



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ray Antonio Zuniga</b>	<b>Project Number</b> <b>J0927</b>
<b>Project Title</b> <b>If Solar Heaters Really Work They Could Contribute to Solving Earth's Global Warming Problem</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of my project is to determine if solar-heaters work efficiently for household use, eliminating the consumption of natural gas and reducing the green-house gases released into the atmosphere, therefore contributing to solving Global Warming.</p> <p><b>Methods/Materials</b> I built a basic solar heater and connected it to cardboard box, which simulates a house, and tested its ability to heat-up air temperature in different weather conditions. My tests included weather conditions such as: cloudy, sunny, windy, hot and cool. I also tested the solar-heaters ability to heat-up air in different time increments. The materials that I used to build my project were: a thermometer, wood &amp; glue, paint, a conduit, glass, cardboard box, aluminum sheets, a mini-fan, black spray paint, coiled glass air-breathers, Styrofoam, silicone, screws &amp; hinges.</p> <p><b>Results</b> My results proved that solar heaters do efficiently work. As I tested my solar-heater, my data proves how the use of a solar heater intensely and efficiently heats-up air, warming-up the desired location and allowing us to refrain from using natural gas which releases carbon dioxide and methane into the atmosphere which is one of the main factors of Global Warming.</p> <p><b>Conclusions/Discussion</b> Solar-heaters definitely work efficiently for household use and if they are implemented in homes instead of natural gas heaters we could eliminate large quantities of natural gas consumption, thus reducing the amount of green-house gases released into the atmosphere reducing Earth's temperatures and contributing to solving Global Warming.</p>	
<b>Summary Statement</b> My project is about how solar heaters, if they work effeciently, could contribute to solving Global Warming.	
<b>Help Received</b> Grandfather: helped cut glass for solar heater container while grandfather, father and I assembled it together. Father: helped me construct a model of our home to use for demonstration purposes. Mother: took pictures and encouraged me throughout of entire project process. She proof read my on-line	