

Liquid Rainbow

Section: Properties of Matter; Topic: Density

Name: _____

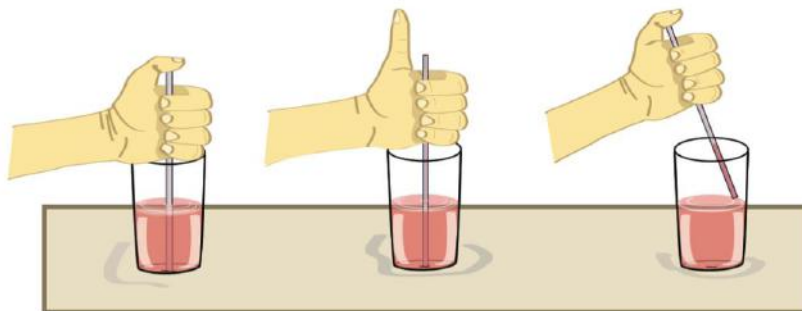
Date: _____

Inquiry Question

Write down what you'll be learning today! What do you want to understand?

Procedure

1. Take a straw and press your thumb over the opening on one side.
2. Holding the straw straight down, place it into the first cup so the open end of the straw is close to touching the bottom of the cup.
3. While holding it in place perpendicular to the bottom of the cup, quickly lift your thumb off of the opening and cover it again. This should allow a small amount of the liquid to go into the straw. This might take some practice to get right!
4. With your thumb still over the top of the straw and some of the first solution inside, carefully remove the straw from the cup and place it straight down into the second cup. Again, remove and replace your thumb quickly over the straw opening so a small amount of liquid goes into the straw.
5. Observe what occurs between solutions and record your observations.
 - a. If the second solution is less dense, it is likely to mix with the first solution as it attempts to move to the top of the first solution.
6. Discard the 2 solutions in the waste cup.
7. Continue this process until you are able to layer all five solutions in a straw. Test 2 or 3 solutions at a time and use those comparisons to determine the order of the solutions from least to most dense.
 - a. Each layer pulled into the straw will be smaller than the first, because the pressure of the layers already in the straw will only allow a small amount of the next solutions to enter the straw.
 - b. To layer all five solutions, you should begin layering with the least dense solution and end with the densest solution.



Observations, Data Collection & Analysis

Write down your observations below.

- Record your observations of each solution. Note whether a specific color is always on the top, if the solution rests on top of one color but mixes with another, if a color is always on the bottom, etc. Use these observations to draw conclusions about the relative density of each solution. Then, rank each solution based on its density (1 being the least dense, 5 being the most dense) using the table below.

Color of the Solution	Observations	Density Ranking

- Draw your "liquid rainbow" and label each layer.

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Bottom Top

- Calculate the density of the blue water before and after adding the salt.

- Are the densest solutions at the bottom or the top of the straw? Explain your thinking.

5. What makes some solutions denser than others?

6. Draw a model of what you think the particles look like in each part of the rainbow.