The Earth is made up of 3 main layers.

* Core- made up of nickel and other metals.
* Mantle - made up of mostly magma or molten rock.
* Crust- the most outer part of Earth.

The crust

* Continental crust - thick, buoyant, and most of it is old
* Oceanic crust- thinner, dense, and young

Continental Drift

Alfred Wegener- Early 1900's proposed the hypothesis that continents were once joined together in a single large land mass he called Pangaea

* He proposed that Pangaea had split apart and the continents had moved gradually to their present positions- a process called continental drift.

​His evidences

* The continents fit together like a puzzle
* Fossils of plants and animals of the same species found on different continents.
* Rock sequences in south America, India, Antarctica, and Australia show remarkable similarities.

Seaflood spreading

* 1960's, a scientist named Henry Hess made a discovery that would indicate Wegner.
* Using technology, radar, he discovered that the sea floor has both trenches and mid-ocean ridges.
* Henry Hess proposed the sea-floor spreading theory.
* Hess proposed that how, less dense rises toward the surface at the mid-ocean ridges.
* It flows sidewats, carrying the seafloor away from the ridge in both direction

Mechanism for plate tectonics

* Earth crust divided up to 12 major
* Plates of lithosphere are moved around by the underlying hot mantle convection cells.

Tectonic plate boundaries

* Divergent- Spreading ridges are formed. As plates move apart new material is erupted to fill the gap. Happens usually under oceans , but it happens in Iceland
* Convergent - Three styles of convergent plate boundaries. Continent-continent, continent-oceanic, oceanic-oceanic collision. Continent-continent collisions made mountains.  Continent-oceanic is called subduction. It forms volcanoes. Oceanic-Oceanic forms the trench. It grabs the edge of the other one and pulls down.
* Transform- EX Andrea fault in California.

Geologic Principles

* Ancient fossil and rock data provide relative dates of past events.
* The rock record has contributed to our modern day geologic time scale, a record of Earth's history from 4.6 Billions of years ago to present.

Eons= largest divisions (billions of years)
Era= hundreds of millions of years; based on fossilized life forms found in rocks

        The Cenozoic( Recent life. Where in this era people!)

         The Mesozoic(Middle life)

         The Paleozoic(ancient life)

Periods= tens of millions of years; based on life forms that were abundant or became extinct.
Epochs= smallest division

* ONLY in the Cenozoic Era because of rocks and fossils are more easily accessed (not buried or destroyed)
Principle of uniformitarianism
* Process occurring on Earth today have been occurring since it formed, BUT the rate and intensity have changed.
​Principle of original Horizontality
* Sedimentary rocks are deposited in nearly horizontal layers.

Principle of superposition

* Oldest rocks are on the bottom each successive layer is younger

Principle of Faunal succession

* Oldest fossils are in the bottom layers, successive layers are youngerprinciple of Cross-cutting relationships
* An intrusion is younger than a rock it cuts across
* Unconformities
* Layers get shifted up or down. Layers get eroded.

Correlation

* Matching rocks regions in one area to another area
* Helps determine the sequence of events in Earth's history