



SCIENCE  
**Fusion** Grade 7  
HOLT McDOUGAL

# PowerNotes

## Unit 4 Lesson 5 Earth's Layers

## New Jersey Standards

- **MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.**



# Peeling the Layers

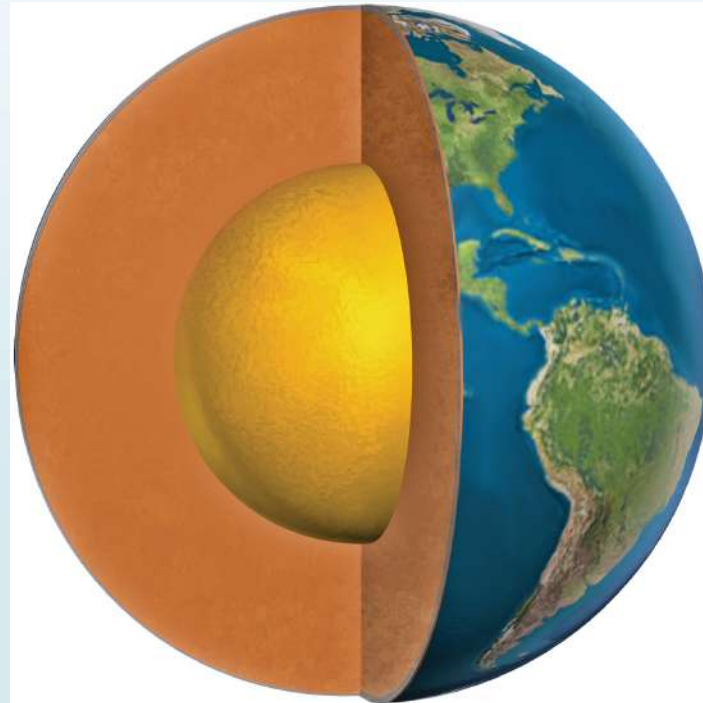
## What is inside Earth?

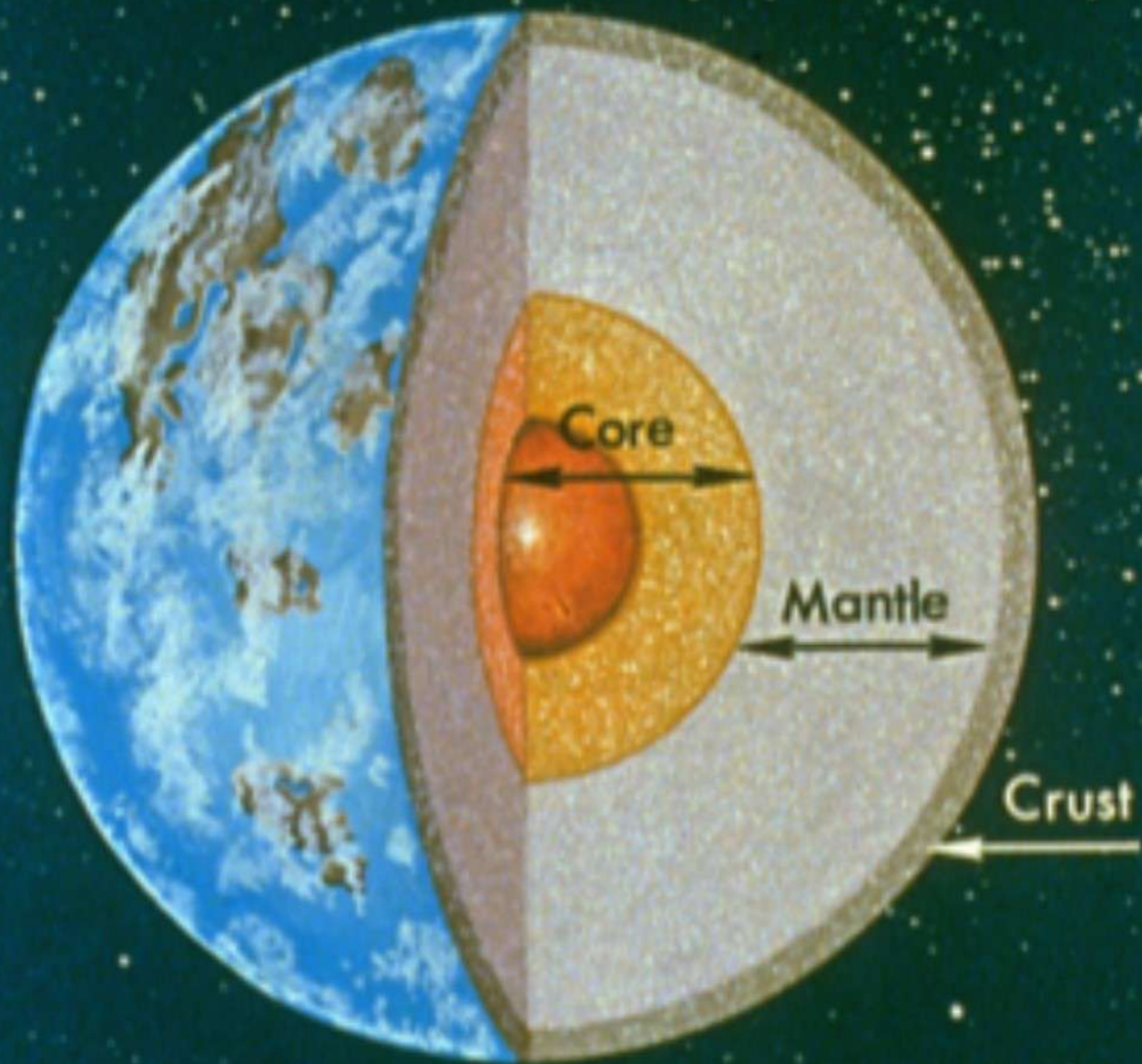
- Earth is made of several layers.
- Each layer has its own characteristic properties.
- Scientists think about Earth's layers in two ways—in terms of chemical composition, and in terms of physical properties.



# What are Earth's compositional layers?

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

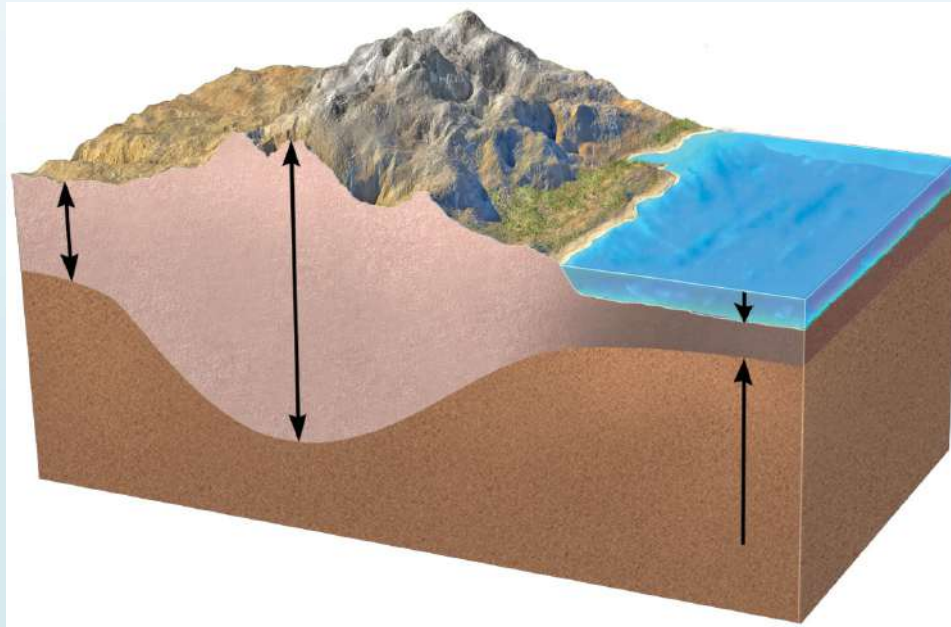






# What are Earth's compositional layers?

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



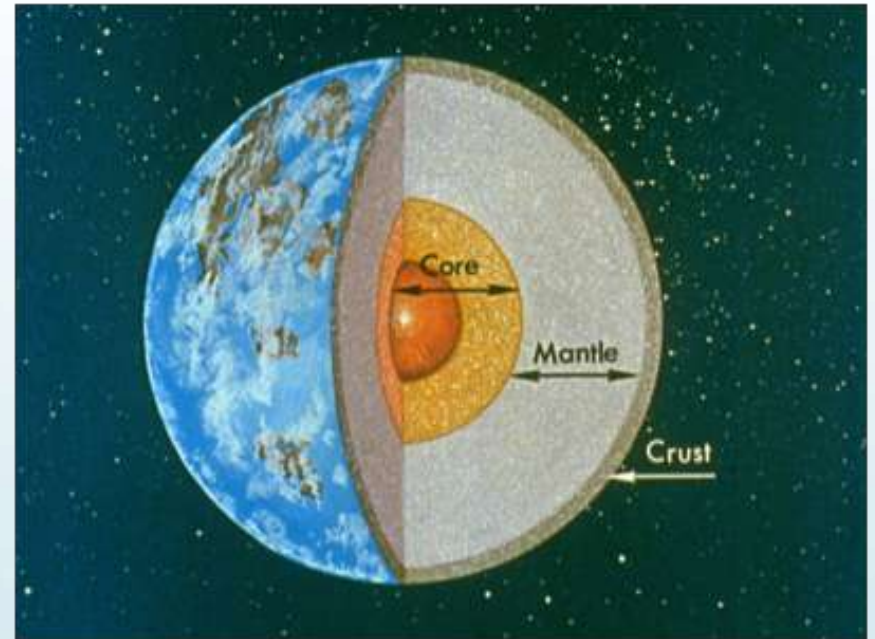
## What are Earth's compositional layers?

- 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?

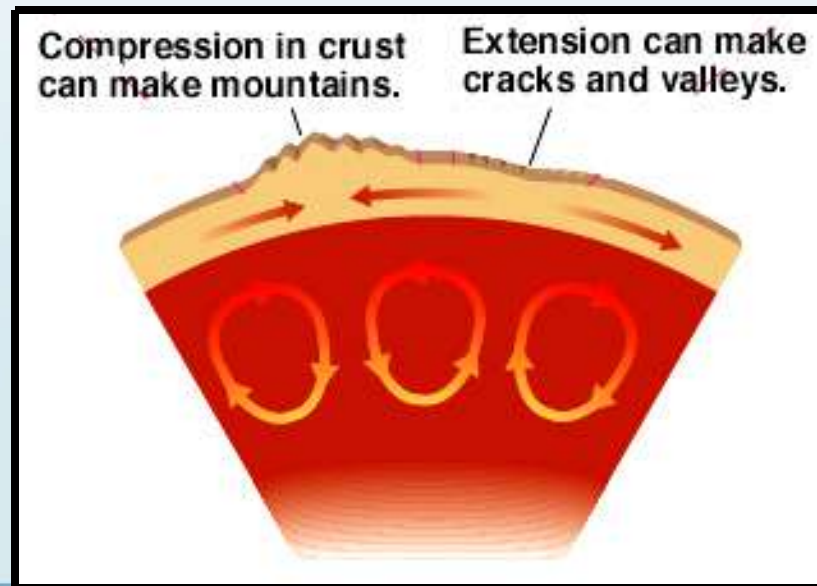
- The **mantle** is located between the crust and the core.
- The mantle is a region of hot, slow-flowing solid rock.
- The mantle contains more magnesium and less aluminium and silicon than the crust.





## 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.

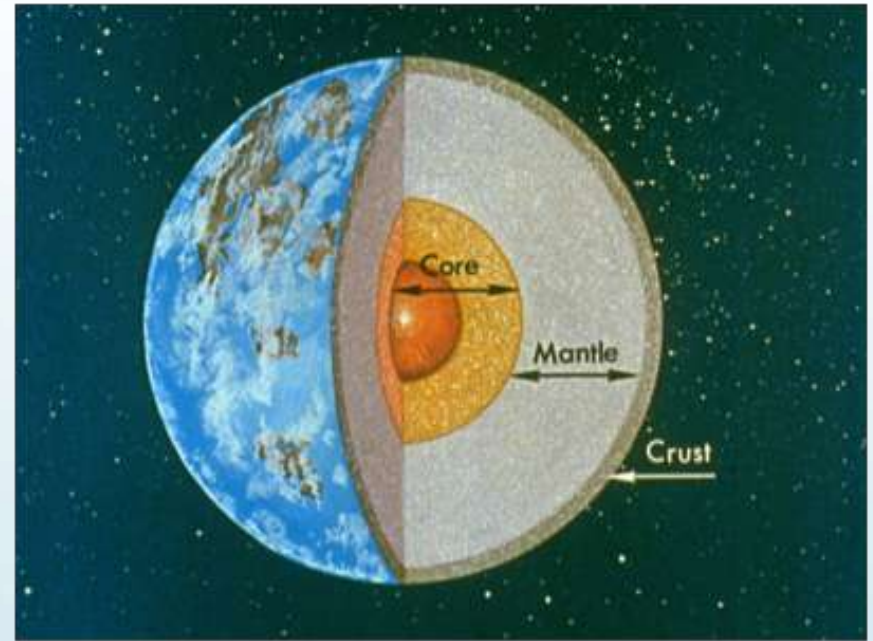


# REVIEW!!

- 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.



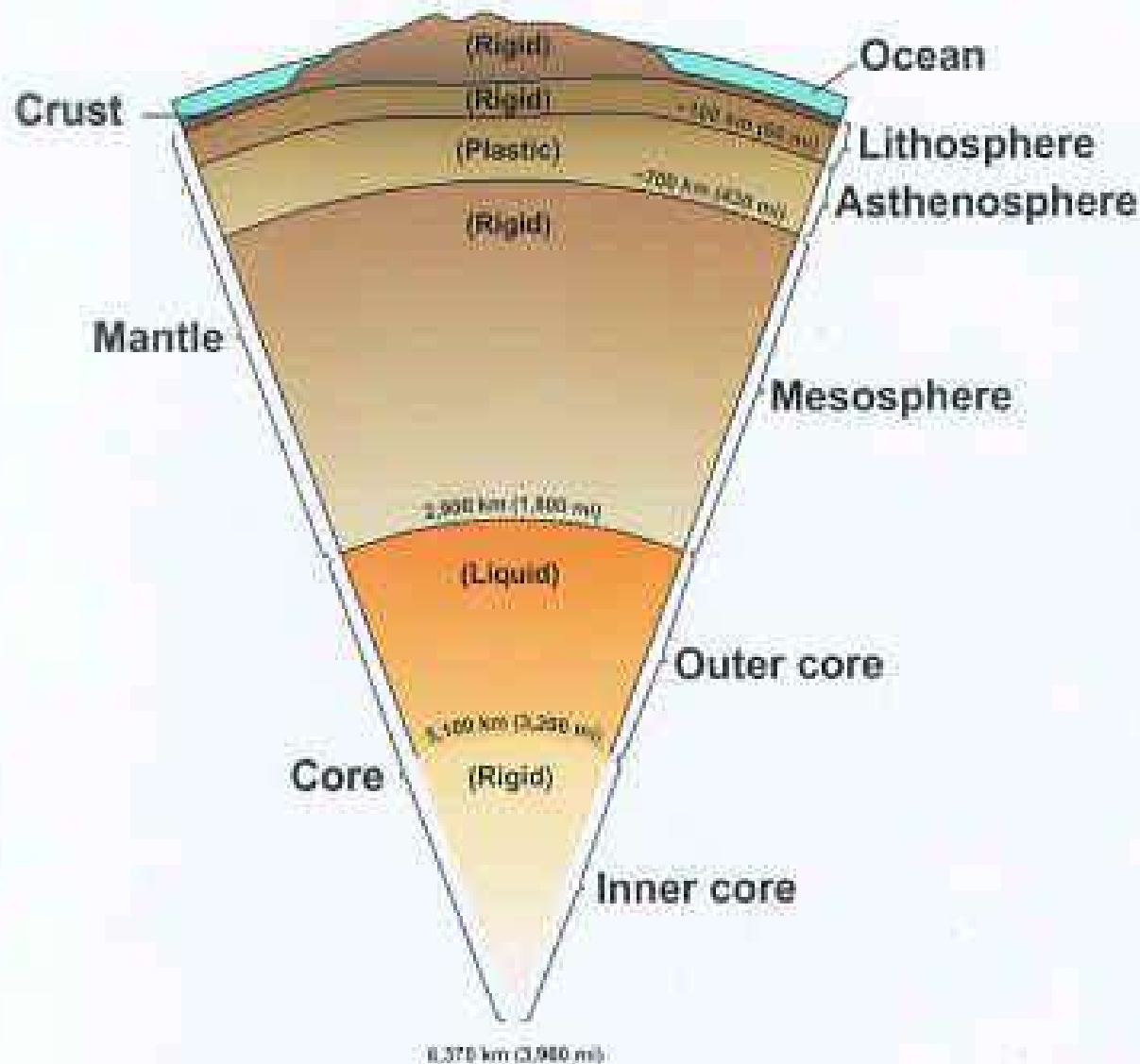
# What are Earth's physical layers?

- 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.





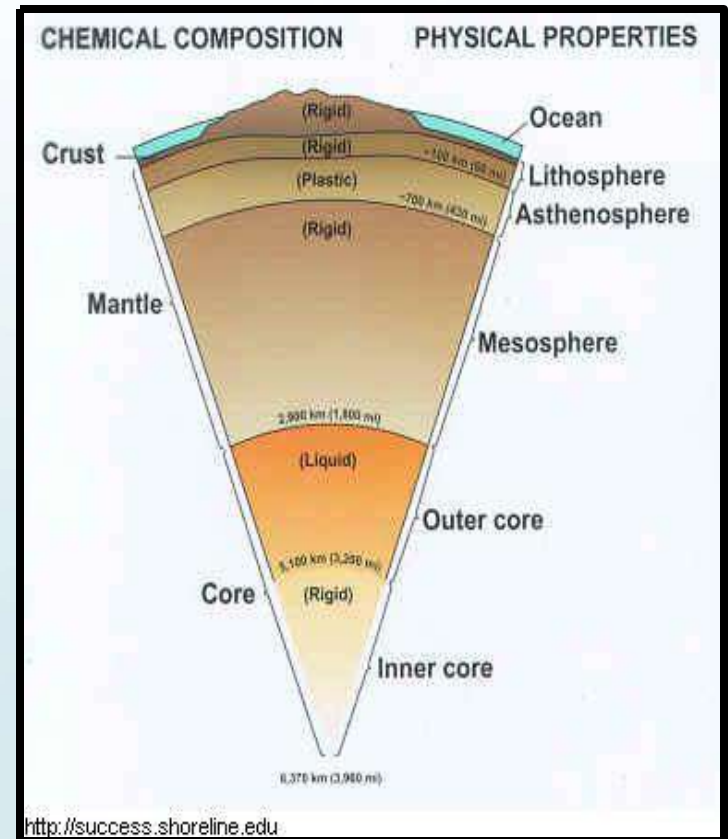
### What are Earth's physical layers?

- 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.



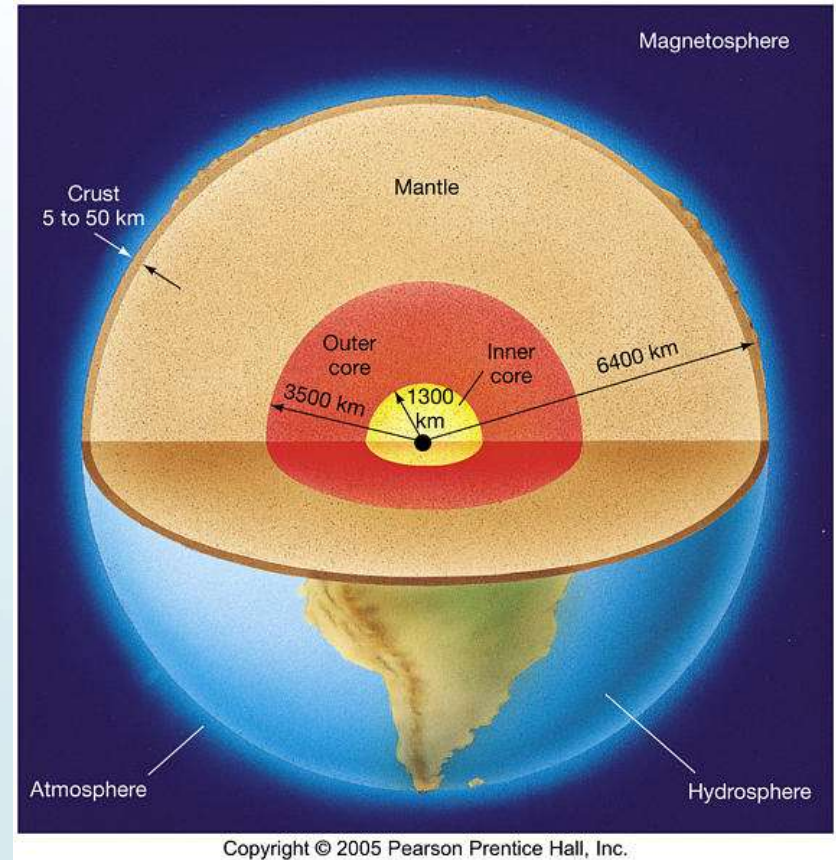
# What are Earth's physical layers?

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



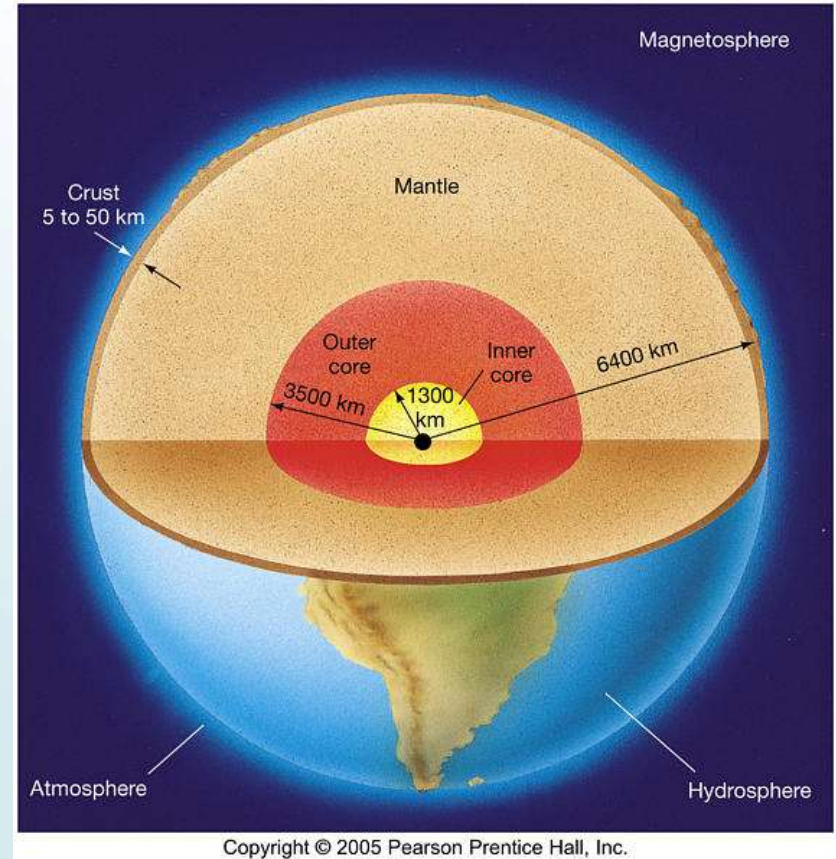
## What are Earth's physical layers?

- 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