



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> Isaiah M. Hessler	<b>Project Number</b> <b>J0115</b>
<b>Project Title</b> <b>Need for Speed: A Study of Drag Reduction Methods in Vehicles</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this study is to reduce drag in vehicles via the use of various aerodynamic attributes. <b>Methods/Materials</b> Fabricated wind-tunnel, test vehicle, scale, shop vacuum, stopwatch, rope, pulley. Tested vehicle in wind tunnel connected to scale via rope and pulley. Measured differences in vehicle drag corresponding to different aerodynamic attributes. <b>Results</b> Applied wind caused the vehicle to pull on the scale. The scale reading for each aerodynamic attribute indicated varying negative readings. The attribute with the smallest average scale reading was the top cover with .77 ounces. <b>Conclusions/Discussion</b> The best of the four tests was the top cover with an improvement of 42% over the stock body. I believe this was because the attribute made the car more aerodynamic by reducing turbulence and converting it into a wing shape with airfoil characteristics. The body shape improved the car's aerodynamic efficiency, and likely improved fuel efficiency.	
<b>Summary Statement</b> Using a wind-tunnel to test various aerodynamic attributes on a vehicle, I was able to identify one attribute that reduced drag by 42% over the stock body.	
<b>Help Received</b> I ran the experiments and completed the project by myself. My dad helped me set up the wind tunnel.	