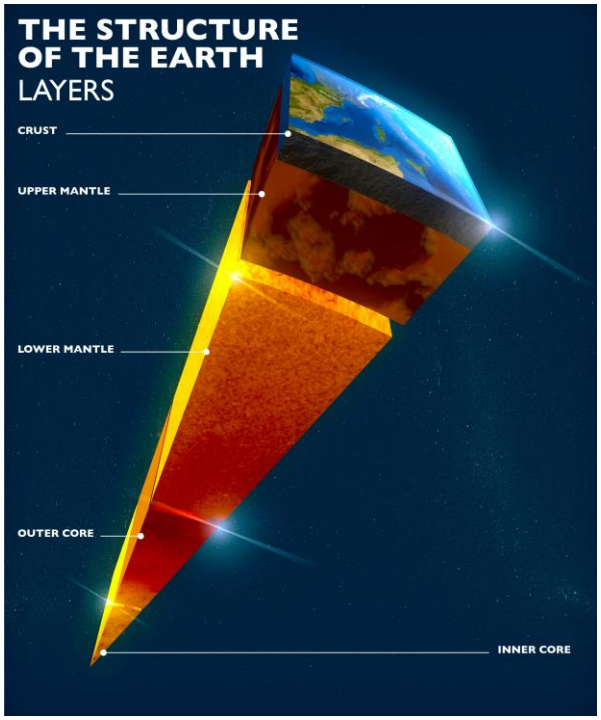
Plate Tectonics

Section I: Earth's Interior

Geologists use two main types of evidence to learn about Earth's interior. They use direct evidence from rock samples and indirect evidence from seismic waves. Holes are drilled deep inside Earth, bringing up rock samples that allow geologists to make inferences about conditions there. Indirect evidence from seismic waves also provides information about Earth's interior. **Seismic waves** produced by earthquakes allow scientists to measure the speed in which they travel, giving clues to the structure of the planet.



There are three main layers of the Earth that vary greatly in size, composition, temperature, and pressure. First, the **crust** is the layer of solid rock that form's the Earth's outer "skin." It includes both the dry land and the ocean floor. Oceanic crust consists mostly of rocks such as basalt. Continental crust, or the crust that forms the continents, consists mostly of granite.

The next layer is the **mantle**, which played a major role in the shaping of the Earth. It is a layer of solid, hot rock forty kilometers beneath the surface, and it is divided into layers. The **lithosphere** is the uppermost part of the mantle and the crust that forms a ridge layer about 100 kilometers thick. The **asthenosphere** is the softest part of the mantle below the lithosphere, which is hotter and under increased pressure. The **lower mantle** is made of solid material extending all the way to the Earth's core. The final layer is the **core**, which is made mostly of the metals iron and nickel. It consists of two parts. The **outer core** is the layer of molten metal that surrounds the inner core. The **inner core** is a dense ball of solid metal. Movement of the liquid outer core creates the Earth's magnetic field.

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