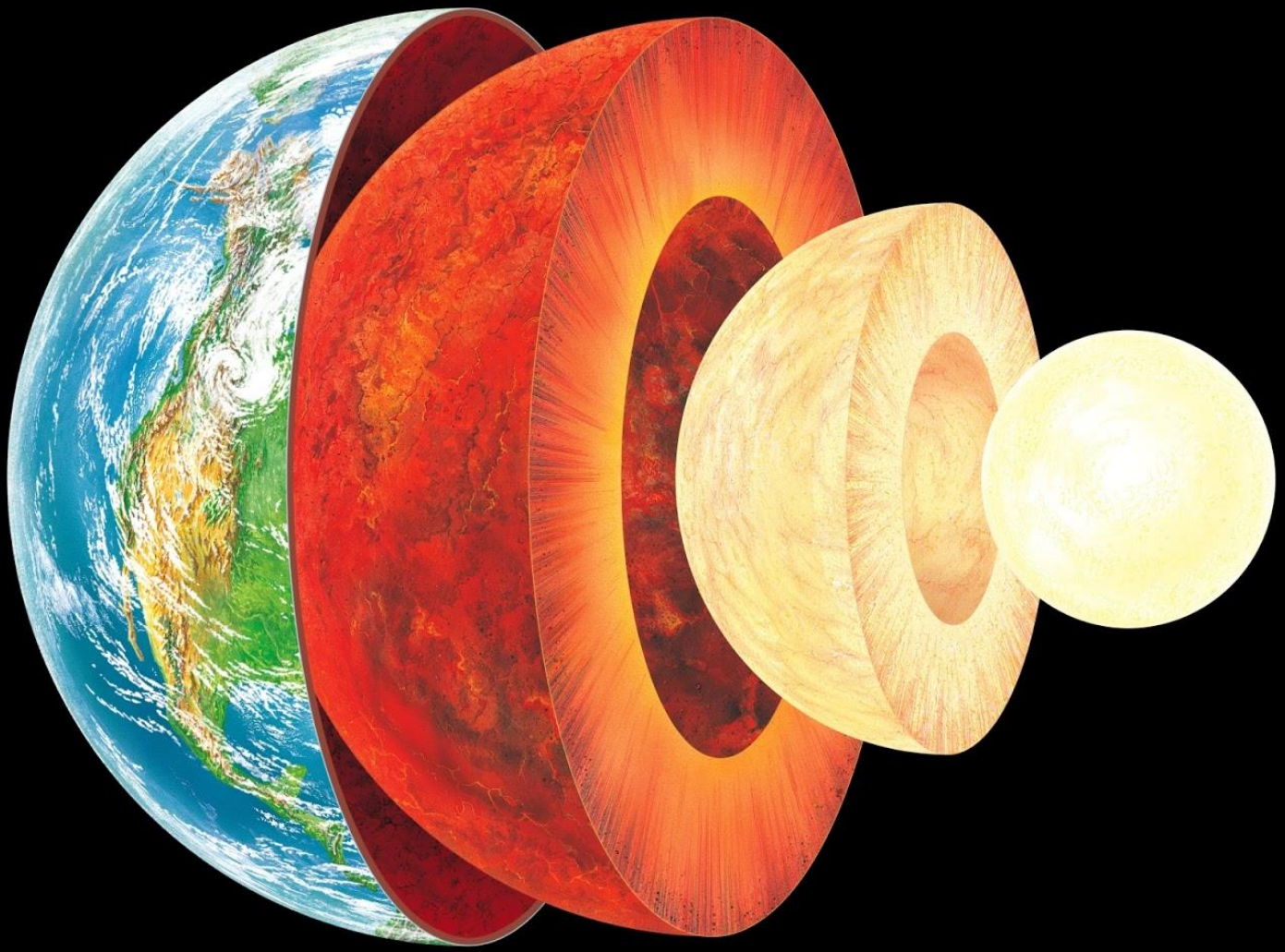
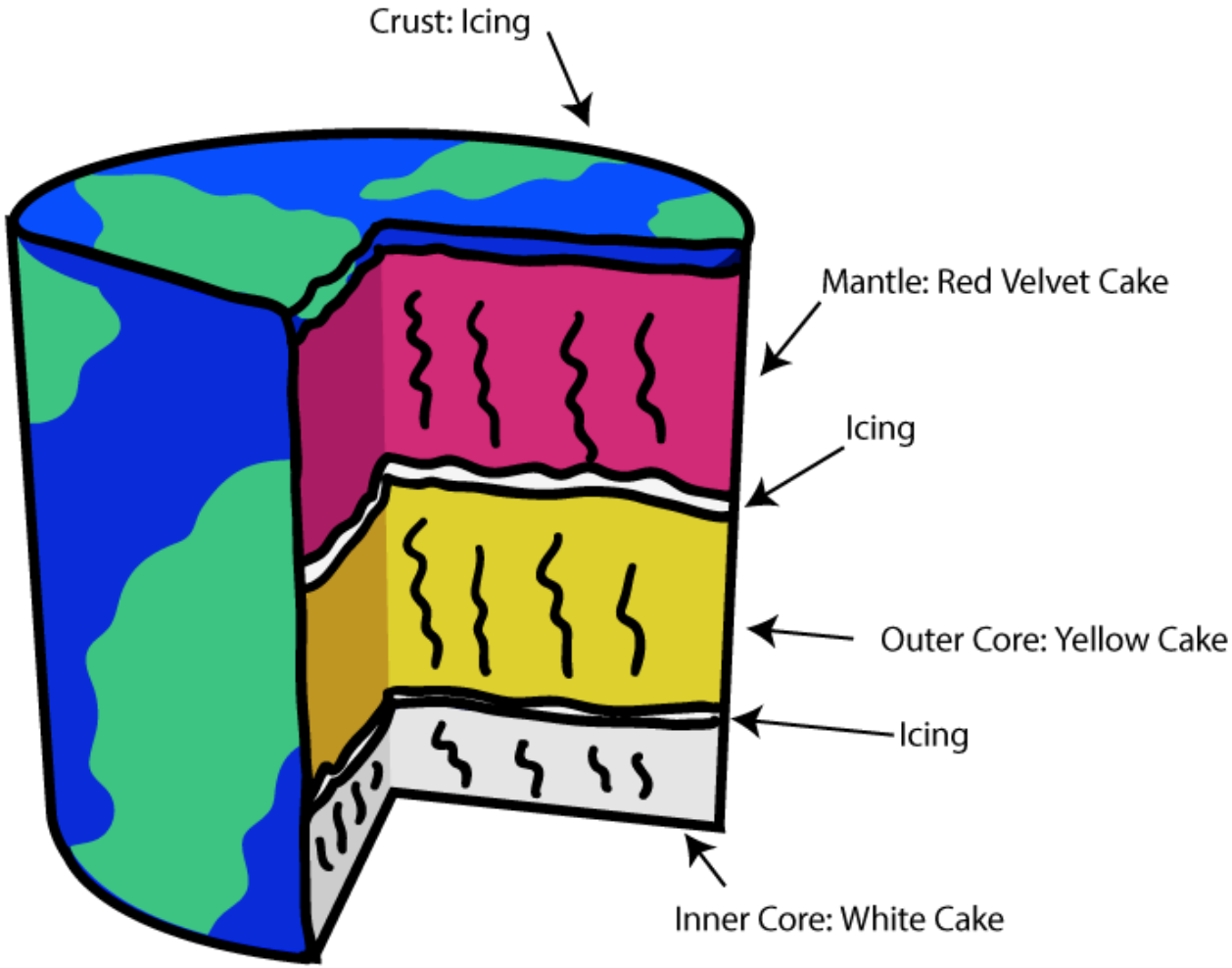
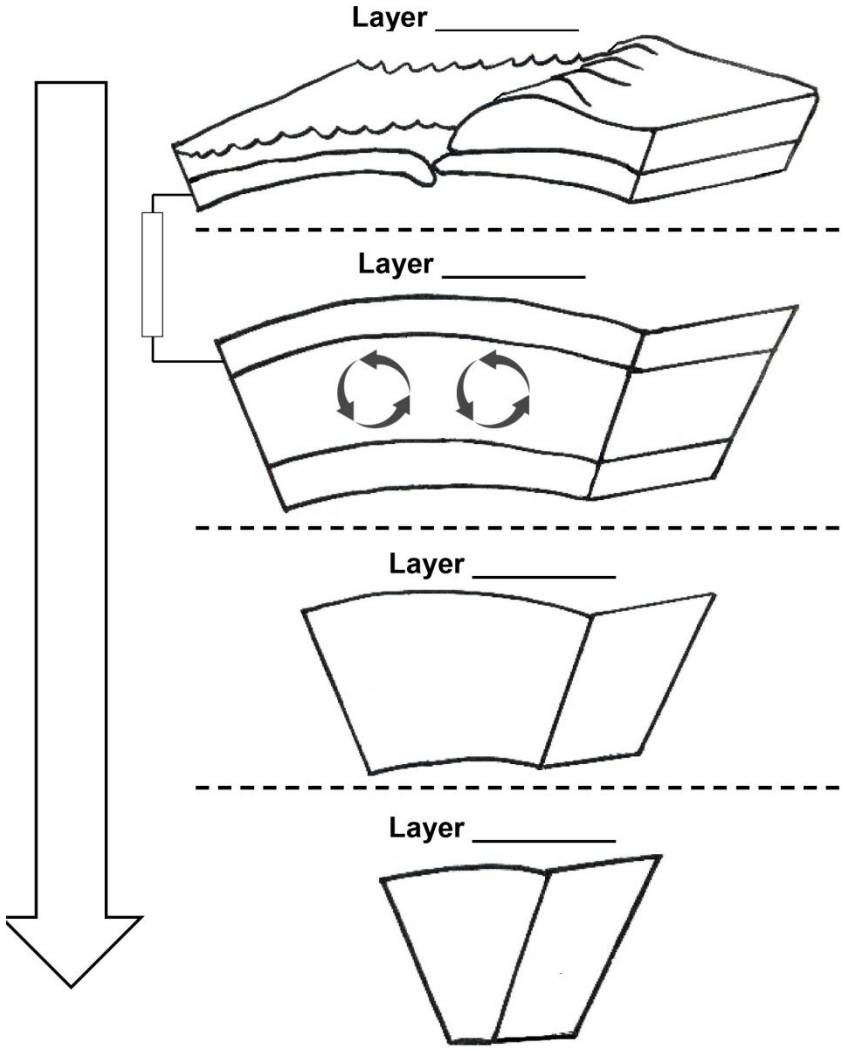
Layers of the Earth

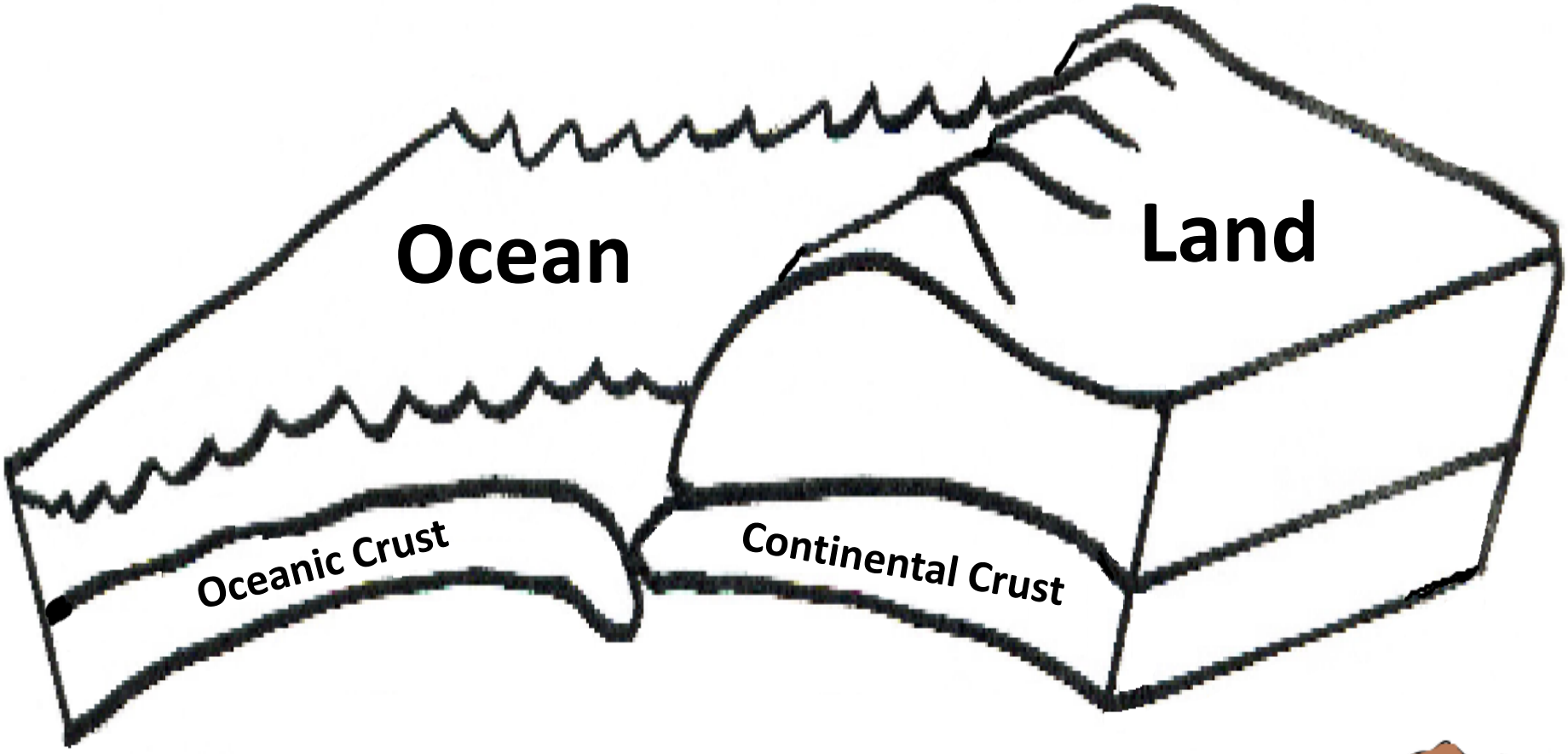


Think of the layers of the Earth like the layers of a cake.

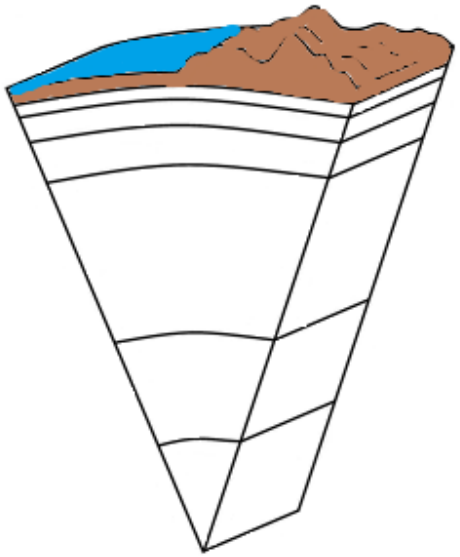


Use the Layers of the Earth Foldable to take notes

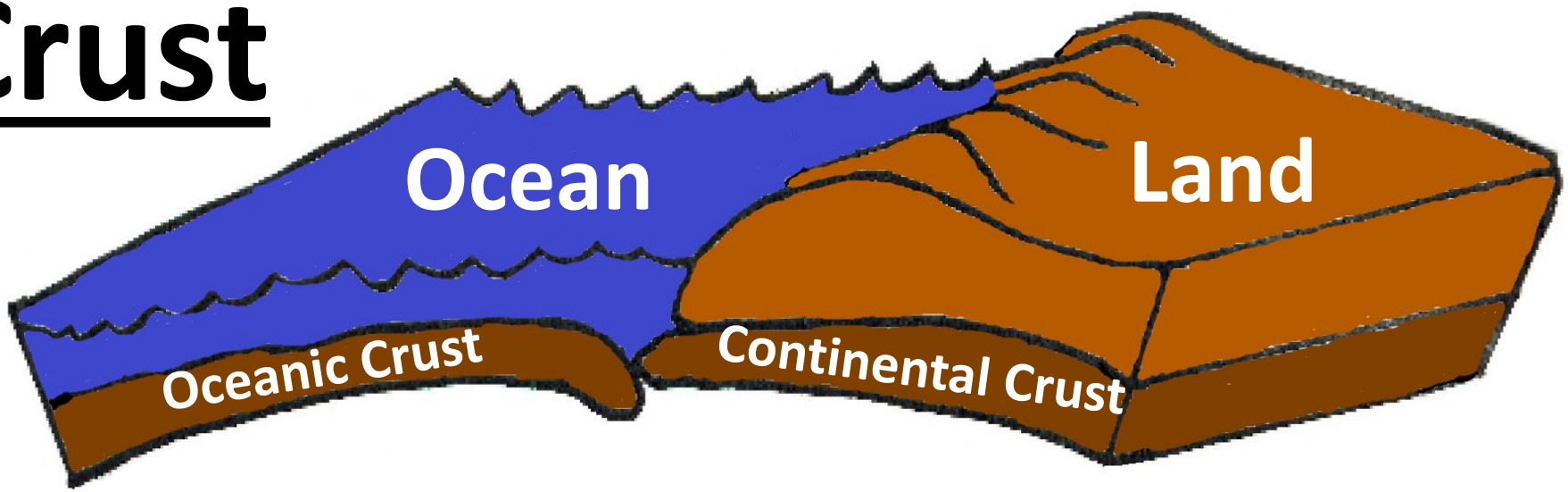




Crust



Crust

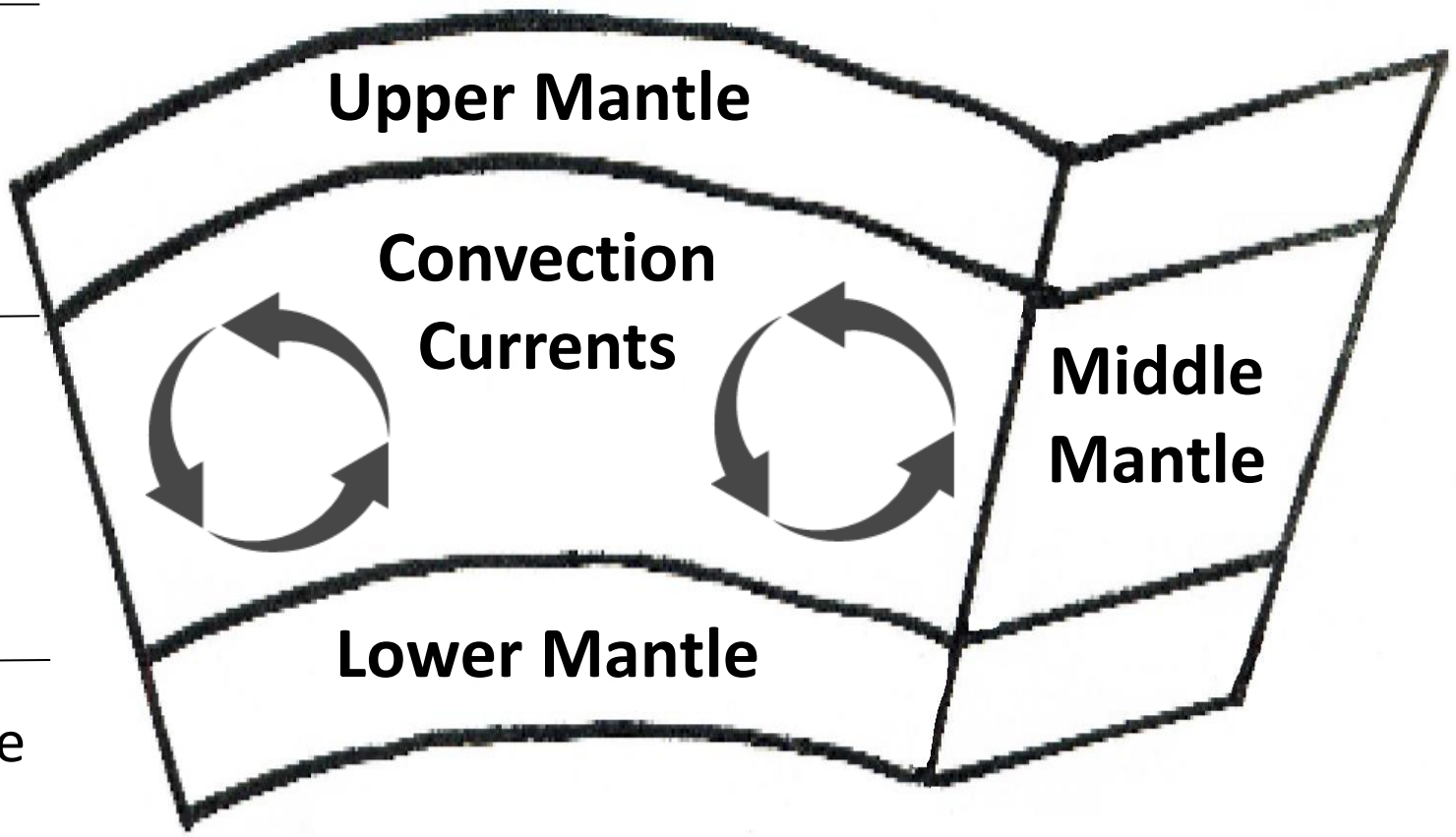


- Thinnest layer of the Earth that ranges from only **2 miles in some areas of the ocean floor to 75 miles deep under mountains**
- Made up of large amounts of silicon and aluminum
- Two types of crust: oceanic crust and continental crust
- Composed of plates on which the continents and oceans rest

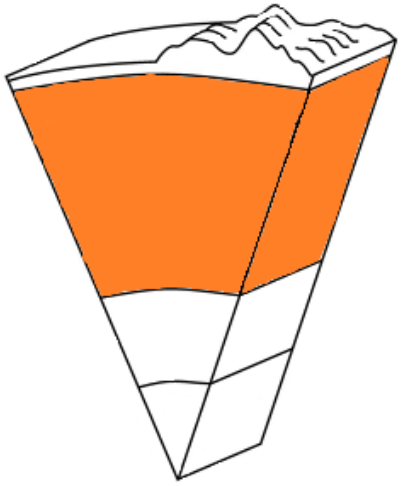
Lithosphere

Asthenosphere

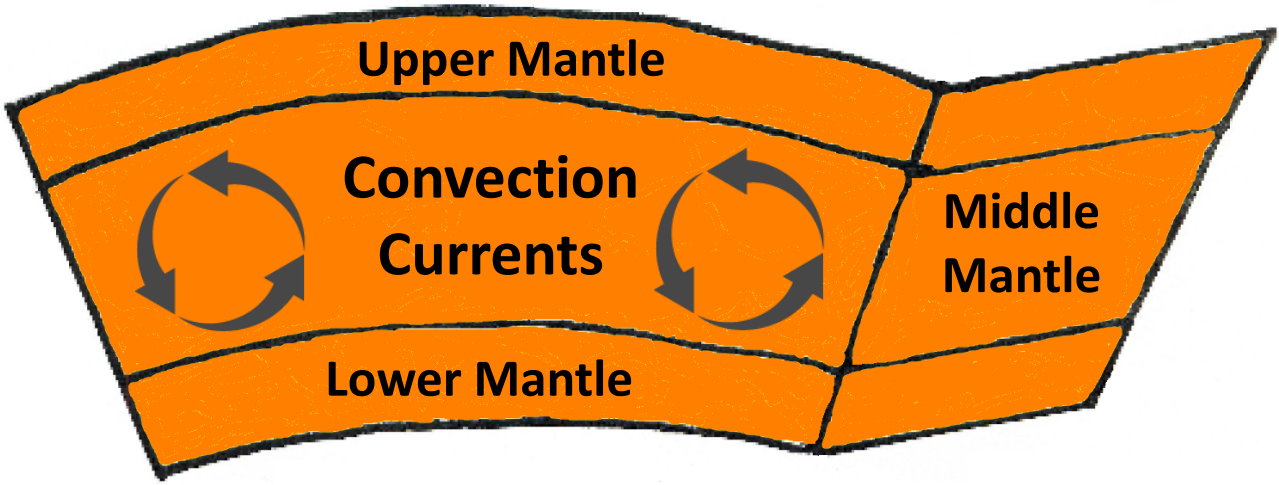
Mesosphere



Mantle



Mantle

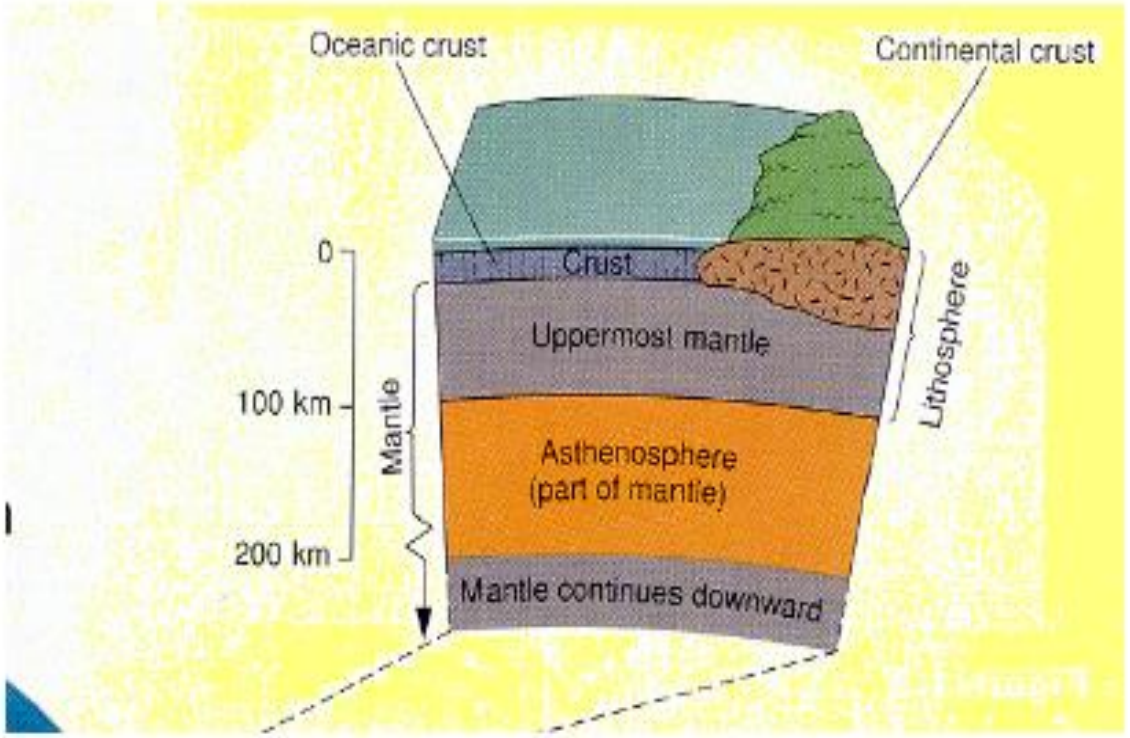


- **Solid but capable of flow** (like hot asphalt or fudge)
- **Thickest layer of the Earth** (making up 70% of the Earth's mass)
- The hot material (magma) in the mantle rises to the top of the mantle, cools, then sinks, reheats, and rises again. These **convection currents cause changes in the Earth's surface**

Lithosphere

Crust and upper Mantle

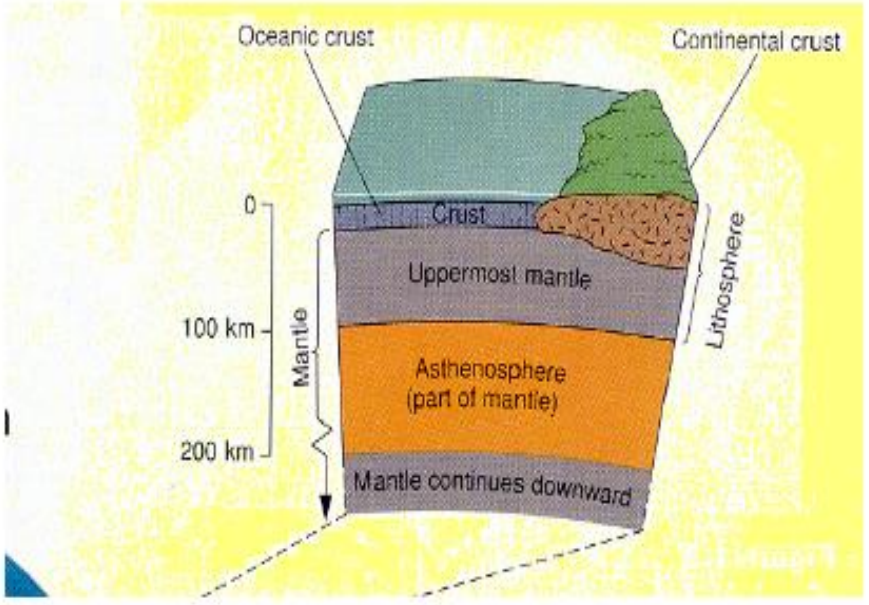
- outermost layer – includes crust and upper mantle
- rigid
- divided into pieces or tectonic plates
- Rocks and soil

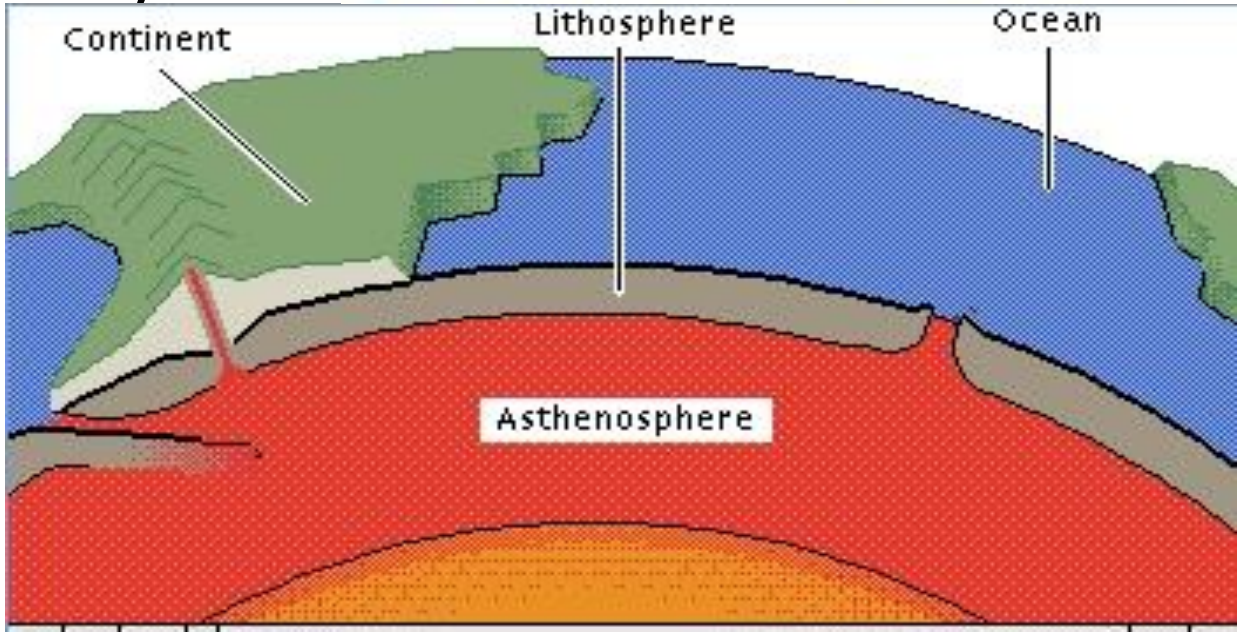


Asthenosphere

Middle Mantle

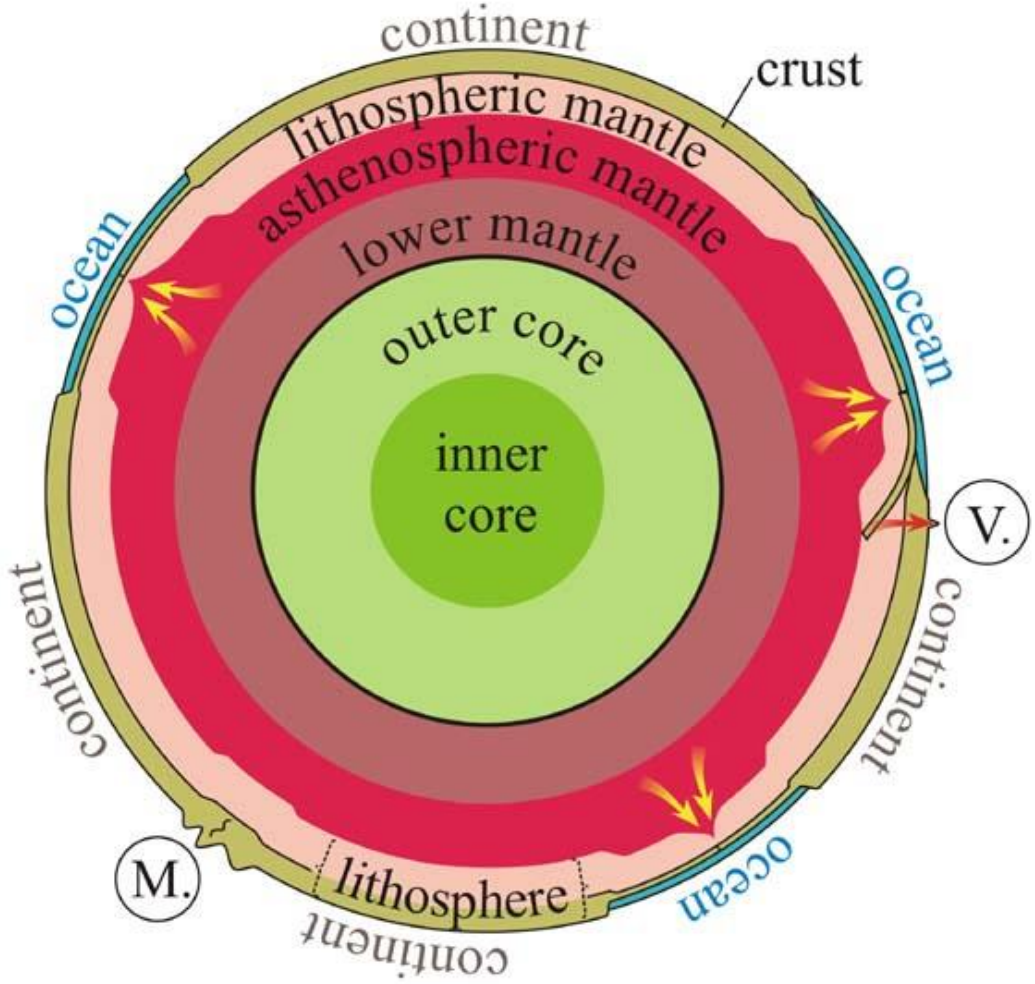
- composed of solid *flowing* rock
- layer on which pieces of lithosphere move on top (solid rock that flows)
  - Think of it like caramel



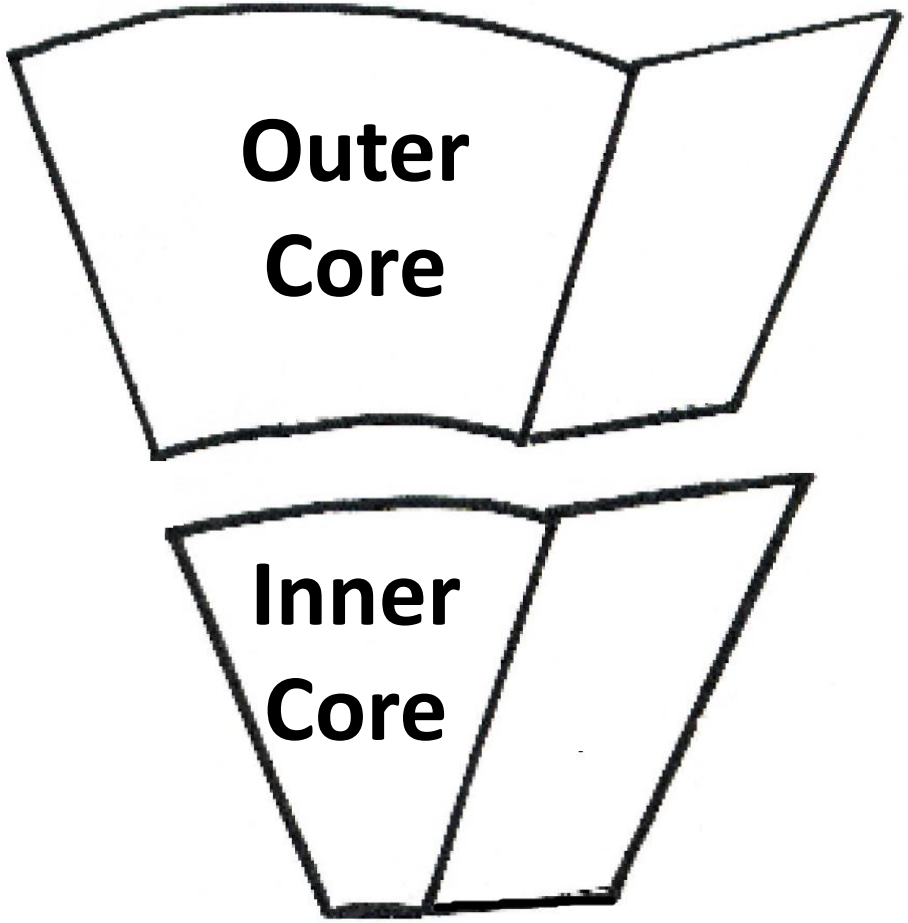


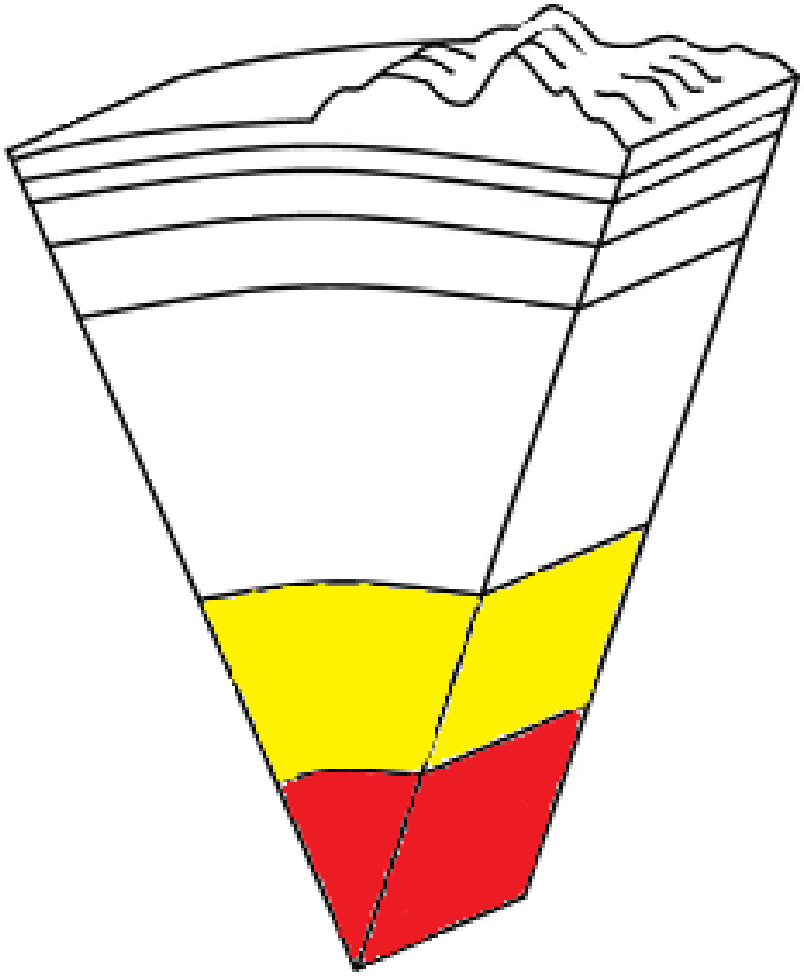
Mesosphere

Lower Mantle



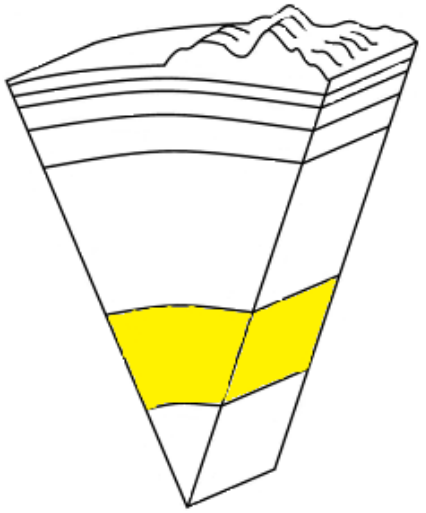
- strong, lower part of the mantle
- layer between asthenosphere and core





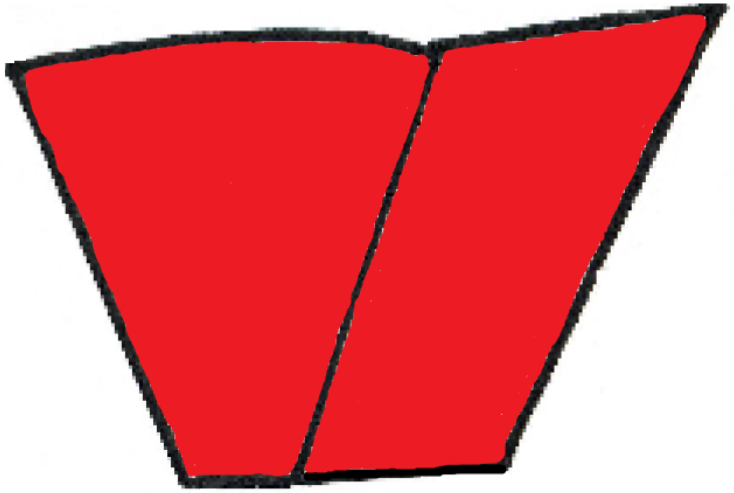
Core

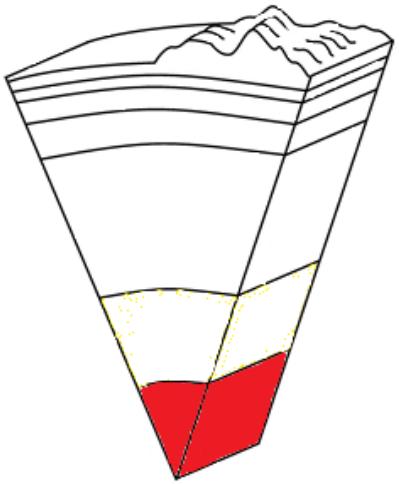
Outer Core



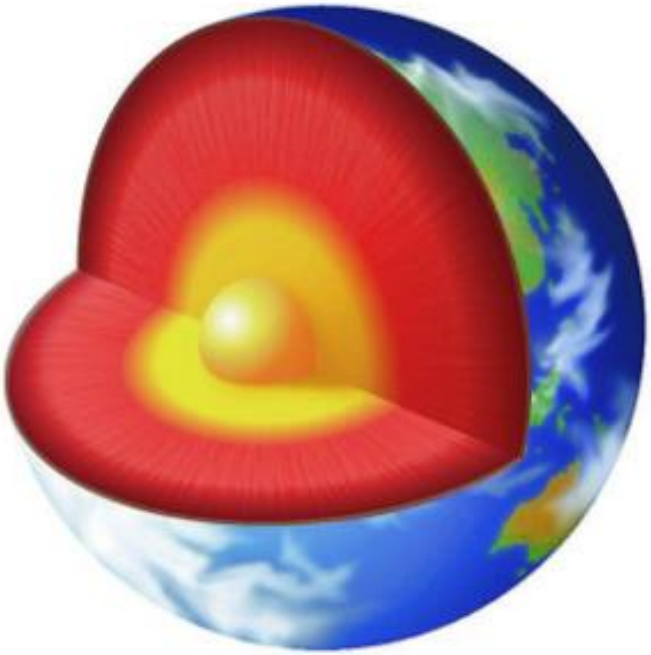
- Molten (liquid) metal that is about 4,700°C (8,500°F)
- Located about 1,800 miles beneath the crust and is about 1,400 miles thick
- Composed of the melted metals nickel and iron

Inner Core



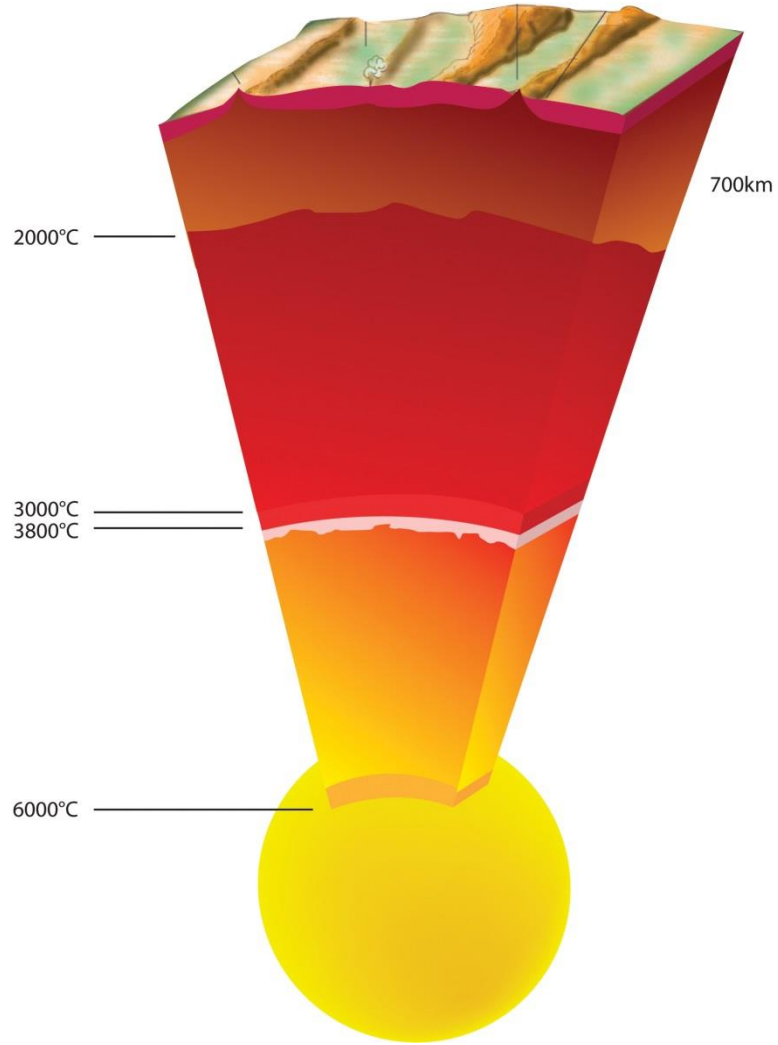


- Solid sphere composed mostly of iron
- It is believed to be as hot as 6,650°C (12,000°F)
- Heat in the core is probably generated by the radioactive decay of uranium and other elements
- It is solid because of the pressure from the outer core, mantle, and crust compressing it tremendously

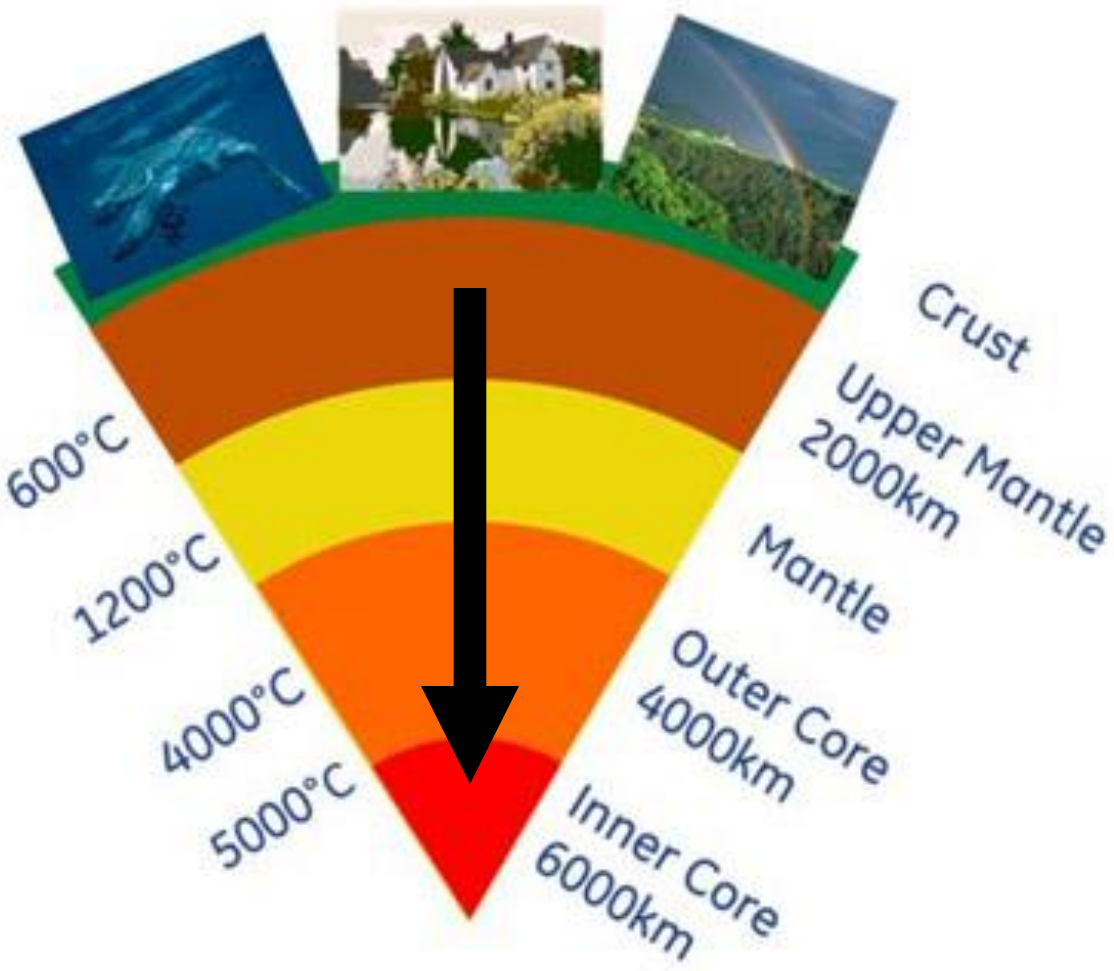


The Earth is like a peach or a boiled egg. Turn to a seat partner and discuss these analogies. Come up with another analogy and be prepared to share.

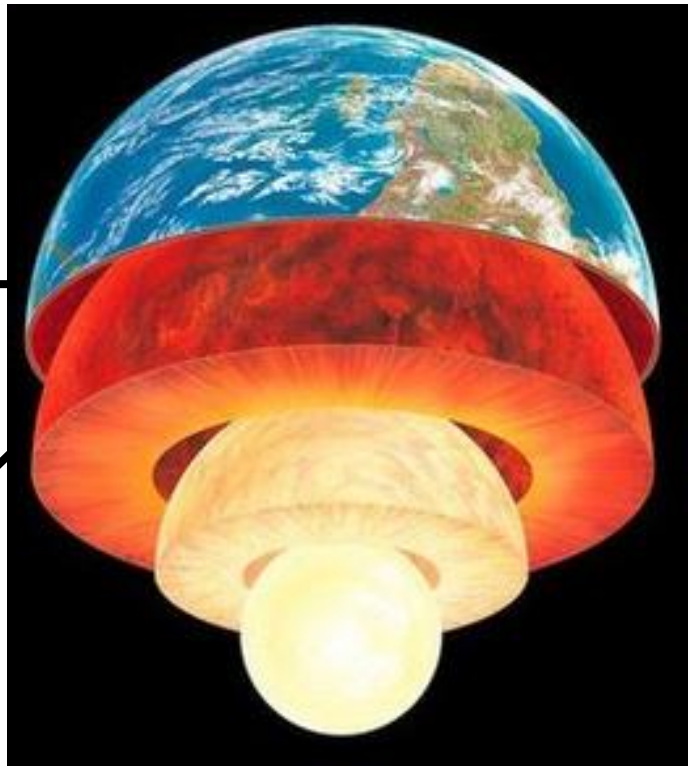
What do these two images tell us about the layers of the Earth?



Temperature increases as depth increases



Temperature, Density and Pressure increases as depth increases

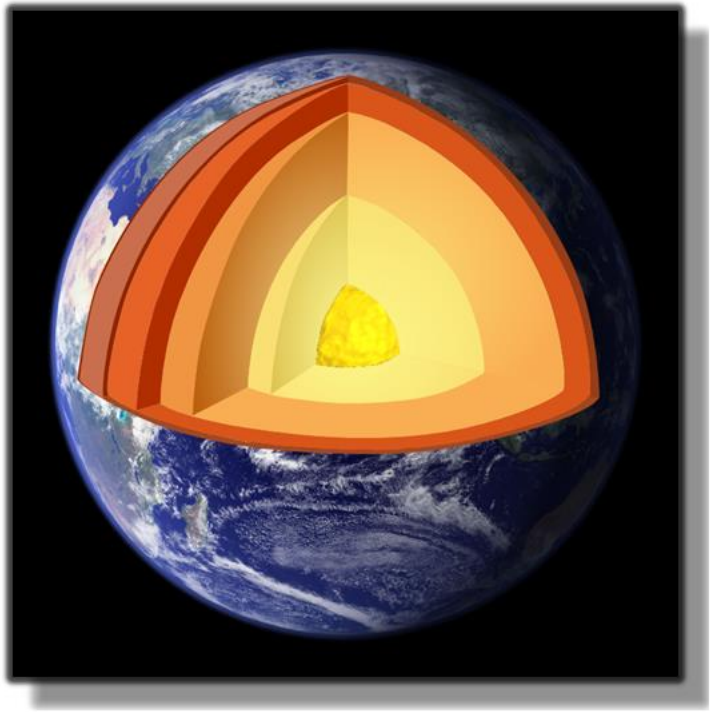


Add this statement to the arrow going down on your foldable.

Which layer of the Earth has the greatest temperature, pressure, and density?

Summary

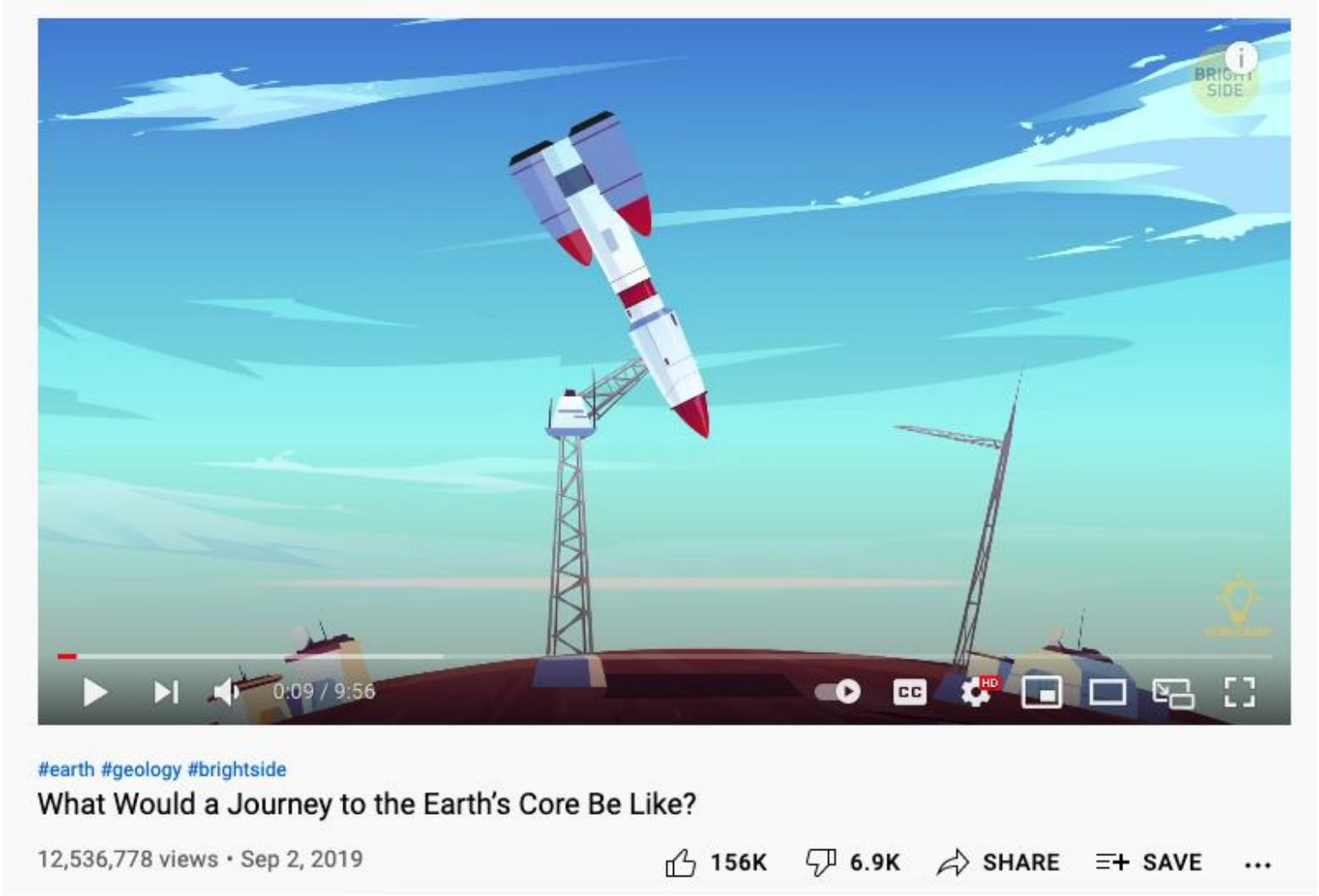
The earth is layered with a lithosphere (crust and uppermost mantle), convecting mantle, and a dense metallic core.



Pressure, temperature, and density increases as depth increases.

http://www.learner.org/interactives/dynamicearth/structure.html

What Would a Journey to the Earth's Core Be Like?



https://www.youtube.com/watch?v=3FoSAHk7DMA