Earth Science 11
Unit 2 – The Geology of Earth
Day 2 – Layers of the Earth

Name: _____

Date: _____

Block: _____

The Continental Drift Hypothesis: Wegener said that the continents had been part of a single land mass called Pangaea surrounded by a single sea called Panthalassa

According to his hypothesis, about 200 million years ago, Pangaea started to break up into smaller continents and drift to their present locations

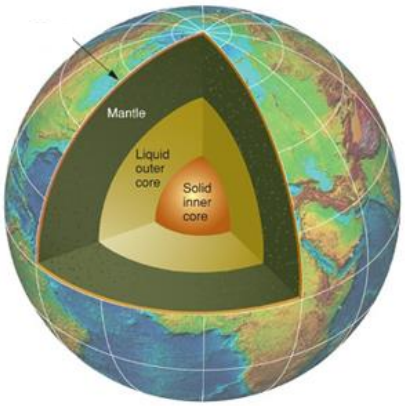
Pangea: the name for the continents as a single land mass

Snowball Earth: hypothesis proposes that, during one or more of Earth's icehouse climates, the planet's surface became entirely or nearly entirely frozen

Crust: Thin rocky outer layer of Earth

Oceanic Crust:
About 7km thick.
Rocks are much younger than the continental crust.

Continental Crust:
About 8-75 km thick



Mantle: Solid rocky shell that extends to a depth of 2890km

Partially melted state

Over 82 % of Earth's volume

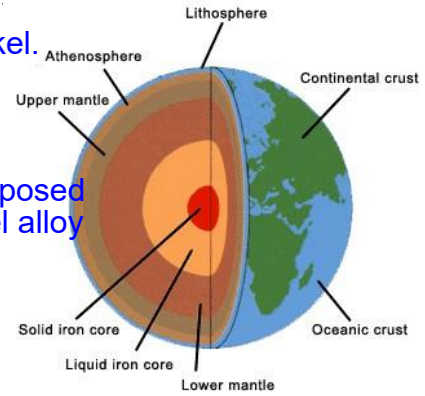
Oceanic Crust: The crust found under oceans.

Continental Crust: The crust found on continents (on land)

Outer Core:
Core in general: Sphere in the center of Earth consists of iron and nickel.
Density is about 13 g/cm3.

Outer cor: Liquid layer is 2260 km thick.
Generates the Earth's magnetic field.

Core is composed of iron-nickel alloy



Inner Core: Solid layer that is 1220 km thick.
Despite extremely high temperatures it is under immense pressure and is condensed into a solid

Lithosphere: Rigid outer most layer of Earth consists of the crust and upper mantle

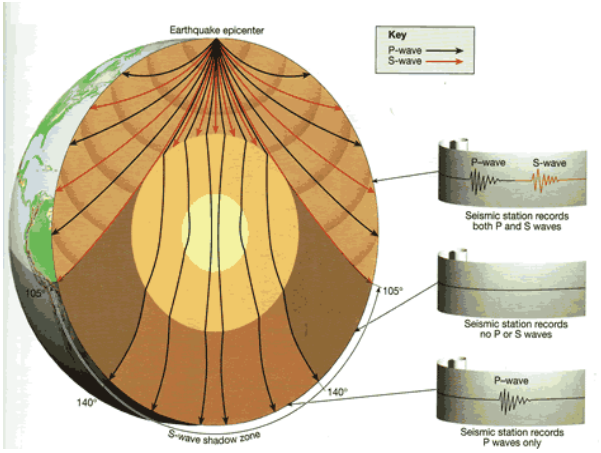
Asthenosphere: Highly viscous layer of the upper mantle

(Layer is weak because the temperature and pressure are just above melting point)

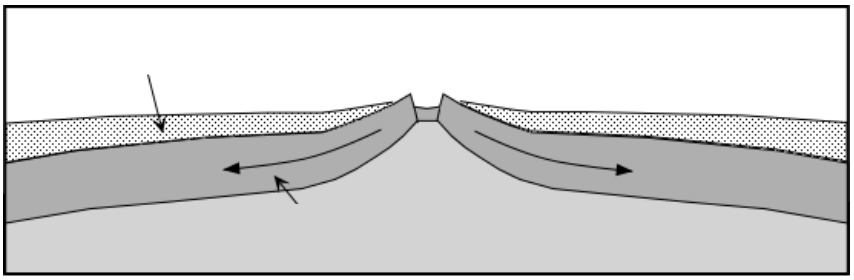
Discovering Earths Layers: Seismic waves from earthquakes travel through the earth.

Velocity of seismic waves increases just below the crust and above the mantle known as the Mohorovicic discontinuity. Shortened to Moho.

Example: Antarctica has records from earthquakes t hat occurred in California and Italy



Sea floor spreading: In 1947, a group of scientists set out to map the Mid-Atlantic Ridge, an undersea mountain The scientists found that the ocean floor was very young compared with the age of continental rocks. None of the rocks were more than 150 million years old, yet the oldest continental rocks were about 4 billion years old.



The theory of plate tectonics: describes continental movement and gives a possible explanation of why and how continents move.

Tectonics is the study of the formation of features in the earth's crust.