



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Emily A. Fortner</b>	<b>Project Number</b> <b>J0805</b>
<b>Project Title</b> <b>The Sun Cooks!</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Can a solar oven be built to cook food at a certain temperature? A solar oven can use energy directly from the sun to cook food. My objective was to build a solar oven that could use the sun's energy to cook rice and chicken at temperatures between 93.3 to 148.9 degrees Celsius. <b>Methods/Materials</b> The oven was assembled using cardboard, plexiglass, porcelain tiles, pebbles, plastic reading magnifiers, two thermometers, and a black iron pan. Then, a control was run to test the temperature (dependent variable) of the oven. In two more trials, rice and then chicken were placed in the oven and the oven temperature was recorded every half hour over a specific period of time. The outside temperature was recorded at the same time. <b>Results</b> According to my experiment, the temperature of the solar oven did not reach 93.3 to 148.9 degrees Celsius during the time measured. The oven did increase 17.2 to 27.8 degrees Celsius over a time of one and a half to two hours for the three trials. The highest temperature reached was 65.6 degrees Celsius. After one and a half to two hours, the oven temperature began to decrease in all three trials. <b>Conclusions/Discussion</b> My hypothesis was not supported by this experiment. I was not able to get the oven temperature to 93.3-148.9 degrees Celsius to cook foods. In addition, the solar oven did not maintain the heat for a long period of time. Two factors may have contributed to the low oven temperatures: the time of year and the design of the oven. To prove my hypothesis, I would ask myself the following questions: Can I redesign the solar oven to both increase the oven temperature and maintain higher temperatures? Does using the oven during the hottest months of the year cause higher oven temperatures? I would like to redo my oven by putting a glass lid on top instead of plastic, using different materials to seal the oven lid, and making the oven box shallower. I would like to complete my experiment during the month of July or August.	
<b>Summary Statement</b> My project was to make a solar oven that would cook rice and chicken at a temperature range of 93.3-148.9 degrees Celsius.	
<b>Help Received</b> My father assisted with locating materials and cutting the box. My mother taught me some more advanced Excel functions.	