



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Lindsay Gilliland; Allison Martin	Project Number J0113
Project Title Measuring the Effect of Aerodynamic Design on Vehicular Drag	
Abstract Objectives/Goals Measure and compare the effect of wind drag at three different speeds on model cars with three different shapes. In addition, to design a wind tunnel which would be able to precisely measure that drag without adding any more factors due to the testing method itself. Methods/Materials Create a verticle windtunnel using a 5'4" apparatus to hold it in place. You can use two vinyle flower pots to funnel the wind from the 5 bladed house fan to the tunnel. On the shelf over the opening of the tunnel, we put the scale, and attatched a string tied to the vehicles to under the plate. As we turned on the wind, the vehicle would get lighter and then we subtracted the new weight from the original weight and this will give you the drag of that velocity of wind. Repete untill you are through with the different velocities. Results The Viper, our most streamlined vehicle, as expected, did have the least amount of drag of all three vehicles. Next, the Ford pickup truck that we used to test if the bed was a factor, and last, the Jeep Cherokee which was indeed our most air resistant vehicle. Conclusions/Discussion Just as we hypothesized, there was a significant difference between the vehicles, with the more streamed vehicle, the Viper, having the least amount of drag. The percentage of drag increased (Pickup +80%, and Jeep +120%) as the vehicle design was less aerodynamic. Drag is becoming an increasingly important factor in getting better mileage, especially with today's rising cost of fuel.	
Summary Statement We measured the effect of aerodynamic design on vehicular drag using a unique way to isolate drag from other forces and to eliminate most other error factors.	
Help Received Allison's dad helped us obtain certain materials and advised us on how we could apply the wind source to the vehicles in an upright position. He also helped us with the tools to build our wind tunnel system.	