



Study Guide: Rocks and Minerals



Topic 1: Properties of Rocks and Minerals

Properties are ways we can describe things based on our 5 senses. Rocks can be sorted according to many properties. including:

-Lustre: Shiny rocks have “metallic lustre”. Dull rocks have “non-metallic lustre” , which can also be called “earthy lustre”.

-Size: Rocks come in all kinds of sizes.

-Hardness: A scratch test is often done on two rocks where the stronger rock will leave a scratch in the weaker rock. Sometimes, there may appear to be a scratch, but it is actually left over residue from the other rock as it crumbled in the process. In this case, the rock that crumbles is the weaker rock. When two rocks scratch each other, that means they are of equal strength.

-Streak Color: When a rock is scratched onto a sidewalk or a porcelain surface, it will often leave a streak color. The color of the streak does not always resemble the color of the rock. Pyrite and Gold look nearly identical and for hundreds of years fooled gold miners .

However, when pyrite is scratched on a hard surface, it produces a green streak, Whereas, real gold will produce a golden streak.

Presence of Carbonates: Carbonates are mineral compounds found in bones and sea shells. When these bones settle at the bottom of the ocean, the tremendous weight they place on each other causes the carbonates to ooze out and eventually turn into stone. Rocks that have carbonates will react with vinegar and form fizzy bubbles.

Color: Rocks come in every imaginable color.

Texture: Texture is the way something feels. Some rocks have a rough texture, while some have a smooth texture.

Name Of Rock	Scratched By Fingernail?	Scratched by a Penny?	Scratched by a Nail?	Scratched By Pyrite?
Mystery Rock A	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Myster Rock B	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>
Mystery Rock C	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
Mystery Rock D	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>

Arrange the rocks in order from weakest to strongest:

Can rock A scratch Rock D?

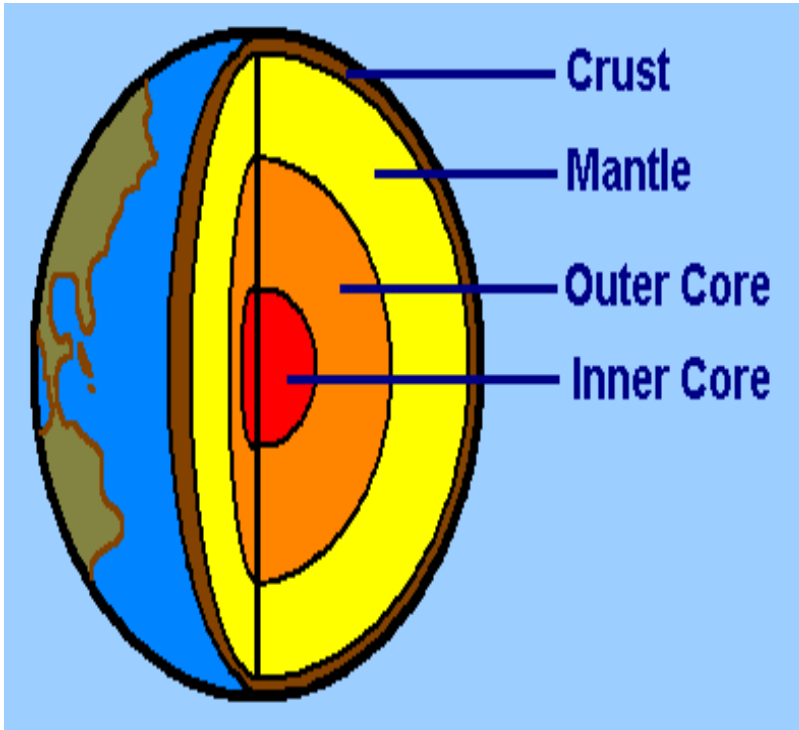
Can rock C scratch rock B?

Can rock B scratch rock A?

Can rock D scratch another rock D?

Name all of the rocks that can scratch rock C?

Topic 2: The Layers of the Earth



Crust: Made of Rock. It is where we live.

Mantle: Made of thick And hot magma.

Outer Core: Made of a liquidy type of magma.

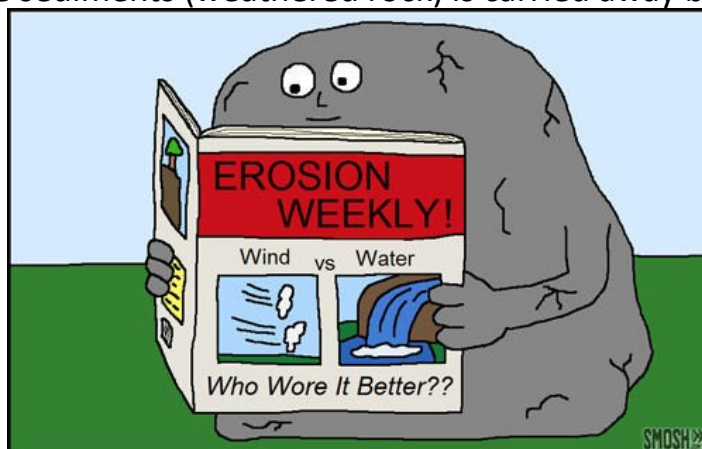
Inner Core: Solid Metal Core.

Topic 3: Weathering Versus Erosion

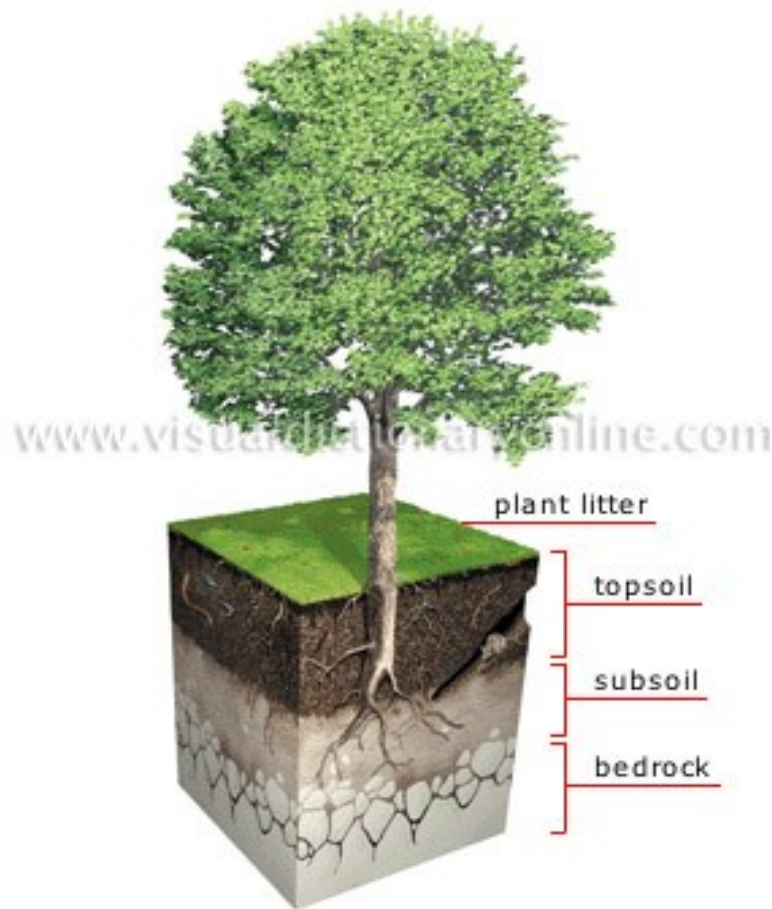
Weathering: When Rocks crumble due to the weather. Wind, water, hail, and acid rain weather rocks down every single day. The tiniest pieces of crumbled rock are called sediments.

Sediments: Anything that sinks in water is called a sediment. Normally we use it in reference to weathered rockes.

Erosion: When the sediments (weathered rock) is carried away by wind or water.



Topic 4: The Layers of the Soil



Humus: The very top of the soil. Contains plant litter and other organic matter that has died and finished rotting. It is very nutritious material.

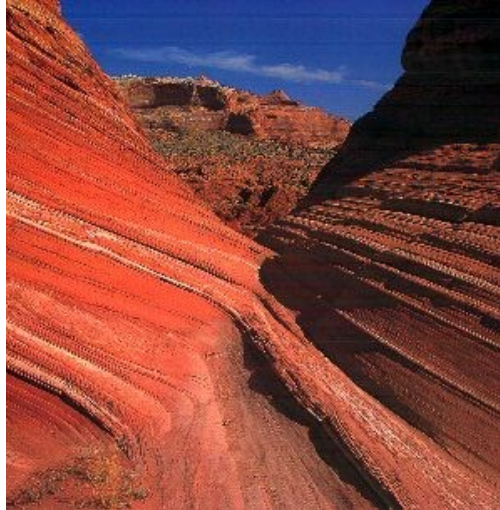
Topsoil: Also called loam. It has equal amounts of sand and clay. This is perfect for plants, because clay holds water for the plant to drink and sand holds lots of air for the roots to breath . Many insects and worms love to live in this layer because it has organic matter, water (from the clay) and air (from the sand)

Subsoil: Like the topsoil, the subsoil contains sand and clay, but does not contain any of the nutritious organic matter that is found in the topsoil. Because of this fact, you won't find many creatures living here.

Bedrock: If you dig deep enough, you will find the original rock that started to

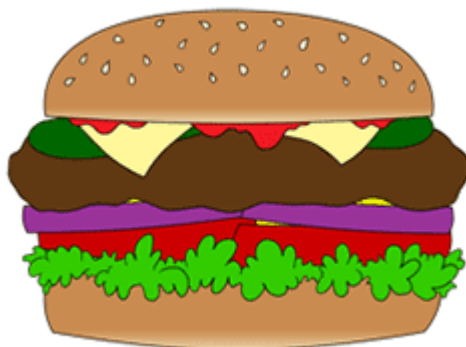
Topic 5: The 3 Categories of Rocks

Sedimentary Rock



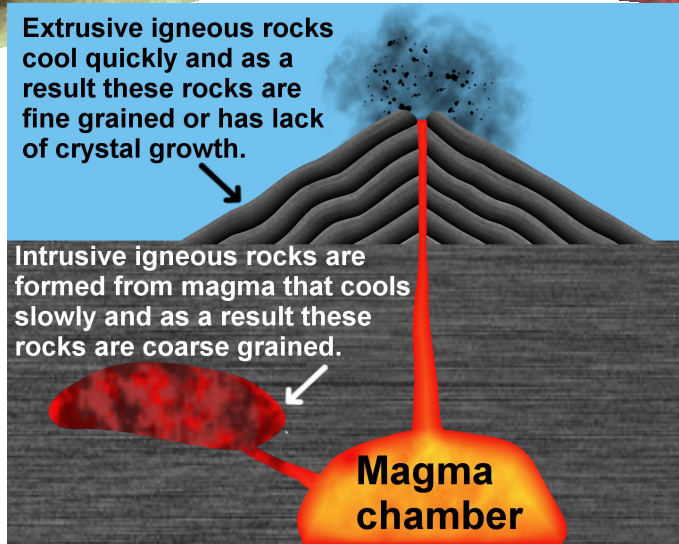
Sediments + Water + Pressure

When sediments fall to the bottom of a lake or river, they get compressed over time. When the water dries up, it reveals the stone that has formed. Sedimentary rocks often have layers because sediments pile up on each other in layers. You can think of it as like making a hamburger. A hamburger has layers because you pile the ingredients on top of each other in layers. The same is true for sediments, when they fall to the bottom of a lake or river. They fall in layers.



**Layer 6: Bun
Layer 5: Cheese/Condiments
Layer 4: Meat
Layer 3: Onion
Layer 2: Lettuce
Layer 1: Bun**

Igneous Rock



When magma cools, it hardens and forms brand new rock. If air bubbles get trapped in the magma, it will form rocks that have holes in it. These rocks are called “pumice” and are able to float on water because of all the holes.

When magma cools and forms stones, it is also able to form crystals. If the magma cools slowly, then it has time to make really large crystals like the geode below. However, if the magma cools quickly, then it will make very tiny crystals or sometimes no crystals at all.



Metamorphic Rock



“I have interesting patterns thanks to the changes that happened to me deep inside the earth. It was so hot down there and there was tons of pressure above me. I don’t want to go through that ever again.”

Sedimentary Rock or Igneous Rock + Lots of Heat + Lots of Pressure

This is a picture of a marble floor tile. A long time ago it was a sedimentary rock called limestone. It formed from dead bones and sea shells that piled at the bottom of the ocean. Limestone is a sedimentary rock, however, over millions of years, it got buried deeper and deeper in the earth’s crust until it got close to the magma deep inside. All of that heat and all of the pressure of the rocks above it caused it to change...kind of like how caterpillars change into butterflies. This is called metamorphosis. These rocks are called metamorphic rocks.

All metamorphic rocks used to be either sedimentary rocks or igneous rocks. When these rocks got trapped deep inside the earth, they changed into metamorphic rocks due to all of the heat and pressure.

Heat + Pressure + Sedimentary or Igneous Rocks = Metamorphic Rock

Almost everything around us is made from a rock or a mineral. Explain how each of the following items was made from a rock or a mineral.

