



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Javi Arango</b>	<b>Project Number</b>  31815
<b>Project Title</b> <b>Airworthy Airfoils</b>	
<b>Objectives/Goals</b> In my experiment, I tested how modified shapes of airfoils produced lift. I wanted to find the most efficient, lift-producing shape. <b>Abstract</b> <b>Methods/Materials</b> I used a wind tunnel to test my five airfoils. The five, differently shaped, airfoils were made from styrofoam. I used a sensitive weight measuring device to see how much each airfoil lifted when the wind tunnel was at maximum speed. I recorded each data point three times, to ensure consistency. I repeated the procedure at three different angles of attack (10, 20, 40 degrees). I graphed the resulting lift curves for each airfoil. <b>Results</b> As the angle of attack increased in each airfoil, they mostly produced more lift. However above a certain angle, the lift production decreased. Separately, each differently shaped airfoil gave a different amount of lift and a different lift curve. <b>Conclusions/Discussion</b> I found that there is no single most efficient airfoil. Depending on what a designer wants (speed, load-carrying, aerobatics...etc.) a different airfoil can be suitable.	
<b>Summary Statement</b> How do different shapes of airfoils affect the lift produced?	
<b>Help Received</b> School's science teacher supervised the experiment and gave suggestions for improvement.	