NAME _____

CLASS _____ LAB _____

DATE _____

LAB: DETERMINING THE DENSITY OF THE EARTH

Objective: to calculate and compare the densities of earth materials.

Materials: Triple-beam balance   graduated cylinder
             Water   rock samples of granite, basalt and slate
                       Sample of iron (Fe)

Hypothesis - _____

Procedure:

SAMPLE	Volume of rock & water	Volume of water alone	Volume of rock alone	MASS (g)	Density (g/cm3)
Granite					
Basalt					
Slate					
Iron					

CLASS DATA

GROUP	g/cm^3 AVERAGE DENSITY OF ROCKS	g/cm^3 DENSITY OF IRON	g/cm^3 DENSITY OF EARTH
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
TOTAL			
CLASS AVERAGE			

QUESTIONS AND CONCLUSIONS

1. Using only the rock samples (basalt, granite, slate) find the average density of _rock_.
    SHOW WORK AND INCLUDE UNITS!

2. Compare the density of iron to the average rock density that was calculated in #1.

3. Take the average rock density and the density of iron. Find the average of these two
    numbers for both your individual data and the class averages. This calculation will
    give you the density of the earth. SHOW WORK AND INCLUDE UNITS!
      PERSONAL DATA _____ _CLASS DATA_

4. The known density of the Earth is 5.5 g/cm3. Using your ESRT, calculate the _percent deviation_ for both your individual data and the class data. SHOW YOUR WORK AND INCLUDE UNITS!
      Personal Data _____ _Class Data_

5. Using your ESRT, what layer(s) of the earth do(es) the three rock samples represent?
    Explain your answer.

6. Using your ESRT, what layer of the earth does the iron (Fe) sample represent?

7. Why is the mantle not represented in the above samples?

8. The denser the material, the faster the seismic wave will travel. Using the information above, predict which tectonic plates seismic waves will travel fastest through. Give an example of plates from your ESRT.

9. Using your ESRT, name 2 plates for each:

a. continental plate _____, _____

b. oceanic plate _____, _____

10. Locate 2 plate boundaries for each:

a. converging center _____, _____

b. diverging center _____, _____

11. At the converging centers, predict which plate will be subducting and which will override the other.

CONCLUSION PARAGRAPH: Write a summary paragraph that sums up your data and explains your conclusions. Write in whole sentences and be specific and clear in your explanations regarding Earth's densities and the densities' relevance to tectonic plates.