



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

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Project Title Solar Cell Efficiency	
Objectives/Goals The objective of this experiment is to increase the efficiency of a solar cell. To conduct this experiment, I carried out a series of three experiments. The focus of the first experiment was to find how UV rays affect the amount of energy a solar cell can produce. The second was to determine the best source of artificial light when using a solar cell indoors. The last experiment tested what type of encapsulation is best for a solar cell.	
Abstract Methods/Materials Experiment 1: Glass Experiment 2: UV Bulb, Soft White Bulb, Plant Light, Clamp Light, Box Experiment 3: Acrylic Plastic, Polycarbonate Plastic, Glass 2 Solar cells and a multimeter are used in every experiment. Experiment 1 Place the glass in front of the solar cell and measure the volts produced with the multimeter. Remove the glass and record the voltage. Experiment 2 Measure the voltage with the UV bulb in clamp light. Do the same with the other two bulbs. Experiment 3 Place the Acrylic plastic over the solar cell and measure the voltage on the multimeter. Do the same with Polycarbonate plastic, glass, and then measure the voltage without any covering. Repeat the experiments more than once using both solar cells.	
Results Experiment 1: The average energy for a solar cell with UV rays was 1.952 volts and the average without UV rays was 1.924 volts. Experiment 2: The average energy produced with a white bulb was 1.548 volts, the average with a plant light was 1.55, and the average with a UV bulb was 1.26. Experiment 3: Using a glass encapsulation resulted in a voltage of 1.844, an acrylic plastic encapsulation resulted in a voltage of 1.858, a polycarbonate plastic encapsulation resulted in a voltage of 1.847, and normal sunlight resulted in a voltage of 1.88.	
Conclusions/Discussion	
Summary Statement This project is a study of how to increase the efficiency of a solar cell.	
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