



CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

Name(s) Noa Garcia-Brown	Project Number J0109
Project Title Aerodynamics of the Oblique Wing	
Abstract Objectives/Goals The purpose of this experiment was to compare how aerodynamic the oblique wing is compared to the swept back wing by measuring the amount of drag each produces. Methods/Materials Much of the time spent on this experiment involved a lot of trial and error. Several methods of testing drag were tried but failed. The first failed attempt, involved a dowel going through the middle of the glider and out the top and bottom of the tunnel through little slits to allow the glider to move back and forth. To add resistance, rubber bands were used to attach the ends of the dowel outside the tunnel to a peg in front of the dowel. This method proved to be too stiff to move in response to the wind even with the high-speed carpet-drying fan. The next attempt was to fasten the glider to a trolley placed on a model train track. A weight was attached to the train with a string. The weight rested on the scale place on the floor below the wind tunnel. The thought was that the drag produced by the glider would cause it to pull on the rope lifting the weight and therefore lifting some of the mass on the scale. The difference between the original mass of the weight and the mass of the glider pulling on the weight was supposed to be recorded as the amount of drag the glider produced. No fan found was strong enough to make this method work. After a lot of time spent, the final idea that actually worked was placing the scale horizontally on the track behind the trolley with the gauge facing the window. This method worked best and was decided to be the final one. Results In the end, the Oblique wing was the most aerodynamic. Conclusions/Discussion The purpose of this experiment was to find out if sweeping the wings on an airplane obliquely would reduce the plane's drag more than just sweeping the wings back. The hypothesis was that the oblique swept wing glider would have less drag and therefore be more aerodynamic based on much preliminary research. In the end, the results did support the hypothesis. The oblique swept glider applied less pressure on the horizontal scale than the sweptback wing glider did. The data found in this experiment is extremely useful. The oblique swept back wing could make airplane designs much more aerodynamic than conventional wing designs. Oblique wings are also less expensive to build, lighter, require less maintenance, and would use less fuel than the variable swept back wing.	
Summary Statement Testing the aerodynamics of the oblique wing.	
Help Received Mother proof read; Jamshed advised on methods	