

Earth's Layers

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Geological Technology Standards

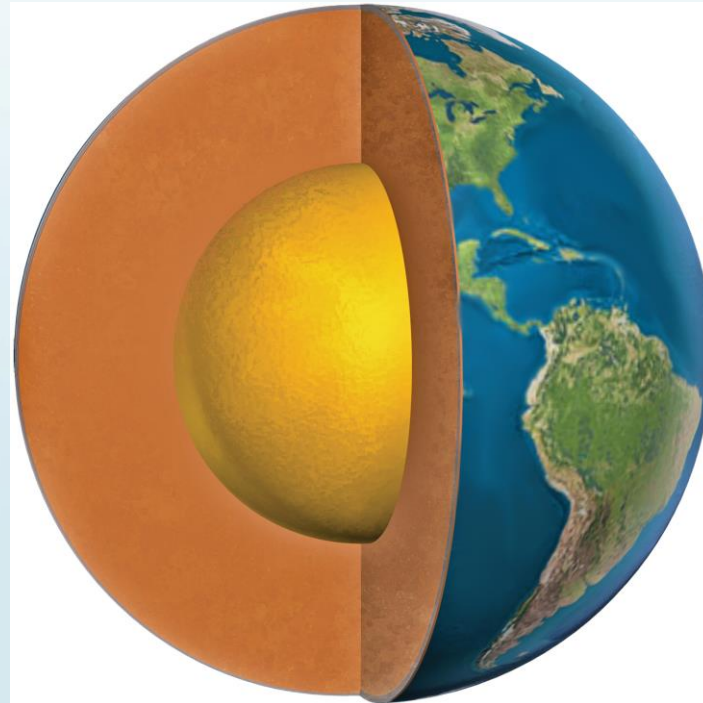
Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

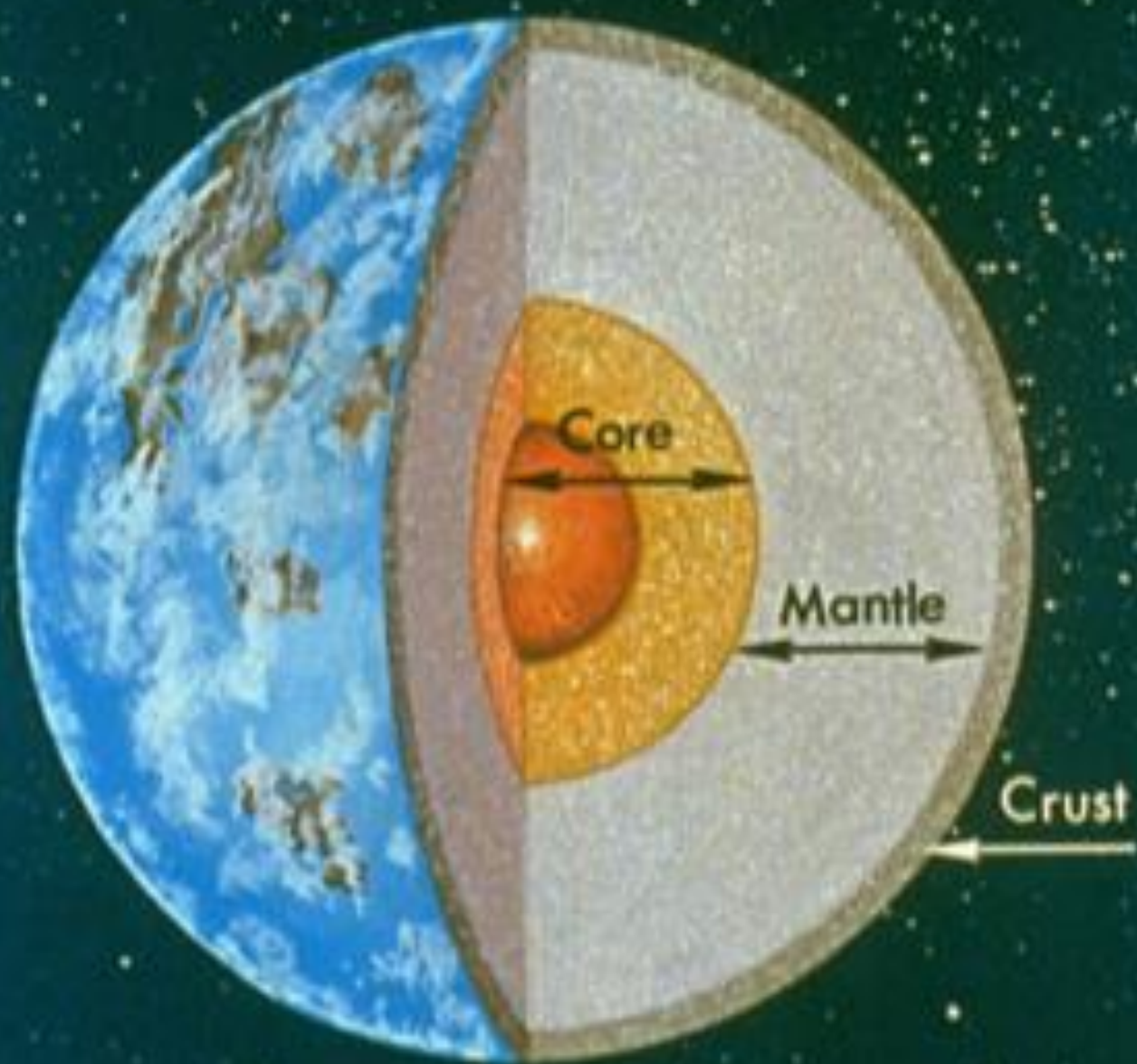
What is inside Earth?

- Earth is made of several layers.
- Each layer has its own characteristic properties.
- Scientists think about Earth's layers in two ways—in terms of chemical composition, and in terms of physical properties.

What are Earth's compositional layers?

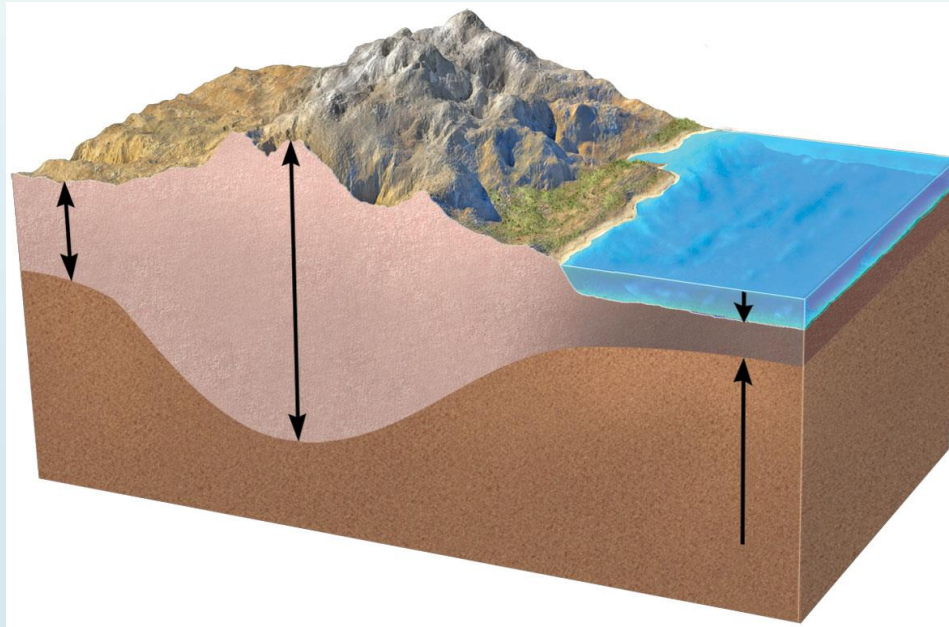
- Earth can be divided into three layers based on chemical composition: the **crust, the mantle, and the core.**





What are Earth's compositional layers?

- The outermost solid layer of Earth is the **crust**.
- There are two types of crust: **continental and oceanic**.

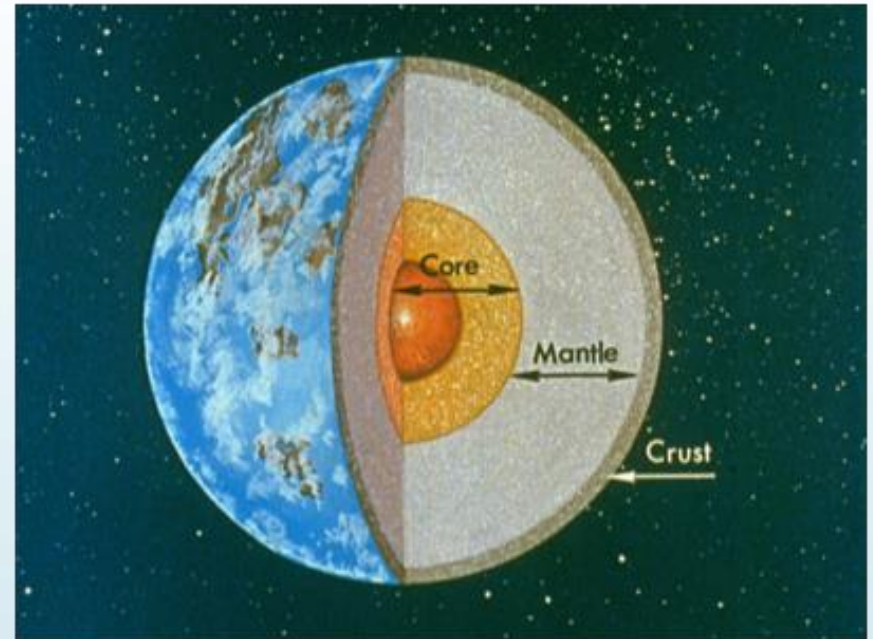


What are Earth's compositional layers?

- Both types of crust are made mostly of **oxygen, silicon, and aluminum**.
- **Oceanic crust** is denser than continental crust because it contains almost twice as much **iron, calcium, and magnesium**.

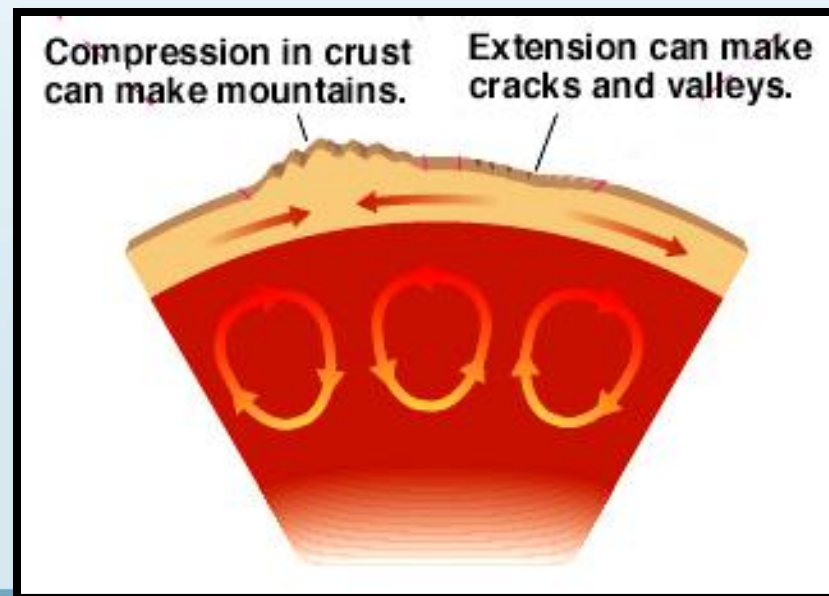
What are Earth's compositional layers?

- The **mantle** is located between the crust and the core.
- The mantle is a region of hot, slow-flowing solid rock.
- The mantle contains more magnesium and less aluminium and silicon than the crust.



What are Earth's compositional layers?

- **Convection** is the movement of heated material as a result of differences in density.
- Convection in the mantle causes cooler rock to sink and warmer rock to rise.

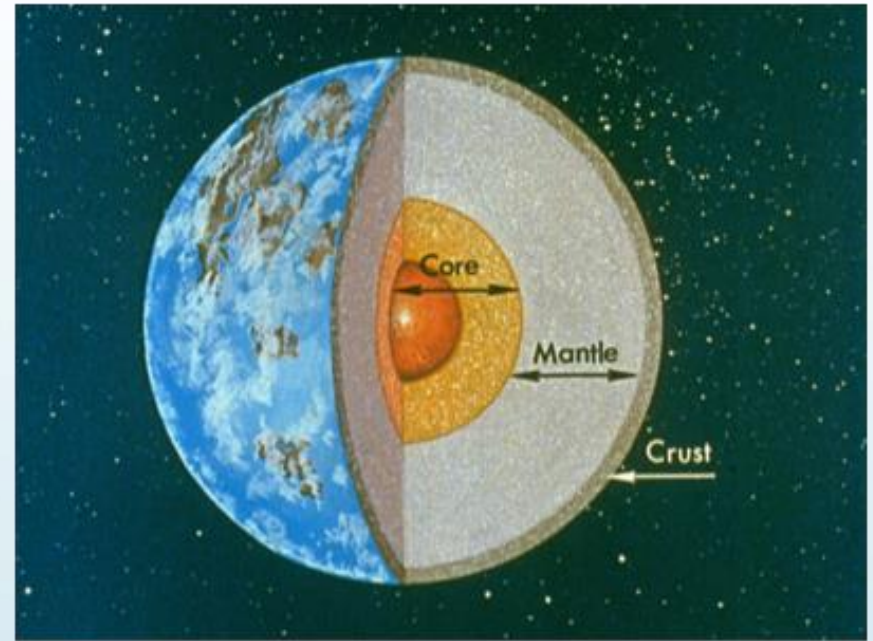


REVIEW!!

- What are the 3 compositional layers of the earth?
 - Crust, Mantle, Core
- Name the 2 types of crust
 - Continental, oceanic
- What occurs in the mantle that moves lithospheric plates?
 - Convection
- What is the core made of?
 - Iron and nickel

What are Earth's compositional layers?

- The **core** extends from below the mantle to the center of Earth.
- Scientists think the core is made mostly of iron and some nickel.
- The core is the densest layer and makes up about one-third of Earth's mass.



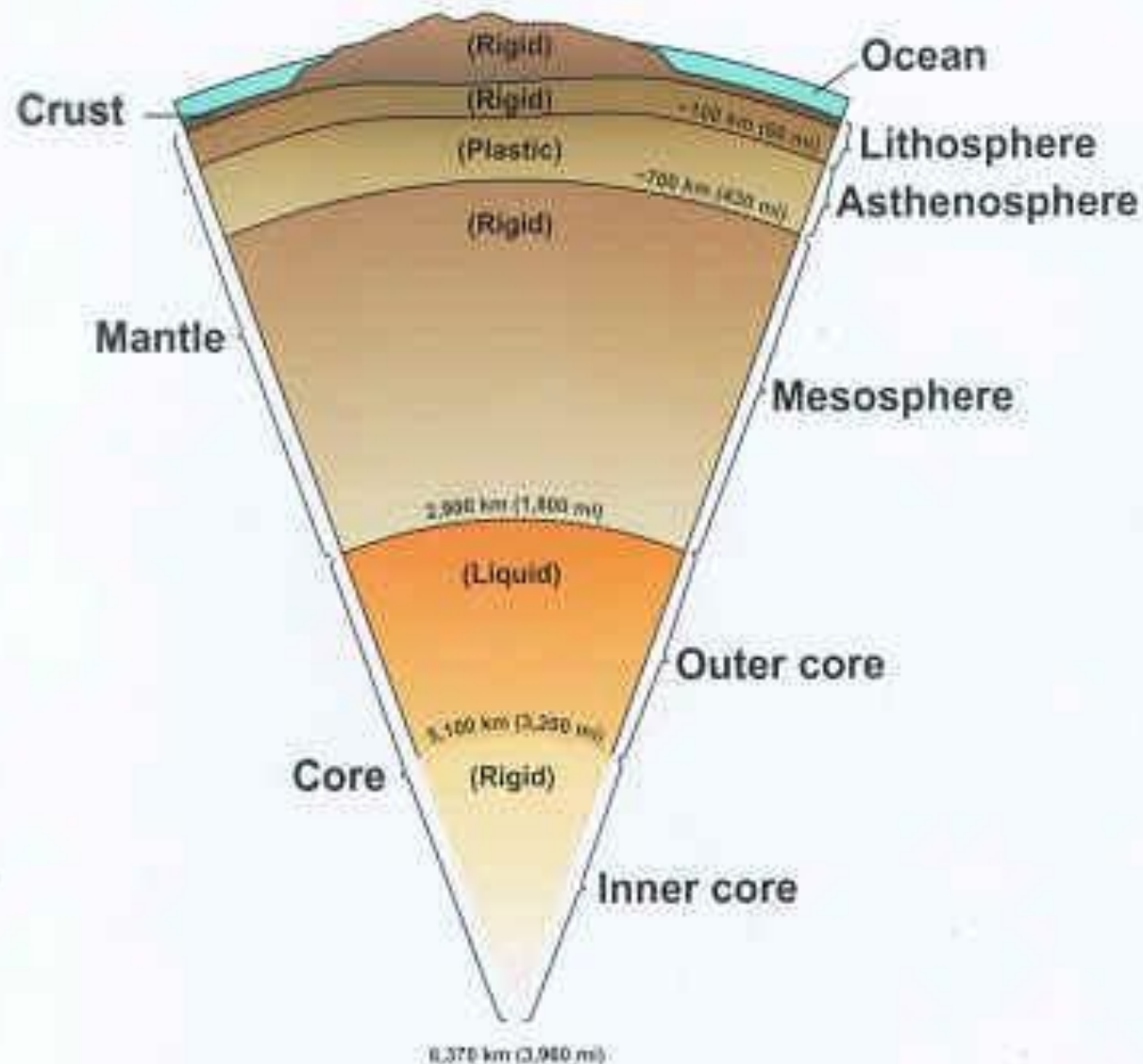
What are Earth's physical layers?

- Earth is also divided into layers based on physical properties, such as whether the layer is solid or liquid.
- The five physical layers are the *lithosphere*, *asthenosphere*, *mesosphere*, *outer core*, and *inner core*.
- Meso = middle
- Sphere = ball



CHEMICAL COMPOSITION

PHYSICAL PROPERTIES



What are Earth's physical layers?

- The outermost, rigid layer of Earth is the **lithosphere**.
- The lithosphere is made of the crust and the upper part of the mantle.
- The lithosphere is divided into tectonic plates.



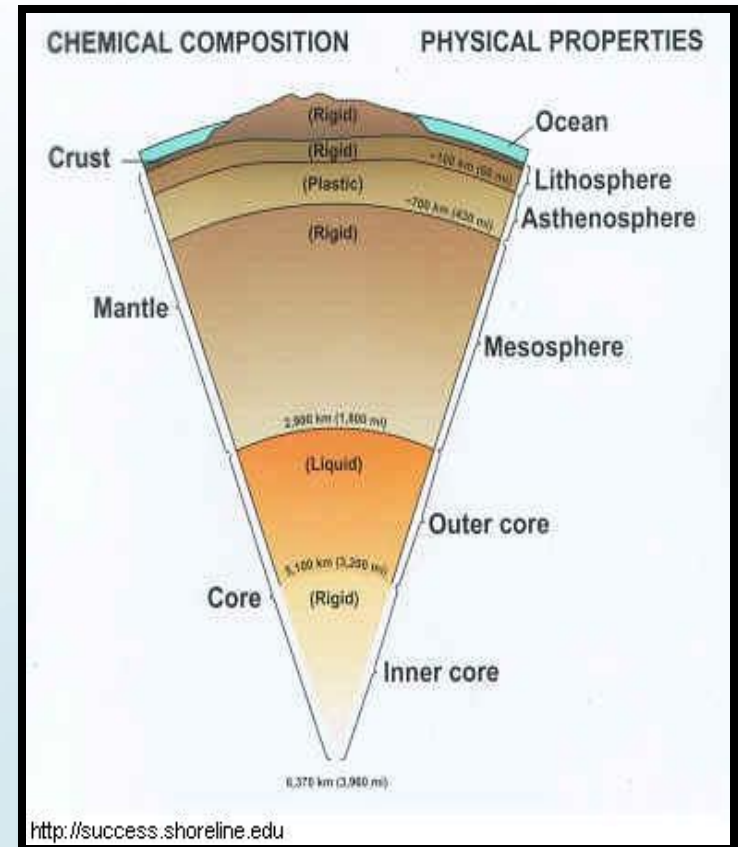
What are Earth's physical layers?

- The **asthenosphere** is the layer of the mantle made of solid rock that moves very slowly.
- The asthenosphere is located below the lithosphere.
- Tectonic plates move on top of the asthenosphere.



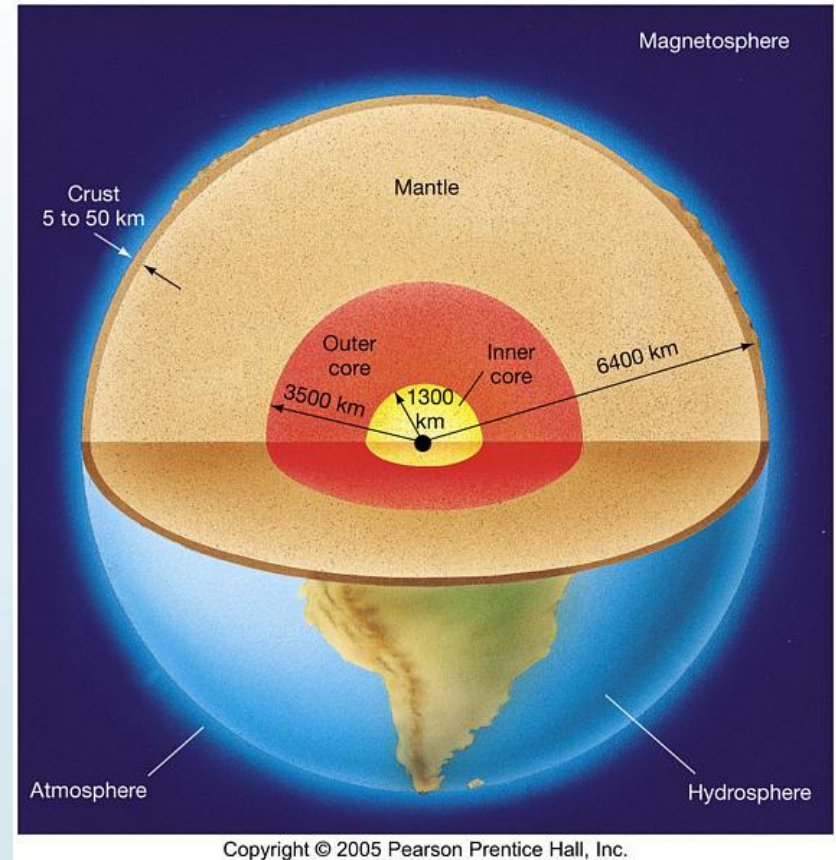
What are Earth's physical layers?

- The strong, lower part of the mantle is called the **mesosphere**.
- Rock in the mesosphere flows more slowly than rock in the Asthenosphere.



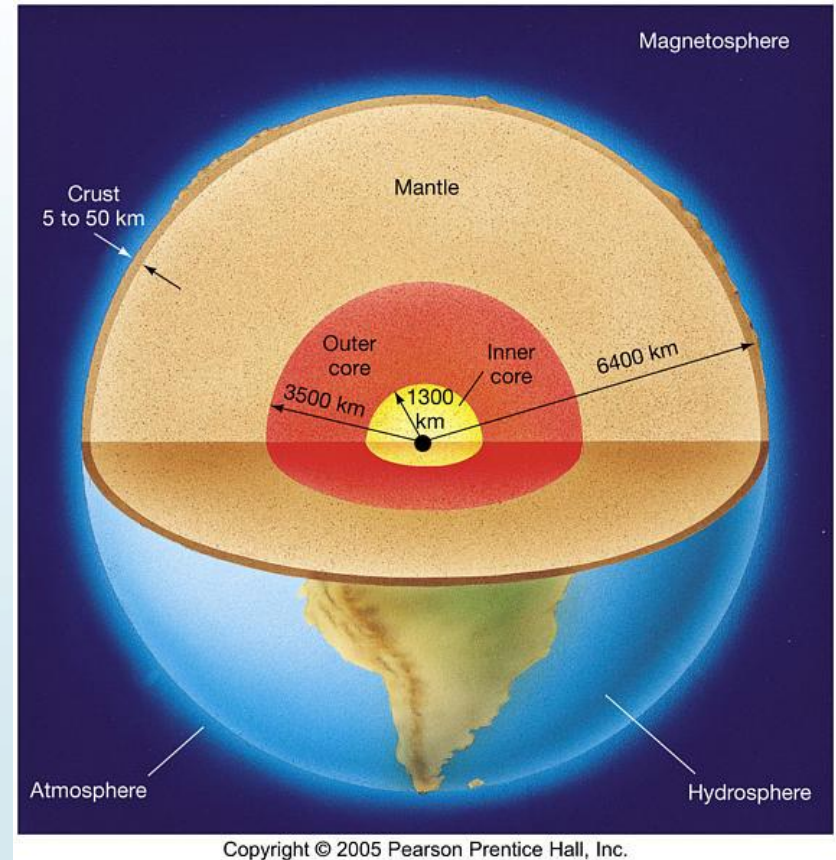
What are Earth's physical layers?

- The **outer core** is the liquid layer of Earth's core.
- The outer core lies beneath the mantle and surrounds the inner core.



What are Earth's physical layers?

- The **inner core** is the solid, dense, center of our planet.
- The inner core extends from the bottom of the outer core to the center of Earth.



Study Guide

- Know the 4 (core divided) compositional layers of the Earth
- Know the 5 physical layers of the Earth
- Know where the layers are located
- Know properties of each layer
- Know what each layer is composed of
- Know **ALL** vocabulary terms