



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Blair E. Gelb	Project Number J0407
Project Title Orange Juice Makes My Stomach Ache	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this study was to test the pH of orange juice and to determine if it is more acidic than my other favorite beverages. My goal is to learn about the stomach and the impact of acidic beverages to it.</p> <p>Methods/Materials The independent variables in this study that I used were the eight different beverages tested. The dependent variables were room temperature and the pH strips. I poured 3 ounces of each beverage into small bowls. Then, I dipped blue litmus paper into each bowl for 5 seconds. I looked for a reaction (red-acid, blue-neutral) and compared litmus paper colors of each liquid. Follow the same procedure using Baker pHIX test strips (pH 0.0-14). Dip the test strips into the test liquids for 5 seconds and compared results to the color chart on the box.</p> <p>Results The litmus paper had limitations because it was hard to tell the variations in red color. I listed the results by the red shading I saw. I ran this experiment twice and the results were the same. After searching, I was able to find numbered pH test strips. This was also a limitation because they only measured pH in 1.0 increments, for example; 1.0, 2.0, 3.0. I ran this test twice and these results of this test were the same.</p> <p>Conclusions/Discussion I learned many interesting facts about the stomach and the pH of beverages. My research suggests that the low pH of orange juice can cause the stomach to overproduce acid which can lead to a stomachache. By doing my experiments, I found that when using the litmus paper all the beverages turned the litmus paper shades of red in which I had to guess the results. The pHIX test strips allowed me to see the pH differences between the beverages which ranged from 2.0 to 6.0. Orange juice has a pH of about 3.0, but lemonade has a lower pH of about 2.0 when all of my other favorite beverages had a higher pH which makes them less acidic. My results support my hypothesis except for the pH of lemonade. Also, not every child will get a stomachache from orange juice and each case needs to be looked at individually. Finally, I have decided to still drink orange juice, but not as much at one time, and I will make sure it is not on an empty stomach.</p>	
Summary Statement In my project, I tested the pH of beverages to determine the acidity compared to Orange Juice.	
Help Received Some help from parents for research, typing, and formatting of the presentation board, test strips from my dad's work.	