**Plate Tectonics** # \_\_\_\_\_\_\_\_\_

* Around 1915, German scientist Alfred Wegener proposed the idea that the continents were once united as a supercontinent and then drifted apart.
* He pieced the continents together like a puzzle and called the supercontinent they formed Pangaea.
* Wegener found identical fossils on widely separate continents, which supported his idea.
* Evidence for Wegener’s ideas came later.
* Wegener’s theory of continental drift was ignored until structures discovered on the ocean floor provided evidence for a mechanism for the movement of continents.
* Symmetrical bands on either side of a mid-ocean ridge indicate that the two sides of the ridge were moving away from each other and new ocean floor was rising up between them.
* Alignment of oceanic rocks supports the theory of moving plates.
* Iron in molten rock aligns itself with Earth’s magnetic field as it cools.
* The Earth’s magnetic field reverses polarity about every 200,000 years
* The process is recorded as magnetic bands in rock, based on the age of the rock.
* Symmetrical bands on either side of the Mid Atlantic Ridge suggest that the crust was moving away from the ridge.





* Earth has plates that move over the mantle.
* The crust and upper portion of the mantle are divided into about seven large pieces called tectonic plates.
* **Lithosphere** the solid, outer layer of Earth, that consists of the crust and the rigid upper mantle
* **Plate tectonics** the theory that explains how the outer parts of Earth change through time, and that explains the relationships between continental drift, sea-floor spreading, seismic activity, and volcanic activity



* It is unknown exactly why tectonic plates move.
* One hypothesis suggests that plate movement results from convection currents in the asthenosphere, the hot, fluid portion of the mantle.
* Another hypothesis suggests that plate movement results from the force of gravity acting on the plates.