

Name: _____ Date: ____ Period: _____

Density: Will it Sink or Float?

Objective: to understand principles of density and how it affects an object's ability to float on water

Question: Does density affect an object's ability to float?

Research:

1. Density: _____
2. Density Formula: _____
3. Volume: _____
4. Mass: _____

Hypothesis: I think that objects with a density higher/lower (circle one) than water will sink/float.

Part 1

Procedures:

1. At your lab station, you will see a container of water and an object to place in the water. Use the triple beam balance to measure the mass of the object. Record the mass in Data Table 1.
2. In Data Table 1, in the column that says "hypothesis," record if you think the object will sink or float when placed in water.
3. Place the object in the water. In Data Table 1, in the column that says "sink or float?" write what the object did: did it sink or float?
 - a. One of your objects is cooking oil. Pour 10 mL of cooking oil into the graduated cylinder provided. **Be sure to pour over the sink!** If you have a little more or a little less than 10 mL, it's fine, just record the number of mL you poured in Data Table 1 under "oil." Pour the oil into the water and make your observations.
4. Repeat steps 1-3 with the other objects.

Data Table 1:

Object	Mass	Hypothesis?	Sink or Float?	Density (> or < 1)

Conclusions:

1. Which objects sank in the water?

2. Which objects floated?

3. Did heavier objects (with a higher mass) always sink?
4. The density of water is 1g/mL. Did the objects that floated have a higher or lower density than water?
5. The density of water is 1g/mL. Did the objects that sank have a higher or lower density than water?
6. Was your hypothesis correct?
7. Why do you think some objects sank and some floated?

Part 2

Directions: Find the volume of each object and calculate the density. Use a ruler or the water displacement method to calculate volume.

Data Table 2:

Object	Mass	Volume	Density

1. Based on your calculations did all the objects with a density higher than 1 g/mL sink?
2. Did all the objects with a density lower than 1g/mL float?