CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Benjamin J.W. Too

Project Number
J0516

Project Title
Better Power

Abstract

Objectives/Goals
The title of my Science Fair project is called "Better Power." The recent earthquake in Haiti gave me the inspiration for my project. I saw on television that the Haitians were without power supply after the earthquake and they were thrown into total darkness when the sun set. This made me wonder if there is a way to create alternative power supply during a disaster using materials I can find in my home.

Methods/Materials
In my study, I found various household materials that could create enough energy power to power a radio or a LED light. I chose to use galvanized iron nails and copper wires as my electrodes and bleach as my electrolytes to create a battery. I measured the voltage and the current generated, it was 0.6 Volts and 0.1milliamps. I found the amount of watts for a radio battery by multiplying the voltage by the current which gave me the amount of watts used which was 51 milliwatts. I then found my homemade batteries power capability which was 0.3 milliwatts. In order to figure out how many batteries I would need I divided the radio requirement by the capability of my homemade battery and found it to be 170. I then rounded it to be 200 nails. To account for my batteries efficiency loss during the assembling, I doubled the amount of homemade batteries to 400.

Results
I was able to power a radio and LED light using the battery that I created. I discovered some interesting things. If I wired my batteries in a series they would produce more volts but would last a shorter time. When I wired them in parallel they produced fewer volts but lasted a lot longer.

Conclusions/Discussion
I have learned that organic materials such as vinegar don#t produce much voltage. Solutions such as bleach and soda produce lots of voltage.

Summary Statement
My project is about providing alternative power in the event of an emergency using everyday household materials.

Help Received
My father let me use his materials and helped me with nailing and wiring.