

Label the Earth Diagram

Name _____

Atmosphere - the layer between the crust and space. Made of 75% nitrogen. This is the least dense layer. We know this because it floats.

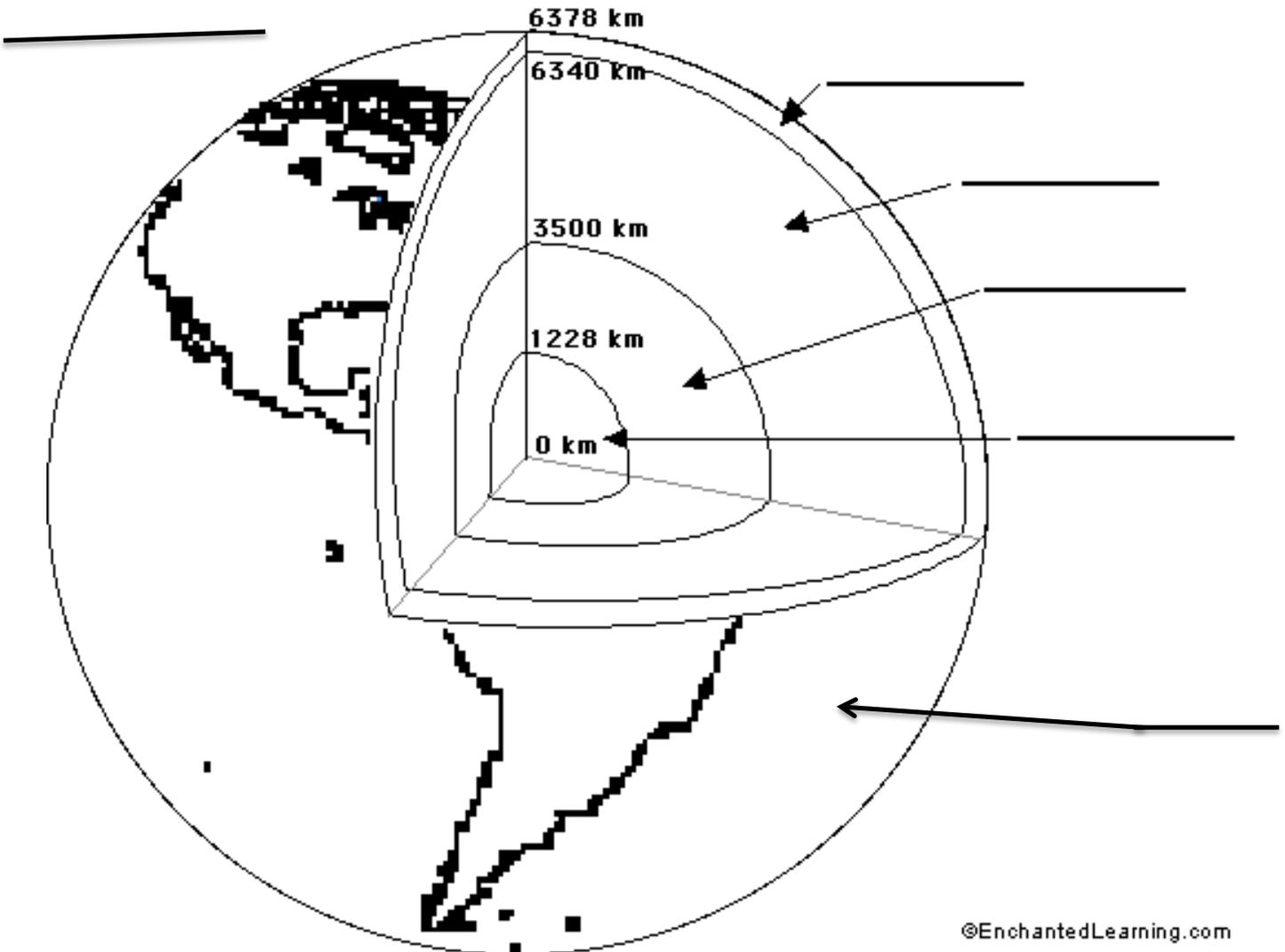
Water - water is a liquid the sits on the crust. It is more dense than the atmosphere.

Crust - the rigid, rocky outer surface of the Earth, composed mostly of basalt and granite. The crust is thinner under the oceans and thickest on the mountains. This the thinnest layer of the earth. Our land masses are made from the crust.

Mantle - a rocky layer located under the crust - it is composed of silicon, oxygen, magnesium, iron, aluminum, and calcium. Convection (heat) currents carry heat from the hot inner mantle to the cooler outer mantle. The upper mantle is somewhat googy. This is the thickest layer.

Outer core - the molten (melted) iron-nickel layer that surrounds the inner core. This is the only liquid layer.

Inner core - the solid iron and nickel center of the Earth that is very hot and under great pressure. This layer is the most dense.



Inside Our Earth

Name _____ per. _____

Introduction: You have recently learned about the density of different solids and liquids. In this activity, you will analyze some actual data from Earth's layers and draw some conclusions about their densities.

Use the data above to answer the following questions in complete sentences.

Layer	Density (g/cm ³)	Phase	Composition	Average Temperature °C
Inner Core	12.7 – 13.0	Solid	Iron	4300
Outer Core	9.9 – 12.1	Liquid	Iron, Nickel	3700
Mantle	3.3 – 5.5	Solid and Semi-Solid ("plastic")	Magnesium, Iron, Silicate	1000
Crust	2.7 – 3.0	Solid	Silicate, Magnesium, Aluminum	-45 to 54

1. How do we know the Earth has layers? Cite at least two examples of evidence you have explored.
2. What happens to the density of Earth as you move towards the center?
3. It is thought that the Earth was a molten (liquid) ball of rock when it formed. Why did some elements sink to the center?
4. Based upon your experience of diving into the deep end of a pool, what can you deduce about the pressure present in the Earth's core? What causes that pressure?
5. What happens to the temperature and pressure as we move from the crust to the inner core? Why?
6. Iron melts at 1535 °C. The inner core of the Earth is solid. Explain why this might have happened.