



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Isaac S. Sornborger	Project Number J1630
Project Title Liquid Notes	
Abstract Objectives/Goals My project was meant to see if the density of a liquid inside a narrow-necked bottle would affect the pitch created when it was blown into. Methods/Materials To experiment I used three different densities; water, vinegar, and olive oil. I poured 4oz. of each liquid into a narrow-necked bottle and blew into the bottles a few times each recording the pitch from each liquid on a piano. Finding that each liquid was the same pitch, I conducted a counter experiment using 6oz of each liquid and came to the conclusion that with every ounce of liquid the pitch went up a whole step. Results My results were that it did not matter how dense the liquid was, but that the volume of the liquid inside the bottle changed the pitch. I tried something else out and found that even 1 teaspoon would change the pitch from the bottle, even though it was only a half step up on the piano. Conclusions/Discussion The conclusion of my experiment was that by changing the volume of the liquid in the bottle it resulted in a change of pitch on the piano.	
Summary Statement Examining the effects of liquid density or liquid volume in a narrow-necked bottle on musical pitches.	
Help Received My Dad helped blow into the bottles because the vinegar smell was making me light-headed.	