CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Ari P. Baranian

Project Number
J0502

Project Title
Fire Burning

Abstract

Objectives/Goals
In my experiment, I burned different kinds of wood with different densities and timed how long they burned. My hypothesis is that the denser the wood is the longer it will burn. My question is obviously "does the density of the wood affect how long it burns." With my results fire fighters and reporters will be able make very realistic guesses as too how long a forest fire will burn and the way that it will burn.

Methods/Materials
I used four different kinds of wood and I burned them four times each. Poplar, Red Oak, Pine, and Douglas Fur were the different species. I had one independent variable which was the density and two dependent variables, one primary and one secondary. The primary variable was the flame time and the secondary variable was the smoke time. The constants in my experiment were used to minimize the number of confounding variables. After all the densities were found, I soaked them in two fluid ounces of lighter fluid for three minutes as an igniter.

Results
In my results I found that there were two extremes in my project, one high and one low. My results proved to me that the densest wood, oak, burned the longest, an average of nineteen minutes and sixteen seconds, theoretically supporting my hypothesis. On the other hand Douglas Fur, the second extreme, burned the shortest with an average of three minutes thirty-four seconds and it was the second densest wood. So my hypothesis was neither supported or rejected. The densities for these and the other two woods are as follows:

Conclusions/Discussion
My hypothesis was that the denser wood would burn longer because there was more fuel on the inside and my sources convinced me of it. Well, my hypothesis wasn't exactly right. The densest wood burned the longest but the second densest wood burned extremely short. My findings did match my background information because I did find in my research that oak was believed to be the best burning wood. After doing this project I still have to find out about all the other kinds of wood to widen my range of knowledge.

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Summary Statement
My project is to determine how the density of wood affects how long the wood burns.

Help Received
Father helped supervise the experiment and he helped soak the wood in lighter fluid