



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Tristen M. Snyder	Project Number J0121
Project Title Towers of Power	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine which type of wind turbine, horizontal-axis or vertical axis, produces more power.</p> <p>Methods/Materials Two mini wind turbines were constructed using a PVC base and a 7.4V motor. The first turbine used a vertical-axis blade made of a 32 fl. oz. plastic bottle and the second used a horizontal-axis blade made of a 10 x 7 in. three blade propeller. Each turbine was separately tested for power output using a volt meter while running a box fan one foot away from the turbine base, set at the same speed. Ten VDC readings were taken on each turbine.</p> <p>Results The horizontal-axis turbine produced an average of 2.30 VDC and the blades functioned better with the wind. When testing the vertical-axis turbine I found that the wind would often hit both sides of the blade and cancel itself out. The vertical-axis method produced an average of 0.60 VDC.</p> <p>Conclusions/Discussion My conclusion is that the horizontal-axis wind turbine operated better in the wind and produced more power while a vertical-axis wind turbine was found to have more difficulty using the wind to turn the blade and it produced less power.</p>	
Summary Statement My project will help me understand the power generation difference between horizontal-axis and vertical-axis wind turbines to understand why the horizontal-axis method is more commonly used.	
Help Received My father showed me how to safely use the tools to build my project and supervised the process. He drilled out a section of the PVC to fit the motor and connected the wires to the motor.	