

Float or Sink? [Gizmo Density Laboratory](#)**Part 1- Find the mass, volume, and density for each object**

1. Place one shape onto the scale and record the **mass** in grams.
2. Place one shape into the graduated cylinder and record the **volume** in mL.
3. Place the shape into the tank of water and record if it **floats or sinks**.
4. After you are done using all of the shapes, calculate the **density** for each to the nearest 100th using the formula **$D = M \div V$** . **$D = \text{g/cm}^3$** (1mL = 1 cm³).

Object	Mass (g)	Volume (cm ³)	Float or Sink?	Density (g/cm ³)
1 - red cone				
2 - light purple egg				
3 - dark purple egg				
4 - yellow block				
5 - small green egg				
6 - blue cube				
7 - turquoise cone				
8 - grey block				
9 - purple cone				
10 - red block				
11 - red egg				
12 - big green egg				

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Crown	Mass (g)	Volume (cm ³)	Float or Sink?	Density (g/cm ³)
A				
B				
C				

Part 2 - Sort the shapes according to densities

1. Look at your data, find all the shapes (numbers 1-12 & crowns) that ***floated***.
2. Write the number or letter of the shape and its density into correct columns.
3. Do the same for all the shapes that ***sank***.
4. The density of the water in the pail is **1.0 g/cm³**.
5. What do you notice about the shapes that float vs those that sink?

Floating Shapes	Density g/cm ³

Sinking Shapes	Density g/cm ³

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Analysis Questions: Answer these using bullets or complete sentences

1. For all the objects that **floated**:
 - a. Compare the mass to the volume of each shape, what do you notice?
 - i.
 - b. What were the densities of each shape compared to the density of water?
 - i.
2. For all the objects that **sank**:
 - a. Compare the mass to the volume of each shape, what do you notice?
 - i.
 - b. What were the densities of each shape compared to the density of water?
 - i.
3. If the density of the liquid in the tank changed to **2.0 g/cm³**, which objects would sink to the bottom and why?
 - a.
4. If the density of the liquid in the tank changed to **5.0 g/cm³**, which objects would sink to the bottom and why?
 - a.

Conclusion:

Summarize what you learned by completing this activity into 3-5 complete sentences.