

a WOW Lab

**BLUEPRINT**

The Siphontific Method

## Activity Instructions

### Demonstration

The following items will be needed for this activity:

- siphon setup (see *Prep Instructions*)
- 3 stopwatches
- tape

Access to a sink is also required.

### Step 1

Select six volunteers from the class to assist with the demonstration. Three volunteers will work the three different siphons and the other three volunteers will act as timekeepers for each of the three siphons. Distribute the stopwatches to the three timers.

### Step 2

Take the end of one length of plastic tubing and attach it to the faucet.

### Step 3

Put the tubing in the bottle all the way to the bottom. To ensure that the tubing does not move, loosely tape the tubing to the top of the bottle. Slowly turn on the tap and fill the bottle to the top.

### Step 4

Remove the tubing from the faucet and instruct one of the siphoners to quickly block the end of the tubing tightly with their thumb. The siphoner can then hold their plugged end over the bucket. Repeat Steps 2-4 for each bottle, ensuring that all three siphoners are holding the ends of the tubes over the bucket at the same level. This process creates the hydrostatic pressure that causes the siphon to flow.

## The Siphontific Method - Activity Instructions

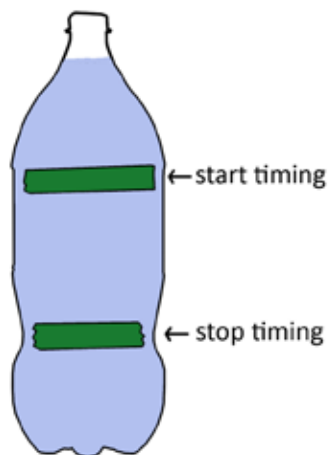


Figure 1

### Step 5

Instruct the timers to begin timing when the water level reaches the top of the first tape line and to stop timing when the water level reaches the top of the second tape line (**Figure 1**).

### Step 6

At the same time, the siphoners should unblock the ends of the tubes and place them at the bottom of the bucket. The timers should begin timing once the water level reaches the top of the first tape line and should stop once the water level reaches the top of the second tape line, as instructed in Step 5 (**Figure 2**). The class should record the times obtained for each siphon.

### Step 7

Repeat Steps 2-6 two more times. Use the same timers and siphoners on each piece of tubing, holding the end of the tube at the same level as before, to obtain three trials per tube.

## Student Activity

The following items will be needed for this activity:

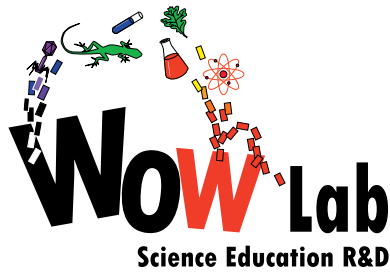
per group:

- squeezable ketchup bottle
- 2 beakers or glasses
- masking tape
- stopwatch
- ruler
- 1/4 in. wide plastic tubing;
- two additional pieces of plastic tubing with different widths, or two additional pieces of 1/4 in. wide plastic tubing, cut at different lengths

Detailed instructions for this activity can be found in the *Student Handout*.



Figure 2



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## The Siphontific Method - Activity Instructions

### Additional Demonstration

The following items will be needed for this activity:

- 2 pop bottles (2 L)
- Kool-Aid (or similar)
- duct tape
- plastic tubing
- sink

#### Step 1

Place the plastic tubing in one of the bottles. Fill with water, and add Kool-Aid if desired.

#### Step 2

Wrap duct tape around the top of the bottle and the tubing to create an airtight seal. Insert the other end of the tubing into the other pop bottle.

#### Step 3

Hold the empty bottle below the sealed bottle and watch as the sealed bottle begins to be crushed. Move the empty bottle above the filled bottle and notice the filled bottle returns to its original state.