



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title
Automotive Drag: Which Type of Car Design Has the Least Amount of Drag?

Abstract

Objectives/Goals
I wanted to find out what type of car design has the least amount of drag.

Methods/Materials
Materials: A lot of wood, Plexiglas wall or board, Cardboard, Sand paper, Sponge, A knife or cutting tool that can cut cardboard and sponge, Saw, Carving knives, Large 20 inch Electric Fan, Nail, Hammer, Marker, Ruler, Pen, Comp book, Aluminum foil, Stop watch, Screw, Washer, Dowel, Lego wheel parts, 3 piece wood rasp, Transparent tape

Procedure:

1. A wind tunnel used for the experiment was built according to the design that was show on the internet. Both the width and height of the wind tunnel was set at 6 inches and the length at 3ft.
2. Draw a line using a marker inside the wind tunnel. The line will be drawn about in the middle of the wind tunnel.
3. Carve a car out of wood, using carving knives and sand paper. Try to make them the same size.
4. Then wrap the car using aluminum foil, do not wrap the bottom of the vehicle.
5. Find a sponge that is the same size as the bottom of the aluminum car, and connect it to the Lego wheel parts. Put the aluminum car on the sponge that is connected to the Lego parts.
6. then put the car in the wind tunnel and turn on the fan, at the same time start the stop watch then stop it when the car reaches the end.

Results
I collected my results by putting the fan on one speed and measuring how long it took for the vehicle to reach the other end of the wind tunnel. If the car had a lot of drag, the vehicle moved backward quickly, meaning less time and if the car had less drag, the vehicle moved slowly, meaning longer time. In the end the race car had the least amount of drag followed by mini-van, sedan S.U.V., and pick-up-truck.

Conclusions/Discussion
The results of my project support my hypothesis that the sports car will have the least amount of drag or air resistance, then followed by mini-van, sedan, S.U.V., and pick up truck.

I believe that the result of my experiment could help people that are thinking to buy a car. On a windy day the fuel efficiency of a pick up truck could be a little bad. If you were to buy the same sized mini-van or a sedan, the mini-van has less drag so it could have a better fuel efficiency. The car with mini-van like

Summary Statement
I had sports car, mini-van, sedan, S.U.V., pick-up-truck, and put them in the wind tunnel to find the car with the least amount of drag.

Help Received
My father and grandfather helped me build the wind tunnel because I am not good at building things. My grandfather helped he solve a problem by finding sponges that was the same size as the bottom of the aluminum cars.