

Name:

Period:

LAB 11 - DENSITY OF LIQUIDS

BACKGROUND

The density of water has been shown to be $1.0 \frac{\text{g}}{\text{cm}^3}$. We have not explored the density of other liquids.

PROBLEM

What are the densities of various liquids?

MATERIALS

- ◆ various liquid samples
- ◆ graduated cylinders
- ◆ balance
- ◆ apron & goggles

PROCEDURE

WARNING: Liquids used in this investigation may be hazardous. Do not taste any liquids. Report all spills immediately. Do not allow any open flame in the lab.

1. Obtain a sample (approximately 25mL) of a liquid from the liquid sample station.
 - a. List the liquid and its volume in table 11-1.
2. Determine the mass of 10 - 25mL of the liquid. Record the data in your table.
 - a. Pour the liquid back into a container with **the same color liquid!!!**
 - b. **Wash and dry all equipment that has come in contact with any liquid using soap and water.**
3. Repeat steps 1 & 2 for each liquid sample.
4. Thoroughly clean up your lab station.
 - a. Wash and rinse any equipment you used with soap and water.
 - b. Use 2 – 3 squirts of 409™ cleaner on the lab station counter.
 - c. Wipe down with paper towels.
5. When you are finished cleaning your lab station, request that Mr. Koerger inspect it.

DATA

SUMMARY

1. Graph your group's data on a density graph. Refer to Lab 10.1 on how to make a density graph.
 - a. Be sure to include a title, appropriate labels, and a legend.
 - b. Add a density line for each liquid.
2. Select a point (not the data point) and determine the rise and run and record your results in 11-2.
3. Calculate the slope of the line using the Rise and Run. Record your results in table 11-2.
4. Calculate density using the mass & volume from table 11-1. Record your results in table 11-2.

Liquid	<i>Rise</i>	<i>Run</i>	Slope	Density

CHALLENGE

1. How does the density of a liquid affect the buoyancy of an object floating or sinking in that liquid? In other words, as a liquid becomes denser, how does that change whether an object floats or sinks.
2. If the density of a liquid is $1.5 \frac{\text{g}}{\text{mL}}$, when is an object neutrally buoyant in that liquid?