



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Jennifer C. So	Project Number J0826
Project Title Separation of Impurities from Water, Phase IV: Utilizing Natural Condensation and Electrolysis	
Objectives/Goals The goals to this water recycling project is reduce the amount of impurities from water,& find the most efficient water recycling process.	
Abstract Methods/Materials Build a cylinder-cone shaped condenser,attached to a jar of impure water. 2 tubes should stick out opposite one another & into an airtight compartment to allow for water collection. Then whole structure is placed into a black box of sand & rocks (heat source). Model is placed outside to allow energy changes to stimulate production of water droplets. After collecting 250mL of water,it goes through the process of electrolysis (direct electrical copper charged plates) to lessen the impurities.	
Results The kilo-ohm resistance increased, indicating water with less impurities. This process was 48% efficient. After the electrolysis process with the direct electrical copper charged plates, the original water samples# resistance was higher & current was lower, indicating more ionization going on between the plates.	
Conclusions/Discussion My hypothesis was correct because the water was cleaner in terms of a decrease in amount of impurities. For condensation process,surface area for the evaporation of vapor and condensation of water droplets needed to be greater for the water condensation and evaporation to occur. The distance between the water surface and the condensation body had to be shorter. The last important problem that I encountered was water droplet transportation. To resolve this problem, I had to develop specialized, slanted structures to allow droplets to flow out from the recycling system and into confined jars. For the electrolysis, the amount of time that I took to measure the resistance would be an affect because the longer the water sits, the higher the resistance and less impurity it contains. i.e.,I measured the test container first & then the reference container. This would mean the reference container#s resistance would be a lot higher than test container because of the timing factor. To solve to problem I would use 2 ohm-meters, instead. Moreover, the voltage of the 12-volt battery might have lower electricity storage after different times in the experiment. This would affect the resistance being measure because then it#d be unequal for every time the water is measured for resistance. To resolve, I would apply regulated power supply.	
Summary Statement By using natural condensation and the electrolysis, cleaner water will be produced than without using the two techniques.	
Help Received My dad was the one who recommended me to do this project. My science teacher showed me the formats of writing and how to research on the information, I needed. I would like to thank my mom and my science teacher for obtaining materials for my science prjt	