CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
Wolf I. Thielmann

Project Number
J0123

Project Title
Smoothing the Surface: The Coefficient of Lift and Drag as a Function of Texture

Abstract

Objectives/Goals
I investigated this project in order to determine how different wings and their surfaces affected their efficiency.

Methods/Materials
In a wind tunnel, I placed four wings, two were control subjects with smooth surfaces and two were experimental subjects with a surface smoothness that varied from the control wings. I placed them individually in the wind tunnel and using a force probe, measured the lift and drag each wing produced.

Results
I found that a wing with a smooth surface is more efficient than a wing with an unsmooth surface.

Conclusions/Discussion
Further extensions of this investigation include finding effective control surfaces for aircraft that create drag and deplete much of the wing#s lift in order to make landings safer. Other possible research applications include finding an airfoil that is more efficient for manned gliders or solar powered aircraft.

Summary Statement
I attempted to discover if and how the surface texture of a wing affects a wing's performance

Help Received
Recieved Vernier Instruments force probe from school and father assisted in cutting out large wood pieces for wind tunnel using router and skilsaw.