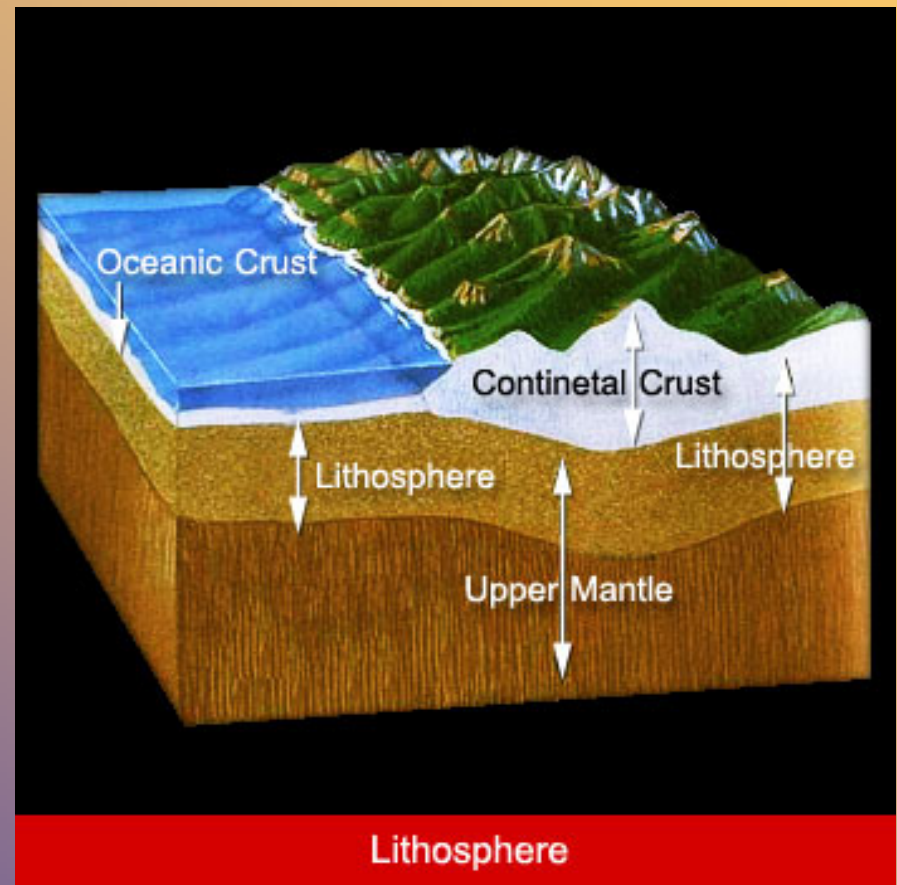


Earth's Layers

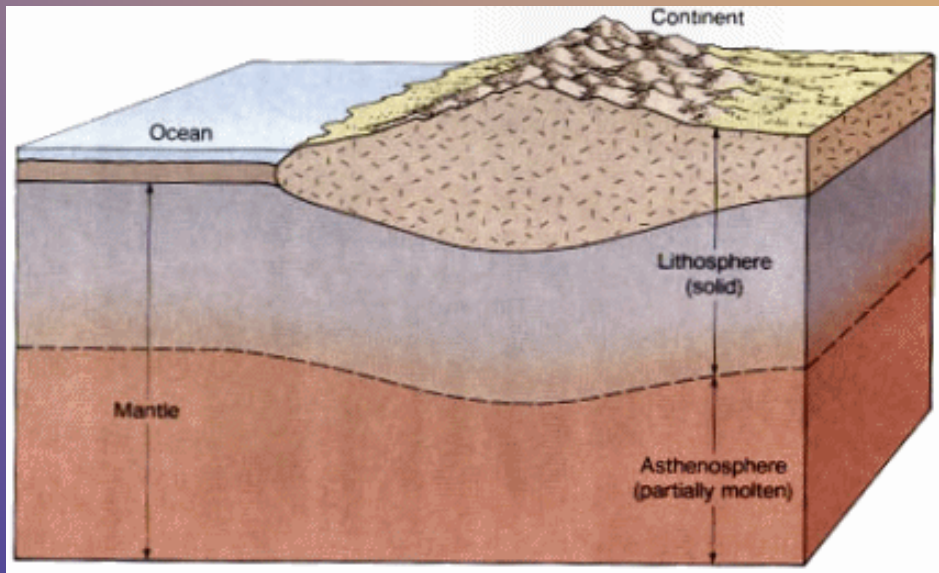
By Aldo Hernandez

Lithosphere

- Rigid, outermost layer of the Earth
- Made up of the crust and the rigid upper part of the mantle
- Divided into pieces called tectonic plates



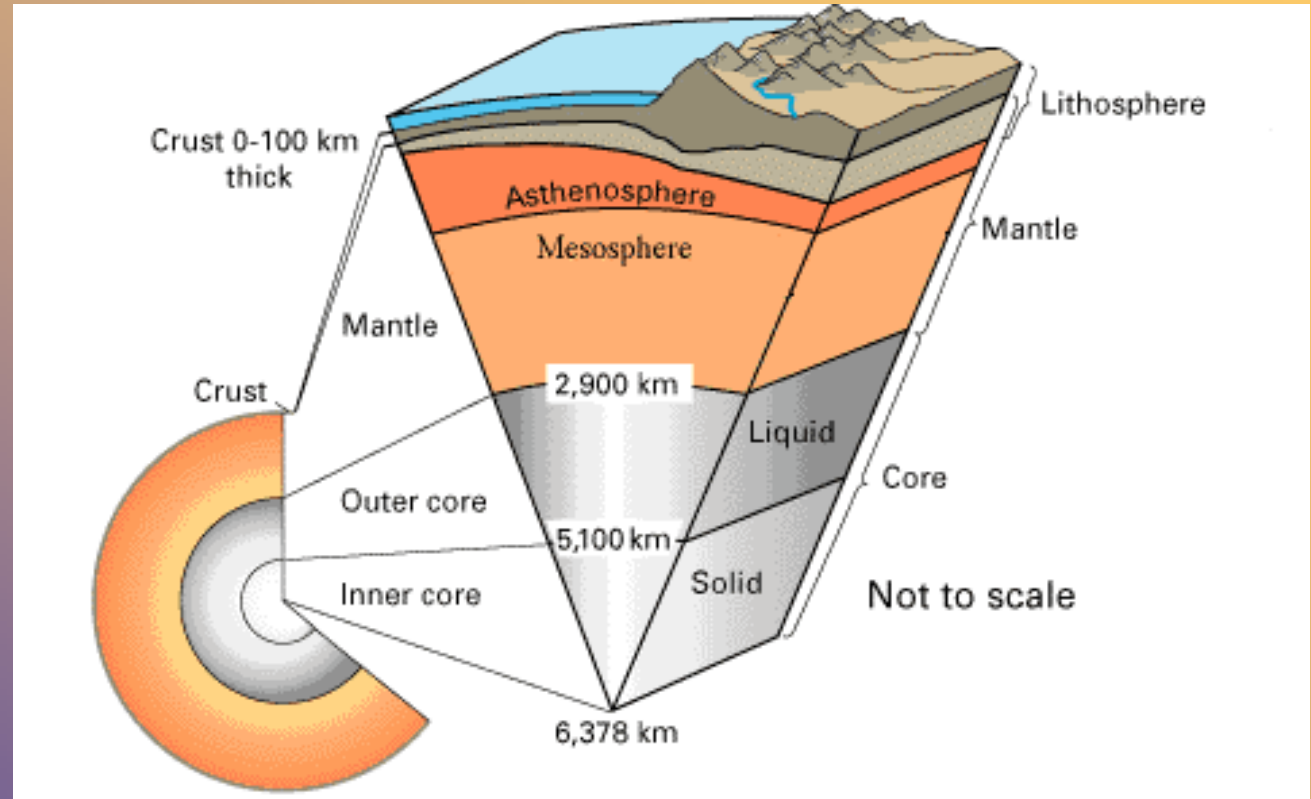
Asthenosphere



- Soft layer of the mantle
- Pieces of lithosphere move on it
- Made of solid rock
- Flows very slowly

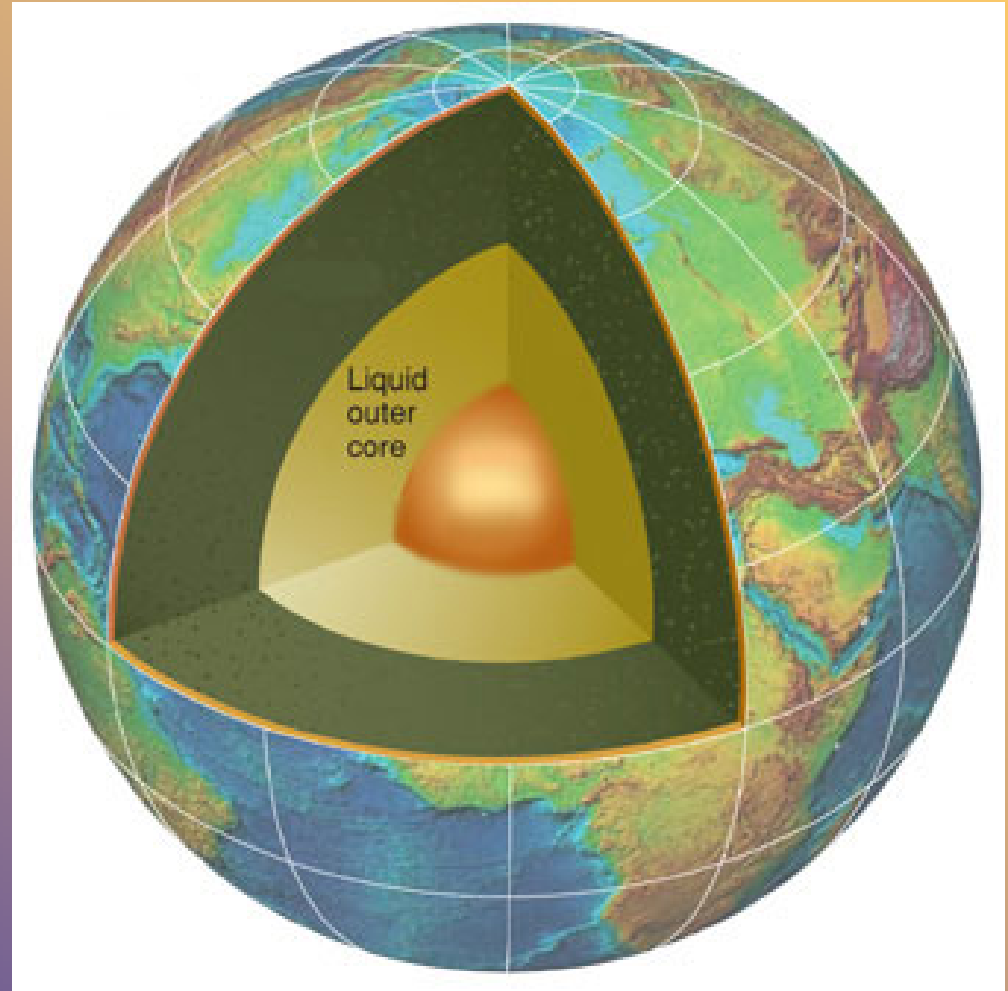
Mesosphere

- Under Asthenosphere
- Strong lower part of mantle
- Extends from the bottom of the asthenosphere down to the Earth's core

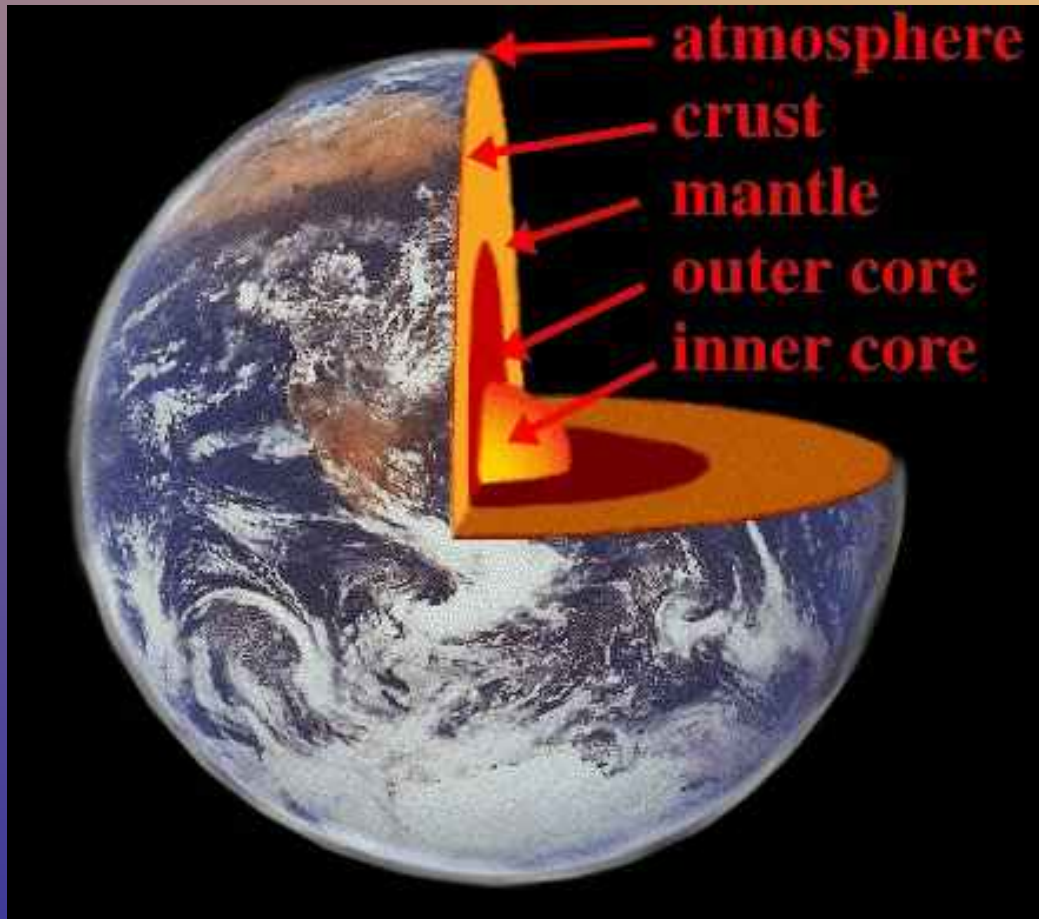


Outer core

- Liquid layer of Earth's core
- Lies beneath the mantle
- Surrounds inner core



Inner core



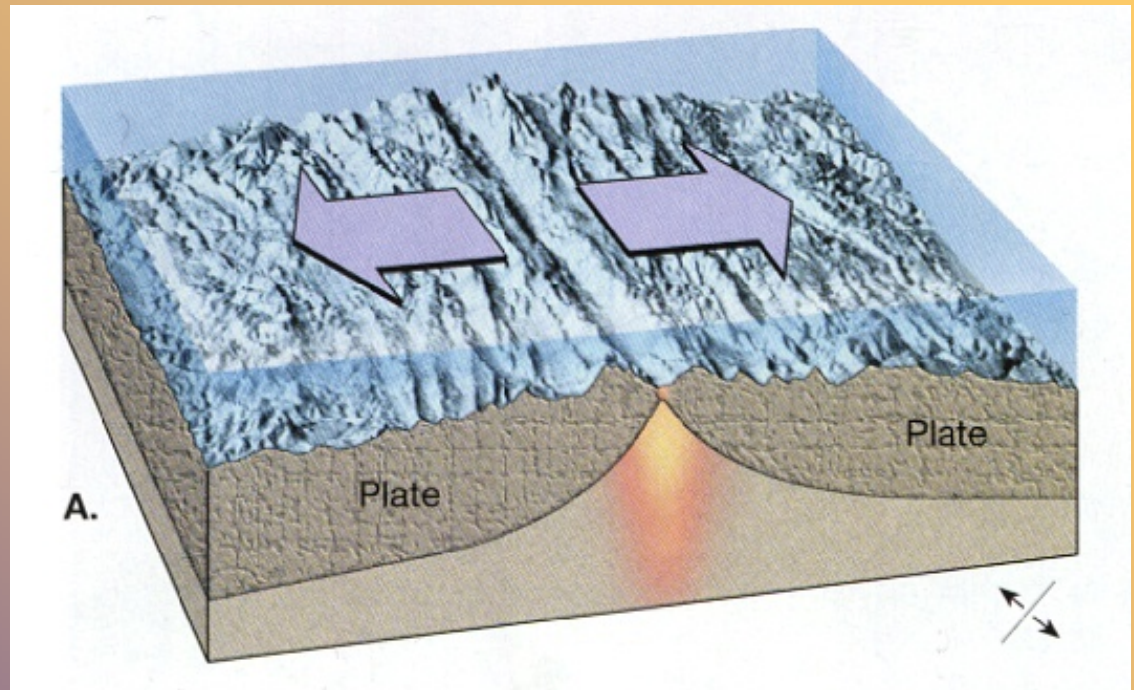
- Solid, dense center of the planet
- Extends from the bottom of the outer core to the center of the Earth
- Lies almost 6,500 km beneath earth's surface

Tectonic Plates

- Lithosphere is made up of large pieces called tectonic plates
- They move against each other along borders
- There are three types of tectonic plate boundaries

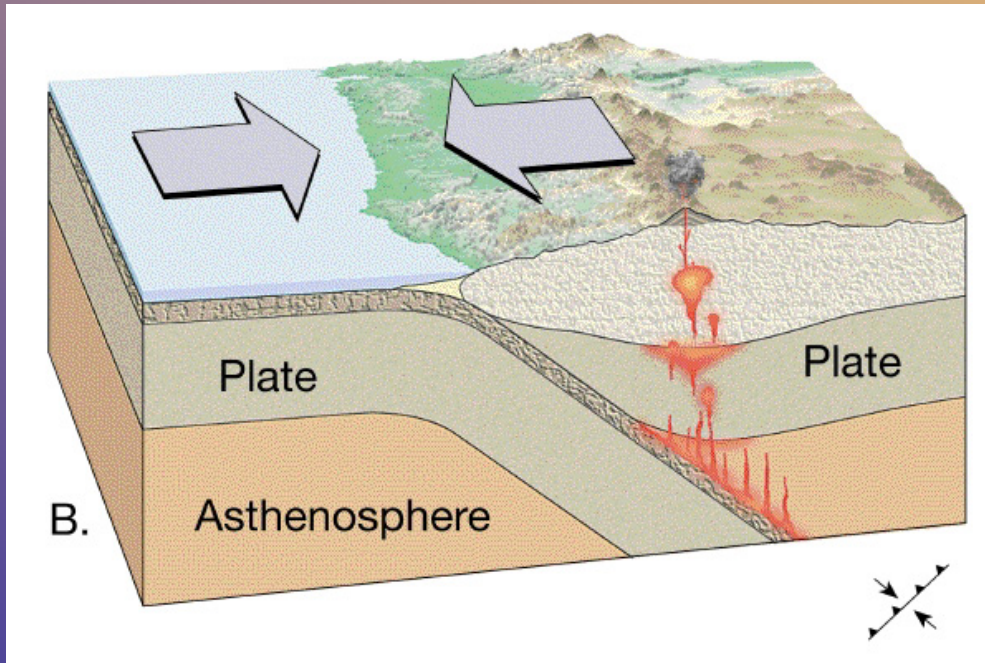


Divergent Boundary



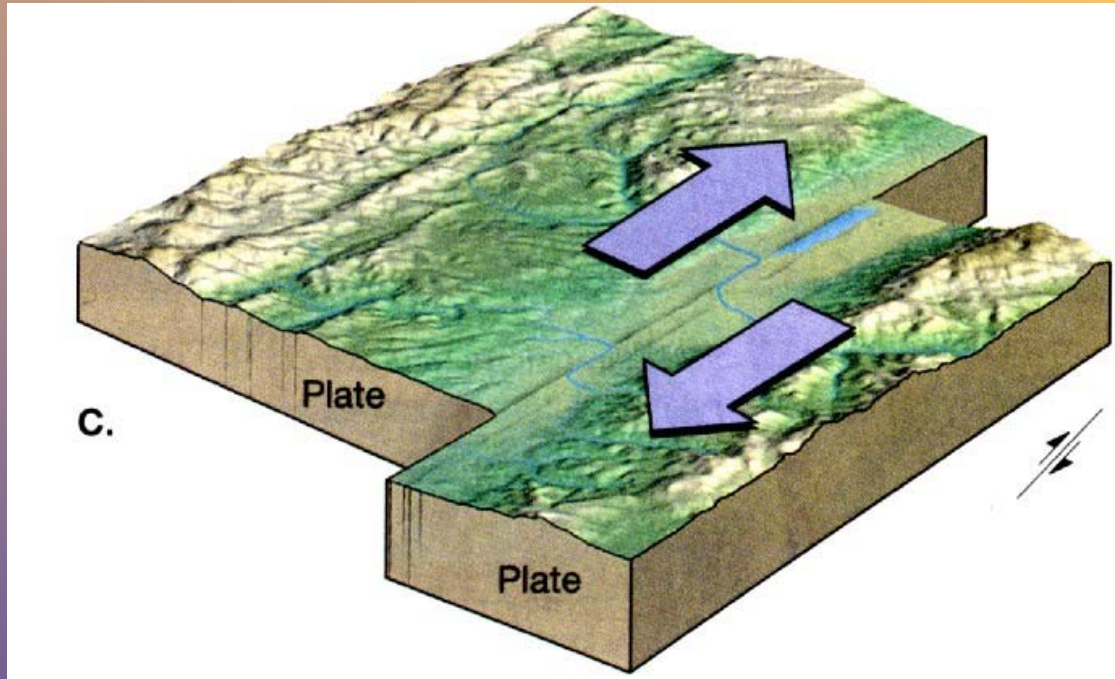
- Plates move apart at these boundaries.
- As magma rises between the diverging plates and hardens into rock, new crust is made.
- Sea-floor spreading occurs here.

Convergent Boundary



- Plates collide at these boundaries.
- If oceanic crust is involved, it will sink below continental crust or a less dense plate of oceanic crust, causing a subduction zone to form.

Transform Boundary

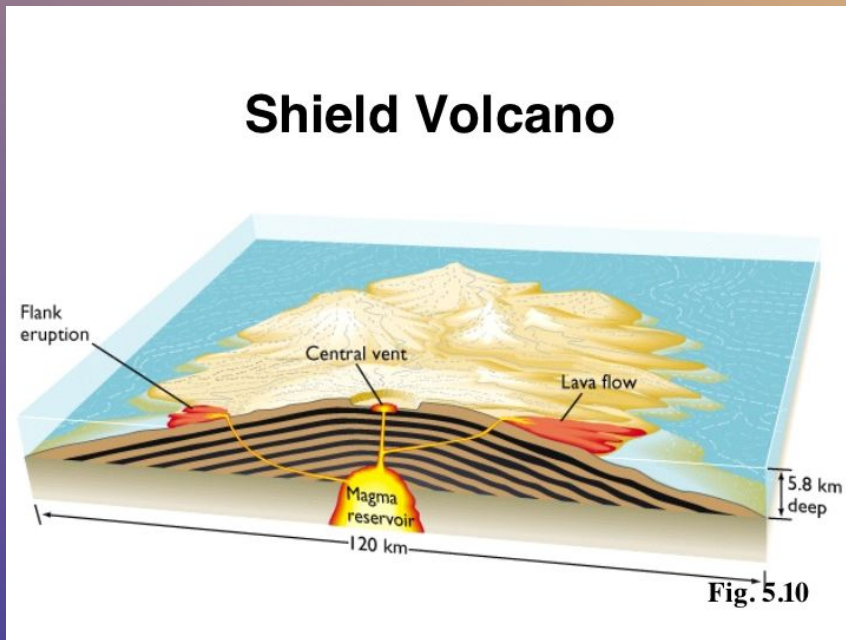


- plates slide against each other in a lateral motion

Volcanoes

- volcanic activity often occurs near plate boundaries.
- Most common near subduction zones.
- Often classified by their shape.
- There are three main types of volcanoes

Shield Volcano



- Almost entirely built up by non-explosive, fluid lava flows
- They have broad, gentle slopes.

Cone Volcano

- Formed from explosive eruptions
- Their magma is stiff and full of volcanic gases
- They have steep slopes



Composite Volcano



- often steep-sided
- formed from a combination of lava flows, such as in a shield volcano eruption, and a buildup of pyroclastic materials, such as in a cone volcano eruption

Rocks

- The series of processes by which rocks are transformed from one type to another and continually renewed is called the **rock cycle**.
- Rocks come from solidification of molten magma.
- *Magma* is a hot liquid made of melted minerals and compounds commonly found in rocks.
- There are three types of rock.



Igneous Rock



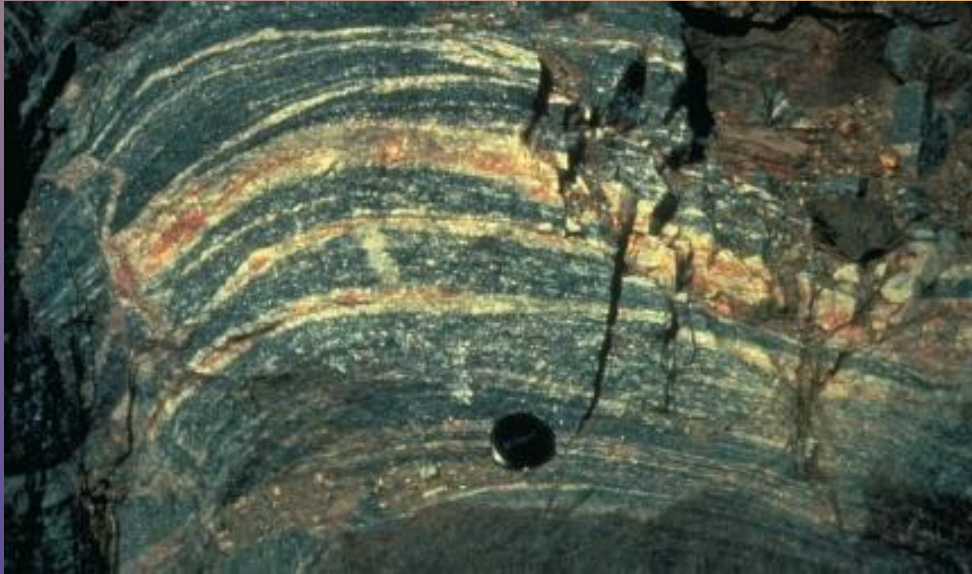
- forms when magma cools and makes crystals. It is typically hard and contains minerals arranged in crystals.
- Well-known types include basalt, pumice, obsidian and granite.
- often glossy or shiny and usually course-grained.
- *Intrusive* igneous rock has large crystals and forms underground, within the Earth's solid lithosphere, where magma cools slowly.
- *Extrusive* igneous rock has small crystals and forms above ground, as lava from volcanoes cools quickly.

Sedimentary Rock

- Forms when erosion deposits broken rock material which then stacks up in layers and, through compaction, sticks together.
- If sediments are large, cementation can occur where a solution of certain minerals and water seeps between sediments and "glues" them together.
- soft and often contains visible layers; will often contain fossils; rocks will tend to scrape and crumble easily.
- common sedimentary rock types include sandstone, limestone, chalk, rock salt, dolomite or shale.



Metamorphic Rock



- Forms when Earth's movements push rocks deep into the Earth.
- rocks are then subjected to extreme heat and pressure which does not melt them but causes the crystal structure and texture of the rock to change.
- Rocks with mineral grains that become flattened and line up in parallel bands when exposed to heat and pressure result in *foliated* metamorphic rock. Metamorphic rocks without banding are *nonfoliated*.
- Slate, quartzite, gneiss and marble are types of metamorphic rock.

THE END