



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

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Project Title Electrolysis	
Abstract Objectives/Goals My goal was to learn as much as possible about electrolysis and to see if sodium hydroxide could be produced from common table salt. It was also interesting to learn which electrodes performed the best. Methods/Materials A plastic coffee was used as the electrolytic cell and 60 grams table salt, 2 liters well water and electrodes were selected from materials found around the house. Wires with allegator clips were attached to a 12VDC transformer. Standard 110VAC-15A house current was used. A burret and stand was used with HCL acid and phenylthaleine indicator to titrate the concentration of sodium hydroxide. A pH meter was used to test the original pH of the test solution. 100ml volumetric flasks, thermometer, 125-250ml Erlenmeyer flasks, hot plate, oven, 10ml pipets, camera, screw driver, matches, bolts and nuts. All of this information was entered into the lab book. Results Experiment #3, using the heavy brass bars as electrodes, got a reading of 1N NaOH and the other two tests recieved values of 0.14-0.16 N NaOH. The range of pH readings on the titrated solutions was 9.3 to 10.4. The concentration of each test results was done by titrating with 0.1N hydrochloric acid. Conclusions/Discussion In summary, sample number 3 produced the highest concentration of NaOH. The titration of the substance indicated that it is strength was approximately 1 Normal. It was concluded that the stronger, less corrosive electrodes, produced a greater amount of NaOH as they received a larger amount of electric current during the experiment. This proves the experiment hypthesis.	
Summary Statement The production of Sodium hydroxide from table salt by electrolysis through an ionic medium	
Help Received Father helped with research, gathering chemicals and lab equipment and project set up. Father calculated normality of NaOH titrations. Sister helped balance chemical equation and helped layout board.	