Chapter 4 section 1 – Inside the earth

What is composition of the earth? Divided into 3 layers – crust, mantle, core

Less dense materials make up crust

Most dense make up mantle and core

Gravity pulls dense items to center of earth

Compound made up 2+ elements

What is the crust? Outer most layer, 5 – 100km, thinnest layer

Continental (thickest) and oceanic

Oceanic has twice much magnesium and calcium

Made out of oxygen, silicon and aluminum

What is the mantle? Layers- hard rock,molten rock, solid rock

Magma from mantle flows on ocean flow

Scientist study magma

No one ever to mantle

85% mass of Earth

Layer b/t crust and core

Made of materials like aluminum and silicon

What is the core? Center of the earth

Made of iron and nickel

1/3 of earth mass or 33%

No oxygen, silicon, aluminum and magnesium

Inner core 9000-13000 F

**Physical Structure of the Earth**: Describes differences in reaction of the materials to the stress caused by differences in temp. and pressure.



Lithosphere: located between crust and upper mantle

Outermost rigid layer



Divided into tectonic plates



Rigid rocks, solid layer

Asthenosphere located between lithosphere and mesosphere (mantle)

Plastic and thick like maple syrup



Flows slowly

Mesosphere located between asthenosphere and outer core

Middle layer

Lower mantle

Outer Core located between mesosphere and inner core

Iron and nickel, liquid layer

Inner core surrounded by outer core

Solid, dense, mostly iron

All other layers pushing down/pressure

Center (bull’s eye)

Plate Tectonics: Definition- blocks of lithosphere that move around on top of the asthenosphere,

consists of crust and rigid part mantle

* Pieces of moving lithosphere
* Floats on top of asthenosphere
* Jigsaw puzzle-like (lithosphere is puzzle, plates are pieces)
* Variety of sizes
* Lithosphere displaces the asthenosphere ( think of jelly and crackers, ice cubes in punch bowl)
* Continental crust is more dense, so displaces asthenosphere more than oceanic crust

Mapping earth’s interior

-earthquakes make seismic waves (vibrations)

- travel at different speeds, depends on density and composition of material

-seismic wave faster through solid than liquid

-seismograph measures waves

- waves help calculate density and thickness of each physical layer