



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Melissa W. Poon	Project Number J0724
Project Title Solar Energy: The DC of Panels at Different Angles	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To find how the angle between two solar panels and the angle of the light source affects the amount of energy they capture from the sun.</p> <p>Methods/Materials Materials: Multimeter, two probes-opposite charges, two sets of solar panels, stiff hinge, two panels of wood, drill with a bit the size of the terminals on the solar panels, and a floodlight. Methods: 1. Hinge the wood panels together so that they can be moved but do not move on their own. 2. Drill two holes in the wood where the solar panel's terminals would be. Attach a solar panel to the wood and secure in holes. Repeat with other panel. 3. Move the hinge between the solar panels so there is a 30-degree angle between them. The faces of the panels should be facing outwards. This should look like a teepee. Place the floodlight 12 inches from the solar panels at 30 degrees from the midpoint of the panels. Turn the light on and measure the electrical current. Record this. 4. Repeat #3 using 45 degrees instead of 30 for the floodlight. Record. Then use 60 degrees, then 120, 135, and 150 degrees for the floodlight. Record the results each time. 5. Repeat #3 and #4 replacing the 30 degree space in the panels with 60 degrees. Use 90, 120, 150 and 180 degrees. Record current using multimeter and probes.</p> <p>Results For more than 70% of the experiment, 180 degrees was the optimum angle. 66% of the time, the panels peaked when the light source was 60 degrees over the "horizon". The lowest current was 0.3 and the highest was 2.85. With the floodlight at 60 degrees, and the solar panels at 180 degrees, the direct current reached its peak. The lowest current was reached with the floodlight at 180 degrees and the panels at 30 degrees.</p> <p>Conclusions/Discussion My hypothesis was disproved. The optimum angle was not 150 but 180 degrees. This probably means that when using a solar energy system to supply energy to a home or business, a flat roof is recommended.</p>	
Summary Statement My project investigated solar energy and what roof is the most useful for a solar energy system.	
Help Received My mom and dad helped set up the solar panels.	