



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Michael Wong; Tiffany Wong</b>	<b>Project Number</b> <b>J0726</b>
<b>Project Title</b> <b>Wind Power: The WONG Way</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of our project was to prove that various sizes and numbers of windmill blades will have an effect on rpm (revolutions per minute), milliamp power, and voltage change. There are various speeds of winds; therefore, it is important that we test the various types of windmill blades to get an accurate reading to prove our hypothesis.</p> <p><b>Methods/Materials</b> A testing unit was designed and built to gather data from various types of windmill testing. We assembled windmill blades in various sizes: 12 cm, 15.2 cm, and 17.8 cm. Blades were also assembled in various numbers: 2 blades, 4 blades, and 6 blades. The first test was conducted with an electric fan producing wind at three different speeds to turn the windmill blades, then rpm measurements are taken with a tachometer. The second test was run by using a constant power supply (a motor and battery) to turn the windmill blades, then take rpm measurements. The third test was run by using an electric DC motor and artificial wind source to measure milliamp power produced and voltage changes.</p> <p><b>Results</b> The first test indicated that the 15.2 cm blades produced the highest rpm. The later two tests both indicated that the 12 cm (6 blades) fan produced the highest rpm and milliamp power. Data for voltage will be submitted with project addendum to LA County entry.</p> <p><b>Conclusions/Discussion</b> Our studies conclusively proved that the size and number of blades directly affects rpm. The study also confirms the following findings: 1) 15.2 cm blades (2, 4, and 6 blades) all produced the highest rpm using wind power, 2) the 12 cm with 6 blades was the most efficient in producing the highest rpm using a constant power supply. The findings and conclusion for voltage will be submitted with project addendum to LA County entry.</p>	
<b>Summary Statement</b> Improving wind power to produce more energy.	
<b>Help Received</b> Mothers helped with cut and paste on project board; Father helped with wood cutting and electrical wiring; field trip made to wind farm to learn about wind power.	