhyolite		Light Pink or Gray	Extrusive
Basalt		Dark Gray to Black	Extrusive
Obsidian		Usually Dark Colored	Extrusive
Scoria		Dark Colored	Extrusive

Sedimentary - (Pressure) rocks that were made when **layer upon layer** of **sand and debris settled down together**.

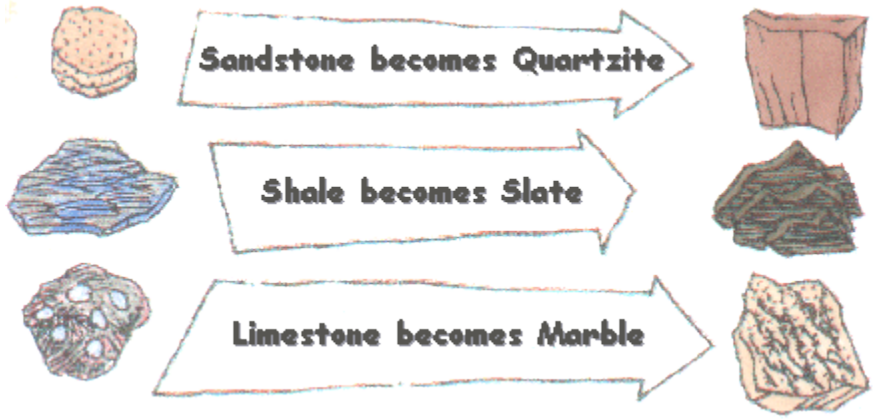
Types of Sedimentary Rocks

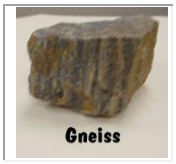
Some Common Sedimentary Rocks			
Name	Image	Color	Composition
Sandstone		Red or Gray	Sand grains cemented together
Limestone		White to Gray	Calcite and sometimes fossils
Shale		Dark Gray	Compacted mud
Conglomerate		Different Colors	Rounded cobbles and pebbles cemented together

Metamorphic- rocks that have changed through **heat and pressure. (**Metamorphic comes from Greek words meaning "change" and "form")

- **Metamorphic rocks** were once **sedimentary** or **igneous**, but threw **heat and pressure** change into metamorphic.

- Some examples of how metamorphic rocks were changed:



Some Common Metamorphic Rocks			
Name	Image	Color	Texture
Gneiss		Pink/Gray	Foliated
Marble		Light Colored	Unfoliated
Quartzite		Light Colored	Unfoliated
Slate		Dark Gray to Black	Foliated

Minerals can be identified by their color, luster, streak, cleavage, hardness, specific gravity, and even by their chemical composition.

A German mineralogist, Friedrich Mohs, developed a standard scale of hardness in 1822 which is called the Mohs Scale.

Moh's Hardness Scale		
Hardness	**Mineral**	**Description**
1	Talc	Fingernail scratches it easily.
2	Gypsum	Fingernail scratches it.
3	Calcite	Copper penny scratches it.
4	Fluorite	Steel knife scratches it easily.
5	Apatite	Steel knife scratches it.
6	Feldspar	Steel knife does not scratch it easily, but scratches glass.
7	Quartz	Hardest common mineral. It scratches steel and glass easily.
8	Topaz	Harder than any common mineral.
9	Corundum	It scratches Topaz.
10	Diamond	It is the hardest of all minerals.

The Importance of Rocks and Minerals		
Name	Type of Rock	Use
Basalt	Igneous	Used in road building materials
Calcite	Mineral	Used in cements and mortars and the production of lime
Granite	Igneous	Used for buildings, monuments, and tombstones
Marble	Metamorphic	Used in building, floors, tile in bathrooms
Obsidian	Igneous	Used in making arrowheads and knives
Pumice	Igneous	Used in scouring, scrubbing, and polishing materials
Quartz	Mineral	Used in making glass, electrical components, and optical lenses: Most common mineral
Sandstone	Sedimentary	Used in the building industry for houses
Slate	Metamorphic	Used for roofs, chalkboards, and patio walks

Types of Mountains

Dome Mountains- shaped like an upside down bowl with layers dipping away from the center.

Fault-Block Mountains- displaces large masses of rocks to uplift and break, causing them to drop or tilt.

Folded Mountains- Formed by compression that occurs when plates collide.

Volcanic Mountains- Form from the accumulation of layers of volcanic material.

Fossils are the preserved remains of **ancient** objects.

Fossils are found in only **sedimentary rocks.**

Types of Fossils

Preserved Organisms: The actual organism is unaltered (unchanged) and stays intact.

Mineral Replacement: Water dissolves the bone, and minerals in the water replace the bone one cell at a time.

Impression Fossils: Water dissolves the bone, and minerals in the water replace the bone one cell at a time.

Farmington Canyon is located in **Davis County**. The rocks have a striped or banded appearances in the rocks are a type of **gneiss**.

Gneiss is a **metamorphic rock**.

Bryce Canyon National Park is in **Garfield County** which is also located in the **Colorado Plateau**.

Bryce Canyon is made of **sedimentary rock**. **Erosion** forms the hoodoos, columns, and interesting rock formations. The **sandstone** in Bryce Canyon is red and pink. The color forms from iron in the rocks that oxidizes or rusts.

Volcanic fields are located near **Fillmore**. These volcanoes are under **Ancient Lake Bonneville**. There are lava tubes and vents to explore. The type of rock we find here is **scoria**. **Scoria** is an **igneous rock** that we use in our barbeque grills.