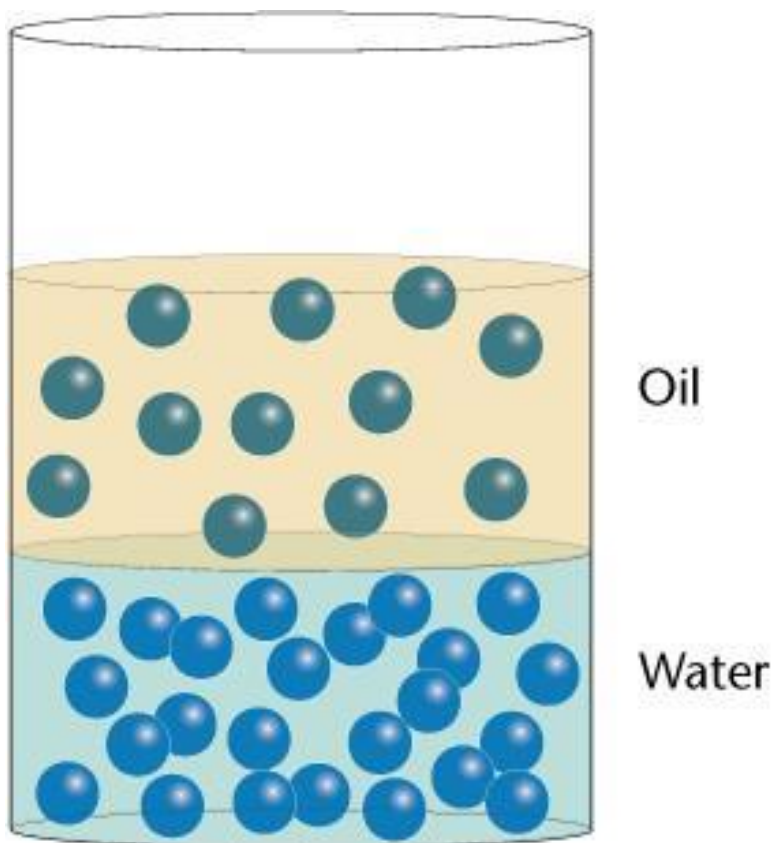


**Inquiry Question**

Why does oil float on water and how does this extend to other liquid combinations?

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



Liquids behave similarly to solids in some ways. A liquid with a low density will float on another liquid that has a higher density.

The samples in the above picture have the same volume. In other words, they take up the same amount of space. So why does oil float on water?

In a given volume, oil has fewer particles than water. We can also say that its particles are loosely packed compared to water. This results in it having less mass in the same amount of volume. This means oil is less dense than water, so it floats on the denser water beneath it.

In this project, you will investigate the densities of different liquids by observing how they combine and the layers that they form.

### General Instructions

The goal of this project is to compare the densities of different liquids by observing the layers formed when various liquids are combined.

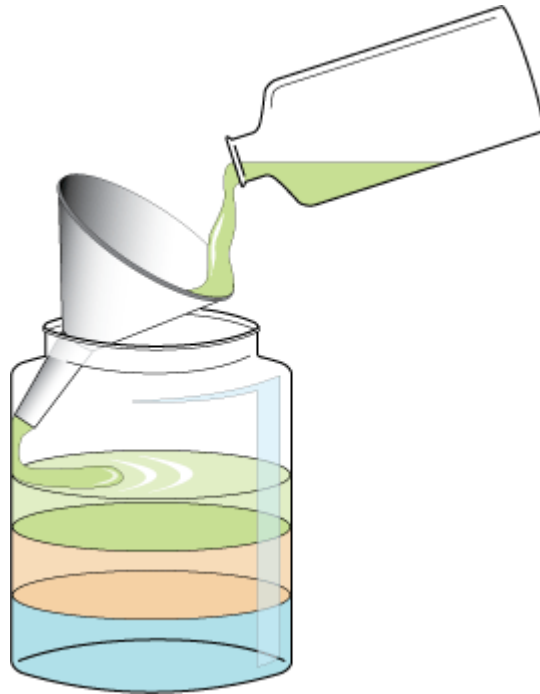
#### Materials you'll need:

- three clear glass containers, such as water glasses
- vegetable oil
- vinegar
- corn or maple syrup (or chocolate syrup)
- measuring cup or spoons
- funnel (optional)

#### Ideas and Hints:

Complete the following procedure:

	Container 1	Container 2	Container 3
Step 1 Label each container as 1, 2, or 3			
Step 2 Pour 50 ml of liquid into each container as shown in the chart	50 mL of oil	50 mL of vinegar	50 mL of syrup
Step 3 Slowly pour 50 mL of oil into containers 2 and 3		50 mL of oil	50 mL of oil
Step 4 Slowly pour 50 mL of vinegar into containers 1 and 3	50 mL of vinegar		50 mL of vinegar
Step 5 Slowly pour 50 mL of syrup into containers 1 and 2	50 mL of syrup	50 mL of syrup	



1. Place the three glass containers next to one another
2. Notice which liquid pours fastest and which pours slowest.
3. Watch the glasses for one minute. What do you observe?
4. Leave the glasses for five minutes to settle. Don't move them or bump them! What do you observe in the three glasses? Take a picture of the three glasses. Attach this picture to your assignment.
5. The fluids will arrange themselves with the densest (greatest number of particles per volume) on the bottom and the least dense (least number of particles per volume) on top. Which liquid is most dense? Which is least dense?
6. Include your observations, answers and your picture in the assignment.

**Project Submission:**

Upload your completed assignment to the project submission folder at the end of the unit.