CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J1124

Project Title
Lighten Up!

Abstract

Objectives/Goals
The objective of my project was to discover which bulb would shine farther through fog: xenon or halogen bulbs. This project could help save lives by reducing fog related car accidents. I have heard of many car accidents that involve fog and the driver not being able to see an oncoming vehicle. My experiment could help reduce the risk of car crashes on a foggy day or night. If more people chose halogen lights over xenon for fog lights (or xenon over halogen), there would probably be fewer crashes in the fog.

Methods/Materials
I will use a Chevy Suburban, one halogen fog light bulb, one xenon fog light bulb, a measuring tape, a foggy morning, a private airstrip in the country where there is no other lights to interfere with the results, safety glasses, gloves, two covers for headlights, one cover for a fog light, and a red bucket to simulate a traffic safety cone as a visual marker.

Results
After performing the first test (without fog), I found that with a halogen light you could see 194 feet. In the same test you could see only 173 feet with a xenon light. And in the second test (with fog), I found that you could see 170 feet with the halogen light and only168 feet with the xenon. In the third test (also with fog) you can see 240 feet with the halogen and only 207 feet with the xenon.

Conclusions/Discussion
My hypothesis was that you would be able to see farther in fog with the xenon light. After doing several tests, I found that my hypothesis was incorrect because the distances measured using a halogen bulb were consistently greater than those measured using a xenon bulb. Most of the project went well and worked like I had planned. However, there were some things that I would do differently. For example, while doing the experiment the fog would keep moving so I had to do all the steps very quickly so that the test results would be accurate. The next step would be to have a light meter to measure the amount of light that is being shone through the fog. Also, it would be ideal to perform the test in a controlled atmosphere so that each bulb could be evaluated in identical fog conditions.

Summary Statement
My project is about reducing fog-related car accidents and saving lives.

Help Received
Mother helped start car, drive car, take me to the library, and glue board; Grandfather Harold Kindsvater let me use his air strip.