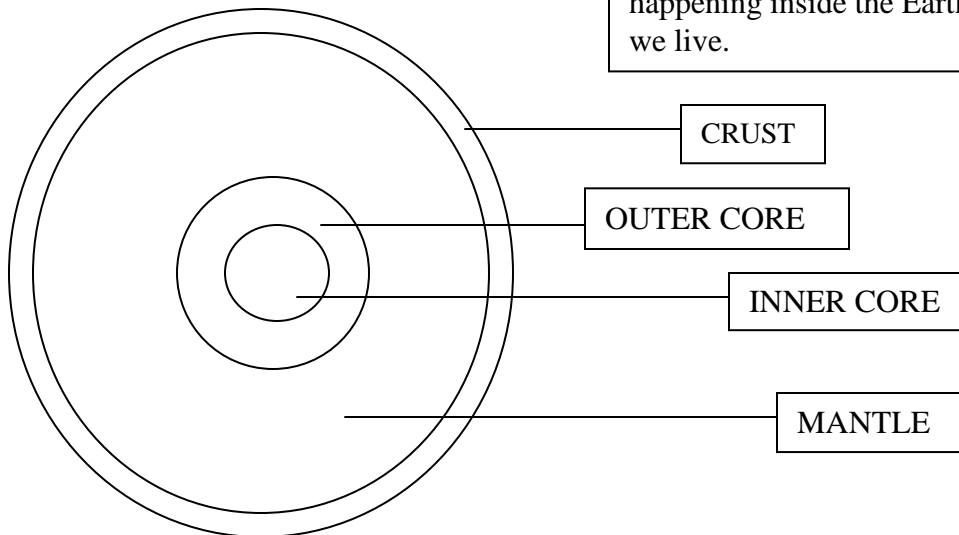


Internal Process Notes: Part one of what is happening inside the Earth that affects how we live.



The Internal Structure of the Earth: (Multi-Layered and Extremely Hot)

CORE: The Earth's core contains two distinct parts although they are made up of the same elements.

- **Inner Core** – Made up of thick, dense Iron (Fe) and Nickel (Ni). A super-heating component for the Earth. It is a solid element.
- **Outer Core** – Also made up of Iron and Nickel, but this layer of the Earth's core is liquid. The inner and outer core act as a “boiler” for the Earth that heats us from the inside out.

****How do we know for sure that there is a core if no one has seen it? Lava from a fissure or volcano is our best evidence!****

MANTLE: The solid rock layer of the Earth that both surrounds the core and lies under the layer that humans live on.

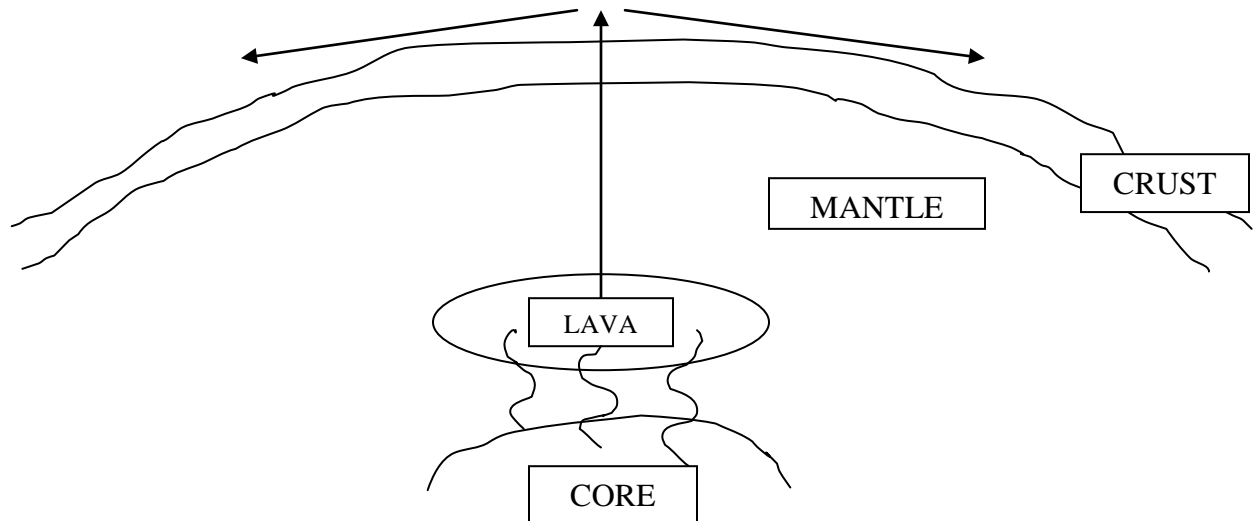
- It is approximately 1800 miles thick at any point (largest section of the Earth's make-up).
- The Mantle is “solid-ish”. The further you move away from the core the more pliable, or greasy it becomes (Imagine it almost like a peanut butter consistency; this is created from friction by its interaction with the crust).
- This section of the Earth also changes from single elements (Fe + Ni) to compounds (the rocks that we see on the surface) as you move towards the crust; this is due to exposure to water and oxygen.
- Pockets of magma throughout the mantle are created by internal heating from the core; We know this happens because we occasionally see that magma bleed out onto the surface.

CRUST: The most outwardly layer of the Earth... We should know we live there!

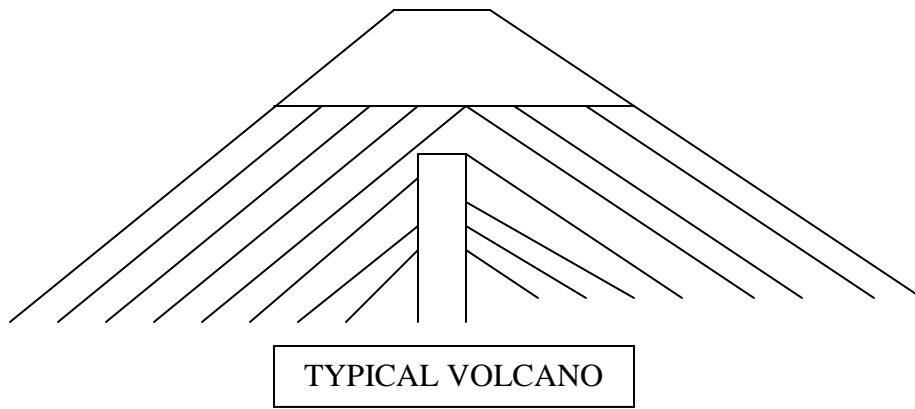
- The crust is a thin rippled layer of the Earth where all human activity takes place.
- It is 5-22 miles thick on average at any spot on Earth. It averages 5 miles thick under the oceans, because that is the newest layer of crust on Earth, and 22 miles thick above the oceans due to mountains and extremely old age.
- Remember that the crust is not one continuous layer (like an orange peel); instead it is a series of plates that are in constant motion (Plate Tectonics).

****So why does the Earth look different on the surface no matter where you go? The answer lies in the core!****

Magma, Lava, Molten Rock, or Hot Liquid Rock no matter what you call it, lava has shaped what we see on the surface of the Earth.



As the core of the Earth heats the internal structure of Earth many things result. The core sends convective waves of heat outwardly into the mantle. Weak spots in the mantle melt and create huge pools of magma that if heated long enough will begin to move outwardly towards the surface of the Earth. When the magma finds its way to the surface it bleeds out in heavy waves (similar to what you may have seen in Hawaiian volcanoes). This process may repeat itself for hundreds of millions of years until eventually a volcano is formed.



After years and years of magma reaching the surface eventually a volcano will begin to build itself, and if it get tall enough a snowcap will form with permanent ice. As you can see the internal structure of a volcano is not unlike a tree. The volcano has layers left behind from each magma release like a tree has a ring for each year.

Other answers that you need to know before we talk about Alfred Wegener and Earthquakes:

- ❑ The closest volcano to where we live is Mt. Baker! Scientists theorized that it would be the next Cascade Range volcano to erupt prior to Mt. St. Helens' eruption in 1980.
- ❑ The "Ring of Fire" is located around the edges of the continents in the Pacific Ocean. It is called the "Pacific Ring of Fire" because the majority of active volcanoes in the world are located along those plate lines.