CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
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Project Number
J0810

Project Title
Supercharged

Abstract

Objectives/Goals
The purpose of this project is to see if there is some way of increasing the amount of power you can get out of a solar cell without having to make some complicated changes to the silicon in the cell. The objective was to concentrate a beam of light on a photovoltaic cell using a concentrator and measure the energy out of the cell to see if it will be maximized when the concentrator is at its focal point relative to the surface of the cell.

Methods/Materials
100w light bulb, lamp, concentrator(magnifying glass), tape, tape measure, solar cell, multi-meter, and hight varying clamp. The basic method is to set the lamp with the 100w bulb at a fixed hight and focus its light using the concentrator onto the cell. Change the focus of the light while measuring the output energy of the cell.

Results
The results show an increase in output voltage that appears to be somewhat independent of the focus of the light. I believe that this had to do with the surface area of the concentrator being almost twice as large as that of the cell.

Conclusions/Discussion
Focusing the beam of light on one spot on the cell does increase the amount of energy by a small amount but a significant increase will come if you use a concentrator with a larger surface area than that of the cell.

Summary Statement
I focused light on a photovoltaic cell to see if it would increase the energy output over that of the cell on its own.

Help Received
Dad assisted me as I conduct experiments.