

Layers of Earth

The Physical Properties

Lithosphere

- Outermost layer
- Rigid (stiff), solid
- Two parts make it: the crust and upper mantle
- Divided into sections called tectonic plates
- 15-300km thick
- Thickness varies because continental crust is thicker than oceanic crust

Asthenosphere

- The upper portion of the mantle
- Sort of like plastic - solid rock, but it is just warm enough to flow very slowly
- A weak layer
- Considered viscous - very, very thick, but flows
- Tectonic plates float on this layer and move
- 250 km thick

Mesosphere

- Referred to as "the rest of the mantle" or "the lower mantle"
- Just below the asthenosphere
- Extends all the way to the core
- Very strong
- Considered viscous - very, very thick, but flows
- 2550km thick

Outer Core

- Below the mesosphere and above the inner core
- Layer of liquid, molten metal
- 2200 km thick

Inner Core

- Solid and very dense ball of metal
- Spins and creates Earth's magnetic field
- Below the outer core and goes all the way to Earth's center
- 1230km thick
- Earth's center is about 6380km below the surface

Layers of Earth

Earth's composition

Crust

- Made from rock
- Less than 1% of Earth's mass
- Temperature from 0 degrees C to 1000 degrees C
- Two types: continental and oceanic
- Continental elements: oxygen, silicon, aluminum
- Oceanic elements: iron, calcium, magnesium
- Oceanic is much more dense than continental
- Oceanic is thinner than continental

Mantle

- Made from rock
- 67% of Earth's mass
- Temps from 1000 degrees C to 3700 degrees C
- Nobody has EVER been here
- Three parts: lithosphere, asthenosphere, mesosphere

Outer Core

- Made from metal
- Core as a whole is 33% of Earth's mass
- Temps from 3700 degrees C to 7000 degrees C
- Cooler than the inner core
- Mostly iron, some nickel

Inner Core

- Made from metal
- Core as a whole is 33% of Earth's mass
- Temps from 3700 degrees C to 7000 degrees C
- The HOTTEST layer!
- Mostly iron, some nickel