



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title Fruit Batteries: Do They Work?	
Objectives/Goals A fruit battery works because some fruits contain citric acid. This acid participates in chemical reactions that make electrons flow, thus creating electricity. However, these fruit batteries have very little voltage, probably less than one volt. Most fruits have very little electrical current (amperage).	
Abstract	
Methods/Materials 1. Gather the materials including: fruits (mango, grapefruit, lime, kiwi, lemon, granny smith apple, nectarine, persimmon, pineapple, tangerine, banana, and grape), the volt/ amp meter, 15 strips of copper, 15 strips of aluminum, pH paper. 2. Test the voltage of each fruit and record data using the multimeter. 3. Compare the data and determine the fruit with most wattage. 4. Measure the acidity of each fruit. 5. Check if there is a correlation.	
Results Fruits do not make very good batteries because they generate very low power. They are not an appropriate alternative to AA Batteries. For example, 603,000 mangos, would be needed to light a 60W light bulb for approximately 4 days, this would easily fill a house. It would take about 30,000 mangos to light a Game Boy Color, enough to fill a small bedroom.	
Conclusions/Discussion The experiment showed us that fruit batteries will never really be useful. The hypothesis was wrong because there really is no correlation between the pH of a fruit and the wattage it produces. The significance of the results is that pH really doesn't matter for determining the energy produced.	
Summary Statement My project investigates fruits with more acidity will have more voltage and amperage.	
Help Received Mother bought materials	