



# Density of Liquids



AMAZING  
9 LAYER  
DENSITY  
TOWER

- Your lab group will use a plastic pipette to slowly place 2.5 mL of 4 different liquids into a test tube. The 4 liquids you will use are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_
- Observe** the four liquids and record at least one **qualitative observation** of each liquid below:

\_\_\_\_\_

\_\_\_\_\_

- HYPOTHESIS**—Explain what you think will happen when you pour the 4 liquids into the test tube.

\_\_\_\_\_

\_\_\_\_\_

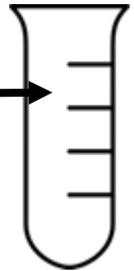
- Draw, color and label a picture which illustrates your **hypothesis**.

- Explain why you think this will happen. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Your group needs to come up with a plan as to how you will experiment. Take turns With the tasks as you experiment. Record the name of the group manager \_\_\_\_\_
- Your group will get four test tubes and 4 liquids. Do not mix or contaminate the original liquids. Use only 2.5 ml of each liquid in a test tube. Place the liquids in slowly, letting the liquid run down the side of the test tube. All test tubes must be clean for the next class to use. Remain in your seat and raise your hand if you have a question or need something.



- Experiment with your group and record your **final results** below in a **colored** and **labeled** diagram.

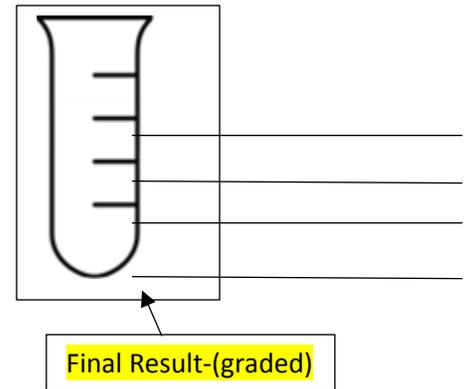
**Explain** your diagram and group results below:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



- Which liquid is the least dense? \_\_\_\_\_

- Which liquid is the most dense? \_\_\_\_\_

- What makes one liquid denser than another liquid?

\_\_\_\_\_

\_\_\_\_\_

- What is the relationship between the density of a liquid and its position in the test tube? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- Explain how this experiment relates to the **layers of the earth**.

\_\_\_\_\_

\_\_\_\_\_

- Do some **research**. See if you can find the densities of the following earth layers and liquids:

- |  |                                   |
|--|-----------------------------------|
| a. Continental Crust _____ g/cm <sup>3</sup> | f. Vegetable Oil _____ g/mL       |
| b. Oceanic Crust _____ g/cm <sup>3</sup>     | g. Water _____ g/mL               |
| c. Mantle _____ g/cm <sup>3</sup>            | h. Dawn Dish Detergent _____ g/mL |
| d. Outer Core _____ g/cm <sup>3</sup>        | i. 1% Milk _____ g/mL             |
| e. Inner Core _____ g/cm <sup>3</sup>        |                                   |

**Use these websites to assist you with research:**

[http://www.shonscience.com/uploads/2/2/1/3/22138584/2635932\\_orig.jpg](http://www.shonscience.com/uploads/2/2/1/3/22138584/2635932_orig.jpg)

[http://www.coolgeography.co.uk/GCSE/AQA/Restless%20Earth/Tectonics/Crustal\\_types.jpg](http://www.coolgeography.co.uk/GCSE/AQA/Restless%20Earth/Tectonics/Crustal_types.jpg)

<https://www.wccusd.net/cms/lib/CA01001466/Centricity/domain/1040/grade%208%20lessons/LiquidDensityColumnV2.pdf>

<http://cnmesm.wikispaces.com/G6+Seven+Layer+Density+Column>

15. What surprised you during this experiment? Describe at least two things that surprised you.

1.-

2.-

16. Let's say you added 7 mL of vegetable oil instead of 2.5 mL, would that change where the vegetable oil would position itself in the test tube? \_\_\_\_\_ Explain your answer. \_\_\_\_\_

\_\_\_\_\_

17. A lot of students hypothesized that the "thickest liquids" would be the most dense liquids. Was their hypothesis correct? \_\_\_\_\_ Explain: \_\_\_\_\_

\_\_\_\_\_

18. Describe **3 things you learned** from this lab.

1.-

2.-

3.-

19. Look at the density of the continental crust and oceanic crust. Sometimes at convergent boundaries the oceanic crust gets pushed under the continental crust. Why does the oceanic crust always sink under the continental crust?

20. What can you conclude about the how the layers of the earth form?

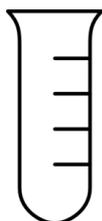
21. Why is the inner core so incredibly dense?

22. Record your data/results from your 4 trials of experimentation below: (Color and label each test tube)

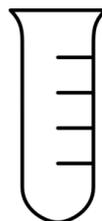
Trial 1



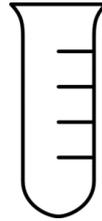
Trial 2



Trial 3



Trial 4



Describe in words (below) the results of each specific test or trial. Explain what you learned from that trial.

