



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Helena R. Washburn	Project Number J1322
Project Title Comparing High and Low Quality Exterior Paints Combustion and Burn Rate of Wooden Structures	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to determine if the time it took for a wooden structure to catch fire and burn changed based on the price of the paint used. I wanted to know if paying more money for higher quality paint meant getting a safer paint or if the lower priced paint would have more fire resistance.</p> <p>Methods/Materials I used Valspar paint at \$14.99 a quart and Olympic at \$10.99 a quart. I used 30 identical wooden bird houses; 10 will be unpainted for the control, 10 will be painted with Valspar and 10 with Olympic paint. I attached a bird house to a metal stand using a wire and then placed an oil lamp directly beneath with a 3 inch space between the lamp and house. I lit the oil lamp then started a stop watch to time combustion and burn rate. After the house caught fire I replaced the oil lamp with a bucket of water for the duration of the test.</p> <p>Results The average combustion time for the control test was 2 minutes with the average burn time 3 minutes 32 seconds. The average combustion time for Valspar was 5 minutes 15 seconds with the average burn time of 3 minutes 22 seconds. The average combustion time for Olympic was 4 minutes 32 seconds with the average burn rate of 2 minutes 23 seconds. Burn time was determined by the fire self extinguishing or burning the rope at the top of house then dropping to water bucket below.</p> <p>Conclusions/Discussion After testing I found that the Valspar paint had the longest average combustion rate proving higher fire resistance, however, the average Vlaspar burn rate was also the longest. The houses painted with the Valspar paint fully engulfed in flames after ignition and suffered greater damage than the houses painted with the Olympic paint. The Olympic houses did not burst into flames and the flames did not travel as fast and they often extinguished themselves after a couple minutes. So the higher quality paint initially offered more fire resistance but once ignited it burned faster and did more damage. I feel more testing needs to be done to determine if paying more money for higher quality means getting a safer paint.</p>	
Summary Statement Does paying more money for higher quality paint means getting a safer paint?	
Help Received Mother supervised burning of wooden structures and took photos	