



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Carson B. Keller	Project Number J1117
Project Title Wood Shingles vs. Composition Shingles: A Comparative Analysis of Ignition Rates	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective is to see whether class B, class C, and untreated wood shingles will ignite faster than 50 year, 40 year, and 30 year composition shingles, when using a magnifying glass.</p> <p>Methods/Materials I started out my project by gathering my wood shingles, composition shingles, and magnifying glasses. The next thing I did was put together my experimental platform. To do this I had to measure, cut, and screw the wood together to create my platform. My platform was built to hold my magnifying glasses. After all of my materials were collected and my platform was finished I could finally start my experiment. In my experiment I set up one wood and one composition shingle against a brick and used my platform to position the magnifying glasses, while blocking the sun. I then let the sun go through the magnifying glasses and started my timer. After each ignition I recorded the times, repeated to get a total of 10 trials for each shingle and repeated with the rest of the shingles.</p> <p>Results As a result of my experimentation I discovered that wood shingles would ignite faster than the composition shingles. I found that of every shingle I tested, the wood shingles always ignited faster. The total average for the wood shingles was 5.64 seconds until ignition. The total average for the composition shingles was 12.85 seconds until ignition. The average wood shingles will ignite 43.9% faster than the average composition shingles.</p> <p>Conclusions/Discussion As I predicted in my hypothesis, the wood shingles ignited faster than composition shingles, when using a magnifying glass. The wood shingles would smoke and then ignite with a flame right away. The composition shingles would start to bubble and then catch on fire, but not as fast as the wood shingles. This data suggest that the best shingle to have is class A shingles; they are effective against severe fire when exposed. The second best is class B; they are effective against moderate fire when exposed. The third best would have to be class C shingles; they are effective against light fire when exposed. The last and worst rating to have is untreated roof shingles; they provide no fire protection when exposed. This information is important for consumers to determine what shingles are the most fire retardant and safest to use on their homes.</p>	
Summary Statement My project was about testing and comparing the ignition rates of composition shingles and wood shingles, when using a magnifying glass.	
Help Received Art Fernandez, salesman of ABC Supply, donated class B, C, and untreated wood shingles, and 50, 40, and 30 year composition shingles. My father helped me by cutting some of the wood for my experimental platform with a power saw.	