



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Tadeh Vartanian	Project Number S0522
Project Title Voltage of a Tin-Copper Galvanic Cell as a Function of Temperature	
Abstract Objectives/Goals To study the relationship between the voltage output of a tin-copper cell and the temperature of the two solutions. From this, values such as change in entropy and enthalpy can be determined Methods/Materials I first heat up each individual tin(II) chloride and copper(II) chloride solution to a certain temperature. I then pour them into a porous vase cell with copper and tin plates, salt vase, and electrodes in place. The voltage is measured, and the solutions are dumped out. This is done for various temperatures, and many trials, or cycles, are performed for accurate results. Results A positive correlation exists between temperature and voltage. Changes in enthalpy and entropy are calculated, and they are compared to expected values. Conclusions/Discussion The differences between expected and calculated values are fairly close, and the experiment went fairly well. Sources of error do exist, but overall the results were quite accurate.	
Summary Statement What is the relationship between voltage and temperature, and how does this affect electric appliances?	
Help Received Father helped with experimentation, revised report, and provided materials; Chemistry teacher provided materials and reference books.	