

Density Column and the Earth's Layers

/39

Name: _____

MATERIALS:

5 small soufflé cups

Light Corn Syrup

Dark Syrup

Water dyed red

1 4oz glass bottle

Vegetable oil

Blue or green dish soap

25mL graduated cylinder

PROCEDURE:

1. What is the formula for density? (Hint: Don't break my heart!) (1pt)
2. Label each of the 5 small soufflé cups with one of the liquids in the table below.
3. Using the balance provided, find the mass of 1 empty small soufflé cup and write it in the appropriate spots on the table below.
4. Fill a graduated cylinder with 25 mL and pour into a soufflé cup. Notice how high the water goes (near the brim line). This is how far you must fill your cups. Now empty the water, dry it and fill it with one of the liquids below. Fill the other four cups to the same level with the other 4 liquids.
5. Calculate the density of each liquid using the formula you gave for question #1

DATA TABLE (20PTS)

Name of Liquid	Mass of Liquid & cup	Mass of Empty cup	Mass of Liquid (grams)	Volume of Liquid (mL or cm ³)	Density of Liquid (grams/cm ³)
Light corn syrup				25mL	
Dark syrup				25mL	
Water dyed red				25mL	
Vegetable Oil				25mL	
Blue or green dish soap				25mL	

6. List the liquids in order below from densest to least dense. (1PT)

7. **CAREFULLY** pour the liquids into the Earth cup from densest to least dense. Draw a picture of (and color) the Earth cup drawing below to match what you see. (5PTS)



8. The density column that you just created is similar to how the Earth's layers formed, in that the densest materials settled towards the center of the Earth (the core) and the least dense stayed on the surface. Label the 5 structural layers above on your drawing. (5PTS)
9. Give a reason why this model is not completely accurate. (hint: look at the model layers and compare to the real Earth layers)
10. What happens to temperature as you move from the crust towards the core?
11. Which layer(s) of the Earth's interior generates the magnetic field? (2pts)
12. What happens to pressure as you move from the core towards the surface of the Earth?
13. If I dropped a ball that had a density of 1.0 g/cm^3 into your Earth model, in what layer would the ball stop?
14. Why is it that the solid lithosphere stays "afloat" on the asthenosphere?