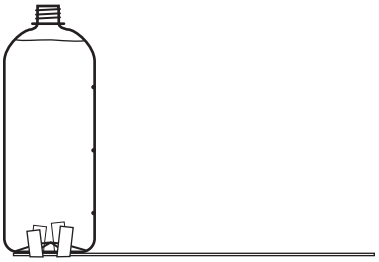
FLINN SCIENTIFIC

Name_____

Spouting Bottle—Torricelli's Law Worksheet

Predict the water flow pattern by drawing in the lines on the diagram below. (Hypothesis)

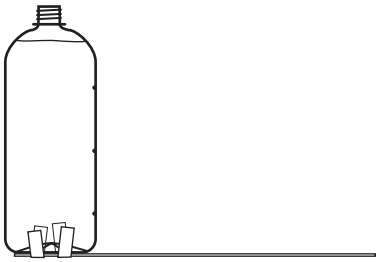


Data Table and Observations

Water Stream	Observations	Horizontal distance d in cm	Outlet height (h) in cm	Water level height in bottle at measurement in cm	Water height above outlet (h) in cm
Outlet closest to top of bottle					
Outlet closest to middle of bottle					
Outlet closest to bottom of bottle					

Discussion Questions and Calculations

1. Sketch the observed water flow pattern on the diagram below.



2. Did your prediction (hypothesis) match the demonstration? Is a hypothesis supposed to match the data? Explain.

3. At which outlet does the water have the most potential energy? At which outlet does the water have the most kinetic energy?

4. Calculate the initial horizontal velocity of water flow from the three different outlets using Torricelli's Law.

5. Based on the initial horizontal velocity and the projectile motion equation ($d = v_b t$), explain why the water from the lowest spout traveled the longest distance.