CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
J0119

Project Title
Testing Aerodynamics in a Wind Tunnel

Abstract

Objectives/Goals
The objective is to construct a small scale wind tunnel to observe the aerodynamics of various car designs.

Methods/Materials
A small scale wind tunnel was constructed from Styrofoam insulation board using duct tape, Plexiglas, and a household box fan. Three scale model toy cars were selected as test subjects. Dry ice was used as a visual aid to observe the aerodynamics/drag of three common car designs: sports car, muscle car and pickup truck.

Results
The low profile and sleek design of the Lamborghini Aventador sports car produced the least amount of drag. The Ford Mustang GT muscle car with rear spoiler produced less drag than the Ford F150 pickup truck, but more than the sports car. Lowering the tailgate of the pickup truck appeared to reduce the amount of drag and improve the truck's aerodynamics.

Conclusions/Discussion
It is possible to construct a small scale wind tunnel from common household items and materials found at a local hardware store. The aerodynamics of various car designs can be observed inside the wind tunnel with the aid of dry ice to visualize the drag produced by the surface curvature of the car.

Summary Statement
A small scale wind tunnel was constructed to observe the aerodynamics of various car designs.

Help Received
Father asisted with cutting of large sheets of Styrofoam insulation board and PVC pipe sections for flow straightener.