

Prep Instructions

Station I - Find the Hidden Message

The following items will be required for the prep of this station:

per class:

- scissors
- super glue
- permanent marker
- water

per group:

- 2 L pop bottle and label
- test tube
- *Student Handout*

Step 1

Remove the label from the 2 L pop bottle and cut out a 1 3/4 in. x 1/4 in. rectangular piece from the label. Fold every 1/2 in. for a total of three folds so that there are three 1/2 in. sections followed by one 1/4 in. section. Draw a letter (A, B, or C) on the first 1/2 in. section, leave the next 1/2 in. section blank and then draw the mirror image of the letter on the third 1/2 in. section (**Figure 1**).

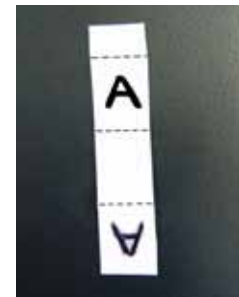


Figure 1

Step 2

Glue the 1/4 in. section to the underside of the first 1/2 in. section; this will form a triangle (**Figure 2**). Glue the bottom of the triangle (the blank 1/2 in. section) to the sealed end of the test tube. Allow the glue to dry.



Figure 2

Step 3

Completely fill the bottle with water.

Step 4

Fill the test tube halfway with water. Put your index finger on the mouth of the test tube to form a seal. Turn the test tube over and quickly put it into the bottle. Ensure that water is not lost from the test tube.

Step 5

Water from the bottle may overflow a little bit when the test tube is inserted; if this happens, refill the bottle.

Step 6

Make sure the test tube floats (**Figure 3**). If the test tube does not float, repeat Steps 3-6.

Step 7

Screw the bottle cap on and ensure that the message is not obviously visible.



Figure 3



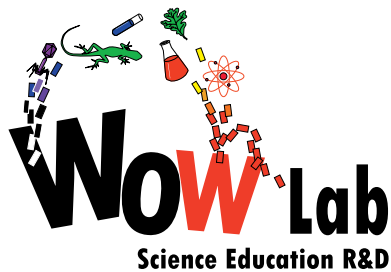
Figure 4

Step 8

The message is ready to be discovered. Squeezing the bottle causes the test tube to move downwards and allows the message to be revealed (**Figure 4**). Further explanations are provided in the *Additional Information* document.

Step 9

Lay out all of the materials on a separate table for each group. Include the instruction sheet for this section found in the *Activity Instructions*.



a WOW Lab

BLUEPRINT

Buoyancy - Prep Instructions

Station II - Conservation of Mass

The following items will be required for the prep of this station:

per group:

- 591 mL pop bottle
- small balloon
- 200 mL water
- 2 tbsp antacid
- 2 tbsp sugar
- funnel
- balance
- small empty bucket

Step 1

Lay out all of the materials on a separate table for each group. Include the instruction sheet for this section found in the *Activity Instructions*.

Station III - Pop Floats

The following items will be required for the prep of this station:

per class:

- wooden spoon
- 3 large buckets
- water
- salt
- rubbing alcohol (optional)
- unopened can of pop
- unopened can of diet pop

Step 1

Place the three buckets in an easily accessible area. Label the buckets A (water), B (salt water) and C (rubbing alcohol).

Step 2

Add water to bucket A until it is two-thirds full of water. Record the volume of water used in litres. Ensure that there is sufficient depth for the diet pop can to float and the regular pop can to sink (**Figure 5**).



Figure 5

Step 3

Add the same amount of water used in Step 2 to bucket B. Add 50 g of salt per litre of water in the bucket. Stir with a wooden spoon until the salt is dissolved. Perform a test run by placing a can of regular pop in the salt water. It should float; if it does not, then continue adding more salt until the pop can floats. If the salt water is prepared a day in advance, it will become transparent and resemble regular water during the activity.

Step 4

Add the same volume of rubbing alcohol to bucket C.

Step 5

Place all three buckets and the cans at Station III.