CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Evan M. Green

Project Number
J0114

Project Title
Just Wright for Flight

Abstract

Objectives/Goals
The goal for this project was to find out if golf ball dimpling on the top surface of delta wing glider can increase its aerodynamics efficiency to a point which affects measurable performance. I defined performance as flight distance and time aloft.

Methods/Materials
I used 1" thick R-Max foam insulation as the raw material to build a delta wing glider of my own design. I ran 50 indoor trials with the glider as my control group. Next, I used a 1/2" drill bit to create standard concave dimples on the top surface of the glider. I then repeated 50 more trials according to protocol for my experimental group.

Results
The data showed that the dimpled glider had a 23.9% increase in average flight distance; however, the average time aloft decreased by 5.5%.

Conclusions/Discussion
I had expected an increase in flight distance due to what physicists refer to as the "golf ball dimpling effect'. In simple terms, dimpling decreases turbulent airflow and therefore reduces air friction, enabling a golf ball and my glider to fly farther. The unexpected decrease in time aloft is most likely due to a human variable. The short flight times were difficult to measure accurately with a stopwatch.

Summary Statement
I experimented to determine the effects of golf ball dimpling on the performance of a delta wing glider.

Help Received
Mother assisted with timing of flight trials, Father helped with constructing launcher(that was not used)