



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Ian D. Earley	Project Number J0106
Project Title Awesome Airfoils	
Abstract Objectives/Goals My project was to determine if toy airplanes would be able to create lift in a wind tunnel using their wing (airfoil) designs. I believe that some of the toy airplanes would be able to create lift because their wings are at respectable angles to create lift. Methods/Materials Five toy airplanes, modeled after five different planes, of roughly the same size were used. A wind tunnel was built using basic ideas from the internet to conduct the tests. The toy airplanes were put in the wind tunnel and held in place in the airstream by a clamp on their rear horizontal wing (stabilizer). The vertical and horizontal deflection of the wind from the wings was recorded for three different airspeeds. Results The airplane with the greatest angle of incidence created the most lift, which was measured by the greatest vertical wind deflection. It was found that the planes that I thought would have the greatest lift actually appeared to, according to my data. Conclusions/Discussion The planes that had the largest vertical deflection of air were the ones that I determined to have the greatest lift generated by their airfoil designs. The higher the vertical deflection the faster the air going over the wing has to travel, meaning that there is lower air pressure on the top of the wing than on the bottom. The combination of lower air pressure on the top of the wing and higher air pressure underneath the wing creates the lift.	
Summary Statement Could my toy airplanes create lift in a wind tunnel using their wing (airfoil) designs?	
Help Received My uncle and father helped me built the wind tunnel and monitored my data collection.	