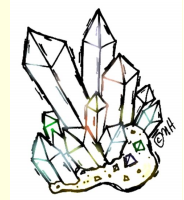
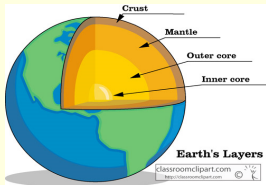


Read P. 280-281



Minerals

Earth's Crust: The thin outermost layer of earth.

Element: a type of pure substance that can not be broken down into simpler parts by chemical means and that has a unique set of properties.\

There are over 3000 different minerals, a way to identify them is to use The Mohs Hardness Scale. This scale characterizing scratch resistance of various minerals through the ability of harder material to scratch softer Minerals.

Crystals: a building block of minerals, crystals occur naturally and have straight edges, flat sides and regular angles.

P. 282-283

310-2A

Mineral Identification

Luster: The shininess

Color

Streak: The color of the powder form of the mineral.

Cleavage and Fracture: Cleavage breaks with smooth edge, Fracture breaks with jagged edge.

Read P.289

208-2, 310-2B

Rocks and the Rock Cycle

(copy the following definitions into your scribbler using the glossary in the back of the text).

Igneous Rock:

Magma:

Intrusive Rock:

Lava:

Extrusive Rock:

Sedimentary Rock:

Sediment:

Metamorphic Rock:

Parent Rock:

Igneous Rocks

310-2B

This forms when hot magma and hot lava cool and solidify.

Any rock that is heated at great depths can be melted.

Magma can dissolve the other rocks around it and push up to the surface through cracks in the earth's crust.

Igneous Rocks

Geologist classify igneous rocks based on whether they formed above or below the earth's surface.

Question: How do Sedimentary Rocks settle into organized layers?

Hypothesis:

Design an Experiment:

List Materials:

Procedure:

Observation/Results:

Conclusion:

Communicate:

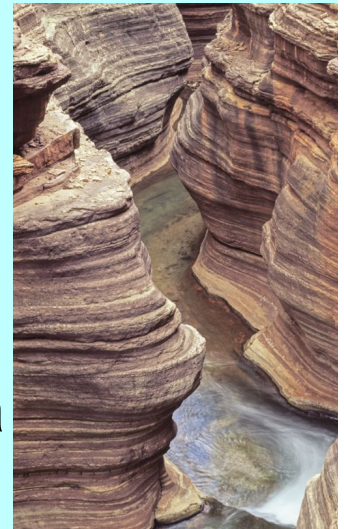
Formation of Sedimentary Rocks

Rock sediment eventually settle over years, most often in lakes and oceans. Larger, heavier fragments settle first and end up at the bottom.

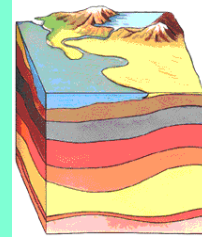


BEDS

Eventually as the sediments settle over each other the rock takes on a layered appearance.



How does settled sediment become rock?



Each sediment layer squeezes together by the weight of the others and the water on top of it.

This is called **Compaction**.



In some rocks minerals dissolve as the water soaks into the rock, forming a natural cement.

Metamorphic Rock

Once a rock is made it can change it's form.

Metamorphic rocks form below the earth's surface when high pressure and heat cause the original rock to change form.

Read p. 295-296

The Rock Cycle

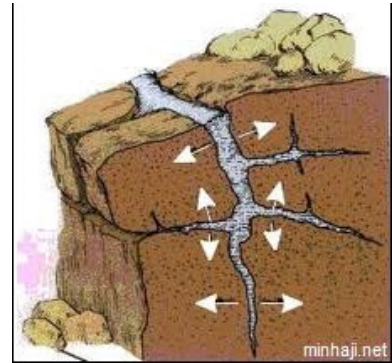
311-2

Weathering: Sediment comes from larger rocks that have broken down or worn away by a natural process called weathering.

This can happen mechanically, chemically or biologically.

Mechanical Weathering

This is the physical break up or disintegration of rocks.



Ex: Rocks rolling down a slope or fast moving stream rub and bump against each other.

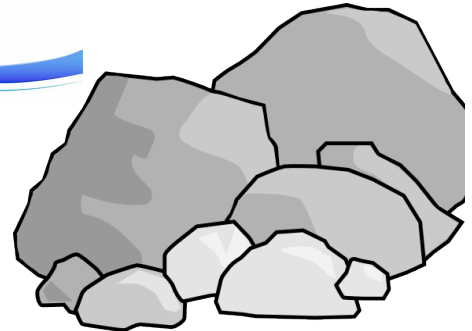
Climate change can also cause mechanical weathering. **During the freeze thaw period (warm in day but temps drop below freezing at night) water seeps into the rocks freezes and expands. This causes cracks and eventually the rocks break apart.**



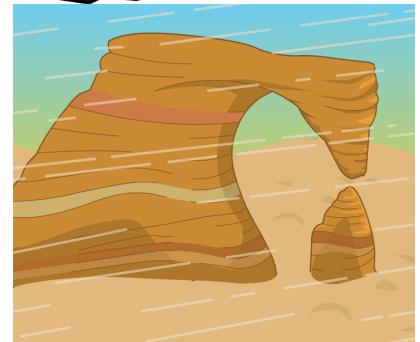
Frost Wedging: Water seeps into rocks and freezes then expands cause rocks to break.



Erosion is another form of mechanical weathering.



Erosion is the process of moving soil and rocks from one place to another (wind/water)



<https://www.youtube.com/watch?v=R-lak3Wvh9c>



Skittles

Question: what are the effects of water on skittles.

Hypothesis:

Design Experiment:

List materials:

Procedure:

Chemical Weathering

311-2

This involves the breakdown or decomposition of minerals as a result of a chemical reaction.

This reaction can be with water, other chemicals dissolved in water or gasses in the air.

**Ex: Chemical reaction in acid rain
(contains chemical from air pollution).**



Biological Weathering

311-2

This is the physical or chemical breakdown of rock caused by living organisms.

Ex: a plant root wedges into rock by forcing its way into a crack. As the root grows the crack expands and the rocks eventually crumbles.

P. 300-301

311-3

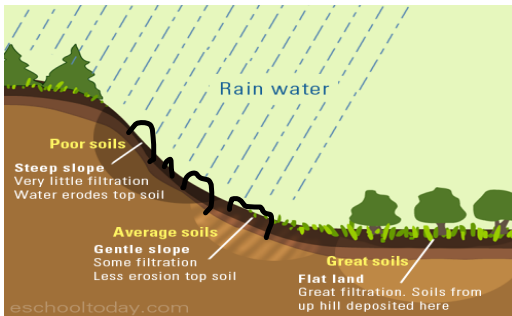
Soil

Soil: A mixture of weathered rock, organic matter, mineral fragments, water and air.

Formation Of Soil

Earth is covered by a layer of rock and sediment. Sediment and mineral fragments become soil after animals and plants have lived in them and added organic matter. This creates space that can be filled with water and air. All of this combines to make soil.

Soil formation is influenced by climate, type or rock, moisture and even slope.



If the slope is steep, loose dirt will run off with each rainfall and leave barren rocks.

Small living creatures that live in the soil can speed up the process of soil formation.

Insects, rodents, bacteria and organic matter all decay to make **compost**. Compost mixes with other matter and creates a dark portion of soil called **humus**.

Fertile soil is one that can supply nutrients for plant growth. **Soils that develop near rivers and lakes are generally rich in nutrients.**



Soil Profile

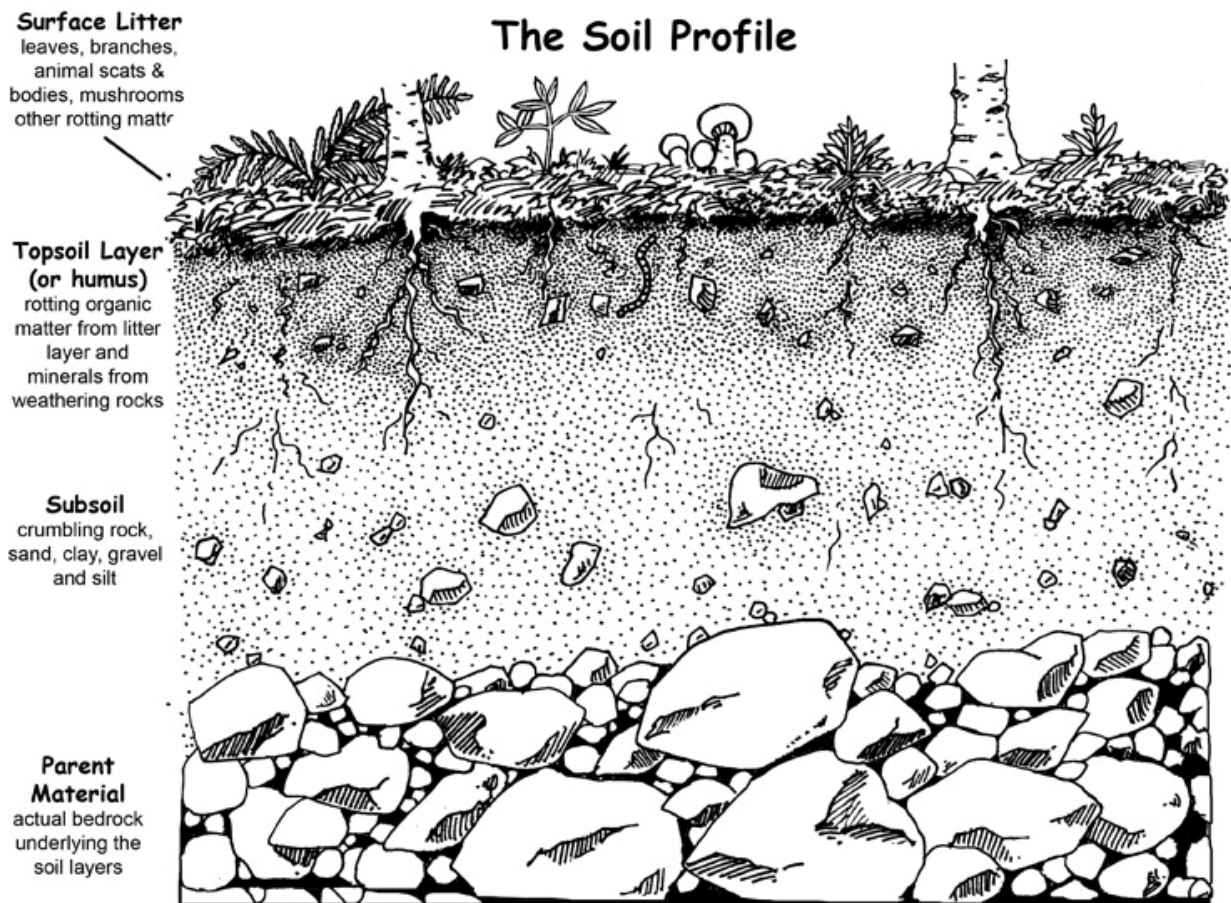
311-3

Soil Profile: description of the characteristics of the different layers that make up a particular soil.

Topsoil: The top most layer of soil which is dark colored and rich in humus.

Leaching: The removal of soil materials dissolved in water.

Bottom layer is weathered rock and minerals leached from above.



Soil Texture



Texture: is how soil feels when its rubbed between two fingers. This can tell us what is in soil and what it can do.

The formation of topsoil depends on the size of rock fragments.

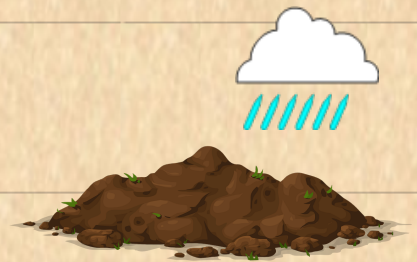
Read 305-307 113-1 113-7 112-7



Particle size: Effects how gritty a soil feels and how large the spaces will be in the soil.

Water-holding capacity: refers to a soils ability to hold water.

Permeate: refers to draining through soil.



Clay particles in the soil are small and takes up most room in the soil. Clay has a high water-holding capacity.