

Density of Liquids Lab**Problem:** Will the density of each of the liquids be greater than 1g/mL?**Research Topics:** _____**Hypothesis:** _____**Materials:** liquids, 10 mL graduated cylinder, TBB, test tube brush**Procedures:**

1. Be sure to view the different liquids and write the hypothesis that answers the problem question.
2. Measure the mass of a clean, dry graduated cylinder. Record mass here: _____
Use this same graduated cylinder for the entire lab. If you must change cylinders, be sure to measure & record its mass. Graduated cylinders are not normally placed on the pan of a TBB since they are easily broken. Plastic graduated cylinders will be used in this lab because it is difficult to remove some of the liquids.
3. Select one of the liquids and measure 10 mL in the graduated cylinder used in step # 1. Measure accurately at eye level, flat surface, and at the bottom of meniscus.
4. Measure the mass of the liquid and graduated cylinder. Record.
5. Subtract the mass of the graduated cylinder from the combined mass. Record on the data table as "Mass of Liquid Only". Be sure you know the dry mass of the g.c.
6. Discard liquid E in waste beaker. All other liquids can be discarded in the sink.
7. If any liquid appears to be contaminated, ask for a new sample.
8. Clean the graduated cylinder with SOAP and WATER using a small test tube brush. Shake to remove water (water can be a contaminant). Do not put paper towels into cylinders.
9. Repeat the process for each of the other liquids. Record. (If you use a different cylinder on day 2, be sure to measure the cylinder's mass and use this mass on the rest of your calculations).
10. Tilt the cylinder and gently add approximately 1 mL of each liquid to the graduated cylinder to create layers. Draw, label, and color your layers.
11. Empty layers in trash can and clean up the lab station. Lab inspection score: _____
12. Write the density formula; plug in the numbers & units on the data table and solve for density using a calculator. Be sure to use proper units for density.
13. Compare density values to drawing on procedure 10.
14. Record the density values from the teacher or MSDS sheets to identify the liquids.
15. Calculate the percentage error using the density values you calculated and accepted values from teacher. Be sure to show all numbers in the formula with units and show all work.

16. Write a results paragraph and summarize data in the data table, drawing, and percentage error in paragraph format on notebook paper. Compare and contrast and logically summarize the data. Include qualitative and quantitative observations. Do not restate procedures.
17. Write a conclusion paragraph using Scientific Method Notes.
18. Write an application sentence using Scientific Method Notes,
19. Graph your results.
20. Staple notebook paper to the back of this handout.

Results

Solution # and Color	Volume (mL)	Mass of g.c. & liquid (g)	Mass of liquid only (g)	Density (g/mL)	Chemical's Identity	Accepted Value