



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kyra M. van Kreuningen</b>	<b>Project Number</b> <b>J0232</b>
<b>Project Title</b> <b>Photovoltaic Solar Plant</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my project is to create and engineer effective solar cells into a solar array with a plant-like appearance. I chose this project because I feel it has marketable potential and it would help me further develop my engineering skills. I also chose this project as a way to express my creativity while adhering to the rules and restrictions of the Science Fair. The purpose of my Solar Plant is to produce usable electrical energy using the power of the sun.</p> <p><b>Methods/Materials</b> I used readily available materials to create an attractive and functional photovoltaic solar array. The main materials used are copper plate, copper wire, acrylic sheeting, acrylic adhesive, water, PVC piping, and PVC fittings.</p> <p><b>Results</b> I ended up creating two solar plants. Using my test data on conductive fluids, I decided to fill the first plant with a water/baking soda mixture. In sunlight, this plant produced about 100mv from 19 small solar cells, but I used silicon adhesive in assembling the cells and the cells were messy and prone to leaking. I then constructed a second, superior plant using larger cells held together with acrylic adhesive. Individual Test cells using this method did not leak and produced over 50mv in sunlight. The entire plant should produce just under 1000mv.</p> <p><b>Conclusions/Discussion</b> I successfully blended science, engineering, and art to create an attractive and functional solar array. I knew when I started this project that the energy produced by the simple copper solar cells would be minimal, but I was hoping for more than it ended up producing. I plan to create a next generation plant using the skills I have learned and a superior cell technology.</p>	
<b>Summary Statement</b> To create a functional and attractive Photovoltaic Solar Plant	
<b>Help Received</b> Father taught me to solder and safely use power tools. Mother helped in typing some of the report.	