Lesson 2 - Sea-Floor Spreading

mid 1900's scientists used sonar to map out the ocean floor

sonar - a device that uses sound waves to measure the distance to objects

Mid Ocean Ridges- long chains of mountains that rise up from the ocean floor

- form the longest mountain ranges on earth
- extend into all of earth's oceans
- continually add new material to the ocean floor (Sea-floor spreading)

Sea-Floor Spreading adds more crust to the ocean floor- at the same time older strips of rock move outward from either side of the ridge

Evidence

- From ocean material- in the central valley of mid ocean ridges pillowy rock has been found- usually forms from magma cooling quickly

- From magnetic material in the rock -lined up in the direction of the magnetic poles - material on each side of the ridge is a mirror image of itself reflecting when the earth's poles had reversed

- From rock samples- the farther away from the ridge the older the rocks were

Deep Ocean trench- deep underwater canyons where part of the oceanic crust bends downward and sinks back into the mantle

Subduction -as the crust moves away from the mid-ocean ridge it cools and becomes more dense eventually it may collide with a continental crust where gravity pulls the older denser crust down beneath a deep ocean trench and back to the mantle

Subduction and Sea-Floor Spreading

- change the size and shape of the ocean
- ocean floor is renewed every 200 million years
- an ocean with many trenches will shrink
- an ocean with few trenches will grow larger