



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

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<b>Project Title</b> <b>Vigorous Volts</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective is to determine which electrolyte, white vinegar or saturated salt-water, when used in a crown of cups with copper and zinc, will conduct the most electricity. <b>Methods/Materials</b> A crown of cups was made by placing five plastic cups in a U-shape, with strips of zinc and copper inserted into each cup. Eight test clips were attached to both ends of four segments of red primary wire. The zinc and copper strips in the cups were connected alternately with the test clips. The quantity of electricity conducted by each electrolyte, white vinegar and saturated salt-water, was measured with a mini-VOM Multi-Tester by connecting the positive test lead of the Multi-Tester to the ending zinc strip in the crown of cups, and the negative test lead to the ending copper strip. This method was repeated three times. <b>Results</b> The white household vinegar produced more direct current than the saturated salt-water in each of the three trials. <b>Conclusions/Discussion</b> An effective electrolyte contains water, which has a high concentration of ions. When the ions dissociate, energy is produced. A higher concentration of ions makes them dissociate more, which produces more energy. White household vinegar is about 95% water, while saturated salt-water is approximately 70% water. Finding an electrolyte to create a super-powerful, long-lasting battery should be an important goal for inventors and scientists because, for one, the batteries could be used in electric cars. An average combustion engine car uses a gallon of gasoline every 17 miles, while a solar-powered electric car can run for 165 miles on one gallon of gas. Wider usage of these cars could contribute to reducing global-warming.	
<b>Summary Statement</b> This project is about electrolyte comparison and battery development.	
<b>Help Received</b> Mother helped type report and format graphs.	