



CALIFORNIA STATE SCIENCE FAIR 2007 PROJECT SUMMARY

Name(s) Francesca McClintic; Janel Raab; Sarah Roberts	Project Number S0815
Project Title Power of the Sun	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The experiment will test how many volts a solar cell will generate from each type of light, from infrared to ultraviolet when exposed exclusively to each light. The procedure was created to gather information on the sensitivity of solar cells to different the light. in order to help build a better solar cell. The information gathered will prove how much the solar cell absorbs from each light.</p> <p>Methods/Materials Materials: 1 Ultraviolet, 5 Blue, 4 Aqua , 3 Green, 5 Yellow, 6 Orange, 3 Red, 1 Infrared, and 4 White. A circuit board, soldering equipment, wire, wire wrap tool, wire cutter, rotary and toggle switch, power supply, and resistors. A black container, and black electrical tape. A Volt Meter and Spectrometer. Methods: Build one light chamber and a light board, using ultraviolet, blue, aqua, green, yellow, orange, red, infrared, and white light LEDs. Attach a solar cell to a volt meter. Place the container over the solar cell. Do this three times recording the numbers on the volt meter. Do this for light, turning the rotary switch to change light color.</p> <p>Results The data charts and graphs show that the most effective light on the solar cell was the blue light with an average of 0.068 volts. The next light was the red light with an average of 0.032 volts. Then white was next with 0.028 volts; then aqua with 0.2167 volts, then green with an average of 0.012 volts, next was yellow and infrared with 0.010 volts, after that was orange with 0.009 volts, and lastly ultraviolet with 0.0073 volts.</p> <p>Conclusions/Discussion In conclusion, the blue light and red light were the most effective when it came to absorbing light and energy. This showed that the solar cell was more sensitive to the ends of the visible spectrum. Surprisingly, the solar cell was less sensitive to the middle of the light spectrum and the invisible lights. This showed that the solar cell is sensitive to certain frequencies of light. This information could be used to help build a better solar cell, because it proves that a solar cell is not using all the light energy that is available. It can be adapted to absorb not only blue, red, and aqua; but also yellow, green, orange and even the invisible light. This way the solar cell can use all the resources to create energy.</p>	
Summary Statement Our experiment was to find exactly how sensitive a solar cell is to the different wavelengths of the light spectrum, so that a better solar cell can be created.	
Help Received Father helped provide equipment and taught us how to solder wires correctly.	