



# CALIFORNIA STATE SCIENCE FAIR 2005 PROJECT SUMMARY

Name(s) <b>Colleen Loree F. Avila</b>	Project Number <b>S0101</b>
Project Title <b>Aerodynamic Airfoils, Phase 2</b>	
<b>Objectives/Goals</b> My objective for this project was to identify which of the custom made airfoils is the most aerodynamic when tested for drag within a wind tunnel at various wind speeds.	<b>Abstract</b> The material I used to make the airfoils was balsa wood, because it is light weight and easy to cut. I tested the twelve airfoils by suspending them in a wind tunnel with a balance, and then connecting them to the drag scale with fishing wire and paper clips. The airfoils were connected to the balance with a steel rod so that it would not pivot up and down, but only back and forth.
<b>Methods/Materials</b> The results I received after conducting this experiment was that Airfoil #4 was the most aerodynamic with an average drag of 2.17 grams and a maximum drag of 7 grams at 3200 feet per minute. Airfoil #1 came in second with an average drag of 2.67 grams and a maximum drag of 9 grams at 3200 feet per minute. Airfoils #5 and #9 came in last with average drags of 14.33 grams.	<b>Results</b> The results I received after conducting this experiment was that Airfoil #4 was the most aerodynamic with an average drag of 2.17 grams and a maximum drag of 7 grams at 3200 feet per minute. Airfoil #1 came in second with an average drag of 2.67 grams and a maximum drag of 9 grams at 3200 feet per minute. Airfoils #5 and #9 came in last with average drags of 14.33 grams.
<b>Conclusions/Discussion</b> In conclusion, my hypothesis was incorrect. Airfoil #1 came in second, and not in first as I had predicted. Airfoil #4 proved to be most aerodynamic of the twelve airfoils tested. This may be due to various factors (ex. mass). My objective and goals for this experiment were fulfilled. The information I have obtained in Phase 2 will work with Phase 1 in the future to create a complete model of an airplane or rocket to expand my knowledge of aerodynamics and physics.	
<b>Summary Statement</b> To determine which custom made airfoil is most aerodynamic when tested for drag within a wind tunnel at various wind speeds.	
<b>Help Received</b> Mr. Schultz helped test and make the airfoils; Used wind tunnel at Centennial High under the supervision of Mr. Kaura	