



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> <b>Roxanne L.G. Salas</b>	<b>Project Number</b> <b>J1130</b>
<b>Project Title</b> <b>A Comparison of Four Woods</b>	
<b>Objectives/Goals</b> To determine the practical uses of four woods by comparing their properties including fire resistance, water absorption, flexibility and cost.	
<b>Abstract</b>	
<b>Methods/Materials</b> Fire Resistance-Cubes of each sample were exposed to heat and flame and timed. Water Absorption-Cubes of each sample were placed in beakers of water and allowed to stand for 24 hours. The cubes were removed and the remaining water was measured. Flexibility-Strips of each wood were clamped to a table, a cup suspended from one end was filled with coins until the strip had flexed 2.54cm. The coins were weighed. Cost-Contacted wood dealers and asked for the retail price.	
<b>Results</b> Fire Test: Balsa was the least heat tolerant. Pine proved to be the next flammable. Redwood came next, and finally, the most heat tolerant was Oak. Water Absorption: The Balsa wood had absorbed the most water. Redwood came next, followed by Pine. Oak was the least absorbent. Strength & Flexibility: The Oak was the stiffest. Pine was the next strongest, however Redwood was very close to Pine. The weakest of all was Balsa. Price comparison of each sample wood:Oak is the most expensive costing \$5.52 a board foot. Redwood cost \$4.36 a board foot, followed by Balsa which cost \$3.00 a board foot. Pine was the cheapest at \$1.47 a board foot.	
<b>Conclusions/Discussion</b> I found the most durable wood in terms of strength, tolerance to heat and least absorbent to water is Oak. The next is Redwood, only because it was more tolerant to heat than Pine. Balsa has no use where strength and durability are concerned as it is the least heat tolerant and absorbs the most water. Even though Oak is the most durable wood, it is also the most expensive. Pine is the least expensive, but relatively durable. Redwood is almost three times the expense of Pine for about the same strength rating. Balsa is expensive and hard to find. Pine is the best choice for a big project like building a house. Oak is durable and is a pretty wood so it is most used for cabinets and furniture. Redwood is strong and tolerant to the outdoors so is used for making outdoor furniture. Balsa is best used for hobbies like model airplanes. My conclusion is that although there may be a stronger or better-looking wood, price will be a big factor in determining the practical use.	
<b>Summary Statement</b> My project is about determining the practical uses of four woods, balsa, pine, redwood and oak based upon a comparison of their properties and costs.	
<b>Help Received</b> Dad helped cut the wood and supervised the some of the experiments, Mom did some typing and helped with editing	