Liquid Layers Lab

**Question:** How does density affect the order of layers of materials?

**Hypothesis:** If I pour vegetable oil, dark Karo syrup, dish soap and water into a graduated cylinder, then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will form the topmost layer and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will form the bottom layer because each liquid has a different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Materials:**

One beaker 1 tablespoon

1 bottle of vegetable oil 1 bottle of dark Karo syrup

1 bottle of dish soap Water

1 popsicle stick 1 pair safety goggles and apron per student

**Procedure:**

1. Put on your safety goggles and apron
2. Pour one tablespoon of vegetable oil into the graduated cylinder
3. Pour one tablespoon of Karo syrup into the graduated cylinder
4. Pour one tablespoon of dish soap into the graduated cylinder
5. Pour one tablespoon of water into the graduated cylinder.
6. Allow the liquids time to settle.
7. Draw a diagram of the beaker with the layers of liquid, and label each liquid, in the space labelled “Data”.
8. Stir up the liquids with the popsicle stick
9. Wait several minutes and record your observations in the space labelled “Data.”
10. Thoroughly clean your lab equipment and station, then properly put away your safety goggles and aprons.

**Data:**

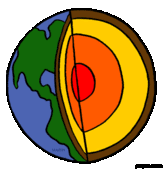
Draw a diagram here of the beaker with the layers of liquid, and label each liquid (Step 7)

**Data-continued:**

Record your observations here about what happened after you stirred the liquids with a popsicle stick and then waited several minutes and looked again (Step 9):

**Data Analysis:**

1. Why do the liquids in this system float on top of each other in the order that they do?
2. Which liquid do you think is the densest? Which is the least dense?
3. What is the relationship between the density of a liquid and its position in the graduated cylinder?
4. The liquids in this experiment model how Earth’s layers separated into four different layers according to their densities. This diagram shows Earth’s different layers. Which layer of the Earth has the greatest density? Which layer of the Earth has the least density?



A

B

C

D

**Conclusion:**

1. Explain briefly how you came up with your hypothesis.
2. Was your hypothesis correct? Explain why you said it was or was not correct.
3. Write a brief summary paragraph describing what you learned from doing this lab.