



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Joshua Batres	Project Number 34598
Project Title Coin Batteries: Which Is a Better Electrolyte Solution, Acid or Base, According to Their Voltages? What Are Their Volta	
Objectives/Goals This project is about which electrolyte solution is better, acid or base. I used an example of acid which is vinegar and an example of base which is baking soda. Then I made a coin battery from an English penny and a piece of zinc. Abstract This project is about which electrolyte solution is better, acid or base. I used an example of acid which is vinegar and an example of base which is baking soda. Then I made a coin battery from an English penny and a piece of zinc. Methods/Materials Materials: an English coin, pieces of tissue paper, vinegar, baking soda, tap water, clothespin(paperclip), a PH meter, a multimeter Procedure: 1.Dissolve 2g of baking soda into 1/3 cup of water. Take 1/2 cup of vinegar into a cup. Cut two pieces of tissue paper and wet one of them with vinegar and another one with baking soda solution. 2:Measure the PH of the liquids. Place the papers between an English penny and a piece of zinc. Hold them with a clothespin or a paperclip. Connect wires to the metals and measure electricity of the battery. 3:Change the piece of tissue to another one. Before change it, wash the metals with water. 4:Repeat this procedure 3 times. Results average PH of the liquids: vinegar: 2.2 baking soda: 7.7 average voltages of the battery: vinegar batteries: 0.98v baking soda batteries: 0.83v Conclusions/Discussion Vinegar is an acid and baking soda is a base. Results show that an acidic electrolyte solution gives me a higher voltages than a basic electrolyte solution. Both of them worked as electrolyte solution of batteries. Because acidic electrolyte solution gave me a higher voltage than baking soda, I can say that an acidic electrolyte solution is better than a basic electrolyte solution.	
Summary Statement This project is about electrolyte solutions of batteries.	
Help Received My brother helped me to wash my batterie`s metals.	