



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alexander R. DeGuzman</b>	<b>Project Number</b> <b>J2106</b>
<b>Project Title</b> <b>Solar Cell Power Output vs. Light Intensity and Temperature</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The object of this study is to determine the effects of variations of light intensity and temperature on solar cell power production. <b>Methods/Materials</b> Tested 330 lumen, 1600 lumen, and 4000 lumen light bulbs' effects on solar cell power production. Also used dry ice spray and a hair dryer to test the effects of cooler and warmer temperatures on solar cell power production. Two 100mA mini solar cells were used in the test. <b>Results</b> Conducted 20 trials each for the 330 lumen, 1600 lumen and 4000 lumen light bulbs, and varied the temperature of the solar panel with dry ice spray and a hair dryer for the three sets of 20 trials. For all three light bulbs, the results showed increased solar cell power production at cooler temperatures vs warmer temperatures. Also, the higher the lumen light bulb output, the more power the solar cell produced. <b>Conclusions/Discussion</b> The 60 total trials produced consistent results. In conclusion, a solar panel will generate more power when it is exposed to more light and cooler temperatures and will generate less power when it is exposed to less light and warmer temperatures.	
<b>Summary Statement</b> I showed that solar cell power production is directly proportional to light intensity and inversely proportional to temperature.	
<b>Help Received</b> I conducted the experiment myself, and my science teacher advisor reviewed my results.	