



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Ruth J. Gillespie	Project Number J0113
Project Title Battling Bottles: The Aerodynamics of Propulsion	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this investigation is to determine what size and shape plastic bottle travels the farthest distance when launched from an air pressure system.</p> <p>Methods/Materials Each of the differently shaped 1L bottles were filled with 1.5 cups of water; the 2L bottles were filled with 3 cups of water. At time of launch each bottle was fitted with a cork that had a bike pump needle inserted through the center of the cork. The bottle was then laid on the launch ramp and connected to a bike pump. The bottle was pressurized by pumping air into it therefore making the bottle separate from the cork and launch.</p> <p>Results The flavored soda water bottle traveled the least amount of distance at an average of 36.74ft. The coke bottle went the farthest at an average of 57.39 ft.; its runner up, the 2L, 7-up bottle, at 55.16ft. The sparkling grapefruit soda bottle was next at 53.93ft on average. And then, the sparkling water bottle at 50.64ft. The data shows that the bottles that had a larger circumference on the bottom, as well as being 2L traveled further than those that had a much smaller bottom circumference and were 1L</p> <p>Conclusions/Discussion In doing this experiment it was found that the size and shape does affect how far a bottle goes when launched from an air pressure system. The size wound up being more important than the shape for this experiment, because the bigger the bottle the more room there is for pressure to build causing it to fly off faster and stronger.</p>	
Summary Statement This project is about determining what shape and size plastic bottle travels the farthest distance when launched from a pressurized air system.	
Help Received Mother helped do graphs; Family helped determine where bottles landed.	