



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sahar A. Khashayar</b>	<b>Project Number</b> <b>J2120</b>
<b>Project Title</b> <b>Watt a Bright Idea</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Over the years, I have become more and more aware of Earth's dwindling natural resources. Electricity is one of the most popular ways of consuming these resources. I wanted to find out what kind of light bulb technology is the most efficient way of converting electricity to light. <b>Methods/Materials</b> I built a circuit to power LED, Incandescent and CFL light bulbs. I tested over 10 different bulbs with different power ratings of 60W, 75W and 100W. I measured current, decipated heat and light emission of each bulb. Material: Three each of: 60, 75, 100W Incandescent light bulbs; Three each of: 60, 75, 100W equivalent CFL; One 75W equivalent LED; One 60W equivalent LED; One light bulb 100W equivalent LED; Lab Quest Mini light meter; Lab Quest Mini thermometer; Two multi-meters (Current and Voltage); PC (e.g. Laptop) Camera; Sunglasses. Circuit materials: Wires, light socket, switch, wire holder, cover, wooden board approximately 15x20x3/4 inches. <b>Results</b> The results of this experiment were as expected. The LEDs emitted the most amount of light, while giving off little heat, for the same amount energy input. <b>Conclusions/Discussion</b> The LEDs were the most efficient, but not necessarily the coolest. They were about the same temperature as the CFLs, however they produced more light. With this experiment, I hope to make better choices in purchasing light bulbs. I also hope to help other people to think twice before they get a less efficient bulb. If many people around the world buy eco-friendly, energy efficient light bulbs, then, together, we can make a huge difference in preserving our environment.	
<b>Summary Statement</b> Study of the effeciency of different light bulb technology based on measurement of conversion of electricity to heat and light	
<b>Help Received</b> My dad was present while making measurements as I was working with 120V supply.	