



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Liliana Torres	Project Number J0121
Project Title Wind Power: Does the Number of Blades on a Wind Turbine Affect Energy Produced?	
Abstract Objectives/Goals The objective of this project is to find the optimal number of blades on a pinwheel style wind turbine to produce maximum energy measured in volts. Methods/Materials I am using four different plastic pinwheel designs (3, 4, 5, and 6 blades). I am using a Lego Mindstorm kit to attach my pinwheels to and to accurately record voltage produced. I also used a standing fan to create a constant source of wind for my pinwheels. Results I discovered the optimal blade number to produce maximum voltage was the four-blade pinwheel. On average the the 4-blade pinwheel produced 2.21 volts. The 3-blade pinwheel was found to be 100% non-optimal as it produced 0 volts in all testing trials. Conclusions/Discussion I learned that the pinwheel with four blades produces more energy than any of the other pinwheels I have tested. It is possible that the four blade pinwheel is the best at producing energy, because its blades have the biggest surface area. Since this number of blades on pinwheels produces the most energy, they may be a very efficient way to make energy using wind turbines. This is similar to how scientists test wind turbines in real life. They build prototypes of a wind turbines and see which ones can produce the most energy just as I have done.	
Summary Statement I proved that a 4-bladed pinwheel turbine produced the maximum voltage.	
Help Received Robert Nelson, Robotics Instructor at Sanger Academy Charter School	