



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) E. McKenzie Kipe	Project Number J0118
Project Title Any Way the Wind Blows!	
Abstract Objectives/Goals The objective of my project was to determine which degree of pitch combined with which number of blades on a propeller is optimum for producing the maximum power from a model wind turbine. Methods/Materials In total, nine model propellers were obtained, three two-bladed propellers, three three-bladed propellers, and three four-bladed propellers. Each set of the two, three, and four bladed propellers had three different angles of pitch, 4#, 6#, and 8#. A wind tunnel was constructed out of Plexiglas and wood, and a model turbine was constructed to fit inside the tunnel. Each of the combinations of pitch and blade number were bolted onto the model apparatus one at a time and tested for maximum energy production from wind using an industrial fan as the source. The highest number of amps were then recorded and all reached their highest number of amps within ten seconds. This process was repeated until all of the propellers were tested. Each propeller was tested two or three times in order to insure that each propeller had consistent results. Results The three-bladed propeller combined with the 4# pitch produced the highest amount of amps and therefore produced the most energy. Conclusions/Discussion My conclusion is that a three-bladed propeller combined with a pitch close to 4# will produce the most energy if applied to backyard wind turbines today and will ultimately lower the electricity prices of most electrical bills for families.	
Summary Statement My project is about determining the most efficient blade construction for a wind turbine.	
Help Received Father helped build the apparatus	