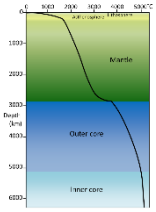
Name _____ Period ____ Date _____

Earth's Interior Graphing Activity



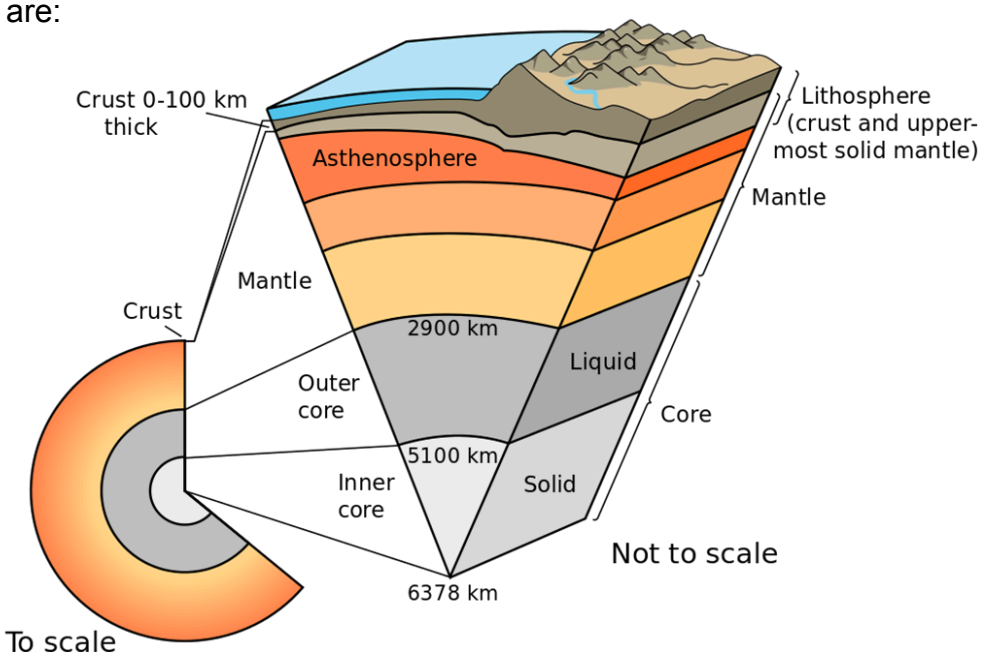
Introduction

Conditions inside the Earth are extreme. Since heat and pressure both increase the farther you go toward the center of our planet, it seems unlikely that scientists will ever be able to observe the interior of the Earth directly. So how do we know what's going on inside the Earth if we've never been able to explore it? We use science. Scientists use seismic data (earthquakes), ground penetrating sonar (sound waves), volcanic activity, meteorites, light from the sun and other stars, and whatever else they can find to help them infer how the Earth formed, and what's inside it. In this activity you will graph some of the data about what's happening beneath our feet. Data that scientists have spent the last 2,000 years collecting.

□ **The Earth:** Is. Not. Flat.

□ **What's Inside?:** The Earth has 4 main layers with several transitional layers separating them. The 4 main layers are:

- Crust
- Mantle
- Outer Core
- Inner Core



Materials Needed

- Pen/pencil
- Coloring pencils
- Graph paper
- Ruler

Procedures

1. You will be making three separate graphs. The first graph will have the temperature vs. depth data. The second graph will have the pressure vs depth, and the third graph will have the density vs depth data. Use a different color for each of the three data sets.
2. Draw a line graph with “Temperature” on the Y-axis and “Depth” along the X-axis. Be sure to consider scale when setting up your graph.
3. Choose a color for the temperature vs depth data set and plot the data points from the data table on your graph. Connect the points.
4. Draw your second line graph with “Pressure” on the Y-axis and “Depth” on the X-axis. Be sure to consider scale when setting up your graph.
5. Choose a second color for the pressure vs depth data set and plot the data points from the data table on your graph. Connect the points.
6. Draw your third line graph with “Density” on the Y-axis and “Depth” on the X-axis. Be sure to consider scale when setting up your graph.
7. Choose a third color for the density vs depth data set and plot the data points from the data table on your graph. Connect the points.
8. Answer the questions on the back of this paper.
9. Turn it in.

Depth	Temperature	Pressure (Millions of Atmospheres)	Layer	Density (g/cm^3)
0 km	0	0	Crust	2.2
100 km	700	0.06	Crust	2.9
250 km	1200	0.11	Asthenosphere	3.4
500 km	2300	0.24	Asthenosphere	3.7
750 km	2900	0.38	Asthenosphere	4.4
1000 km	3200	0.40	Upper Mantle	4.5
1500 km	3700	0.67	Upper Mantle	4.8
2000 km	4300	0.81	Lower Mantle	5.2
2500 km	4600	1.1	Lower Mantle	5.6
3000 km	5000	1.6	Outer Core	9.9
3500 km	5300	2.2	Outer Core	10.3
4000 km	5700	2.6	Outer Core	11.1
4500 km	5900	2.8	Outer Core	11.8
5000 km	6200	3.3	Outer Core	12.2
5500 km	6400	3.5	Inner Core	12.8
6000 km	6500	3.7	Inner Core	13.0
6401 km	6800	3.8	Inner Core	13.1

Analysis and Conclusions

1. Write a statement that describes how the temperature inside the earth changes as you move deeper toward the core, and explain why the change occurs. Use complete sentences.

_____

_____

_____

_____

_____

2. Why is the density in the Earth's core higher than the density in the crust?

_____

_____

_____

3. Which layer of the Earth is the thinnest?_____ Thickest?_____
4. How can studying minerals in a lab help scientists understand the Earth's interior?

_____

_____

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_____