CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)

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Project Number

J0101

Project Title

Measuring the Lift of Airfoils Using a Wind Tunnel

Abstract

Objectives/Goals

The objective of this study is to determine if the location of the maximum thickness of an airfoil affects the amount of lift generated.

Methods/Materials

Balsa wood to create airfoils, metric scale, airfoil stand, and wind tunnel. We recorded the amount of lift generated when each airfoil was placed into the wind tunnel and onto the scale. The lift is displayed in negative numbers on the scale, because we were measuring the decrease in weight.

Results

The airfoil with the maximum thickness the closest to the tip of the airfoil generated the most lift, the airfoil with the maximum thickness furthest away from the tip created the second-most lift, and the airfoil with the maximum thickness between that of the other two airfoils produced the least lift.

Conclusions/Discussion

The experiment demonstrated that the location of the maximum thickness does have an effect upon the efficiency of the airfoil. However, we did not have access to the required instruments to determine what changed in the way the air flowed around the airfoils to cause this change.

Summary Statement

We showed that the location of the maximum thickness of an airfoil does have an impact on the amount of lift the airfoil generates.

Help Received

We completed this project without significant help from any professional figures. We designed and constructed the airfoils ourselves, and ran the trials without any help.