



Fluid Density

STEM Sims**Lesson 2: How Dense Is It?**

Some objects placed in water float, while other objects sink. The relationship between the density of an object and the density of a fluid determines whether the object drops to the bottom or bobs along the surface. Can you determine the density of a liquid by seeing which objects sink and which float?

Doing the Science

1. Start the Fluid Density Simulation by clicking on the “Sim” tab.
2. Click on the blue “Test All” button and note what happens.
3. Record in Table 1 the number of objects that sunk and the number that floated. Answer Question #1 below.
4. Click the “Graph” button and follow the on-screen instructions to draw a line.
5. Choose a mass value from the y-axis and enter it into the top box of the Fluid Density entry area on the right side of the screen. Click the “Make the Point” button and a denominator for the volume value will appear.
6. Click the “Predict” button. Use the Fluid Density values you previously found to determine the density of the liquid. Enter this value into Table 2 below and the “Predicted Fluid Density” data entry area in the simulation and click the “Check Answer” button.
7. Record in Table 2 the “Relative Error” value displayed in the message box above the “Predicted Fluid Density” data entry area.

Table 1. Sinking and Floating Objects

Number of sinking objects	
Number of floating objects	

Table 2. Liquid’s Density

Liquid’s Density (g/ml)	
Relative Error (%)	

Do You Understand?

1. Do you think the liquid is more or less dense than most of the 20 objects you tested? Please explain your reasoning.
2. If you tested a new object in the liquid and the object floated, where would the object appear in the graph, above the line you created or below the line? Please explain your response.