



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Katelyn F. Campbell	Project Number J0406
Project Title Vitamin C Content: Analysis of Drinks by Titration	
Objectives/Goals My goals are to see how much Vitamin C is in certain orange drinks how much Vitamin C they lose, and to determine how healthy certain orange drinks really are. I predict that non-refrigerated orange juice will have less Vitamin C than refrigerated orange juice.	
Abstract Methods/Materials My materials are Tang, Sunny D, Sunkist, concentrated orange juice, fresh orange juice, Iodine, starch, 2 eyedroppers, 10 1000mL pitchers, the counter, a flask, the refrigerator, and a graduated cylinder. The first thing I do is pour 750mL of each liquid and put them into separate pitchers. Then I put 25mL of one drink into the flask, and I put ten drops of starch in the flask and swirl. After that I put a few drops of iodine in the flask and swirl. I keep putting iodine in the flask and swirling until the liquid turns a blue-blackish color. Last of all, I record the number of drops of iodine and do the next liquid.	
Results Cold concentrated orange juice started with 139.2 drops, ended with 11.1 drops, and lost 128.1 drops. Cold Sunkist started with 10 drops, ended with 1.3 drops, and lost 8.7 drops. Cold fresh orange juice started with 133.5 drops, ended with 10 drops, and lost 123.5 drops. Cold Tang started out with 124.8 drops, ended with 8.2 drops, and lost 116.6 drops. Cold Sunny D started with 114.4 drops, ended with 9.7 drops, and lost 104.7 drops. Concentrated orange juice started with 153.3 drops, ended with 9.2 drops, and lost 144.1 drops. Sunkist started with 12.6 drops ended with 1 drop, and lost 11.6 drops. Fresh orange juice started with 148.2 drops, ended with 8.3 drops, and lost 139.9 drops. Tang started with 113.6 drops, ended with 2.4 drops, and lost 111.2 drops. Sunny D started with 138.7 drops, ended with 9.6 drops, and lost 129.1 drops. The ending amount of drops and the amount of drops lost helps me figure out how much Vitamin C is left in the drink.	
Conclusions/Discussion The non-refrigerated concentrated orange juice lost the most Vitamin C over three days. It had a total loss of 144.1 drops. The Sunkist had the lowest amount of vitamin C to begin with, at the end, and lost. It had a total loss of 11.6 drops. This information helps me understand what drink is the healthiest, which lost the most Vitamin C, and which one has the most Vitamin C. This expands our knowledge on orange drinks by helping us learn if the wrappers on these drinks are lying about how healthy it is.	
Summary Statement My project is about trying to determine how much Vitamin C is in certain orange drinks, how much Vitamin C they lost, and how healthy certain orange drinks are.	
Help Received Mom helped glue papers on; Dad helped me get my supplies; My teacher helped me edit my papers.	