CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
J0122

Project Title
How Does the Shape and Weight of the Wing Affect the Lift of the Object?

Abstract

Objectives/Goals
My project's objective was to determine if a wing's shape and size would affect the lift on an object. I hypothesized that a wing design of airfoil with a size 50mmX150mm would be most successful.

Methods/Materials
For this experiment I built a homemade wind tunnel with an air filter and a Boreal Balance scale to test lift. The three designs were used with two different sizes of 50mmX150mm and 75mmX175mm. The designs were airfoil, symmetrical, and reverse-airfoil. This experiment was tested in the same atmosphere and each design was tested 5 times giving a total of 30 trials in all.

Results
In the end, my hypothesis was disproved and proved. The airfoil design was the most successful in receiving lift, however the size that was most successful was the 75mmX175mm size.

Conclusions/Discussion
My conclusion is that the most successful design to receive lift is the airfoil design and that when a plane desires to descend, it should use the reverse-airfoil design.

Summary Statement
My project demonstrates the effect of wing size and design on the lift of the object using Bernoulli's Principle of fluid flow.

Help Received