



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Matthew K. Kurihara</b>	<b>Project Number</b> <b>J0114</b>
<b>Project Title</b> <b>Going Up</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project was to see the effect of upper cambers, distances from the wing to the wind source, different wing lengths and different wing spans affected how much lift the wing would create. I predicted that as the upper camber, distance between the wing to the wind source, wing span and wing lengths increased, the lift created would increase as well. <b>Methods/Materials</b> The experiment consisted of thirteen wings constructed from manila folders. One of the wings was used in each of the four experiments as a control. Four of the thirteen wings had the same wing spans and lengths, but different upper cambers. Another four had the same wing spans and upper cambers, but different lengths. The last four had the same upper cambers and lengths, but different wing spans. I tested each wing on a frame that allowed the wing to move up and down without flying away. Each wing was tested ten times. <b>Results</b> I found that as the upper camber increased, the amount of lift decreased to a point and then started to increase. For the experiment testing different lengths between the wing to the wind source, I found that as the length increased, the lift increased to a point and then decreased. The experiment which tested the length of the wing showed that as the length increased, the lift increased to a point and then decreased. For the last experiment, I found that as the wing span increased, the lift increased to a point and then decreased altogether. <b>Conclusions/Discussion</b> I believe that wings with bigger upper cambers lifted higher, with the exception of the zero degree camber, because the larger camber created a bigger low pressure area which allowed the wing to lift easier. With the different distances between the wing and wind source, I believe that the wing lifted the way it did because the wind got to a point where it would hit the wing with the most momentum which would have allowed the maximum lift on the wing. For the experiment testing wing length, I believe that the wings that were longer created a bigger low pressure area length wise allowing the wing to lift easier and higher. For the last experiment which tested wing spans, I believe that the wings with bigger wing spans created a bigger low pressure area width wise which also allowed the wings to lift higher easier.	
<b>Summary Statement</b> The purpose of my project was to see how different variables would affect how a basic wing would lift.	
<b>Help Received</b> got a few suggestions from the LA county judges for correct terminology on certain variables	