



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Ashley E. Sulzen	Project Number J0136
Project Title What Is the Most Productive Pitch for an Electric Generating Prop at Various Wind Speeds?	
Objectives/Goals My objective was to find the most productive pitch for an electric generating prop, or windmill, at various wind speeds. I wanted to know which pitch, at which wind speed, would produce the greatest energy output. I thought that at the highest wind speed a higher degree of pitch would be more efficient, while at lower wind speed a lower degree of pitch would be more efficient.	
Abstract Methods/Materials To do this experiment I set up my windmill after constructing it, as well as a cardboard box, which served as a wind tunnel and stopped any other factors from affecting my results. Then I connected a voltmeter to the windmill to display the data. I tested each degree of pitch from 5-15 at high, medium, and low wind speeds. While the blades of the windmill turned I recorded the highest and lowest readings in millivolts. I then averaged the two to get my results.	
Results I found that at the lowest wind speed setting the most efficient pitch was 10 degrees, at medium wind speed, 9 degrees, and 8 degrees at high wind speed. Therefore, I found out which pitch was the most productive for each different wind speed.	
Conclusions/Discussion My results did not support my hypothesis but proved it incorrect. The information I have learned is important because wind is a source of energy that will not run out. It will always be available. If we adjust the pitch to the most productive degree according to the wind speed we can make windmills more efficient and they may become a strong source of energy.	
Summary Statement I wanted to find out what was the most productive prop pitch at three different wind speeds.	
Help Received Mr. Joe Krainock, my teacher, gave me my backboard and lots of instruction and examples on how to do a science fair project. Mark Sulzen, my Dad, helped me build my windmill hub and create charts. At my school, Olive Pierce Middle School, I was able to do research. Linda Sulzen, my Mom, helped me make	