



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Gabriel J. Guerra	Project Number S1117
Project Title Dude, There's a Garden on Your Roof: Rooftop Gardens and Their Effects	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine how houses with rooftop gardens can be modernized to incorporate additional green practices, such as energy and water conservation, in order to implement a lessened impact on the environment.</p> <p>Methods/Materials A Google Sketchup model was developed to complement the prospective foam core model that the tests will be taken on. Temperature tests are to be the main focus of the experiments as temperature has the greatest impact on the homeowner and the environment by producing distinct differences between dark colored roofs and vegetative roofs. Tests will be completed with a heat lamp at increment distances to resemble the effects of the sun, and will internally and externally test the temperature of the house when equipped with a basic dark roof, and internally and externally test the temperature of the house when equipped with a vegetative roof.</p> <p>Results The temperature of the house with the dark colored roof was much warmer internally and externally, whereas the house with the vegetative roof was much cooler internally and externally. The external temperature of the house with the dark roof was up to eight degrees warmer than the actual temperature of the lamp, and the external temperature of the house with the vegetative roof was up to five degrees cooler than the actual temperature of the lamp. The internal temperature of the house with the vegetative roof was seven degrees cooler than the internal temperature of the house with the dark colored roof.</p> <p>Conclusions/Discussion Houses incorporating rooftop gardens, solar energy, and rain-water collecting systems do not only benefit the homeowner through decreased heating and cooling bills, but also through the ability to grow his/her own food at home and to save on fuel or pricey agricultural products. These houses also benefit the environment by reducing storm-water runoff, ridding the air of pollutants, and reusing materials and resources.</p>	
Summary Statement The focus of my project is to primarily emphasize the importance of designing modern houses that incorporate rooftop gardens and other eco-friendly practices while examining the benefits of such houses.	
Help Received Mrs. Herrington assisted me in development of project, Mrs. Sumter let me borrow her heat lamp, Mr. Avila assisted in the design process, John Smith assisted in the design process, Juan Gonzalez assisted in the design process	