



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Renee L. Serota</b>	<b>Project Number</b> <b>J1318</b>
<b>Project Title</b> <b>Operation: Burn It</b>	
<b>Abstract</b> <b>Objectives/Goals</b> To determine the effect of wood composition on burning rate. Determining which woods burn faster, and why. My hypothesis was if I test my selected five woods, the softer and less dense woods will be the fastest to burn. <b>Methods/Materials</b> Woods chosen : Redwood, walnut, pine, oak, and fir. Each test used the same 5 woods. I performed three tests, in the first I burned 1 piece of each wood 10"by2"by1" in a fireplace using equal amounts of kindling and newspaper, for one hour, recording the percentage of blackened every ten minutes until completely burned. In the second test I used the same size woods in one fire, comparing the original mass to what was left after 2 minute increments for each piece of wood. The third test I used much smaller pieces-5"by 1/4by1/4", burning them individually with flame applied to one end of the stick. <b>Results</b> My experiment disproved my original hypothesis. In two of my tests it was walnut, which is a dense wood, that burned the quickest. <b>Conclusions/Discussion</b> I realized that there were other factors beside density that determine burn rate. I looked up chemical components of the wood, and saw that walnut contains phenol that may have helped it to burn faster, however, oak also contains phenol, and was the slowest burning of the woods. Because all three tests did not show the same results I conclude that there is no one factor for determining burn rate. The density, water content, and chemical composition of wood are variables in determining burn rate.	
<b>Summary Statement</b> This is an exploration of the effect of wood composition on burning rate comparing five types of wood.	
<b>Help Received</b> Father provided wood samples cut to size, Mother supervised burning of woods.	