

Name:

Period:

LAB 7.3 - CLAY BOATS

BACKGROUND

We have studied how mass and volume are related to whether something floats or sinks. Now we're going to expand on these relationships to understand why a system floats or sinks and how we might make a prediction based on what we can measure.

PROBLEM

How do mass and volume both affect whether an object sinks or floats?

HYPOTHESIS

MATERIALS

- ◆ Clay
- ◆ Overflow Container
- ◆ 600mL beaker (for testing whether or not the clay floats)
- ◆ 250mL beaker (for collecting water out of the overflow container)
- ◆ Triple-beam balance
- ◆ Apron & Goggles
- ◆ Water
- ◆ Paper towels
- ◆ Graduated Cylinder

PROCEDURE

1. Obtain some clay and measure the mass. Record the mass.
2. Form the clay into a shape that sinks.
3. Measure the water displaced by the clay. Record your results in table 7.3-1.
- ★ 4. Dry your clay with a paper towel.
5. Using the **same piece of clay**, form it into a shape that floats and repeat step 3.
6. Check your results with Mr. Koerger, then repeat the experiment for a different mass of clay if you have time.
7. Clean up your lab station

DATA

Table 7.3-1: Mass & Volume of Water Displaced by Clay

Mass of Clay (g)		Volume of Water Displaced (mL)
Sinking		
Floating		
Sinking		
Floating		

SUMMARY

Summary and Challenge Questions must be typed or neatly written on a separate piece of paper.

1. What are the two properties of an object that we have studied and that we can actually measure and/or calculate?
2. In terms of what you can measure, what changed when the clay floated in comparison to when it sank? In other words, what is different about the *measurements* of the clay from sinking to floating?
3. Can you predict the amount of water that a floating object will displace? If so, how? If not, why not?
4. Can you predict the amount of water that a sinking object will displace? If so, how? If not, why not?

CHALLENGE

1. Mr. Koerger hands you the plastic box in figure 7.3-2 and says, “**Predict** whether this box will sink or float. You get once chance. If you’re right, you get an **A**, if you’re wrong, you get an **F**.” How do you accurately predict whether the box will sink or float? Use the information provided to make your prediction.

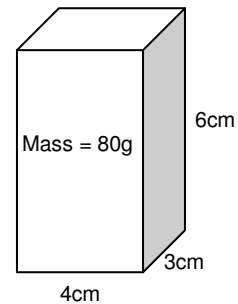


Figure 7.3-2

Summary and Challenge Questions must be typed or neatly written on a separate piece of paper.



Homework Note: From now on, the answers to Summary and Challenge questions must be in complete sentences and/or with the questions restated.

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