

# Liquid Density Lab

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

**Purpose:** To investigate a number of liquids in order to determine which liquid has the \_\_\_\_\_ density, and which has the \_\_\_\_\_ density. This information will help you to correctly add small amounts of each liquid to a container without \_\_\_\_\_ them together.

## Research & Ideas:

What do you think makes a lava lamp work the way that it does?

\_\_\_\_\_

\_\_\_\_\_

What is Density: \_\_\_\_\_  
A substance with a density of 1.43g/mL has a \_\_\_\_\_ density than a substance with a density of 0.78g/mL. Water has an overall density of \_\_\_\_\_ g/mL

## Experiment: Safety Issues:

- You **MUST** wear safety goggles throughout the entire exp.
- **Do not** remove your goggles until your recycler collects them.
- Only use the required amount of substances, don't be wasteful.
- One of these chemicals is strong, so do not inhale directly.

### Materials per Group:

- Regular Test Tubes with colored water (6)
- Small Test Tubes (4)
- Plastic Beakers (2)
- Pipette (2)
- Test Tube Rack
- Colored Pencils

**Procedures: Remember**  **Safety First!!!**

### EXPERIMENT 1:

1. Check for and gather your 6 test tubes labeled A-F: **A = red, B = green, C = colorless, D = yellow, E = orange, and F = blue.**
2. Using a pipette, add approximately .5mL of colored liquid into smaller test tubes using the siphoning method explained by your teacher.
3. Carefully add .5mL of the other colored liquid to the bottom of the same test tube using the siphoning method; **TRY YOUR BEST TO NOT MIX THE LIQUIDS TOGETHER! USE SMALL QUANTITIES AND RELEASE THE LIQUID SLOWLY**
4. Color the test tubes below to identify which liquid was at the top of the mixture and which liquid went to the bottom.

A+B



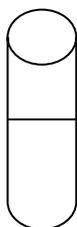
B+F



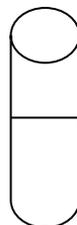
A+C



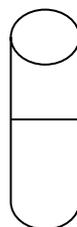
C+D



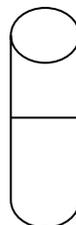
A+D



C+E



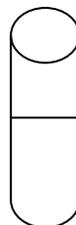
A+E



C+F



A+F



D+E



B+C



D+F



B+D



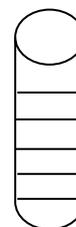
E+F



B+E



All(optional)



## Liquid Density Lab

### Data Analysis:

Based on your findings, fill in the chart below. Indicate the correct letter and provide the color in the column by listing them in order from LEAST DENSE TO MOST DENSE.

| Test Tube Letter | Color of Liquid | Density (ranking) |
|------------------|-----------------|-------------------|
|                  |                 | Least Dense       |
|                  |                 | 2 <sup>nd</sup>   |
|                  |                 | 3 <sup>rd</sup>   |
|                  |                 | 4 <sup>th</sup>   |
|                  |                 | 5 <sup>th</sup>   |
|                  |                 | Most Dense        |

**Conclusion:** Based on your experiment, answer the following questions.

1. What are 2 things that you can learn or practice from conducting this lab? Explain. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. What do you think the identity of the liquids you tested was? Explain why you think so.  
\_\_\_\_\_  
\_\_\_\_\_
3. What would happen, or what did happen, if you did not use the pipette correctly to distribute the liquids?  
\_\_\_\_\_  
\_\_\_\_\_
4. Explain the necessary steps to follow in order to successfully separate the liquids without mixing them.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. The actual content was colored \_\_\_\_\_. Based on your experiment and findings, what do you think was the major difference between each of the colored liquids? Explain in complete sentences.  
\_\_\_\_\_  
\_\_\_\_\_
6. Draw a model showing the amount of particles in each different test tube based on comparative densities.  
A.  B.  C.  D.  E.  F. 
7. Explain a different method we could have used to identify the order of how the liquids would stack.  
\_\_\_\_\_  
\_\_\_\_\_
8. Why was color added to the liquids? What would the experiment be like if the colors were not added?

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