



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Scott T. Robertson</b>	<b>Project Number</b> <b>J0522</b>
<b>Project Title</b> <b>Eggsperiment: How Common Household Liquids with Different pH Levels Affect Eggs</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of this experiment is to determine whether eggs can be affected by common household liquids, with different pH levels, if exposed to them for three days. I believe the vinegar, lemon juice, and Pepsi will dissolve the shell of the egg because they are so acidic.</p> <p><b>Methods/Materials</b> Seven eggs were each weighed and measured and then placed in a container filled with one of seven different household liquids; vinegar, lemon juice, apple juice, Pepsi, milk, water, and Windex. Each day the liquid was drained, the egg's size, weight and appearance were recorded and the liquid was refreshed. After three days the liquids were drained and final data was collected and recorded.</p> <p><b>Results</b> The eggs that were soaked in vinegar and lemon juice had the shells completely dissolved and had absorbed liquid through the egg membrane which increased the egg's size and weight. The egg soaked in apple juice had a softened shell that was stained brown. The egg soaked in Pepsi was stained dark brown, but the shell was not softened. The egg soaked in Windex was stained light blue with no shell softening. The eggs soaked in milk and water were unaffected, except for some light gray speckles.</p> <p><b>Conclusions/Discussion</b> I believe that the different acids in the vinegar and lemon juice reacted with the calcium carbonate in the eggshell, causing it to dissolve. This allowed the liquids to be absorbed through the membrane into the egg, increasing their size and weight. I learned that Pepsi, even though it is acidic, did not dissolve the eggshell because it contains Phosphoric Acid, which does not dissolve eggshells.</p>	
<b>Summary Statement</b> My project is about the affects of different liquids on whole, raw eggs.	
<b>Help Received</b> Sister helped with data analysis and graphs; Mom helped with typing, provided materials and supervised for safety.	