



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Jeffery N. Blaschko	Project Number J0904
Project Title How Does the Size of a Battery Affect the Luminosity of a Light Bulb?	
Objectives/Goals My hypothesis is that the nichrome filament will illuminate better than the tungsten filament with everyday batteries. The battery voltage or electrical potential and not the size (amount/volume of energy stored counted in joules) directly affects the luminosity of a filament. Joules or the amount of energy used just determines how long a battery lasts to illuminate a filament. I think the nichrome filaments will work better with low voltages than tungsten. The common batteries used in this experiment are of varying low voltages and sizes.	
Abstract	
Methods/Materials 1. 2 foot x 2 foot x 1/2 inch Board, 2. NXT Robotic Brick, 3. 2 NXT Motors, 4. 1 NXT Light Sensor, 5. 2 2 1/2 Inch Rods, 6. 1 4 Inch Rod, 7. 2 Lego Wheels, 8. 1 Hatbox w/ Lid, 9. 4 Alligator Clips, 10. 2 2 Inch Contacting Blocks, 11. 2 Copper Strips, 12. 4 Wooden Ramps, 13. 1 Petri Dish, 14. 1 Empty Ribbon Spool, 15. 4 2 1/2 x 1/2 x 1/2 inch blocks.	
Results Nichrome Filament: 21/23 Battery: Average: 2.9% Error Adjusted Average(-2%): 0.9% AA Battery: Average: 2.0% Error Adjusted Average(-2%): 0.0% 9 Volt: Average: 84.3% Error Adjusted Average(-2%): 82.3% CR2 Battery: Average: 5.1% Error Adjusted Average(-2%): 3.1% D Cell: Average: 2.6% Error Adjusted Average(-2%): 0.6% 6 Volt: Average: 71.7% Error Adjusted Average(-2%): 69.7% Tungston Filament: 21/23 Battery: Average: 2.8% Error Adjusted Average(-2%): 0.8% Double A: Average: 2.6% Error Adjusted Average(-2%): 0.6% 9 Volt: Average: 35.1% Error Adjusted Average(-2%): 33.1% CR2 Battery: Average: 3.6% Error Adjusted Average(-2%): 1.6% D Cell: Average: 2.9% Error Adjusted Average(-2%): 0.9% 6 Volt: Average: 7.8% Error Adjusted Average(-2%): 5.8%	
Conclusions/Discussion The size of the battery does not affect the luminosity of a light filament but how long the filament remains illuminated. Larger size batteries produce longer illuminations. Batteries with high voltages, regardless of size, produce higher or brighter luminosities. Metal resistors of lower electrical resistance will produce	
Summary Statement The purpose of my project is to identify the perfect combination of amps and volts to make the most powerful but longlasting battery for a specific use,	
Help Received My Dad helped with drilling and hammering; Science Teacher provied Nichrome filament; Dad helped purchase Materials	