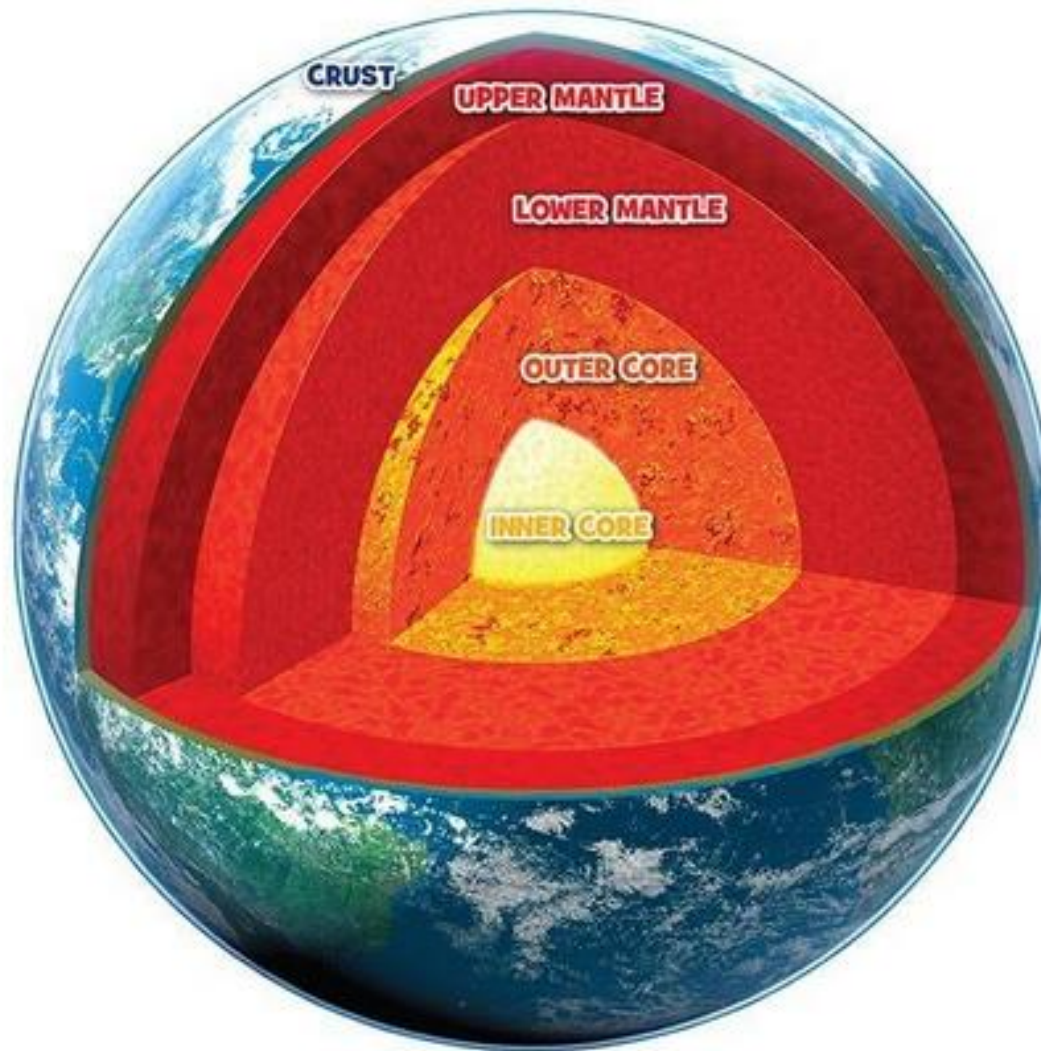


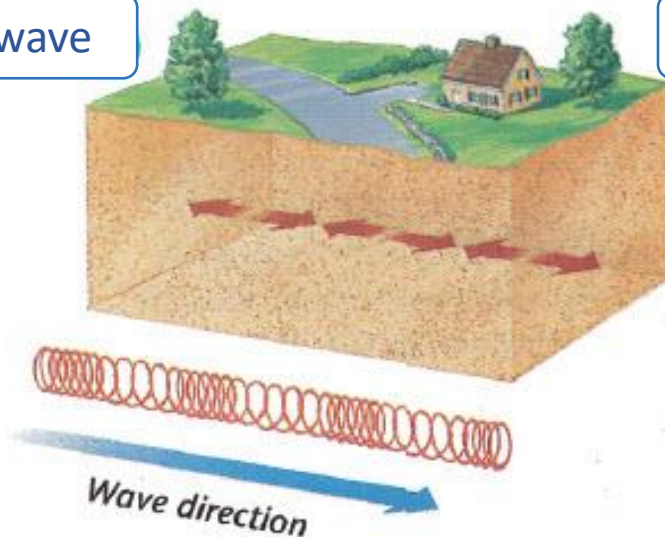
Layers of the Earth



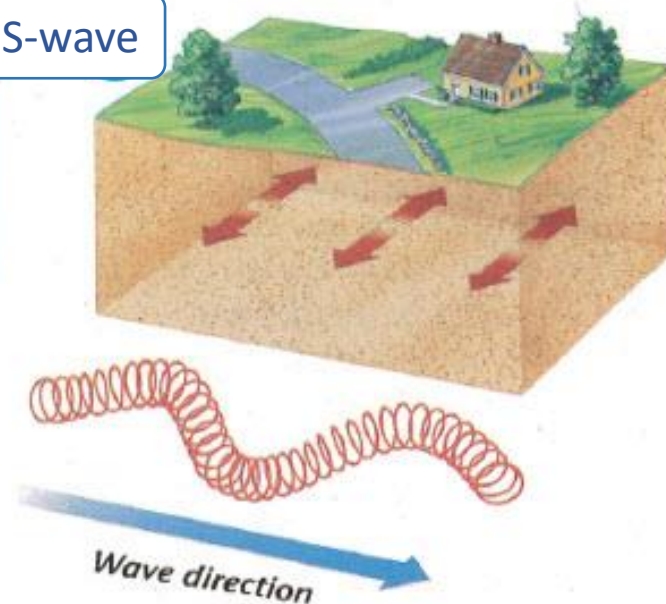
What do scientists use to understand the interior of the Earth?

- Scientists record and study seismic waves to help them understand the interior of the Earth.
- Seismic waves are caused by earthquakes, explosions, and ocean movements.

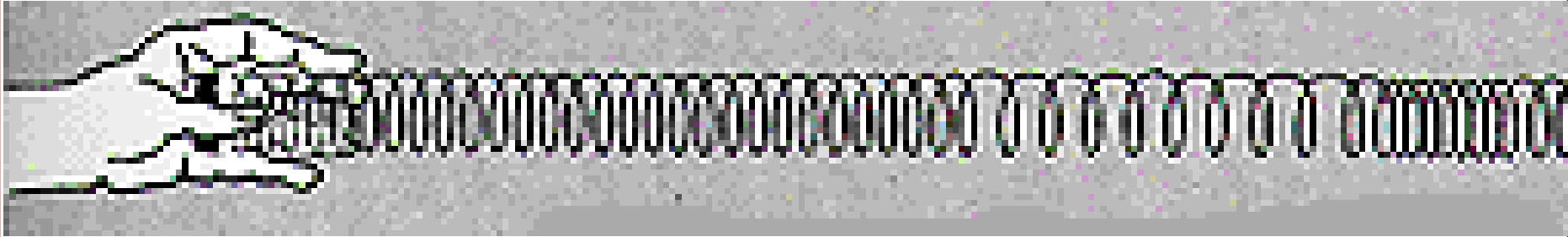
P-wave



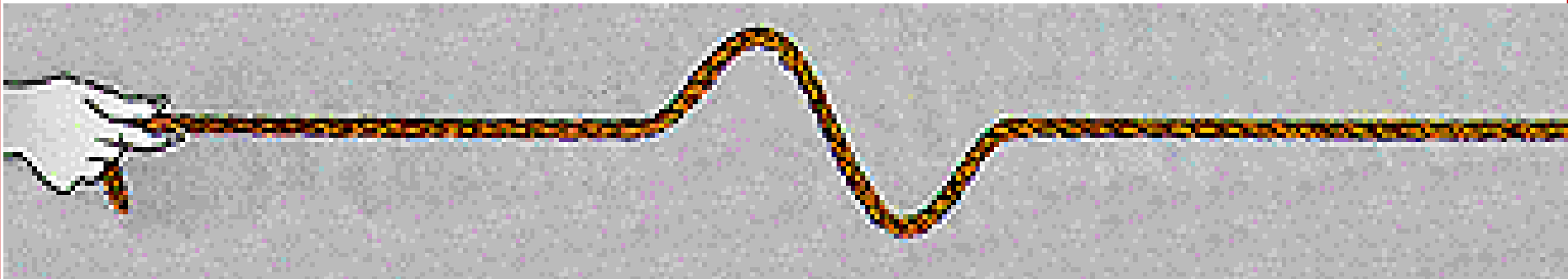
S-wave



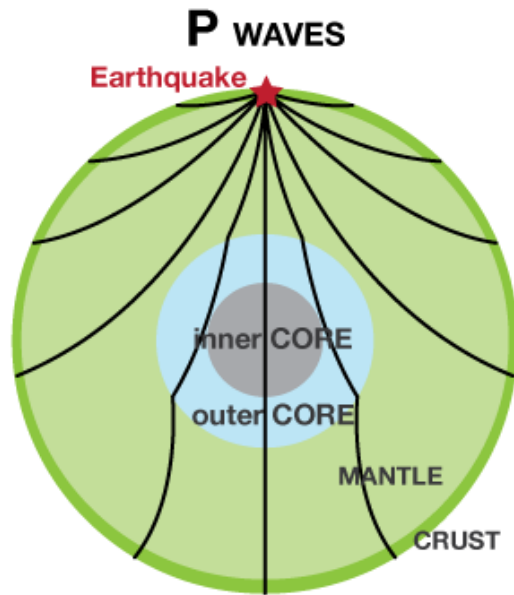
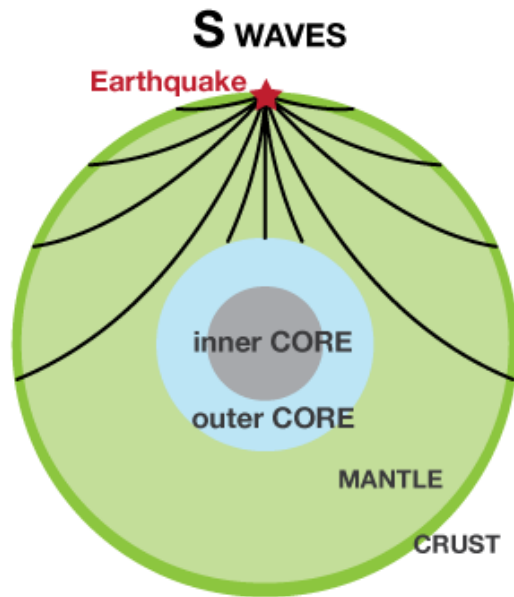
There are two types of seismic waves.



- *Pressure wave (p-wave)* which moves through liquids and solids



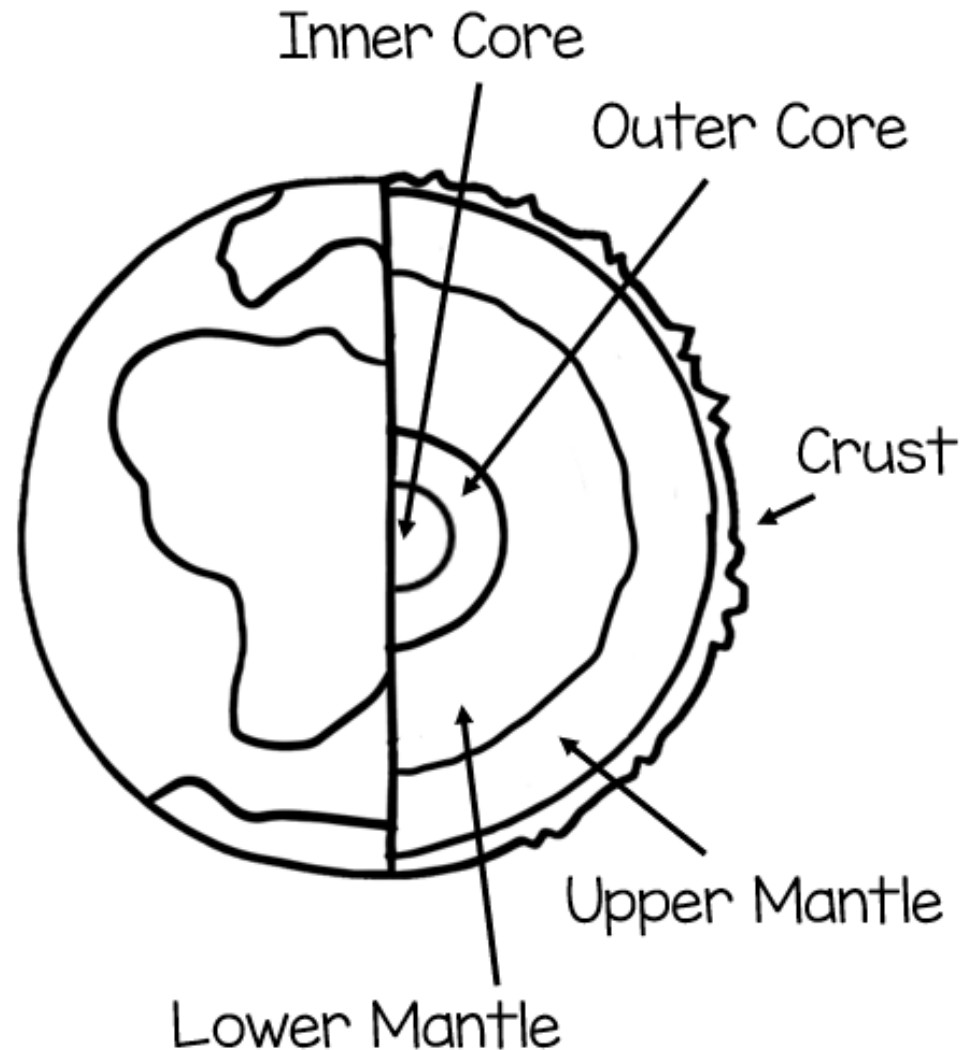
- *Shear wave (s-wave)* which won't travel through liquids



P waves travel through solid and liquid, but S waves do not travel through liquid. By observing seismic waves, scientists deduced that Earth's outer core is liquid.

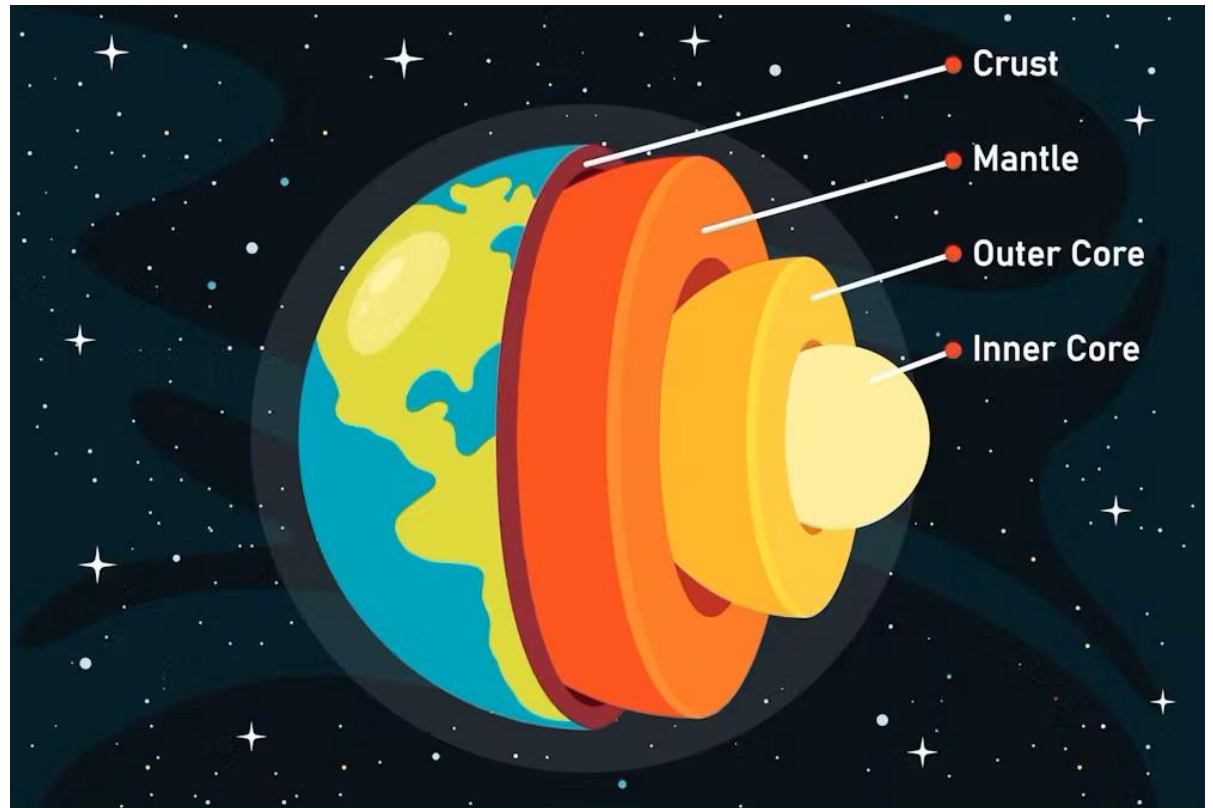
What are the layers of the Earth?

- Through studying seismic waves, scientists have determined 5 distinctive layers.
 - Crust
 - Upper Mantle
 - Lower Mantle
 - Outer Core
 - Inner Core



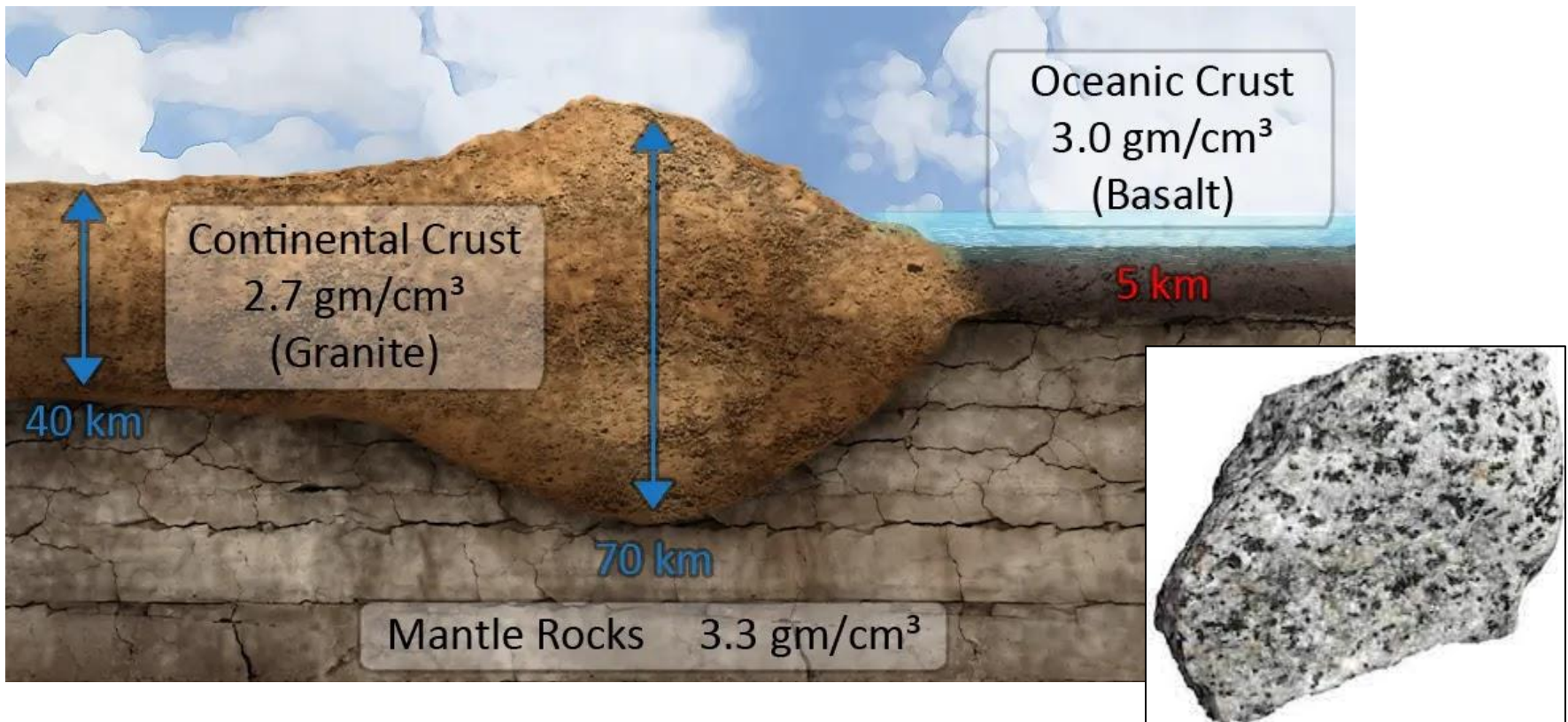
What is the crust?

- The solid outer layer of the Earth that we live on
- It is the thinnest layer
- It is either continental crust or oceanic crust
- Temperature is around 22 C



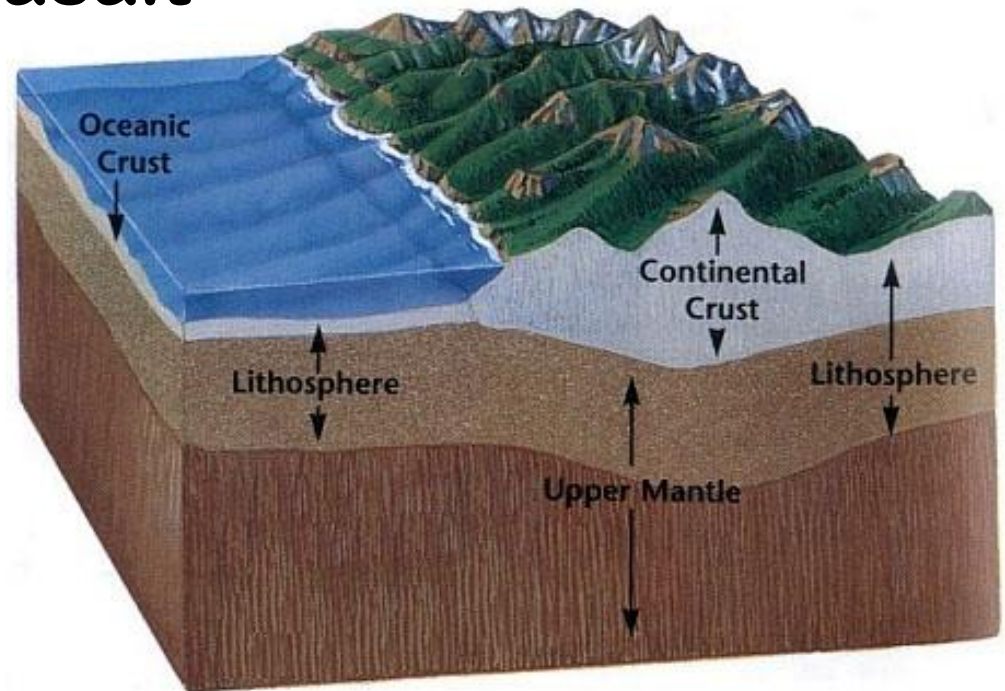
What is Continental Crust?

- Continental crust is the ground we walk on
- 8km to 70km thick
- Mostly made of granite



What is Oceanic Crust?

- Oceanic crust is land under the oceans
- 8km thick
- More dense than continental crust due to pressure compacting it
- Mainly made of basalt



What is the upper mantle?

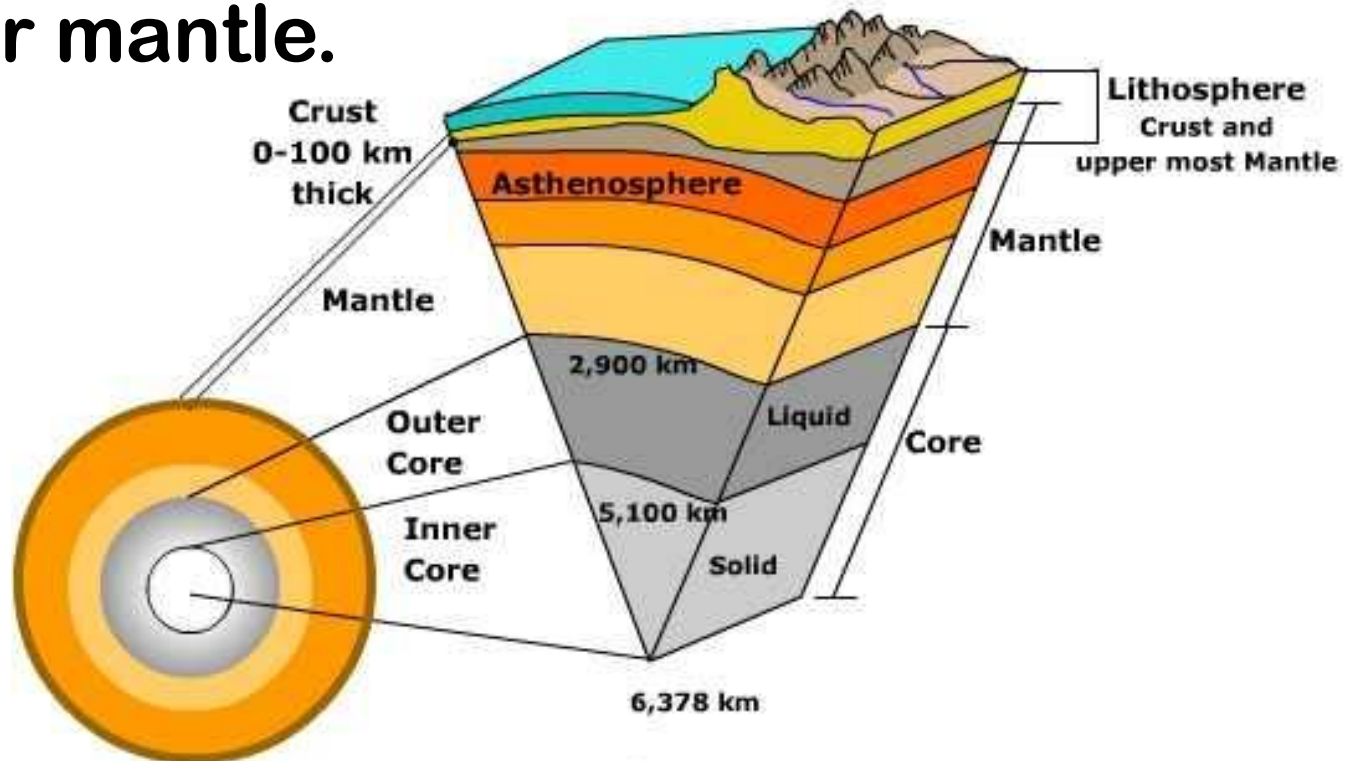
- It is more solid near the surface since temperatures are cooler.
- As depth increases, it is molten rock or magma.
- Its texture is like a thick fluid
- Temperature:
1,400 – 3,000 C

Includes distinctive regions: lithosphere and asthenosphere



What is the lithosphere?

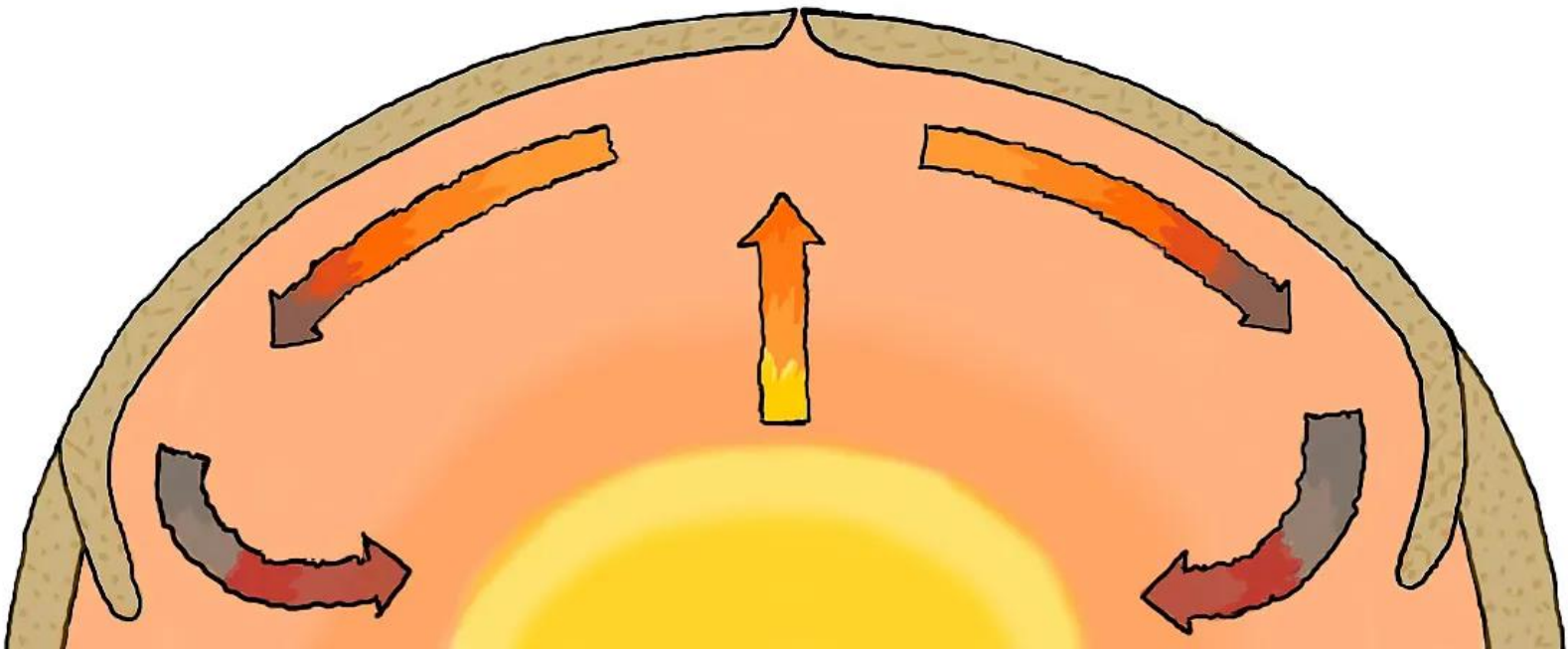
- It is the solid rock layer at the top of the Earth.
- It includes the crust and the top part of the upper mantle.



Earth Structure
(Not to Scale)

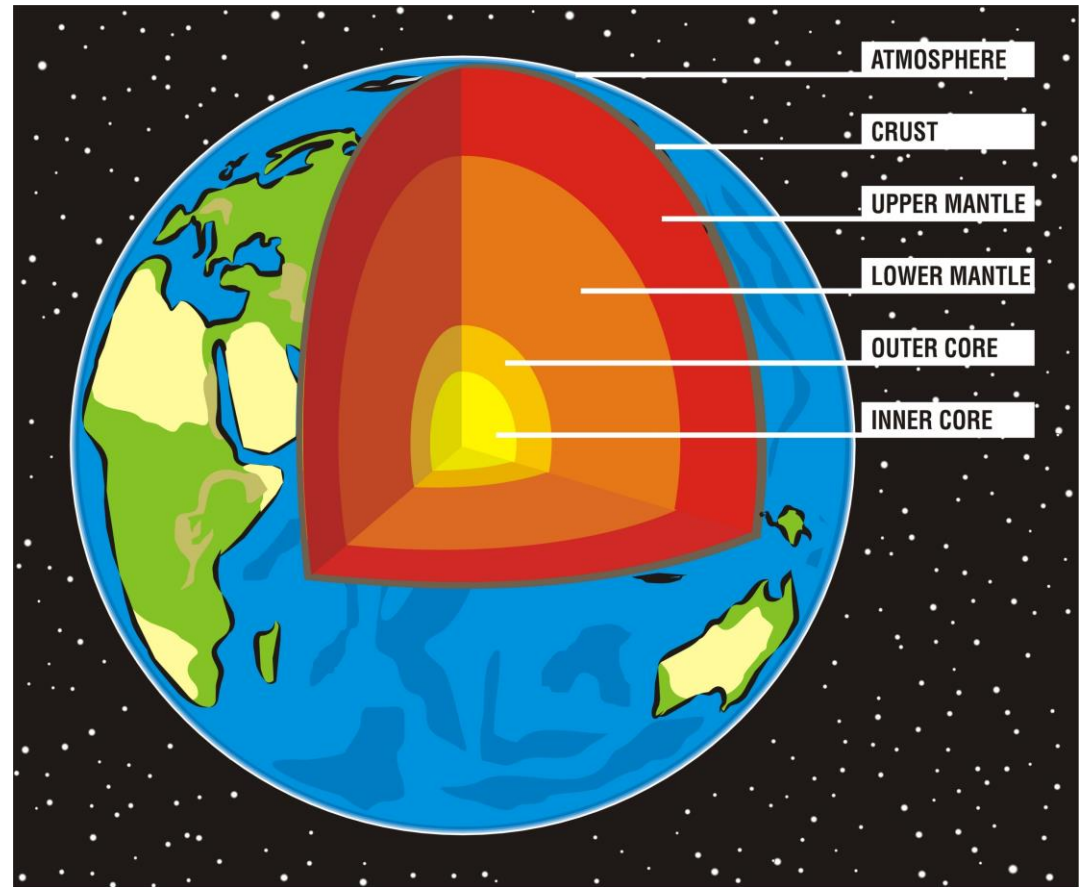
What is the asthenosphere?

- This is the more pliable layer under the lithosphere.
- It is thought to be molten rock, or magma
- Convection currents in this layer are thought to move the solid rock above it



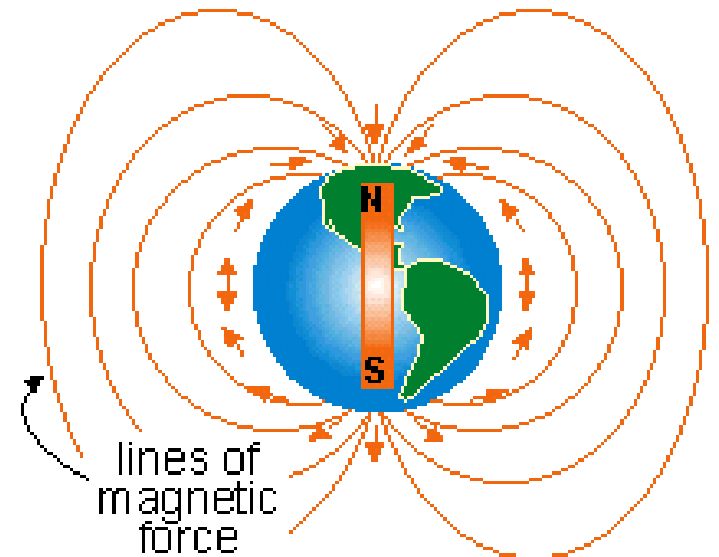
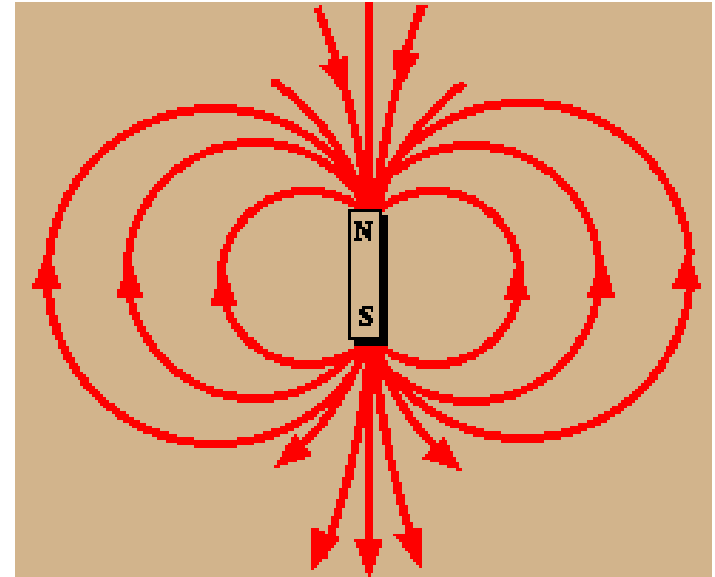
What is the lower mantle?

- Surrounds the outer core
- The rock is hot enough to melt, but is solid because of the immense pressure
- Temperature 3,000 C

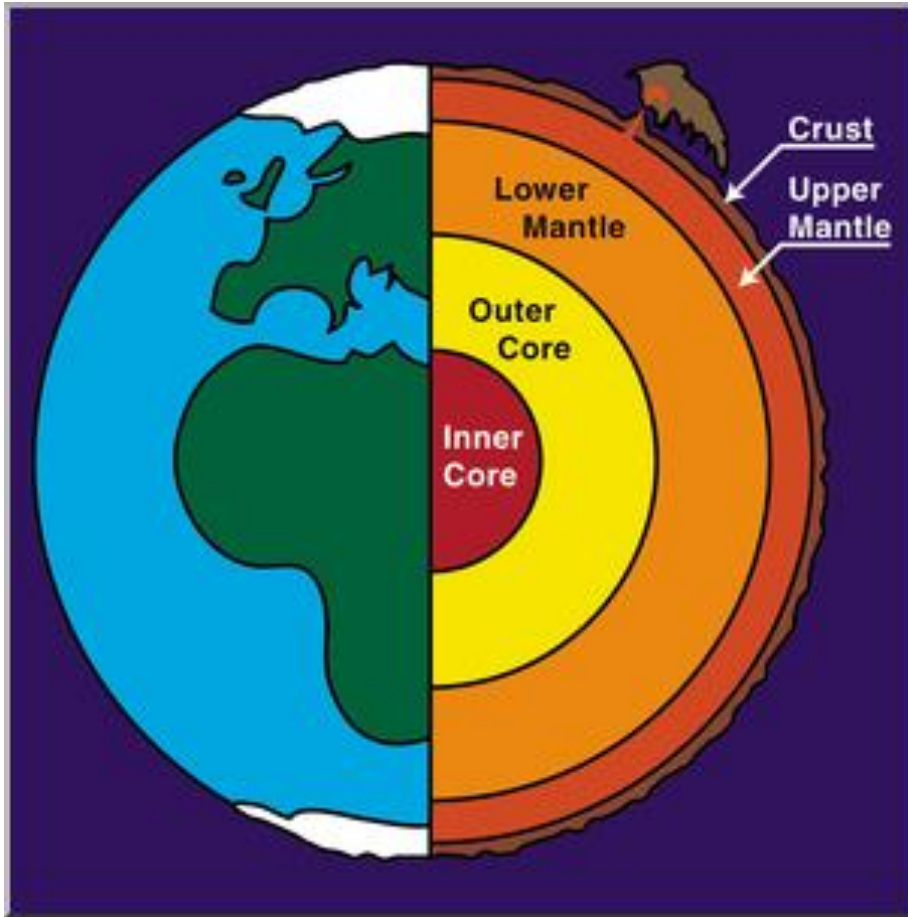


What is the outer core?

- Liquid layer of iron, nickel, sulphur, and oxygen around the inner core
- Its movement around the inner core is thought to create our planet's magnetic field
- Temperature 4,000 – 6,000 C

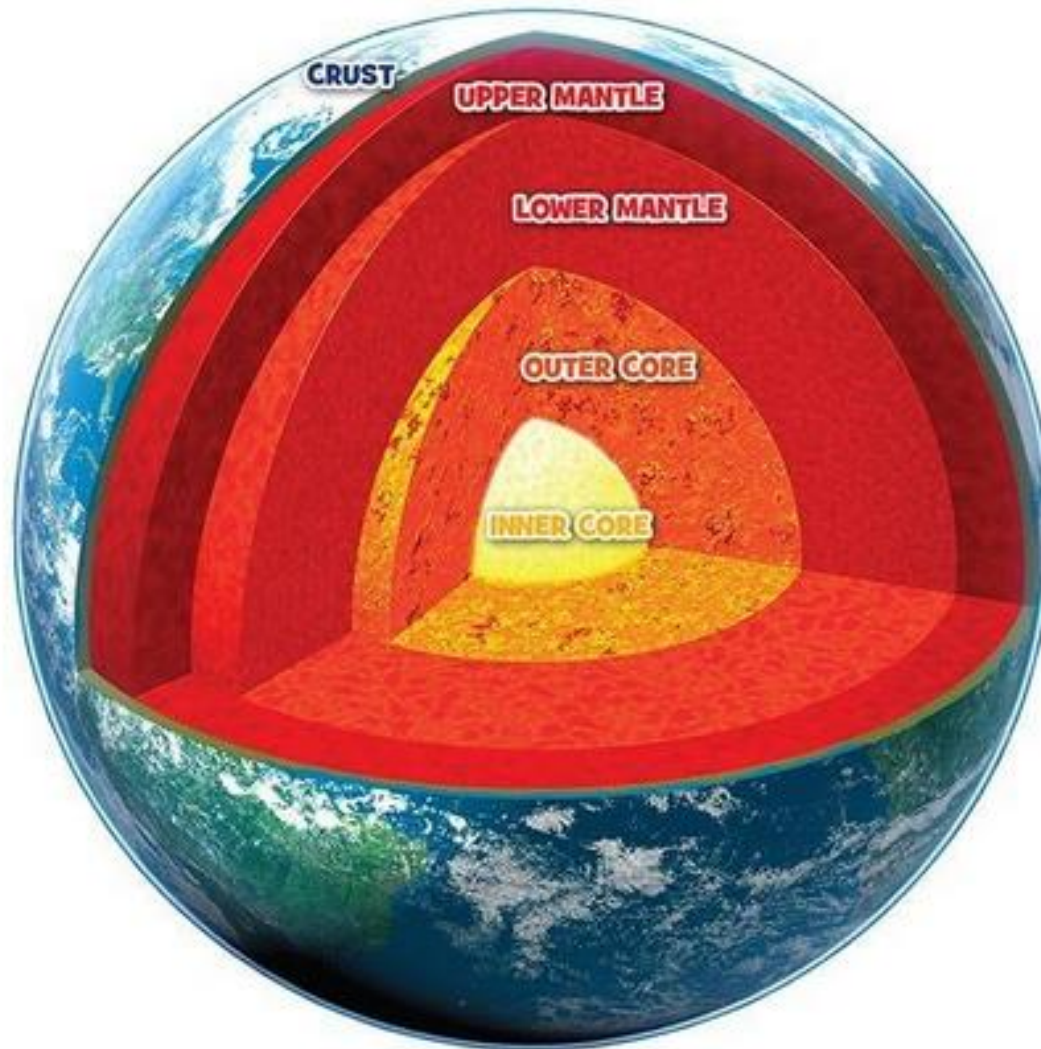


What is the inner core?

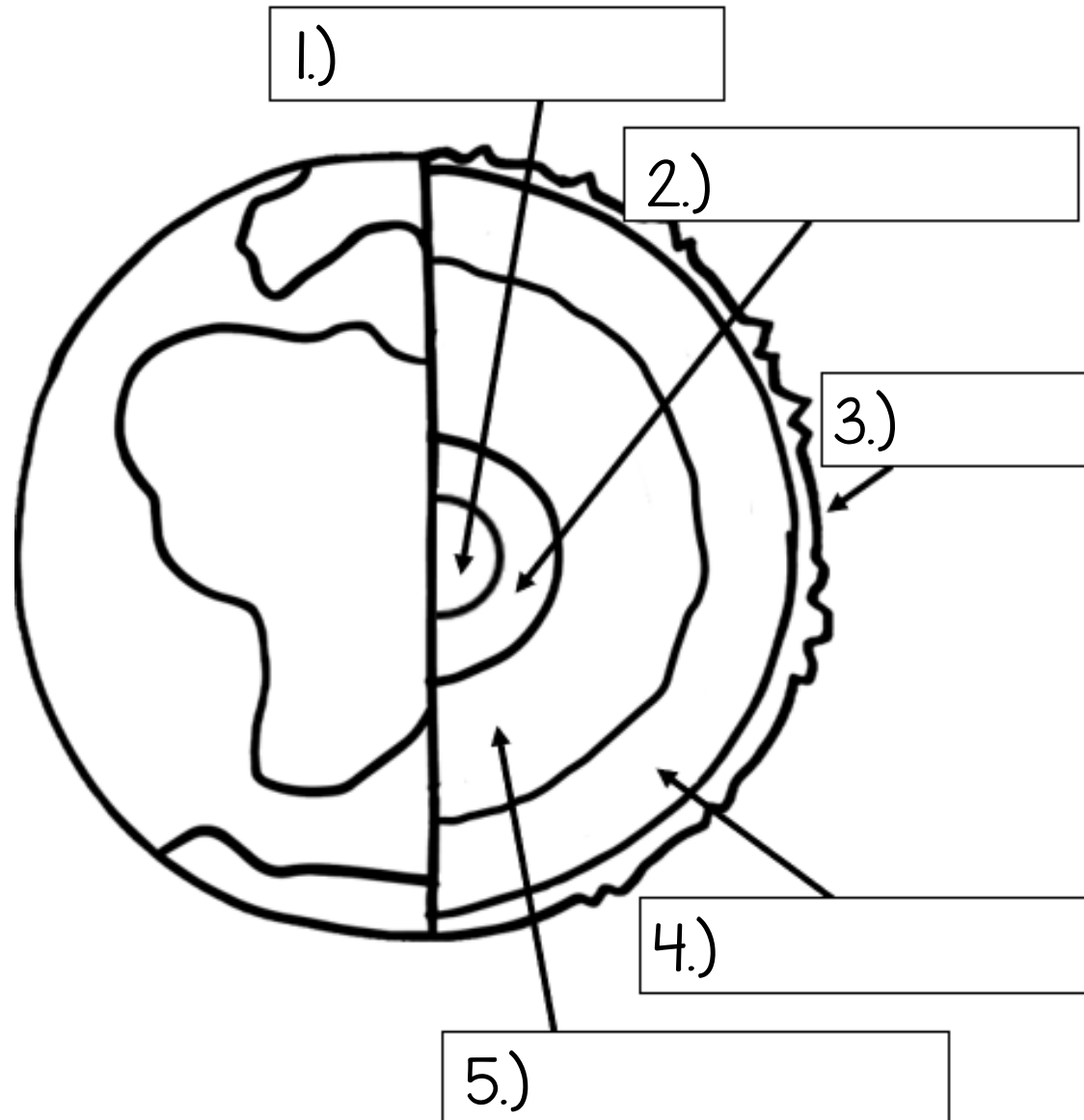


- Hot dense ball of mostly iron
- It is spinning
- Hot enough to melt metal, but stays a solid due to the immense pressure surrounding it
- Temperature 5,000 to 6,000 C
- 2500 km wide

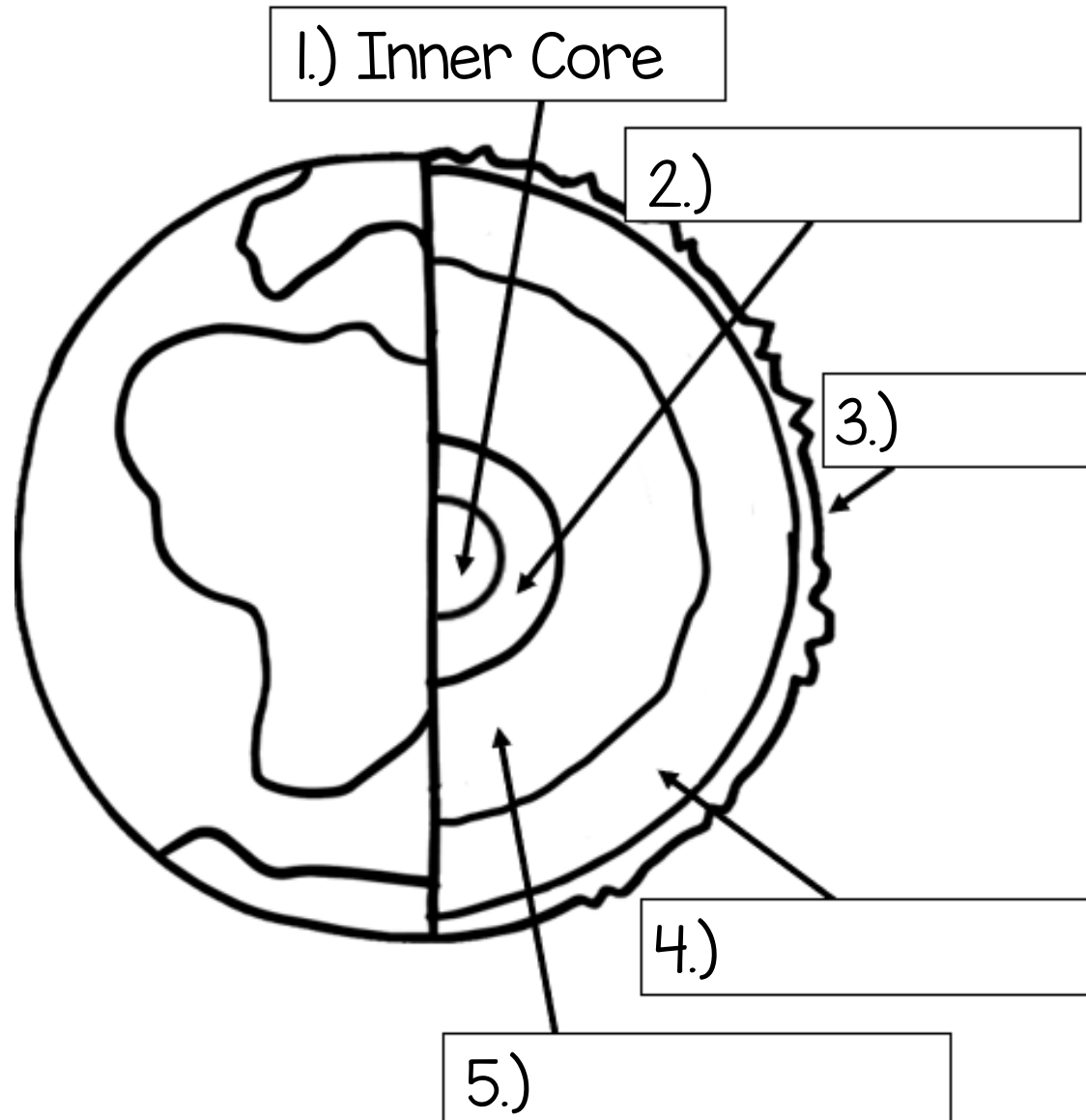
Let's REVIEW what we learned!



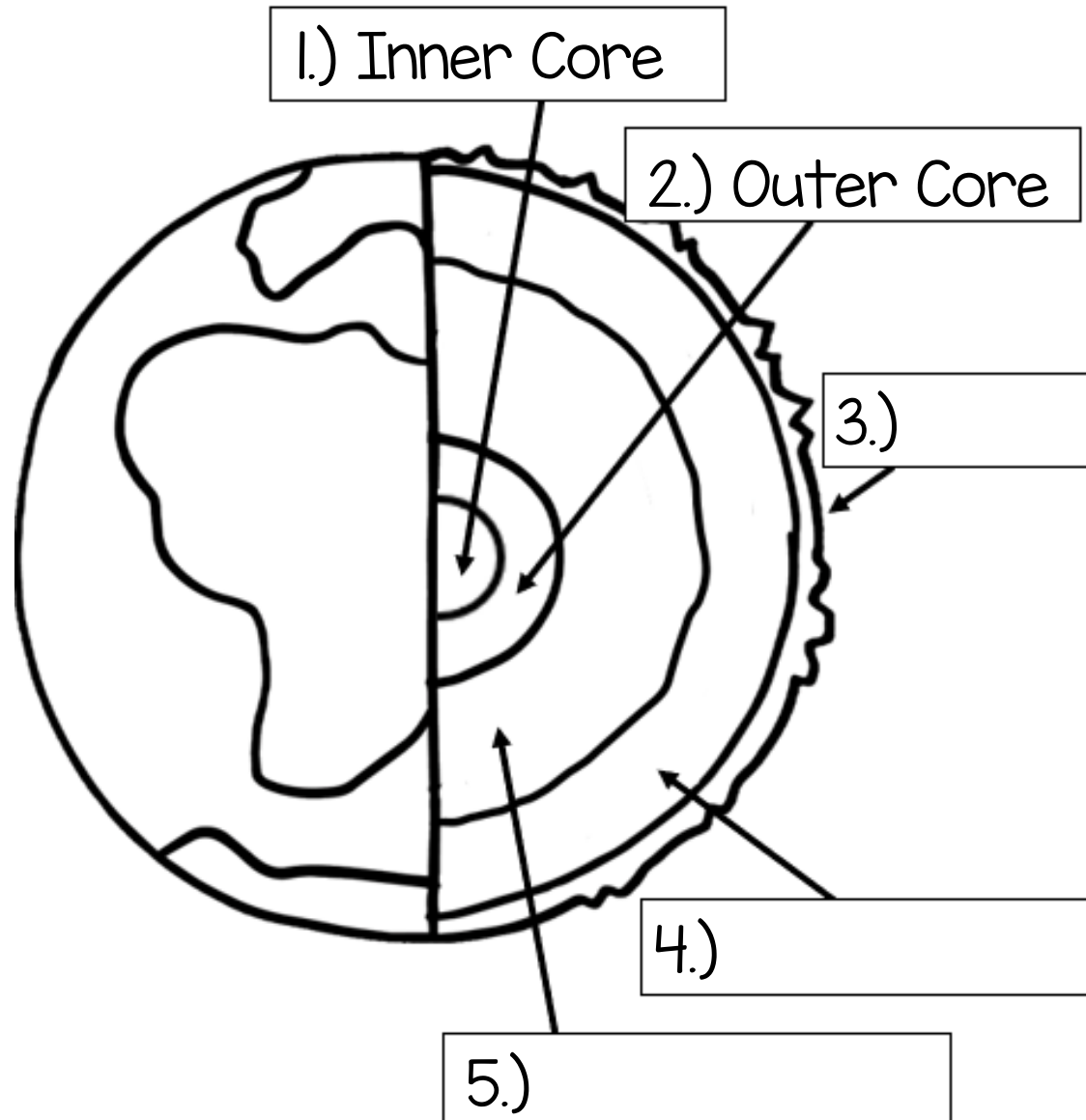
Can you identify the layers?



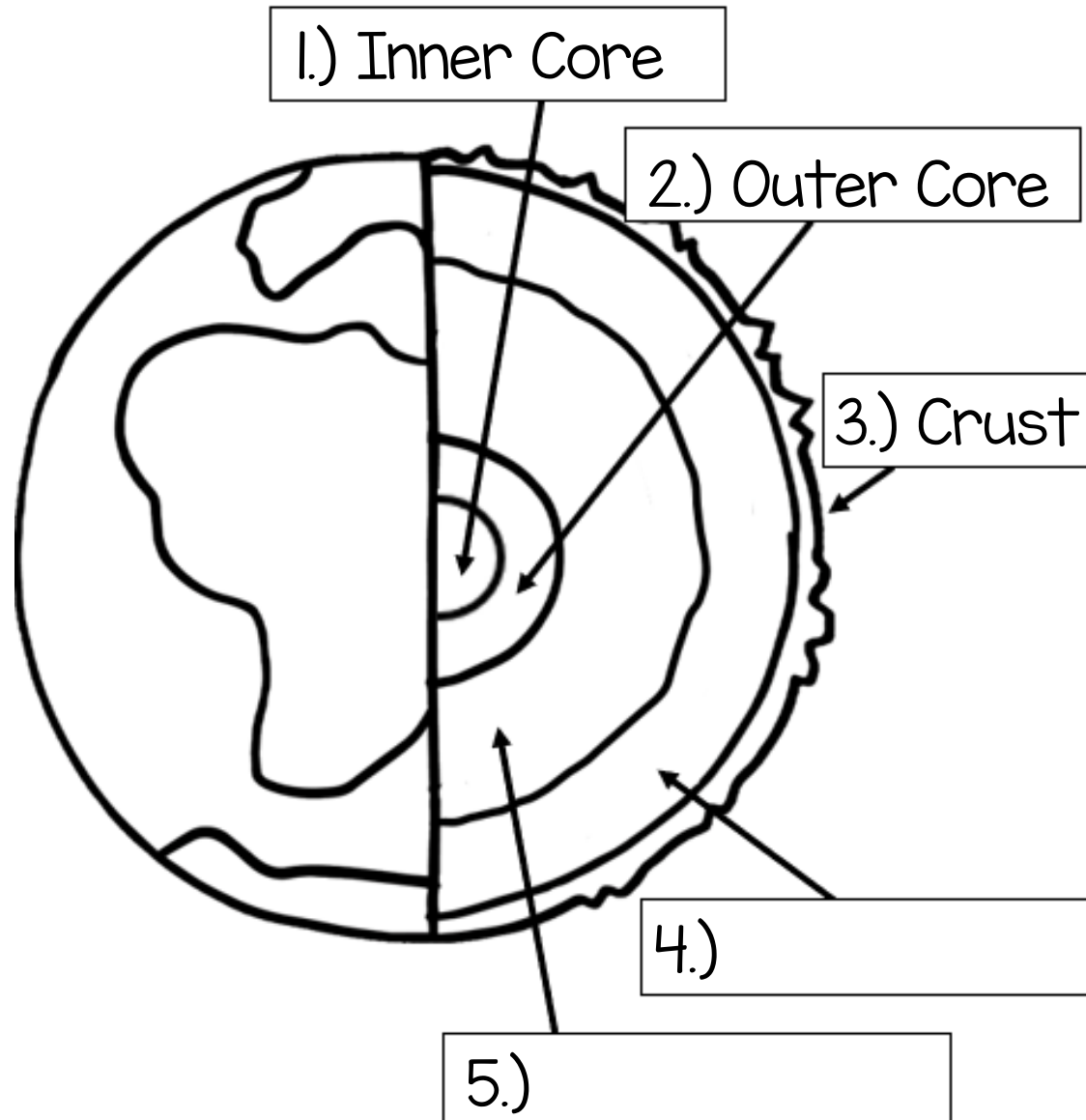
Can you identify the layers?



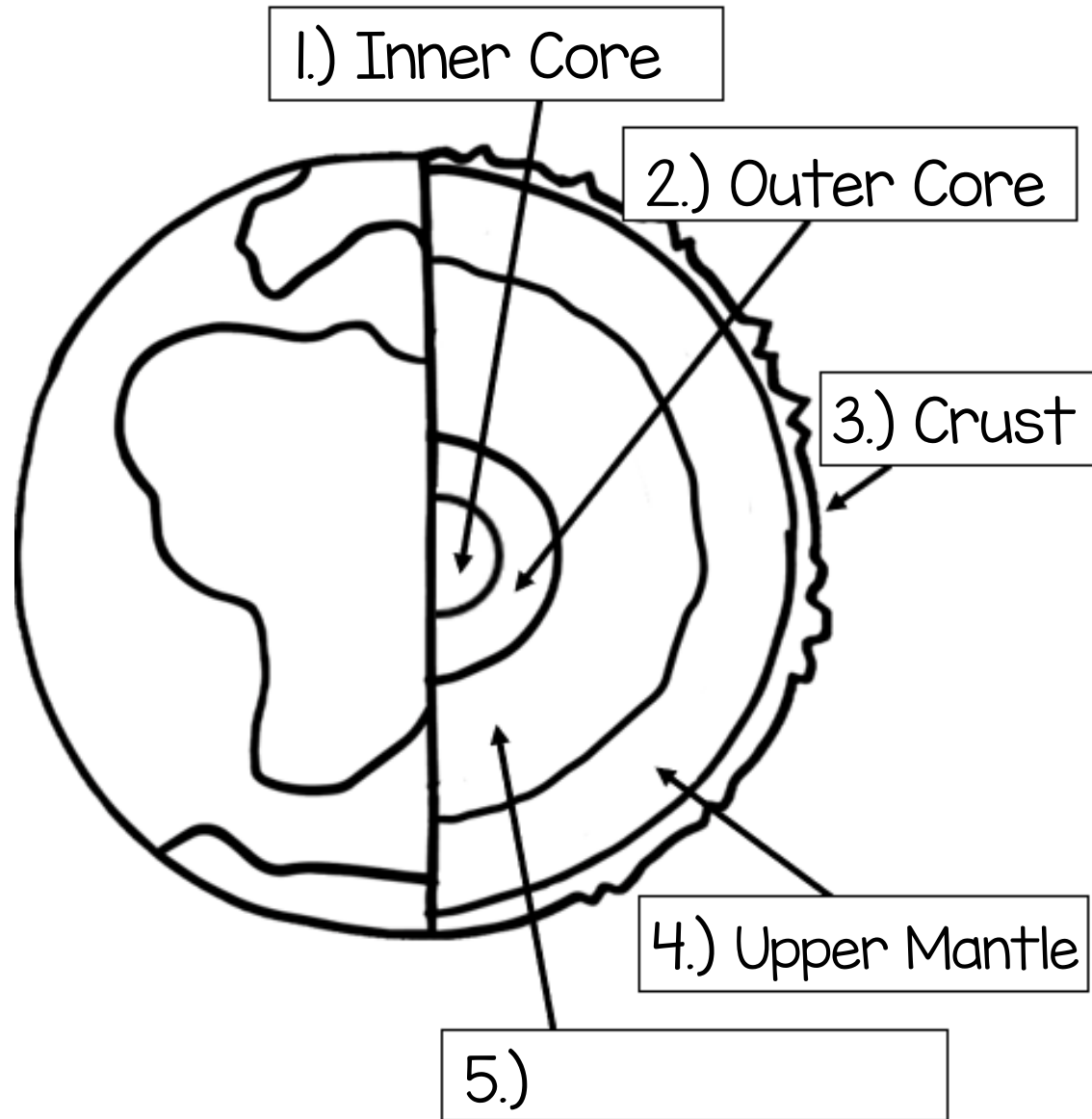
Can you identify the layers?



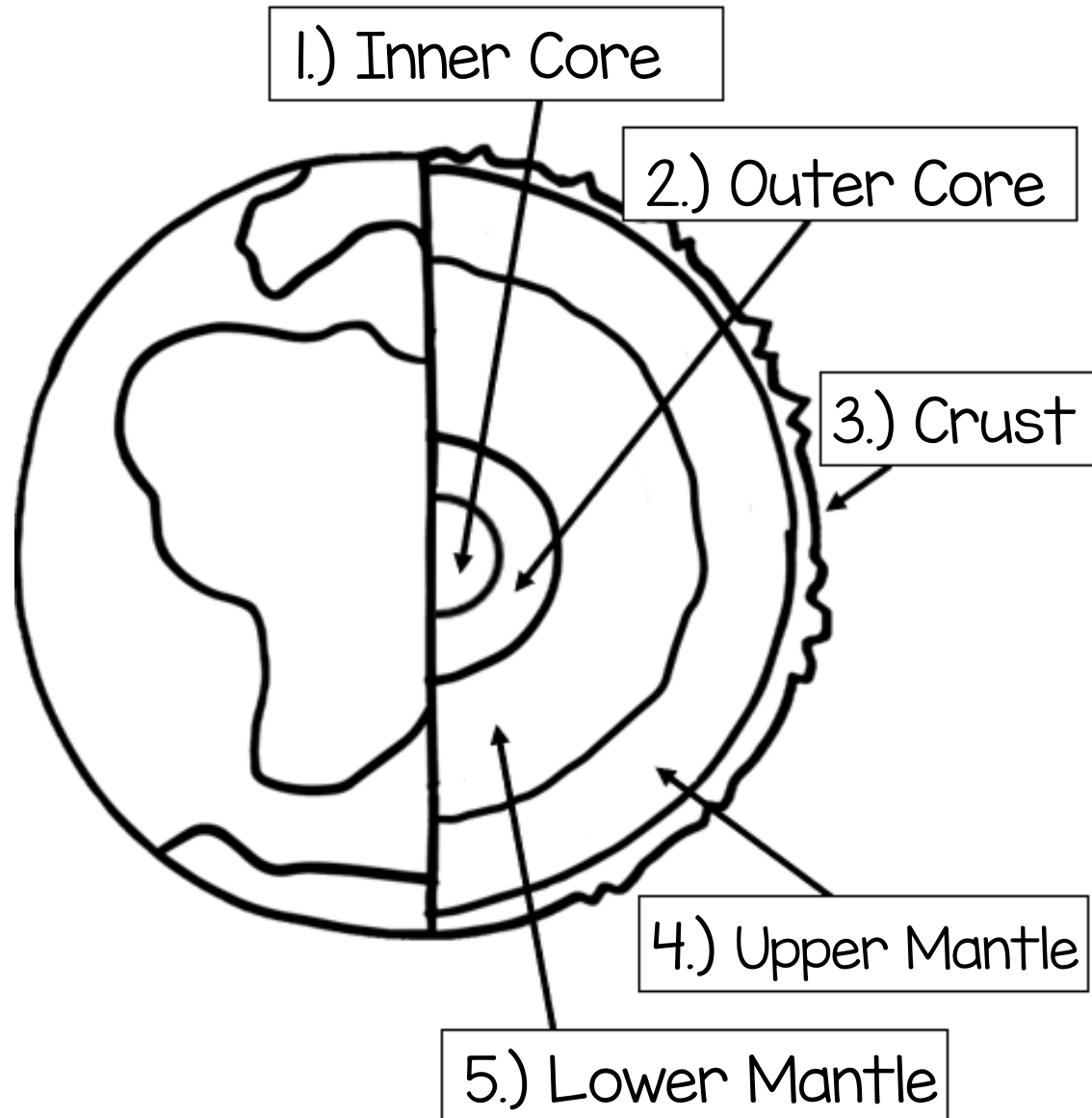
Can you identify the layers?



Can you identify the layers?



Can you identify the layers?



Can you identify the layer?

6.) This layer is hotter than the upper mantle but is solid due to the immense amount of pressure.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

6.) This layer is hotter than the upper mantle but is solid due to the immense amount of pressure.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

7.) This layer can be continental or oceanic.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

7.) This layer can be continental or oceanic.

A.) CRUST

B.) UPPER MANTLE

C.) LOWER MANTLE

D.) OUTER CORE

E.) INNER CORE

Can you identify the layer?

8.) This layer is a dense solid ball made of iron.

- A.) CRUST
- B.) UPPER MANTLE
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- E.) INNER CORE

Can you identify the layer?

9.) This layer is solid and the thinnest layer. It is the one we walk on.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

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C.) LOWER MANTLE

D.) OUTER CORE

E.) INNER CORE

Can you identify the layer?

10.) This layer contains magma. It has a texture of thick liquid.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

10.) This layer contains magma. It has a texture of thick liquid.

- A.) CRUST
- B.) UPPER MANTLE**
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

II.) This liquid layer surrounds the inner core.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

II.) This layer is solid and the thinnest layer. It is the one we walk on.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

12.) This layer is primarily made up of granite and basalt.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
- D.) OUTER CORE
- E.) INNER CORE

Can you identify the layer?

12.) This layer is primarily made up of granite and basalt.

- A.) CRUST
- B.) UPPER MANTLE
- C.) LOWER MANTLE
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- E.) INNER CORE



Hi! Thank you for your download. I'm so glad you were able to find a school tool you can use. Please feel free to use this activity for your own personal use or classroom. Hope it works out great!

♥ Marie

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