



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Erin Brown; Hannah Howerton	Project Number S0308
Project Title What Is the Effect of Propeller Size on Thrust Production?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine the effect of propeller size on thrust production.</p> <p>Methods/Materials This was tested by measuring the amount of time (seconds) it took a Styrofoam ball (38 mm) to be pushed by two different sized propellers through a cardboard tube (1 # in. diameter/ 40 in. length). Each blade was hooked up to a 3 Volt motor with 8300 revolutions per minute at maximum output, and each motor was powered by two AA batteries. Batteries and motors were connected by a system of wires. The larger blade measured 5 inches in length, and the shorter blade measured 3.625 inches in length.</p> <p>Results The larger blade produced more thrust to push the Styrofoam ball to the end of the tube in a shorter period of time.</p> <p>Conclusions/Discussion Wind energy created by the thrust of propellers offers a free and clean energy source, decreases the use of fossil fuels, reduces emissions from transporting materials, and eliminates the need for pipelines across the country. Determining the ideal propeller size will lead to a breakthrough in wind technology, allowing for the most efficient way to produce energy via windmills. From the observations of this experiment, it is proved that a longer blade is more efficient, sweeping a larger surface area and thus allowing for more energy to be produced.</p>	
Summary Statement Our project tests how propeller size affects thrust production.	
Help Received Step father helped wire board.	