



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jessie A. Ellico Franks</b>	<b>Project Number</b> <b>J0610</b>				
<b>Project Title</b> <b>Are "Chameleon Eggs" Still Acid Indicators if You Use Different Drinks Instead of Grape Juice?</b>					
<table border="1"><thead><tr><th><b>Objectives/Goals</b></th><th><b>Abstract</b></th></tr></thead><tbody><tr><td><p><b>Objectives/Goals</b> I think spheres (I call Chameleon Eggs for the rest of my experiment) will change color after sitting in lemonade (an acid) if the liquid used to make the spheres has a low pH level (is an acid) and if it contains anthocyanins.</p><p><b>Methods/Materials</b> First I brought the juices or drinks that I was using close to a neutral pH with baking soda. Then I added sodium alginate to the liquid so that it would become thicker. Then I crushed calcium chloride and magnesium hydroxide and put that powder in water. After this, I took some of the thickened liquid and dropped it, using a syringe, into the calcium chloride and magnesium hydroxide mixture. This created spheres or Chameleon Eggs. Then I strained the water and put the eggs into lemonade.</p><p><b>Results</b> When I put the grape, cherry, and red cabbage juice Chameleon Eggs in the lemonade, there was a change from blue to red. The Red Bull and Capri Sun eggs did not change color.</p><p><b>Conclusions/Discussion</b> My hypothesis was correct. Eggs made from juices containing anthocyanins did change color, while eggs made with artificial drinks, which have no anthocyanins did not change color. Anthocyanins are a pH indicator and turn the eggs red as the acid is absorbed.</p></td><td></td></tr></tbody></table>		<b>Objectives/Goals</b>	<b>Abstract</b>	<p><b>Objectives/Goals</b> I think spheres (I call Chameleon Eggs for the rest of my experiment) will change color after sitting in lemonade (an acid) if the liquid used to make the spheres has a low pH level (is an acid) and if it contains anthocyanins.</p> <p><b>Methods/Materials</b> First I brought the juices or drinks that I was using close to a neutral pH with baking soda. Then I added sodium alginate to the liquid so that it would become thicker. Then I crushed calcium chloride and magnesium hydroxide and put that powder in water. After this, I took some of the thickened liquid and dropped it, using a syringe, into the calcium chloride and magnesium hydroxide mixture. This created spheres or Chameleon Eggs. Then I strained the water and put the eggs into lemonade.</p> <p><b>Results</b> When I put the grape, cherry, and red cabbage juice Chameleon Eggs in the lemonade, there was a change from blue to red. The Red Bull and Capri Sun eggs did not change color.</p> <p><b>Conclusions/Discussion</b> My hypothesis was correct. Eggs made from juices containing anthocyanins did change color, while eggs made with artificial drinks, which have no anthocyanins did not change color. Anthocyanins are a pH indicator and turn the eggs red as the acid is absorbed.</p>	
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<b>Summary Statement</b> I created spheres with sodium alginate and different liquids and then put them in lemonade to see if their color change indicates the presence of whether it is an acid or a base.					
<b>Help Received</b> Mom typed. Dad painted back of the board.					