



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Fiona L. Robbins</b>	<b>Project Number</b> <b>J2013</b>
<b>Project Title</b> <b>An Orange a Day Keeps the Doctor Away!</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine the various Vitamin C levels in differing orange juice samples (bottled orange juice, frozen orange juice, and freshly squeezed orange juice), and how or at what rate those Vitamin C quantities increase or decrease over time.</p> <p><b>Methods/Materials</b> The data was obtained by titrating juice from Minute Maid orange juice samples as well as freshly squeezed orange juice. This procedure took place when the titrant (orange juice) was added to the indicator solution (iodine) until the indicator solution's color changed, reflecting the endpoint of titration and the Vitamin C level in the orange juice samples. Additionally vice versa when one drop of the titrant (iodine) was added once a day for two weeks to the indicator solution (orange juice) until the indicator solution's color changed reflecting the endpoint of titration and at what rate the Vitamin C quantities increased or decreased over time.</p> <p><b>Results</b> The data showed that the freshly squeezed orange juice did, as my hypothesis stated, have the highest initial Vitamin C level having the most drops in average, 73, of the titrant (orange juice) needed to turn the indicator solution (iodine) colorless, while both the frozen and bottled orange juices needed lower amounts of drops to turn the indicator solution colorless. In addition, it did have its Vitamin C level deteriorate fastest with an average of 8 days until the titrant (orange juice) lost its color, this explaining the oxidization- reduction reaction theory.</p> <p><b>Conclusions/Discussion</b> My experiment exhibits that people are getting less Vitamin C from a cup of their "favorite" store-bought orange juice compared to freshly squeezed orange juice (as my hypothesis was proved correct with freshly squeezed orange juice having the highest concentrated Vitamin C level, and having its Vitamin C level decrease fastest). Vitamin C is required for various metabolic reactions in humans, animals, and plants. My experiment is consequential to the real world because it shows people that the store bought juices they are drinking are less nutritious. It might be worth the extra effort to squeeze your own juice if you will be consuming it within 8 days.</p>	
<b>Summary Statement</b> My project is about the variations of concentrated Vitamin C levels in disparate orange juices.	
<b>Help Received</b> none	