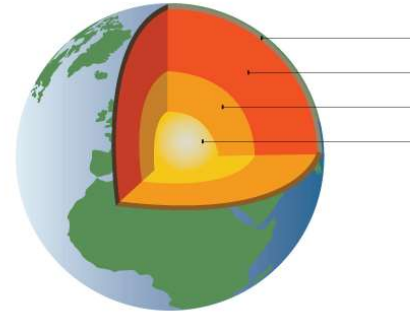


What are Earth's Layers?

Label the layers:



Glue this side into your notebook

Crust

State of matter:

Mark on the scale: Least Dense-----Most Dense

Mantle

Upper mantle state of matter:

Lower mantle state of matter:

Mark on the scale: Least Dense-----Most Dense



Outer Core

State of matter:

Mark on the scale: Least Dense-----Most Dense

Inner Core

State of matter:

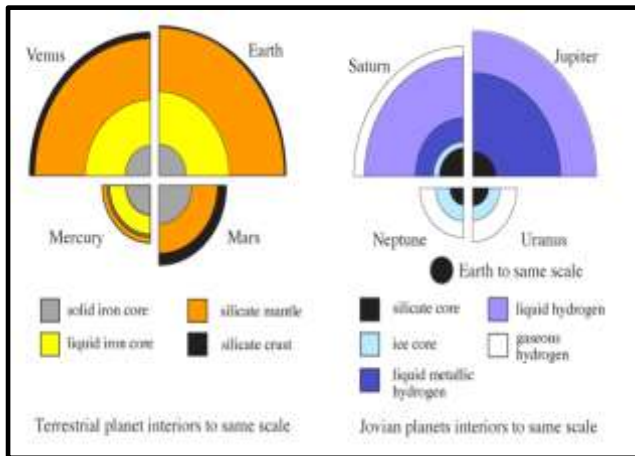
Mark on the scale: Least Dense-----Most Dense

How'd the layers get like this?

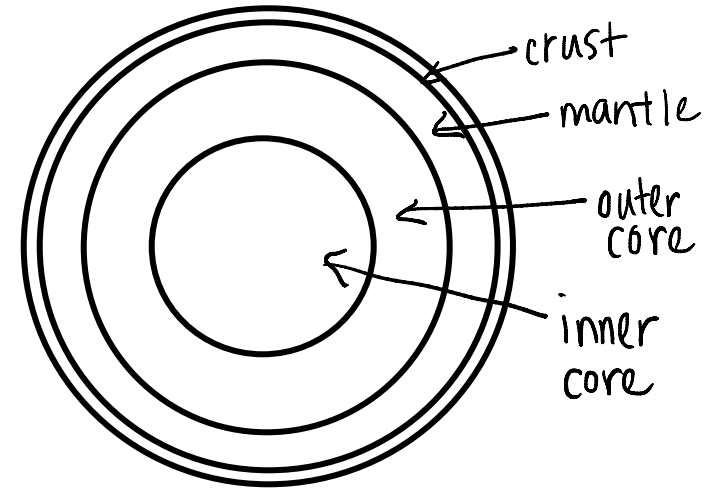
Planetary differentiation	What is density?
	Draw an image of image of dense and not dense material. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; width: 100px; height: 60px; margin-right: 20px;"></div> <div style="border: 1px solid black; width: 100px; height: 60px;"></div> </div> <p style="display: flex; justify-content: space-around; margin-top: 5px;"> Dense Not dense </p>
	What is <u>planetary differentiation</u> ?

What causes it?

Explain how this image demonstrates that planetary differentiation affects all planets, not just Earth.



How do matter and energy transfer inside Earth?



Below are ways that energy and matter move through the Earth. Color code and draw connections above to the following ways that matter and energy are moved and changed.

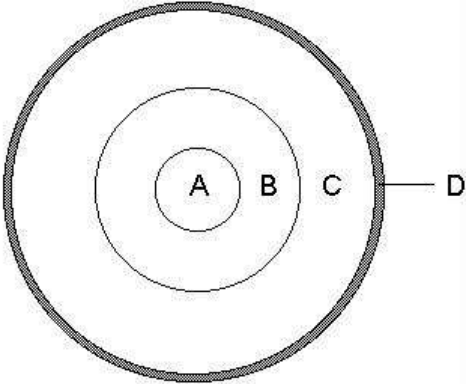
Seismic energy	<p>What is it?</p> <p>Does it move through Earth?</p> <p>Does it move matter on Earth?</p>
Radioactive decay	<p>What is it?</p> <p>What kind of energy does it create inside Earth?</p>
Gravitational energy	<p>What is it?</p> <p>What does it do to matter inside of Earth?</p>
Thermal energy	<p>Which of the two sources listed above create thermal energy in Earth?</p> <p>How does thermal energy transfer matter inside of Earth (convection currents)? Draw a picture how matter moves due to convection currents and why it does this. Explain with captions and explain the terms of temperature and density.</p>



Glue this side into your notebook



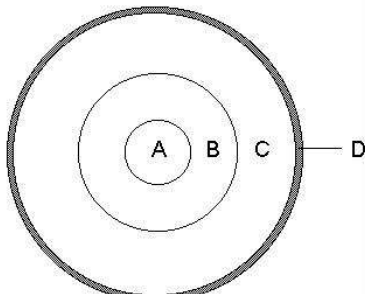
How do **waves** tell us what the inside of Earth is like?

Wave Evidence	Explanation of evidence
Waves <u>refract</u> inside Earth	<p>What does this mean?</p> <p>Why do waves refract inside of Earth?</p> <p>How do scientists know waves refract? What evidence do we have to tell us this?</p> <div></div> <p>Draw what that looks like on the cross-section of Earth.</p>

Waves reflect inside Earth

What does this mean?

How do scientists know waves reflect? What evidence do we have to tell us this?

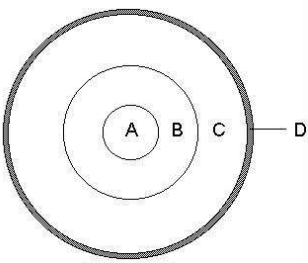


Draw what that looks like on the cross-section of Earth.

S-waves don't travel inside of the outer core

What does this mean and why do S-waves NOT travel inside the outer core?

How do scientists know that S-waves don't travel through the outer core? What evidence do we have to tell us this?

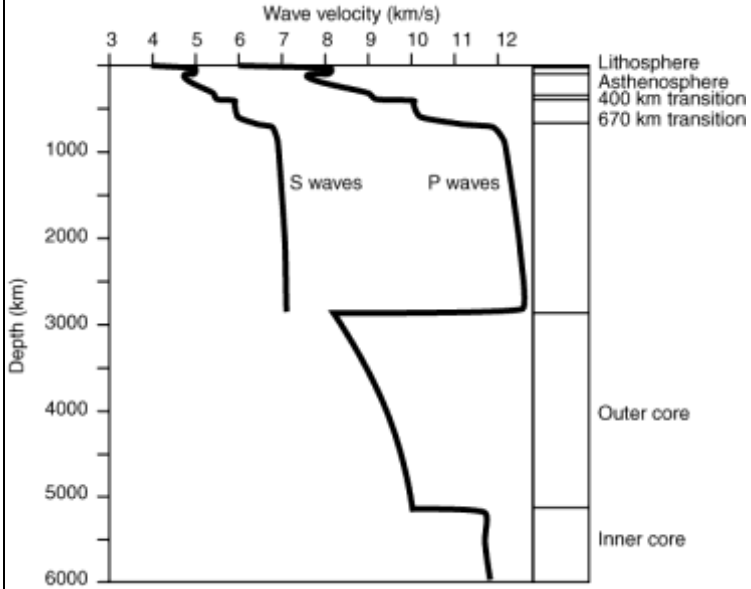


Draw what that looks like on the cross-section of Earth.

Wave speed is different though the layers

Why does wave speed change inside Earth?

Here is a graph of evidence for the change in speed as waves travel through the Earth.



Explain below what this graph tells you:

P-waves	S-waves