CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY

Name(s)
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Project Number
J0109

Project Title
Perfect Propeller Performance

Abstract

Objectives/Goals
My objective was to learn which propeller was the most efficient for my remote control airplane.

Methods/Materials
I used a watt meter to measure power used by the motor, and a digital scale and thrust stand to measure thrust produced by the propeller. I used nine propellers in my experiments. First I attached a propeller to the motor. Then I went through all the throttle settings of my transmitter and measured the watts consumed by the motor and the newtons of force measured by the scale. I recorded all the data in my notebook. I repeated the experiment three times for each propeller. The propeller sizes were 7x4, 7x5, 7x6, 8x6, 9x3.8, 9x4.7, 9x6, 10x3.8, 10x4.7, with the first number measuring diameter in inches and the second number measuring average pitch in degrees.

Results
The propellers in order of efficiency are the 9x3.8, 10x3.8, 9x4.7, 10x4.7, 9x6, 7x4, 8x6, 7x5, 7x6.

Conclusions/Discussion
My experiments showed that propellers with less pitch were more efficient. However, the diameter of the propeller did not greatly affect propeller efficiency.

Summary Statement
My project is about finding the most efficient propeller for my remote control airplane.

Help Received
Mother helped type the report and make graphs. Father helped build the thrust stand.