

Luke Tyler
Spin to Win

The purpose of my project was to see what wind turbine blade design produces the most energy. My hypothesis was that the red blade design, which had a wide base, thin top and an indenture running down it would do the best out of the three other blade designs I created. I studied this topic because I thought it was an interesting way to create more green energy to help save our environment now and later on in life.

To conduct this experiment I first constructed the base of my wind turbine. I then fashioned four different blades out of balsa wood. I attached a pair of blades to a hub on the tower of the wind turbine. Next, I turned a leaf blower on facing the wind turbine and recorded my data with a digital voltmeter for each set of blades. I tested the blades at two different pitch angles three to four times to make sure I was collecting similar data so that my results would be more accurate.

The data I collected showed that my hypothesis was generally correct. The red blades did perform the best. However, the green blades which were designed similar to an airplane wing with a sanded down leading edge actually produced the second greatest amount of energy. I thought they would perform the worst.

The results that I got showed me that the red blades would do the best in an area with a lot of wind because they were wide at the base and tapered to a thin tip. The green blades had more surface area and were rectangular and they broke in high wind but worked really well with a little amount of wind. If I were to do the experiment again I would get a higher quality voltmeter with more read out range and I would try to construct more of a wind tunnel to focus the wind instead of doing the tests in the open.