



CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

Name(s) Austin L. Parlett	Project Number 35002
Project Title Pinwheel Sensitivity	
Objectives/Goals My objective for this project was to determine if changing the amount of blades on a wind turbine, or in this case a pinwheel, would affect how sensitive it was to wind.	
Methods/Materials To begin, I bought six pinwheels from our local toy store. The first step was to attach a hairdryer to a stool and one of the pinwheels to another stool. To measure the distance between the pinwheel and the hair dryer, I measured 9 feet on the ground. I then turned on the hairdryer and slowly moved away from the pinwheel. I kept moving the hairdryer back until the pinwheel stopped moving. I kept repeating this process and removed one blade each time. After I was in the middle of my experiment I realized I couldn't actually see where the air was hitting the blades. To solve this, I attached a laser pointer to the hair dryer and started the whole thing over to make sure I had accurate results.	
Results My data shows that three blades effectively capture the most wind. An example of this is when there were only four blades, the blades only spun for 58.6 inches and when there were three blades, it spun for 57.6 inches.	
Conclusions/Discussion After changing the distance and shape of a pinwheel, the sensitivity of the pinwheel changed. My hypothesis was that "If I change the distance and shape of the pinwheel, then the farther it gets from the hair dryer the slower the pinwheel will move." My hypothesis was correct because as I got farther away from the pinwheel, the slower it spun. This shows that when a pinwheel is symmetrical it will spin for a longer distance. Also as I took away blades from the pinwheels, the harder it was for the pinwheel to spin. During the experiment the problems that I encountered were minimal. One problem was that I wasn't sure where the air was hitting the pinwheel. As a solution, I added a laser to the hair dryer so I could aim and see exactly where the air was hitting the pinwheel. As I was looking at my graphs and data, I realized that when I removed blades, the pinwheels would change the distance at which they would spin. If I were to look more into this experiment in the future, I would like to learn more about who invented wind turbines and learn more about the history of them. Overall I felt this experiment was very successful, fun to organize and would recommend it for other people to try.	
Summary Statement This project is about determining if the amount of blades on a wind turbine affects how sensitive it is to wind.	
Help Received My mom drove me to the store to purchase the pinwheels and my teacher supported me throughout the experimental process.	