



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Sage J. Fanucchi	Project Number J1213
Project Title Burn Baby Burn and I Don't Mean a Disco Inferno: How Does Density Affect the Combustion Rate of Wood?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine if wood with a lower density combusts into flames faster than wood with a higher density.</p> <p>Methods/Materials For my project I collected six different types of wood at different lumberyards. I used Redwood, Madrone, Pine, Oak, Tan Oak, and Douglas Fir. I cut the pieces of wood into similar sizes, weighed, and calculated the densities for each piece of wood. I then set-up the burner, bowl of water, timer, rock weight, and tongs. I waited ten minutes for the burner to completely heat up. I took the tongs and used them to place the piece of wood on the burner while turning the timer on with my other hand. I then took the rock and placed it on top of the wood to keep the wind from blowing it away. Once the wood ignited into a flame, I turned off the timer and used the tongs to put the burning wood into the water. I then took the wood out and placed it into its own bag and labeled each bag with its name. I repeated these steps for each piece of wood.</p> <p>Results After completing my project I learned that pine, which had the lowest density, was the quickest to ignite. Tan oak had the highest density and ignited the slowest, proving my hypothesis right.</p> <p>Conclusions/Discussion From my research I learned that fire burns off of oxygen and particles of matter. So the higher the density (more compact) a piece of wood is, the less the oxygen will seep through. So if fire is fueled by oxygen and matter, dense material will have less oxygen that can seep through it, making it harder to ignite. These results occurred because pine had the lowest density, therefore letting the most oxygen seep through. I learned that if a piece of wood has a lower density it will burn the faster than a piece of wood with a higher density.</p>	
Summary Statement My project is about how the density of different types of wood affects the combustion rates of wood.	
Help Received Mom drove me to lumber yards to collect wood and proof-read my work; My dad helped me cut the wood;	