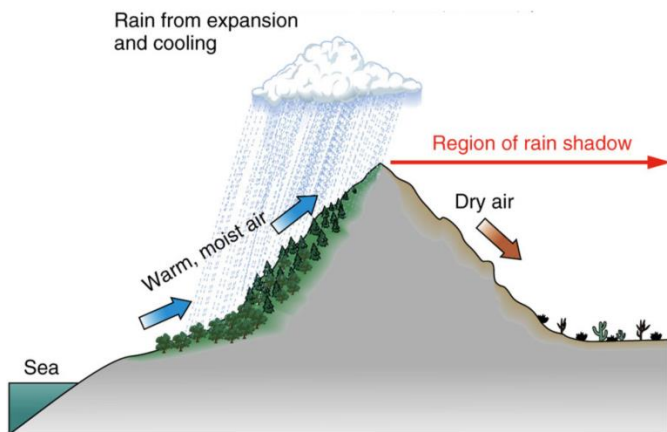


Earth Science Power Point Notes (part 4)

Climate – the average weather pattern for a region over a long period of time.

Ocean Currents - transport thermal energy from place to place



Coriolis Effect

- the result of Earth's rotation on weather patterns and ocean currents
- makes storms swirl clockwise in the Southern hemisphere and counterclockwise in the Northern hemisphere

As magma or lava cools, it crystallizes into igneous rock.

Sedimentary rocks are a result of weathering, erosion, deposition, compaction, and cementation.

Metamorphic rocks are a result of high pressures and temperatures.

The Plate Tectonics Theory- states that Earth's surface is broken into large, rigid pieces that move with respect to each other.

Lithosphere- the crust and uppermost part of the mantle. It is broken into large pieces called Tectonic Plates

Tectonic Plates

- move slowly over Earth's surface.
- form mountains, volcanoes, and cause earthquakes.

Asthenosphere

- partially melted portion of the mantle below the lithosphere.
- hotter than the lithosphere
- bends more easily

There are 15 large tectonic plates.

We live on the North American plate.

Divergent boundary- where two plates move away from each other.

- Example= Mid-Atlantic Ridge

Convergent boundary- where two plates move toward each other.

Subduction-when one tectonic plate moves under another tectonic plate.

Transform boundary- two plates slide past each other.

- Example= San Andreas Fault

Convergent boundaries form mountains and volcanoes.

Scientists use the Global Positioning System (GPS) to track the movement of plates.

Convection- the circulation within fluids caused by differences in density and thermal energy.

Subduction also causes plate movement.

Earthquake -vibrations caused by the rupture and sudden movement of rocks along a break or a crack in Earth's crust.

A fault is a crack in Earth's crust along which movement occurs.

Most earthquakes occur at plate boundaries.

Small earthquakes occur more frequently than large ones.

Magnitude is a measure of how much energy is released during an earthquake. It can range from less than 1 to 9.9 or more.

Magma- molten rock stored beneath Earth's surface.

Lava- magma that erupts onto Earth's surface.

Volcanoes- vents in Earth's crust through which molten rock flows.

Most volcanoes form at convergent plate boundaries.

Mountains take millions of years to form, but volcanoes can form in hundreds to thousands of years.

Mid-ocean ridges are long, narrow mountains formed by magma at divergent boundaries.

Weathering- the mechanical and chemical processes that change Earth's surface over time.

Sediment- the material formed from rocks broken down by weathering. Examples: rock fragments, sand, silt, or clay.

Physical Weathering- breaking down rock without changing the composition of the rock.

- Example- a boulder rolling off a hill and breaking.

Chemical Weathering- changes the composition of rocks.

- Example=a mineral dissolves in acidic water

Erosion- when moving water or strong wind moves weathered material, or sediment, from one location to another.

Deposition- the laying down or settling of eroded material. Example: sand/rocks washing up on a beach.

Mass Wasting- the downhill movement of a large mass of rocks or soil due to gravity.

Most erosion and transport of sediment occurs by flowing water.

Wind can also cause erosion.

Glaciers

- large masses of ice
- Formed by snow on land
- Move slowly across Earth's surface
- Carry sediment as they move and deposit it when they melt

The Rock Cycle- the series of processes that transport and continually change rocks into different forms.

Rock – a naturally occurring solid composed of minerals and sometimes other materials such as organic matter.

3 major rock types

Igneous

- Formed when magma (molten material) cools and hardens

Sedimentary

- Form when water, wind, and ice break down rocks into smaller pieces called sediment
- Sediment is compressed and cemented together by natural substances to form rocks.

Metamorphic

- Form when extreme temperatures and pressure within the Earth change existing rocks into new rocks
- The rocks do not melt
- The composition or structures change