



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.) Casey E Gorish	Science Fair Use Only S0609
Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) Solar Reflections	Division _ Junior (6-8) <u>X</u> Senior (9-12)
Preferred Category (See page 5 for descriptions.) 6 - Electricity & Electronics	
Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p>Objective: The objective of this project is to cheaply increase the efficiency of solar panels using mirrors.</p> <p>Methods: An apparatus of a solar panel and a mirror is assembled, with removable cover put on the mirror. Then, a voltmeter is connected to the leads to measure the output. A control measurement of the solar cells voltage and amperage output is taken. Next, the cover on the mirror is removed, and the voltage and amperage output is recorded. The difference between the two outputs is recorded.</p> <p>Results: The results were collected from tests conducted over several days at half-hour intervals. It was found that the solar cell heated up when the mirror was reflecting added light onto the cell. This caused a drop in the output voltage to below the control reading, due to an increase in resistance. The amperage increased to above the control reading and did not drop because of the heat. The price per square centimeter of solar cell and mirror was calculated. It was found that the wattage increased when the mirror was reflecting light because the amperage increase outweighed the voltage drop. However, on price comparisons, it was found that the solar cell was \$.79 cheaper than the mirror per watt.</p> <p>Conclusions: The above results clearly show that a mirror does not increase the cost efficiency of a solar cell. This is mainly caused by the added heat from the mirror. The efficiency could still be increased in several ways. First, a heat sync could be made to cool the cell, allowing it to utilize additional light. In addition, a concentrator such as a Fresnel lens could be used instead of a mirror.</p>	
Summary Statement (In one sentence, state what your project is about.) This project investigated whether mirrors will increase the cost efficiency of solar panels.	
Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Father for general advisement, sister for helping with experiments and data entry, Mr. Turcotte for helping with information on solar panels.	