



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Natalie Bautista	Project Number S0204
Project Title Does Size Make a Difference? Vertical Axis Wind Turbine	
Objectives/Goals My goal was to discover which size turbine on my vertical axis wind turbine would produce the most amount of voltage. I had a small turbine and a large turbine and tested both of them to see which would work best. I also hoped to use Ohm's Law to figure out how other factors such as resistance affected the results.	
Abstract Methods/Materials For this project I used some common materials and some harder to get materials. My turbine mainly consisted of wood and cardboard and a few other elements such as enameled wire and earth disk magnets. The main turbine is consisted of a clear bottle. My testing method for this experiment was simple yet tedious and I tried to keep a lot of factors constant such as the power of the fan and the amount of time I measured for. I tested both of the turbines for voltage one hundred times using a fan and a digital multimeter and averaged those measurements. I also measured the turbines' resistance and average those one hundred measurements. I used Ohm's Law to figure out the average amount of currents for each turbine	
Results My results were very surprising. I discovered that the smaller turbine had a higher average of voltage compared to the larger turbine. I also discovered that the smaller turbine had a higher amount of resistance than the larger turbine. Once I plugged those two average measurements into Ohm's Law formula, $V=IR$, I found that the smaller turbine also had a slightly higher average of currents when compared to the average of the larger turbine.	
Conclusions/Discussion My conclusion for this experiment is that the size of the turbine definitely affects the amount of voltage produced and the overall efficiency of the turbine. I also concluded that factors in Ohm's law can help when trying to figure out what affects the results. In this case, the smaller turbine proved to be the most effective wind turbine of the two.	
Summary Statement My project is about discovering which size turbine, the larger or smaller turbine, on a vertical axis wind turbine will produce the most amount of voltage and ultimately prove to be a more efficient source of alternative energy.	
Help Received Father helped with construction of Turbine; Mother helped turn on/off the fan while taking measurements; Friend helped me make my graph	