



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Erik S. Hwang	Project Number J0717
Project Title Does the Sun's Angle Have Any Effect on the Efficiency of Solar Panels?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this experiment is to see if whether or not the angle at which sunlight hits a solar panel has any effect on how much current is produced.</p> <p>Methods/Materials This experiment required a solar panel, a protractor, and a multimeter. Using the protractor to measure, the solar panel was pointed at various angles at the sun, and the current was determined using the multimeter. Starting at the 0 degree mark, the solar panel was slowly rotated until it reached the 180 degree mark. The current, in amps, was then recorded at each point the solar panel moved 15 degrees.</p> <p>Results In the end, it was found that the angle at which light hit a solar panel did indeed affect how much current was produced. The current was greatest when the panel was at a 90 degree angle, and lowest when it was at the 0 degree and 180 degree angles. Starting at 0 degrees, the current would gradually increase as the solar panel was turned towards the sun. Upon reaching 90 degrees, the current was its greatest and it gradually decreased as the solar panel approached 180 degrees.</p> <p>Conclusions/Discussion Based on my results, I found that my conclusion agreed with my hypothesis. The panel generated the greatest amount of current when it was at 90 degrees to the sun. The information gathered in this experiment shows that to increase the efficiency of solar panels, they must be placed in specific locations or positions in relationship to the sun.</p>	
Summary Statement The effect of the sun's angle on solar panel efficiency.	
Help Received	