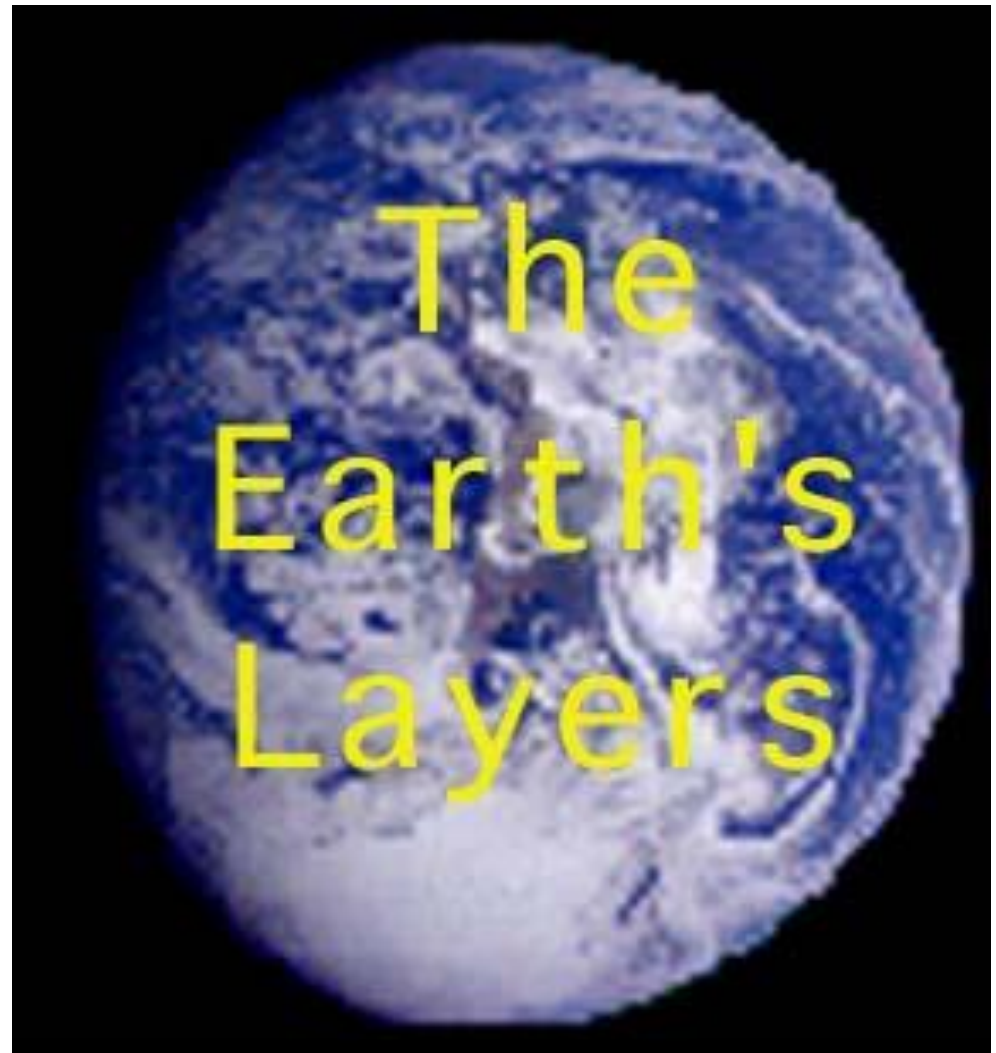


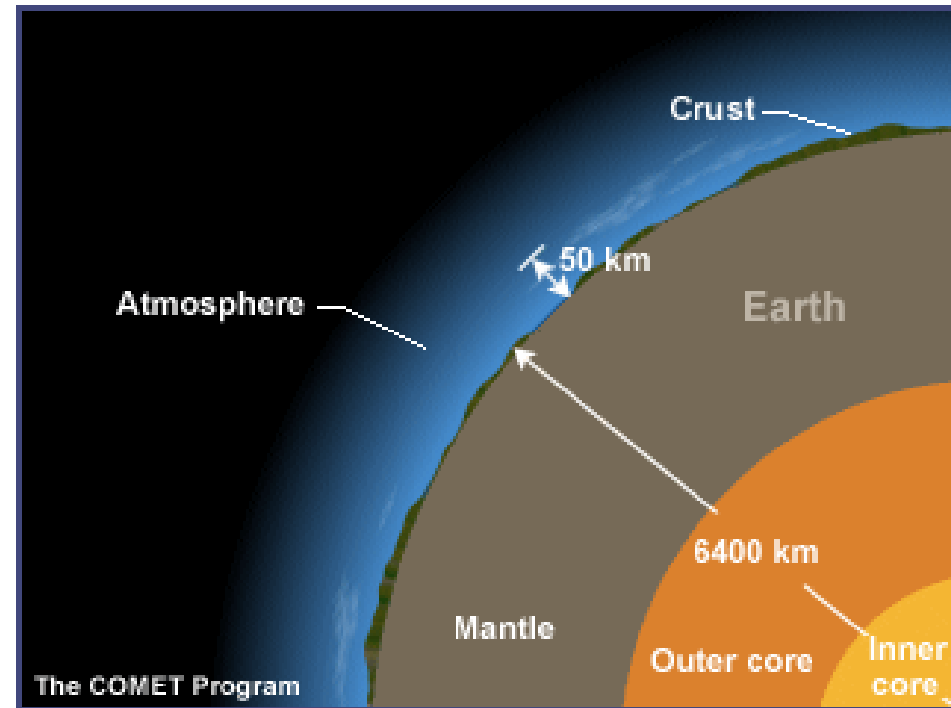
# CH 8.4



**Objective:** Understand how Earth formed  
Identify the layers of Earth

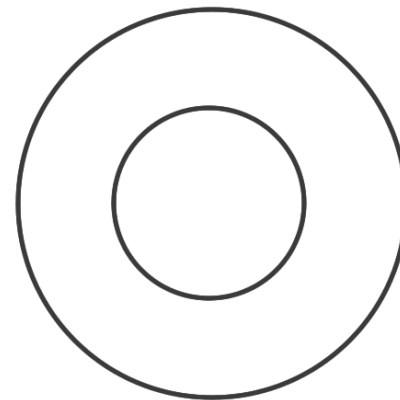
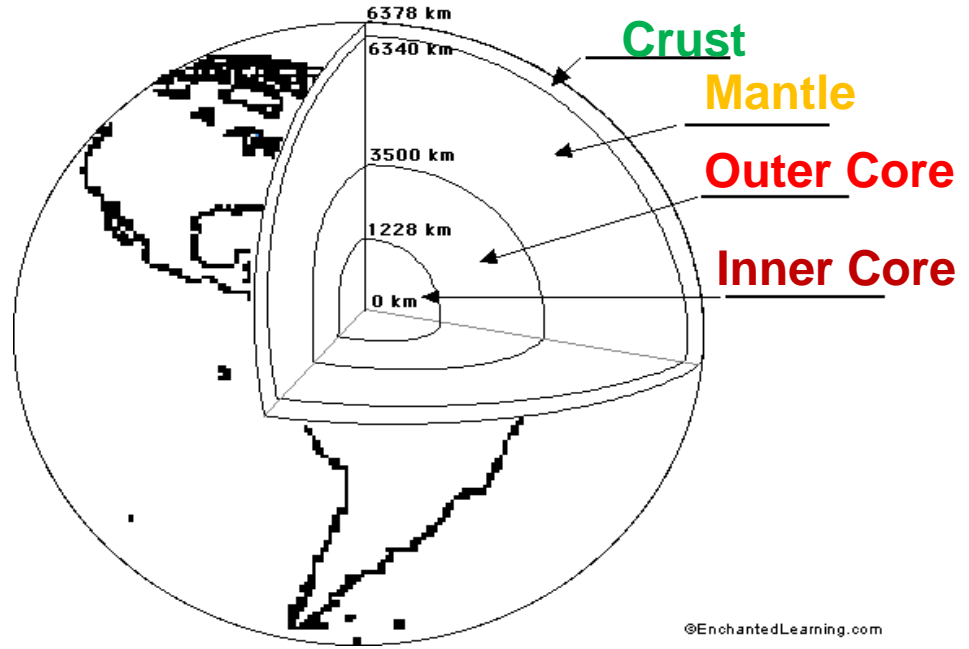
# The Layers of Earth

- The Earth is composed of four different layers.
- As the Earth cooled the heavier, denser materials sank to the center and the lighter materials rose to the top.
- Because of this, the crust is made of the lightest materials (rock- basalts and granites) and the core consists of heavy metals (nickel and iron).

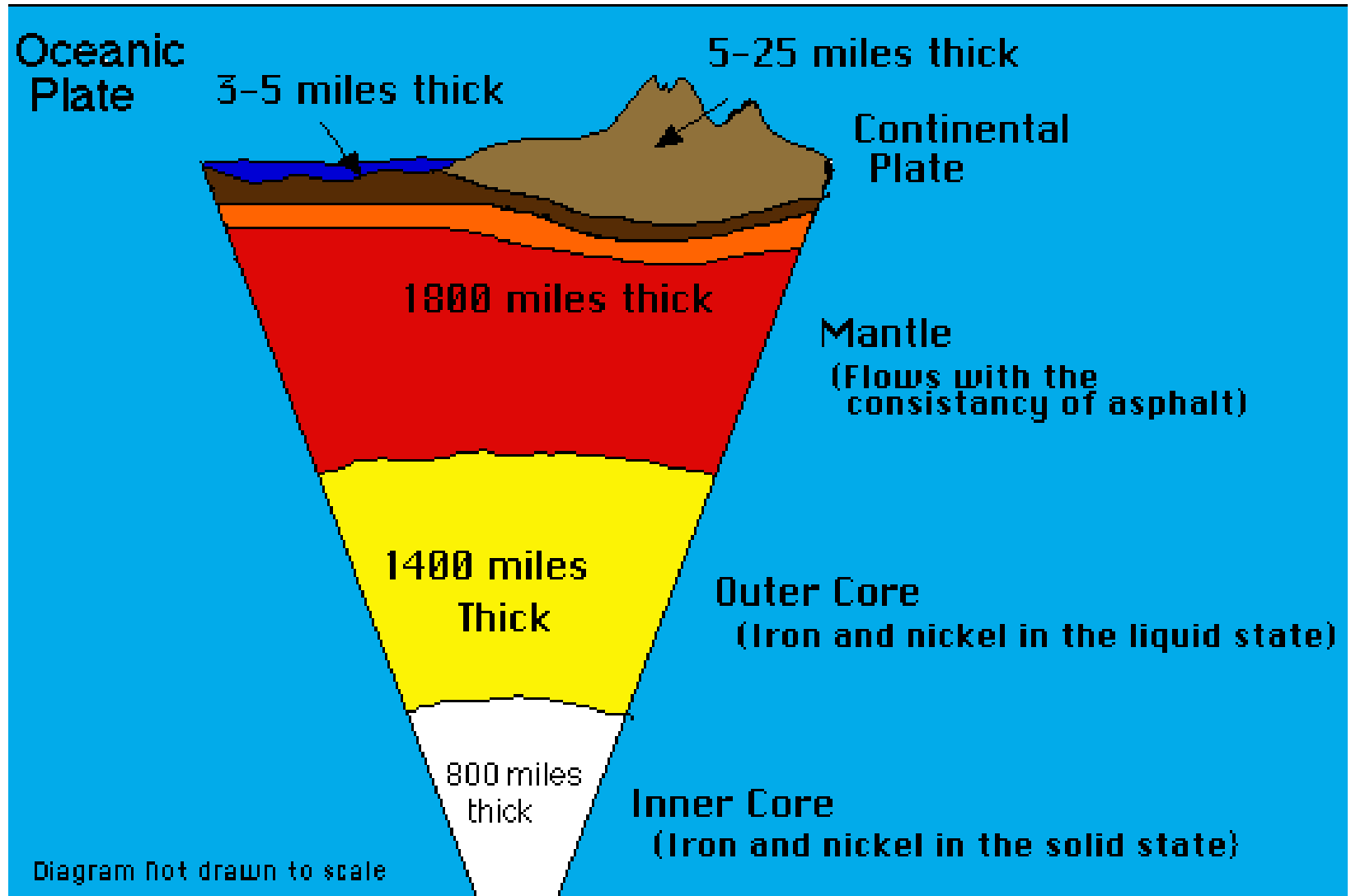


# The Layers of Earth

- The **crust** is the layer that you live on.
- The **mantle** is much hotter and has the ability to flow.
- The **Outer and Inner Cores** are hotter still
  - *Pressures so great that you would be squeezed into a ball smaller than a marble if you were able to go to the center of the Earth!!!!!!*

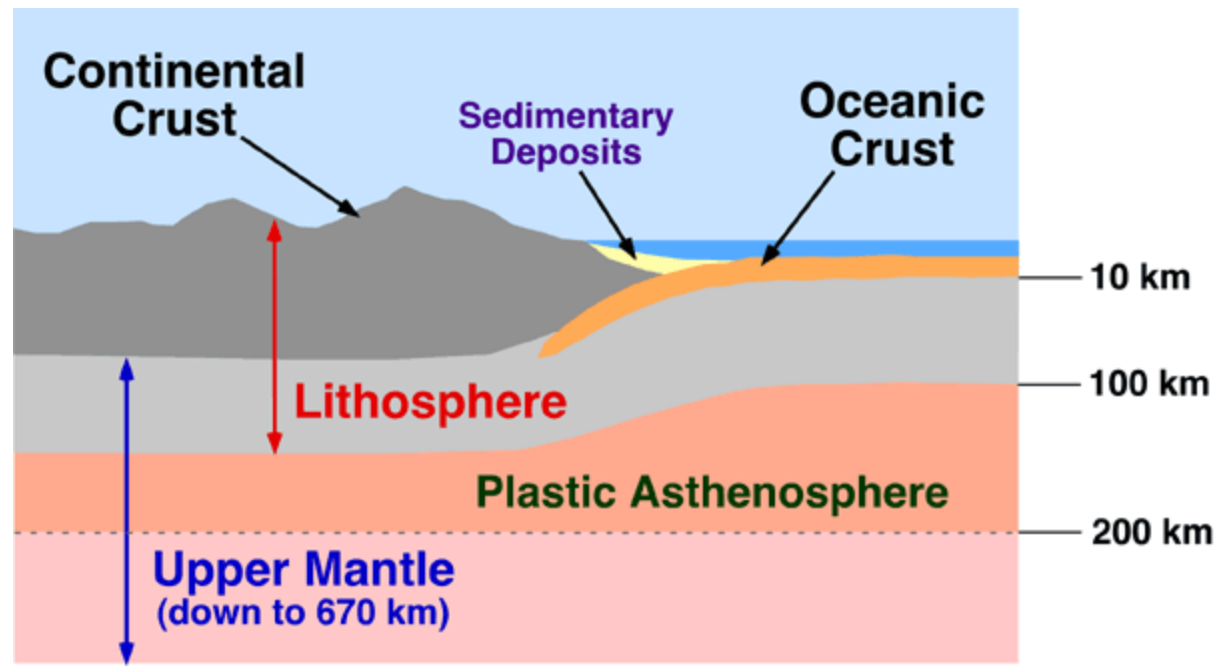
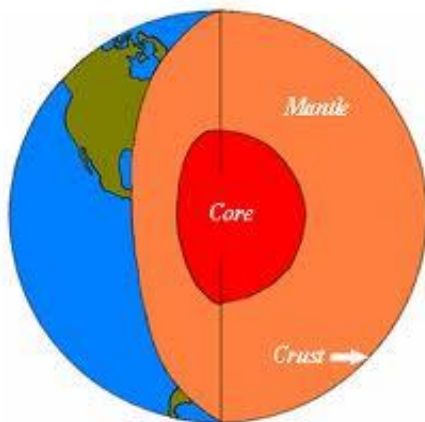


# The Four Layers

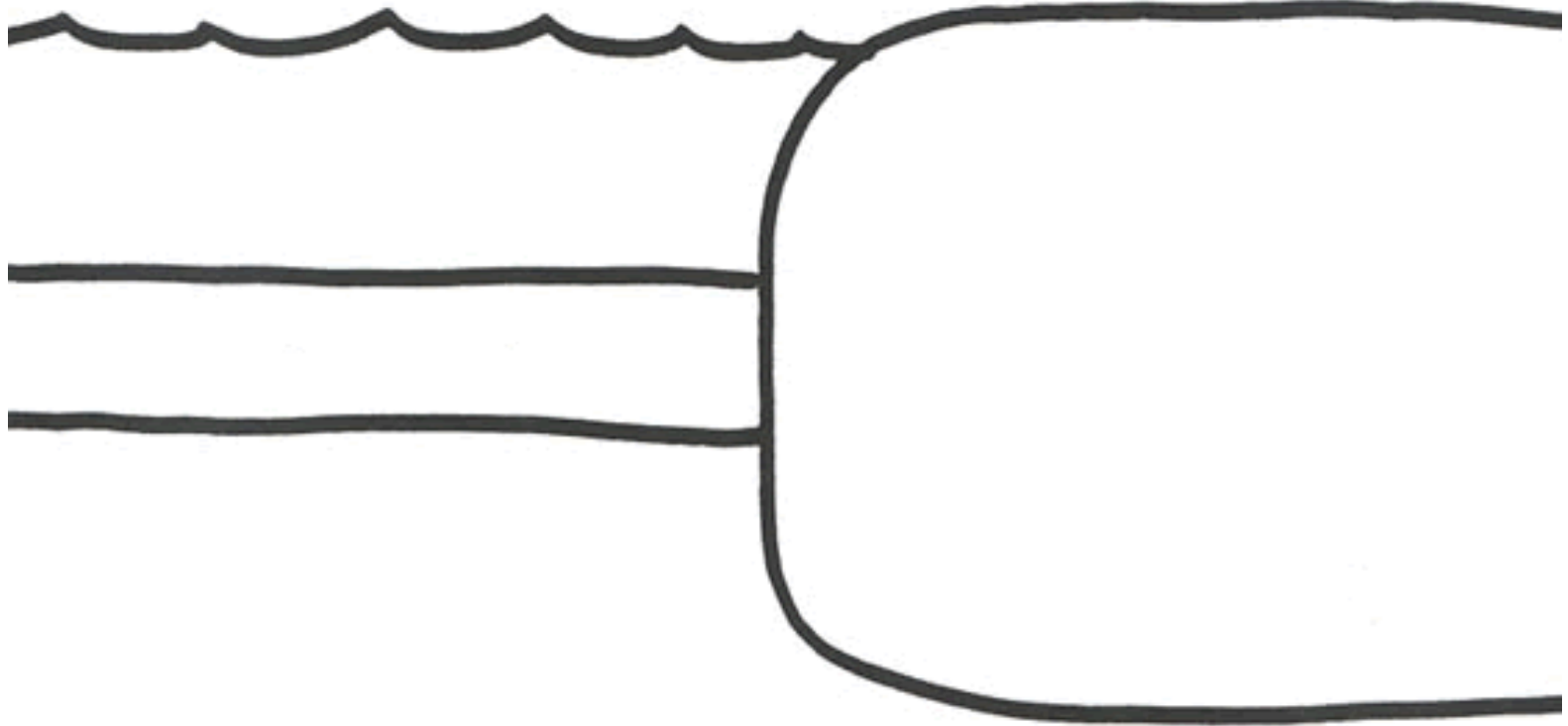


# The Layers of Earth

- **Lithosphere** – includes the crust and the upper mantle.
- **Asthenosphere** – a layer of the mantle that is composed of materials that flow



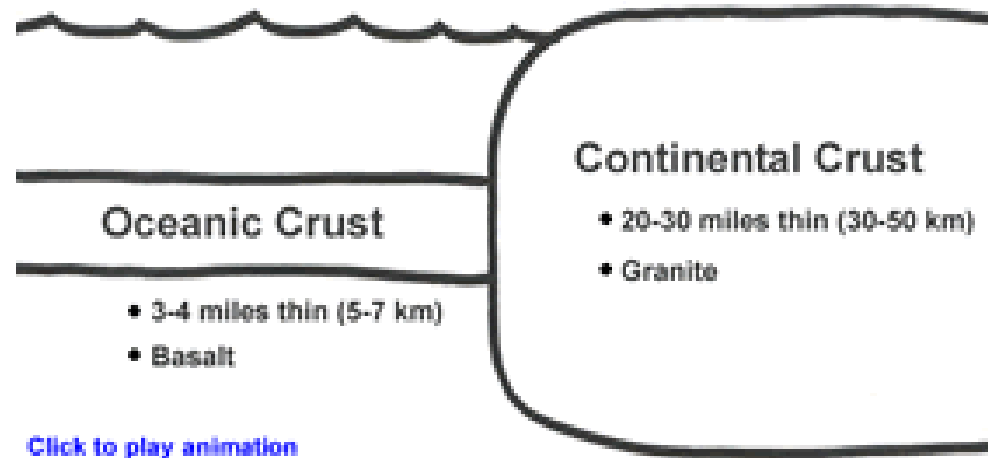
# 2 types of crust



- Oceanic crust is more dense than continental crust
- Continental crust is older.

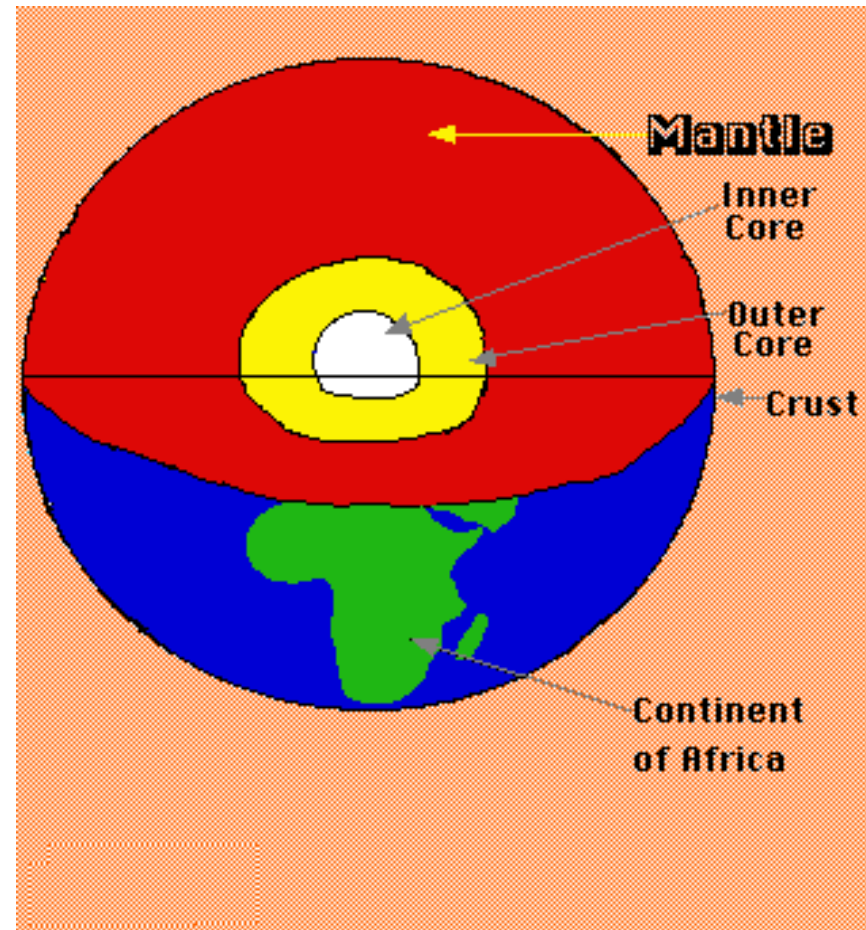
# The Crust

- The crust of the Earth is broken into many pieces called plates.
- The plates "float" on the soft, plastic mantle which is located below the crust.
- A crack in the crust is called a *fault*.
- *Joke: One mountain said to the other across the rift "Hey, it's not my fault!"*

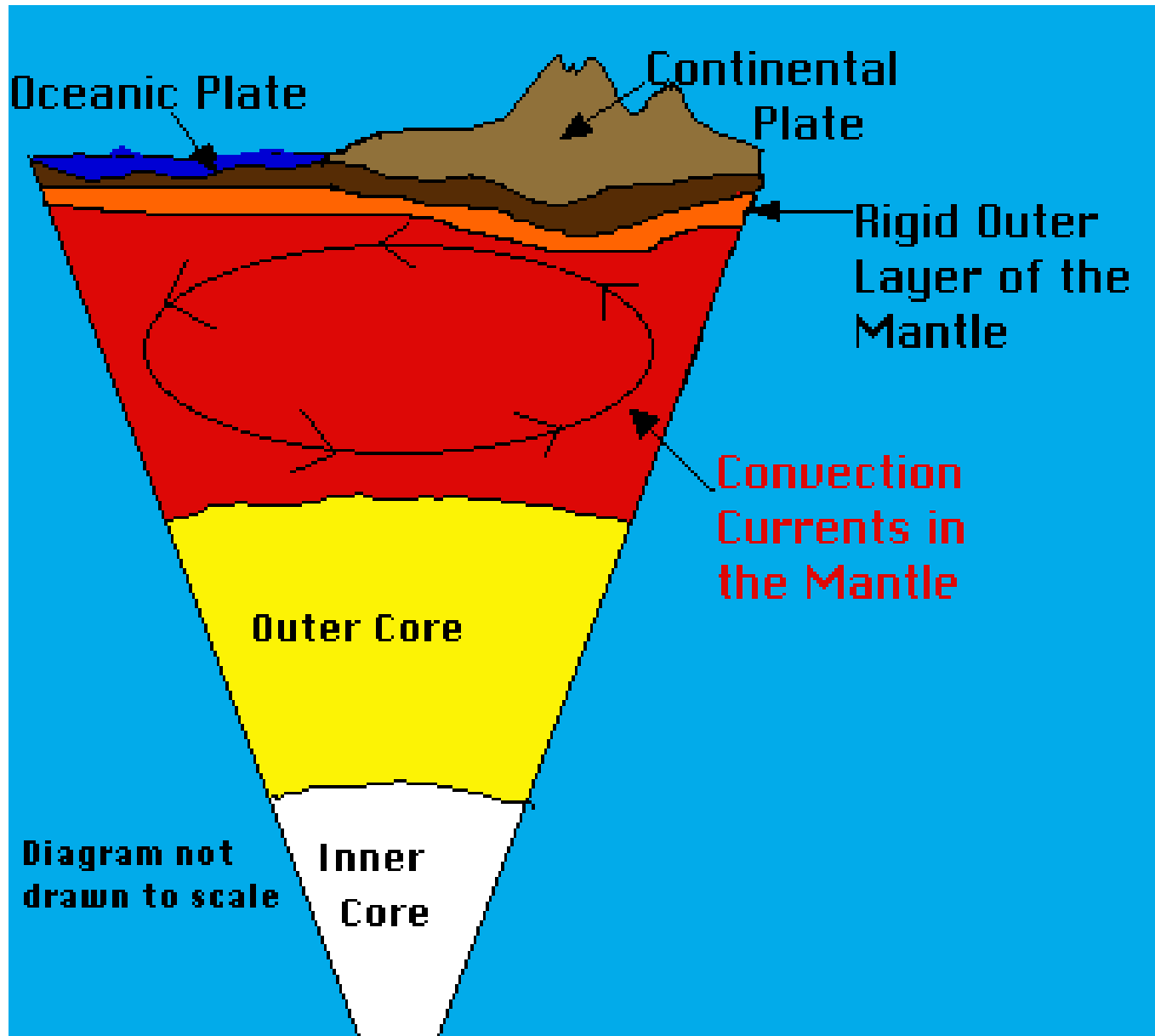


# The Mantle

- located directly under the crust.
- **It is the largest layer of the Earth, 1800 miles thick.**
- The mantle is composed of very hot, dense rock.
- The mantle flows due to great temperature differences from the bottom to the top of the mantle. **(convection currents)**
- **The movement of the mantle is the reason that the plates of the Earth move!**

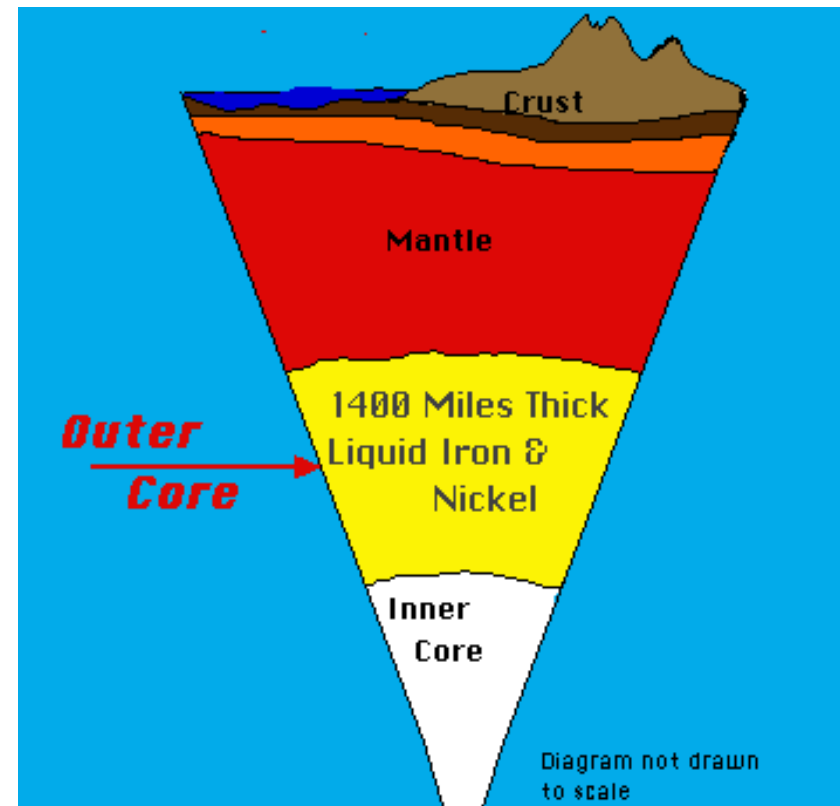


# Convection Currents



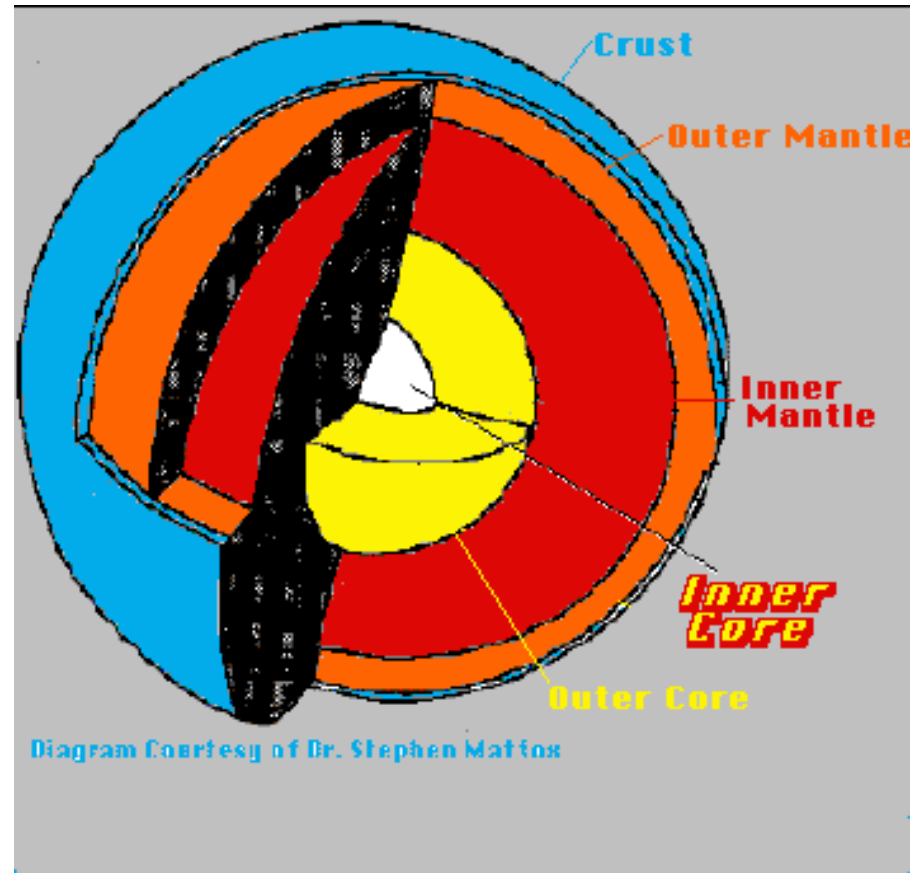
# Outer Core

- The core of the Earth is like a ball of very hot metals. (4000 degrees F. to 9000 degrees F.)
- The *outer core* is so hot that the metals in it are all in the liquid state.
- The outer core is composed of the melted metals nickel and iron.



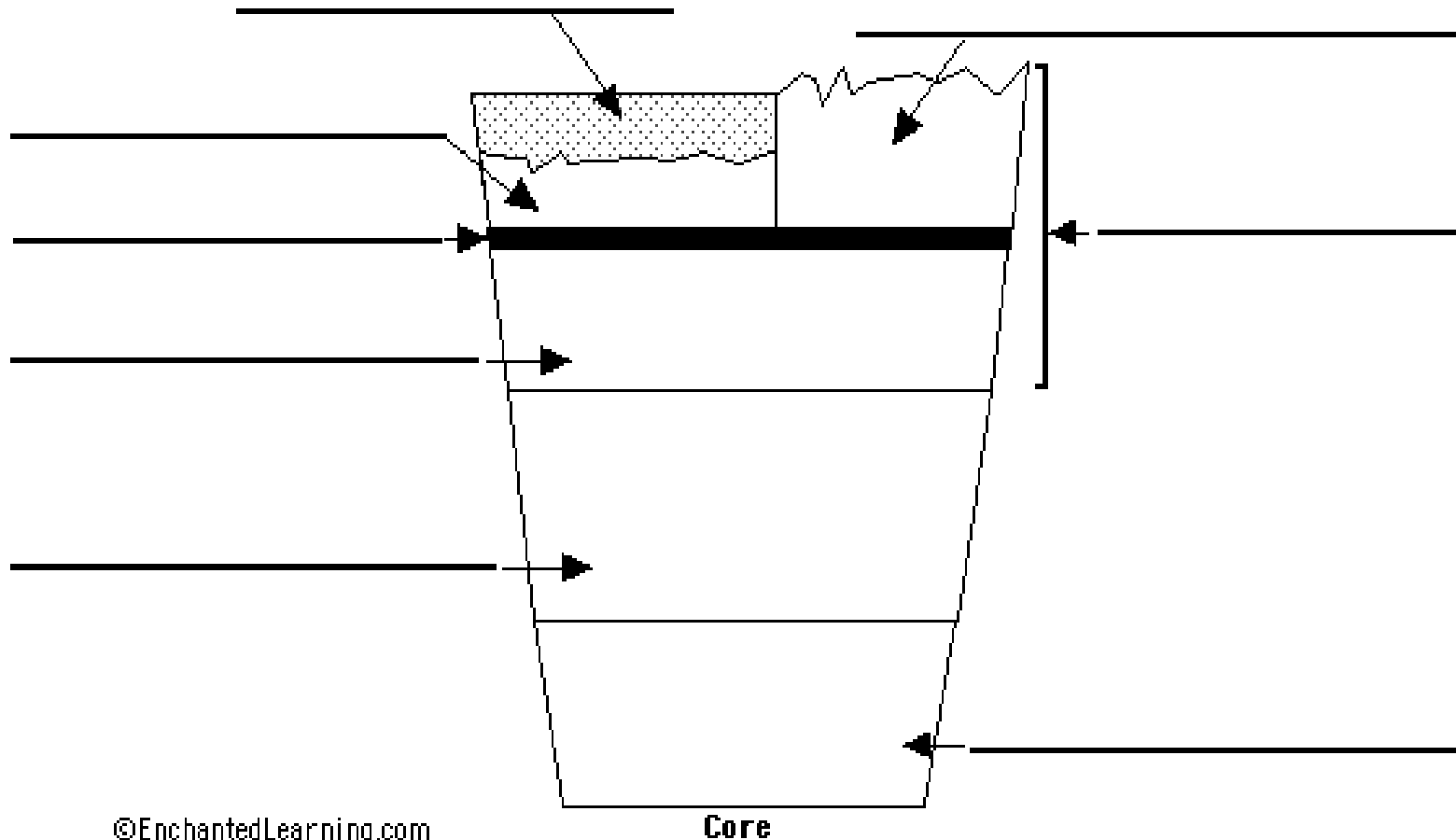
# Inner Core

- The inner core of the Earth has temperatures and pressures so great that the metals (solid iron and nickel) are squeezed together and are not able to move about like a liquid, but are forced to vibrate in place as a solid.
- **Inner core is made up of solid iron and nickel.**
- The temperatures may reach 9000 degrees °F(2,000 – 5,000°C).
- *Tip - the pressures are 45,000,000 pounds per square inch. This is 3,000,000 times the air pressure on you at sea level!!!*



# Label the Outer Layers of the Earth

- *Read the definitions below, then label the outer layers of the Earth.*



# Label the Outer Layers of the Earth

