

Name:

Period:

LAB 1 – SINKING A STRAW

BACKGROUND

We will be examining some of the basic properties of matter. We will begin this study with an exploration of buoyancy. When we see something floating, we understand it to be a buoyancy phenomenon. We will study buoyancy by experimenting with objects that float in water. In this investigation we will share our data and explanations (collaborate). In science, collaboration helps us to further check our data and test our hypothesis.

PROBLEM/QUESTION

How can you predict the quantity of BBs necessary to sink a straw to *any chosen depth*?

HYPOTHESIS

_____ independent or manipulated variable

_____ dependent or responding variable

The predicted relationship between the variables is:

If _____

then _____

because _____

MATERIALS

- sinking straws
- Sharpie or permanent marker
- BBs
- metric ruler
- beaker (1000mL)
- water
- apron & goggles

PROCEDURE

1. Mark your straw in one centimeter increments from the base (glue plug) to the open end.
2. Fill the 1000mL beaker with water to or above the 1000mL mark.
3. Find the quantity of BBs it takes to sink the straw to 4cm. Record your data in table 1-1. Note, if the straw does not stand up straight, you must hold it using your fingers or the loop end of the test-tube brush.
4. Now sink the straw to 5cm. Record the number of BBs in your data table.

- ☆ 5. *Predict* the quantity of BBs it will take to sink the straw to the 6cm mark. Record your prediction in the table. *After* you have made your prediction *and shown it to Mr. Koerger*, test your prediction. Record your results.
6. Repeat step 5 for 7cm. Record your results.
7. If you think you can predict the quantity of BBs needed to sink the straw to any depth, ask Mr. Koerger for "challenge depths." Record your prediction and then test it. Record your results.

DATA

Table 1-1: Data on sinking a straw

Length of straw below the surface (cm)	Predicted quantity of BBs	Actual quantity of BBs	Observations (quantitative and qualitative)
4			
5			
6			
7			
Challenge ()			
Challenge ()			

SUMMARY

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

1. Explain how you predicted the quantity of BBs necessary to sink the straw to any desired depth. If you were not able to make accurate predictions, explain what you could have done to make better predictions.
2. What is it about the BBs that cause the straw to sink?
3. Estimate the # of BBs needed to sink the straw to 2cm.
4. How far will the straw sink with zero BBs? Explain why the straw sinks w/o BBs.