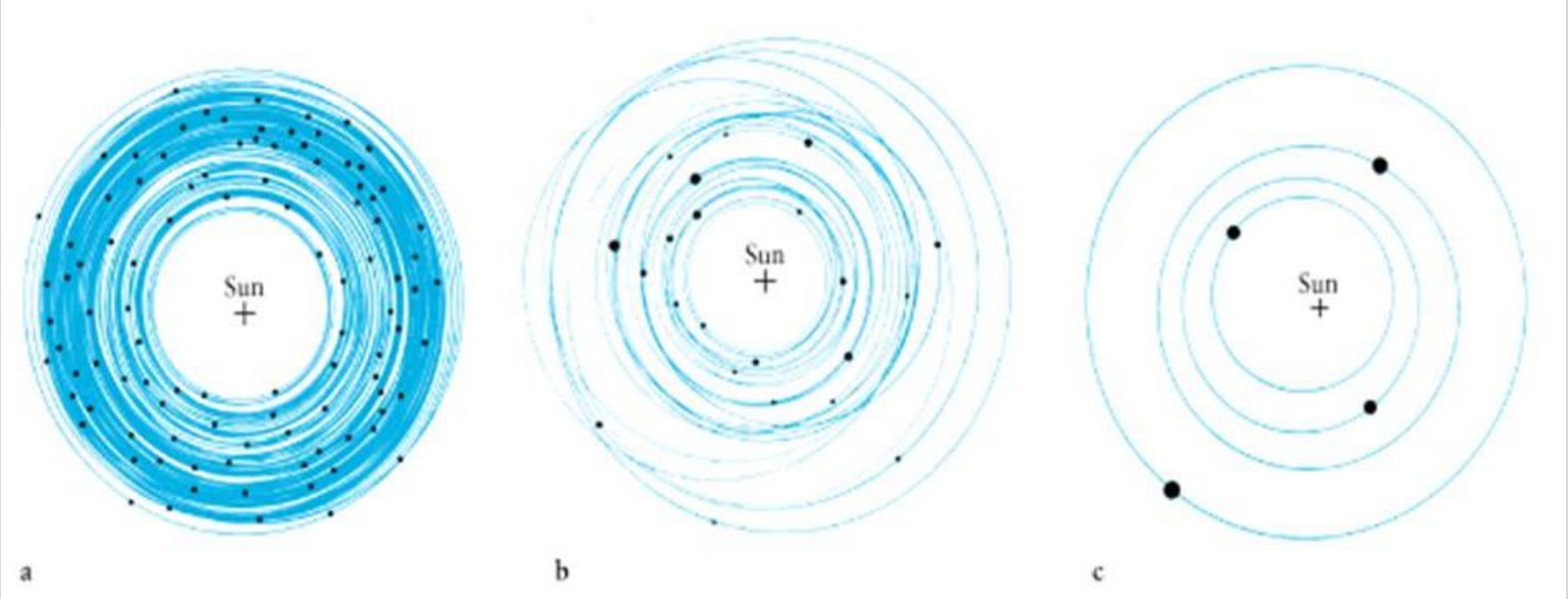
EARTH'S INTERIOR NOTES

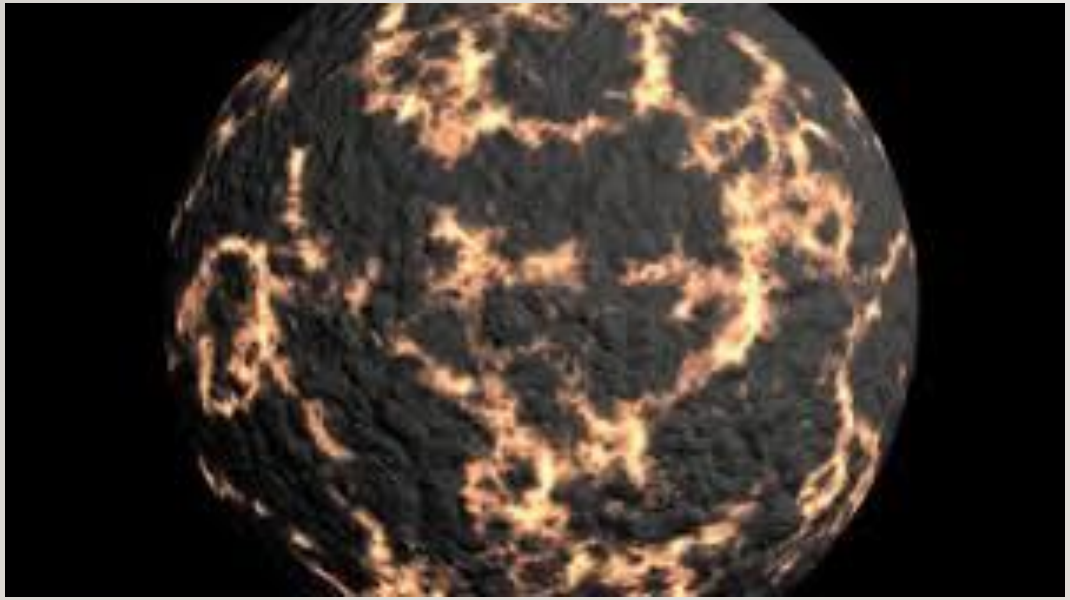
- Hello! You will be using this PowerPoint to complete the two column notes in Teams called Earth's Interior
- You need to complete the questions in your notes, then turn it in.

- If you have questions email me: egillin@helenaschools.org

QUICK REVIEW: HOW AND WHEN EARTH FORMED

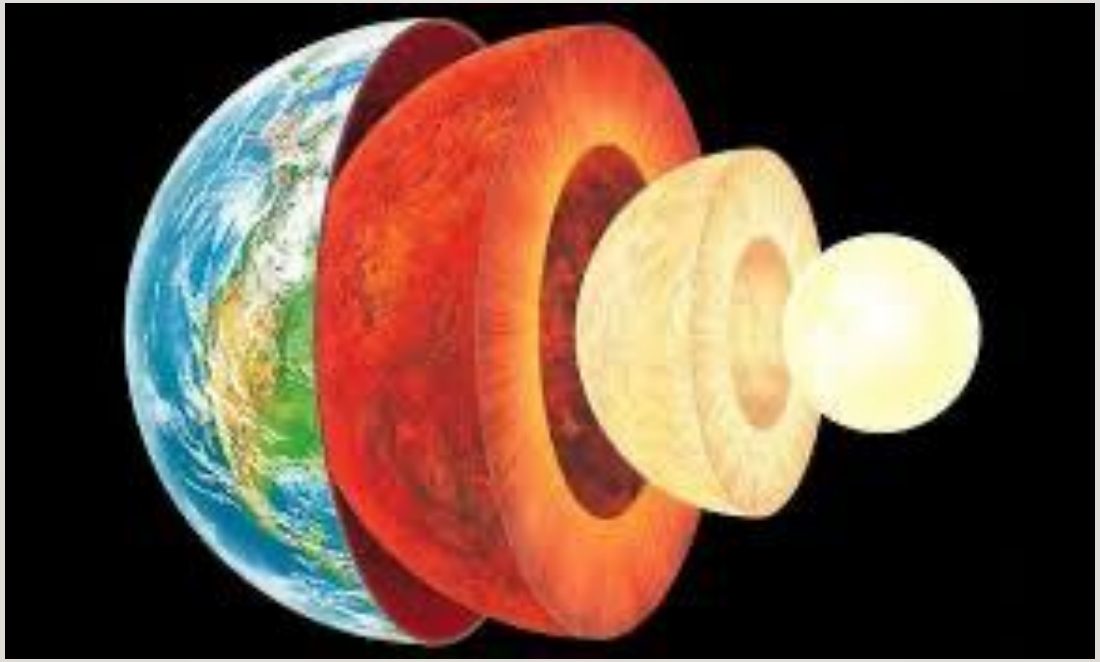


WHAT WAS EARLY EARTH LIKE?



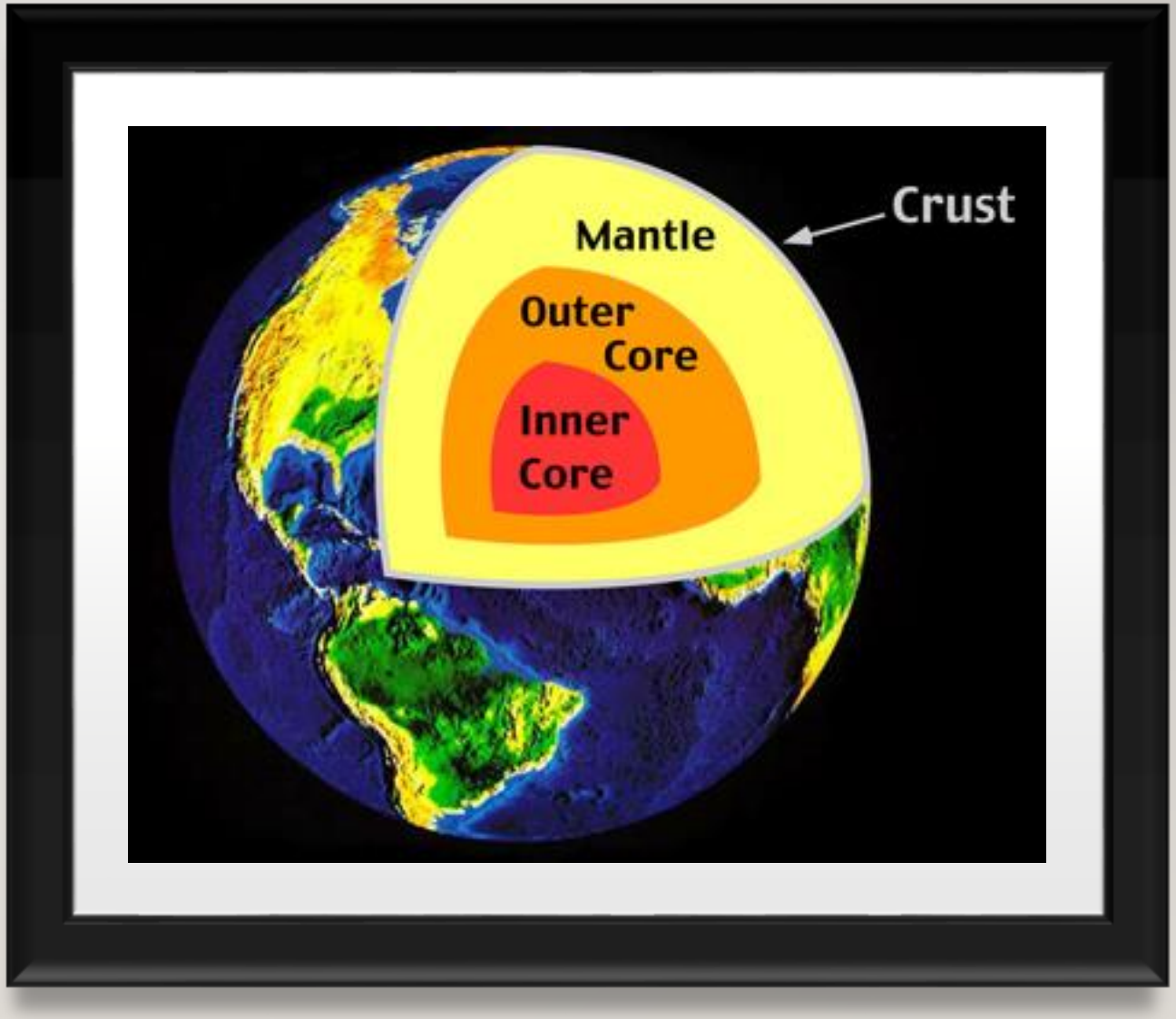
Small pieces of rock that stuck together to make a bigger object. Eventually Earth was a really hot ball of rock likely with a molten or semi molten (melted rock) surface.

WHAT IS EARTH LIKE NOW?



EARTH'S MAIN INTERIOR LAYERS

- Crust (outer most layer, where we live)
- Mantle
- Core (made of two distinct layers)
  - Outer Core
  - Inner Core



SEPARATING THE LAYERS

The Earth's layers are separated based on composition and density but also on mechanical function

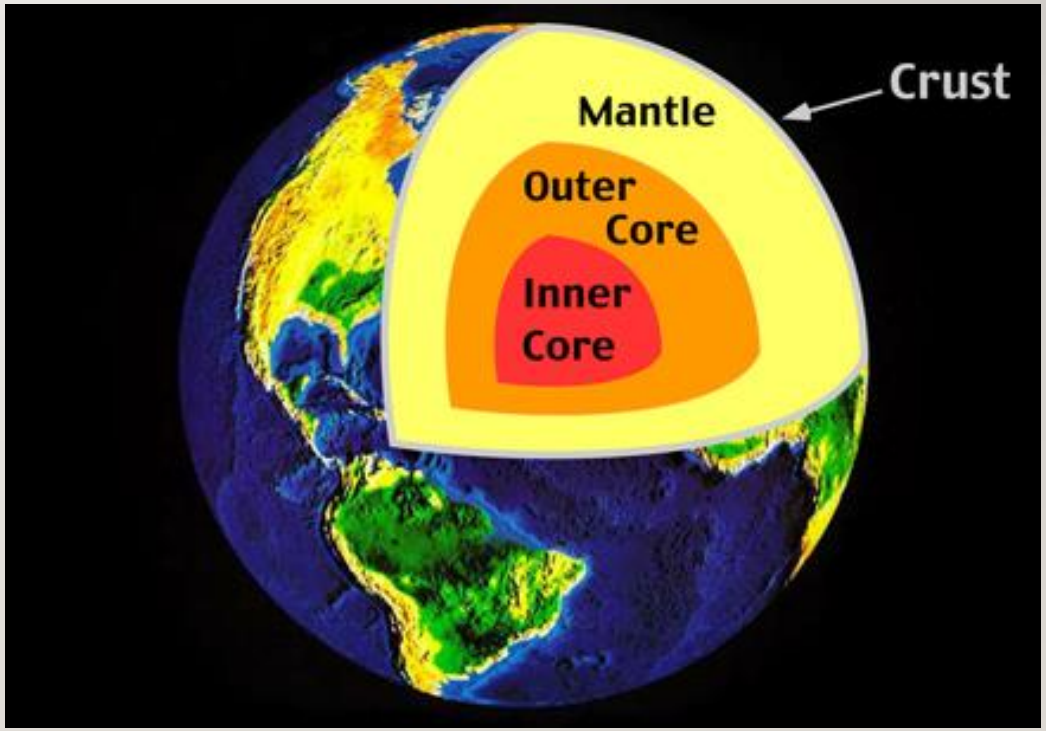
- Composition: what something is made of
- Mechanical Function: How something moves or behaves

The main layers (crust, mantle, core) are split by composition and density

The lithosphere and asthenosphere are two layers added because they move differently (mechanical function)

CRUST

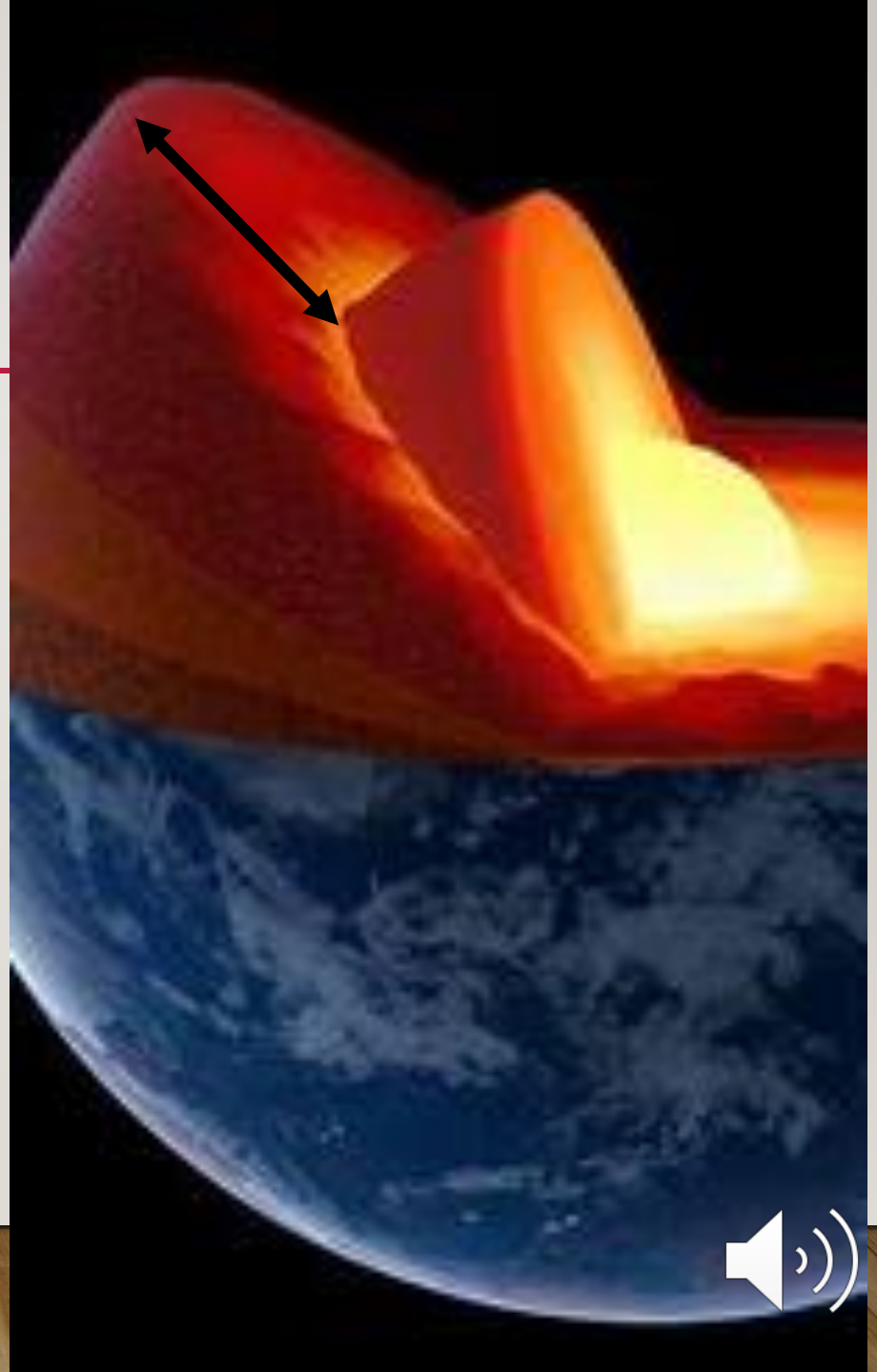
- Solid outer shell of Earth made of Silicate Rocks Basaltic and Granitic
- Density:
  - Continental Crust
    - 2.7 g/cm^3
  - Oceanic Crust
    - 3.0 g/cm^3
- Between 7 to 80 km thick



- The deepest humans have dug into the Earth is only 12km! There's so much left to learn!

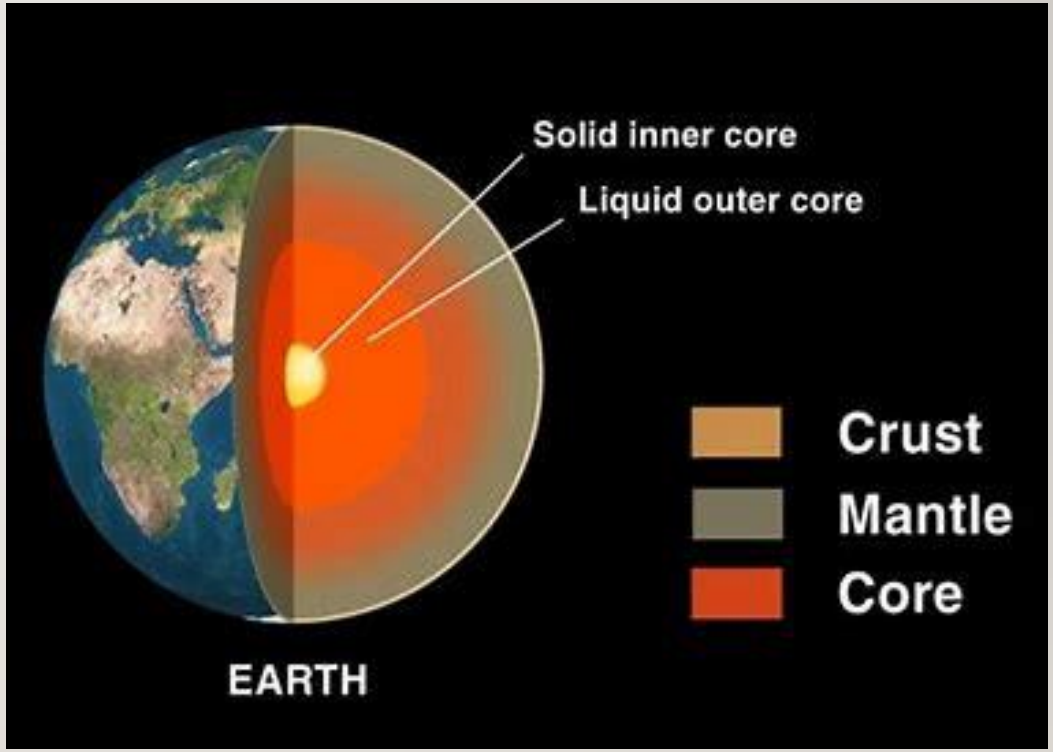
MANTLE

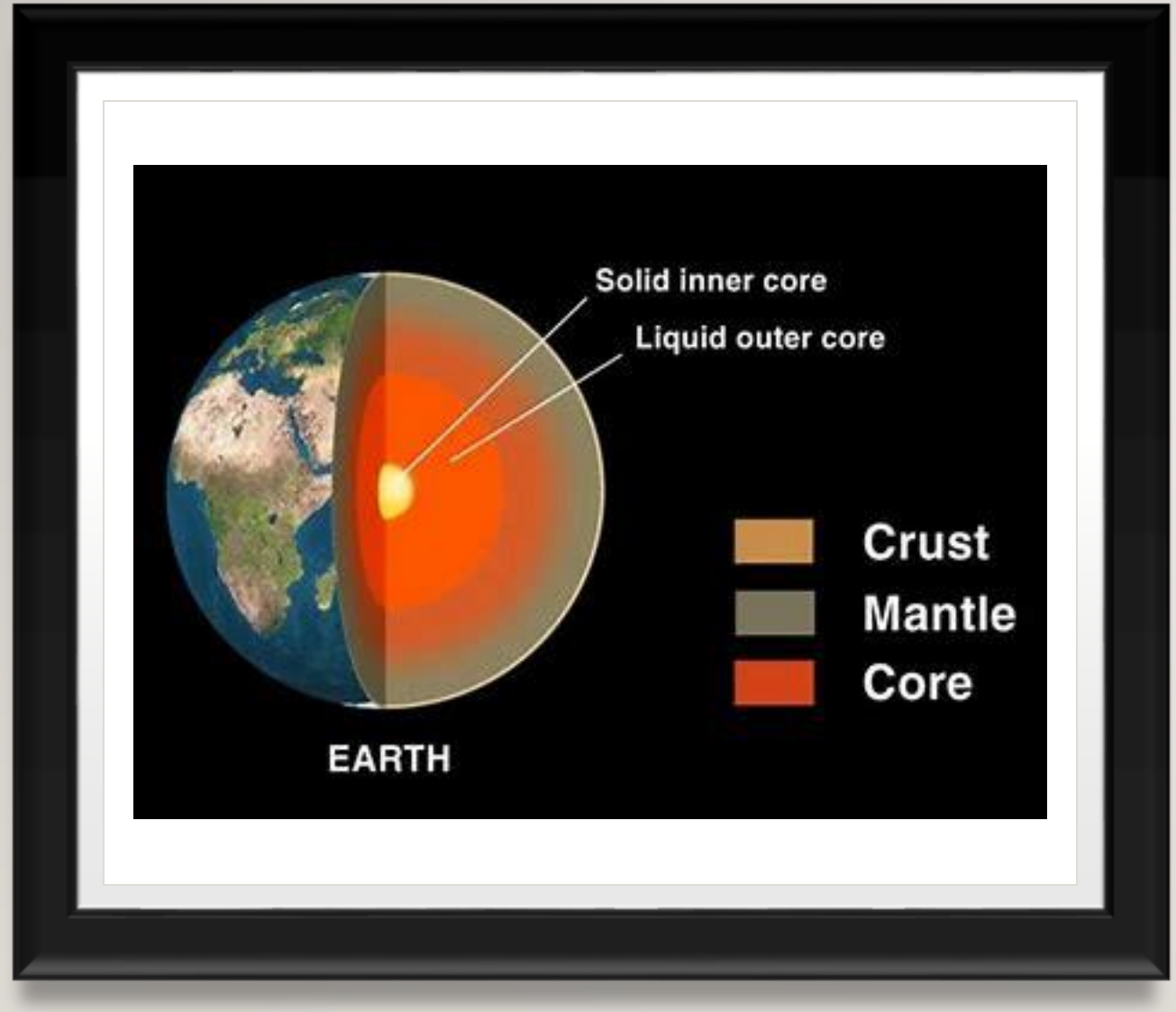
- Solid layer of peridotite rock with liquid properties
  - It is really hot and moves like warm wax. Think of gooey rocks.
- Temperature: 1500-3200 Kelvin
- Average thickness of 2890 km thick, the mantle extends from below the crust to the outer core
- The mantle has a density of 3.4g/cm^3



OUTER CORE

- Flowing Liquid: generates magnetic field when the metal moves around.
- It is made of an Iron-Nickel Alloy (an alloy is a mixture of two metals)
- This layer is 3700-5500 degrees Kelvin
- The outer core is 2260km thick and between the mantle and inner core
- The density is 11.8g/cm^3



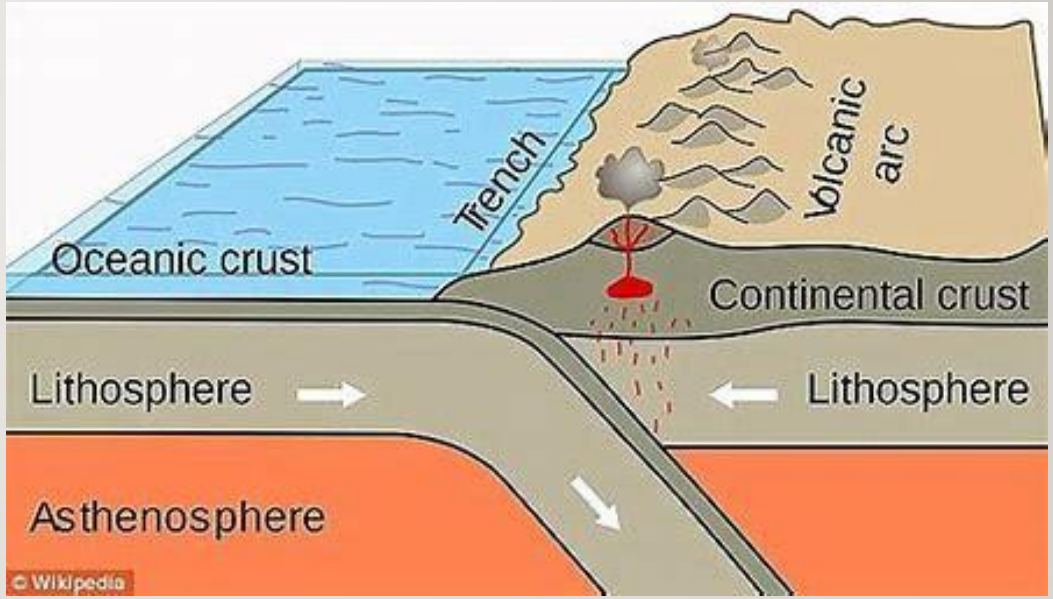


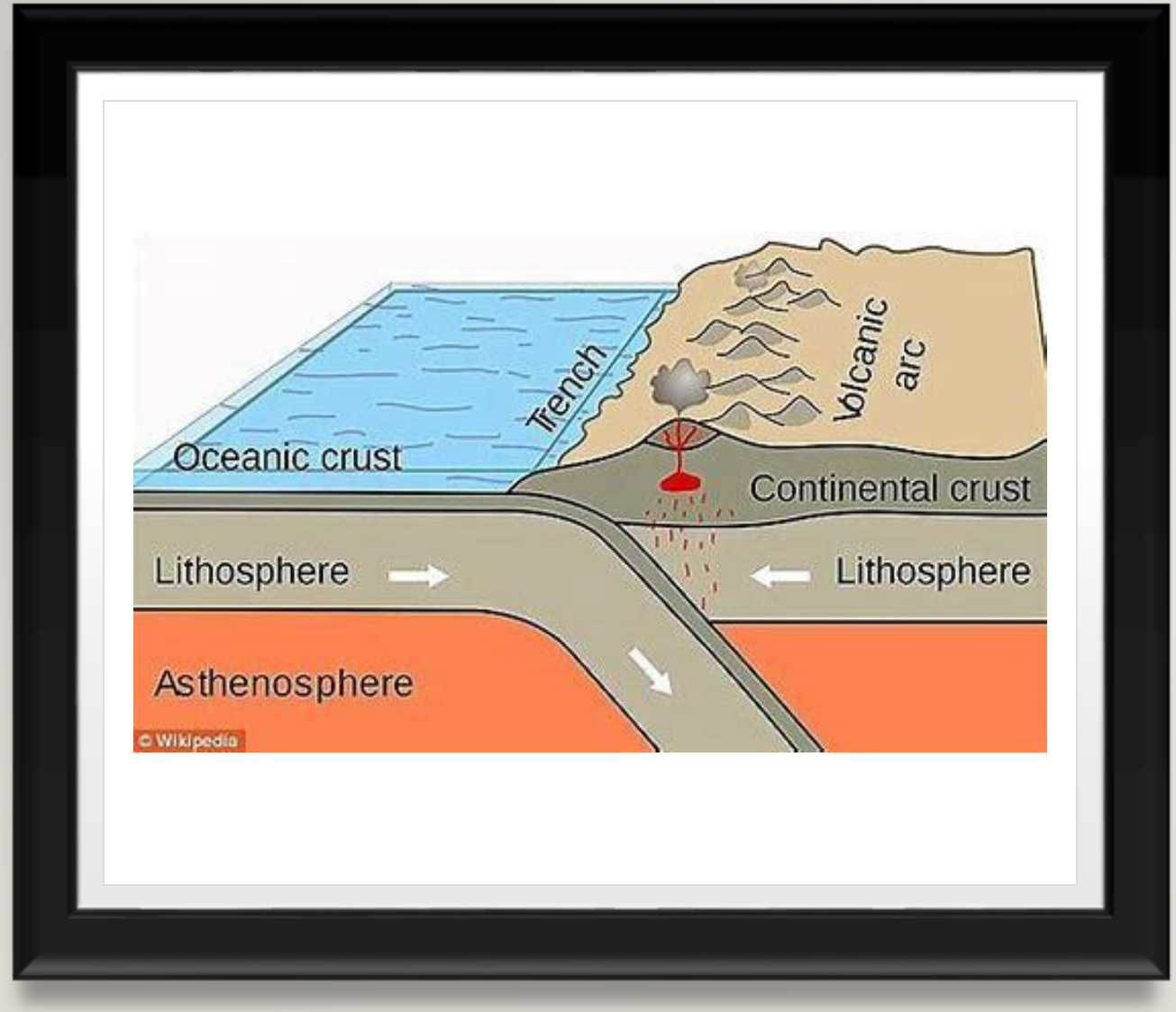
INNER CORE

- The inner core is under MASSIVE pressure from the upper layers and is solid but super hot (because of high pressure)
- Just like the outer core it is made of an Iron-Nickel Alloy
- The thickness is 1220 km
- This layer has the highest density: 16g/cm^3

WHAT IS THE LITHOSPHERE

- Litho= rock, so lithosphere is a sphere of rock
- This is Earth's outer most layer and upper mantle
  - The areas of Earth where the rocks are solid and brittle (they can break)
- This layer is about 100km thick



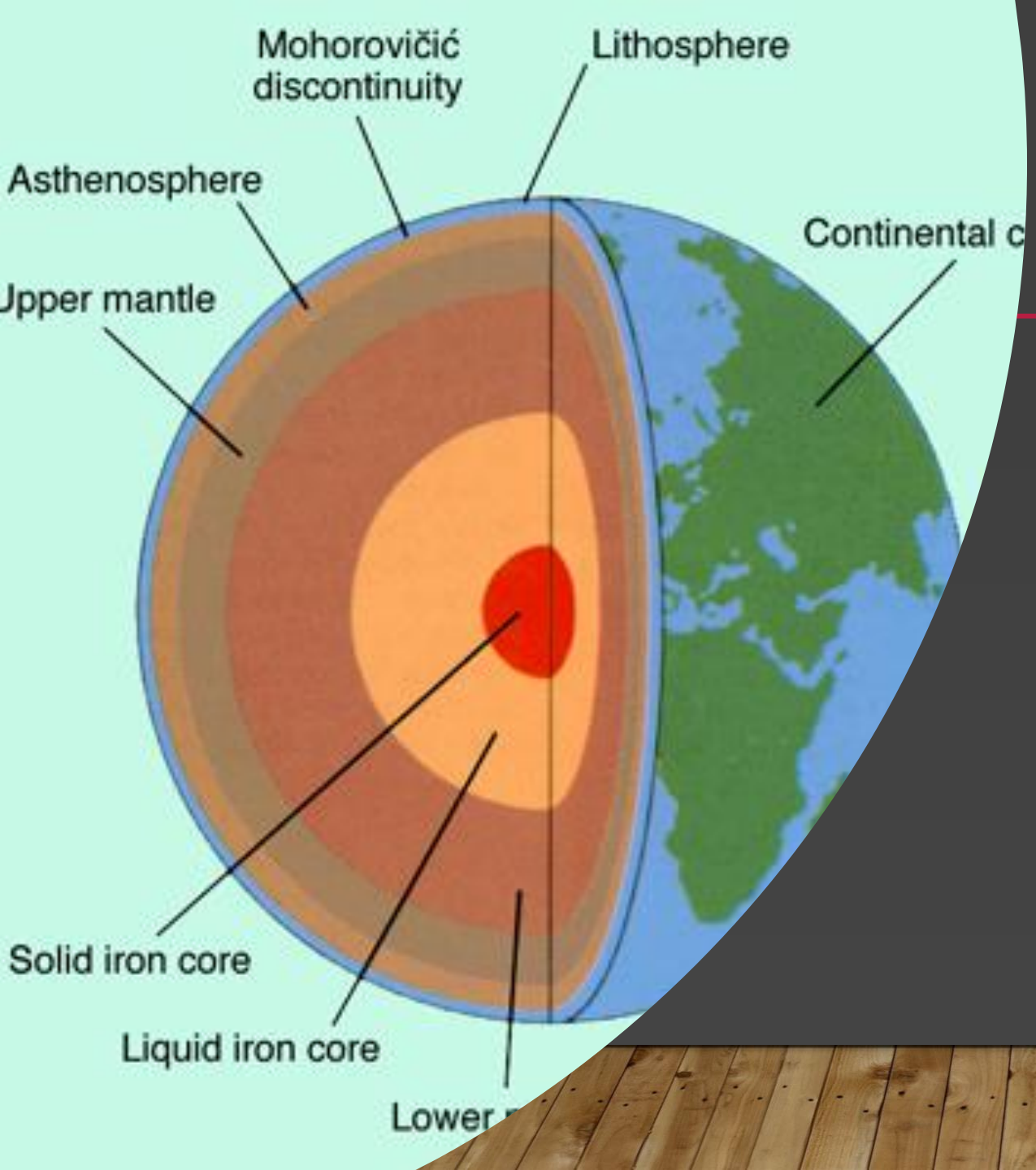


WHAT IS THE ASTHENOSPHERE?

- The asthenosphere is the area of the mantle that has rocks that are very near their melting point
  - They move like warm wax.
- The movement of the asthenosphere moves the lithosphere above it- plates of the earth

HOW DID SCIENTISTS DISCOVER THE EARTH'S LAYERED STRUCTURE?

- Watch this video to answer this question. The video is also linked in your notes.



ANSWER THE QUESTIONS ON YOUR NOTES. TURN IT IN WHEN YOU'RE DONE.