



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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<b>Project Title</b> Bridges: A Comparison of Structural Capabilities	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my project was to determine which model of bridge (arch, beam or truss) could withstand the most weight. My hypothesis was that the truss bridge would withstand the most weight because it is stable and it has three cantilever arms extending from the bridge, which distributes the weight more evenly.</p> <p><b>Methods/Materials</b> I used balsa wood to build three bridges of each model (arch, beam and truss), each of which bridge was one foot long. I continued experimentation by placing bricks on each bridge until they collapsed from the weight.</p> <p><b>Results</b> The results of my project showed that the truss bridge held the most weight at 40 1/3 lbs, or about 8 bricks. The truss bridge could withstand about 19.77 more lbs than the arch bridge, which withstood the second most weight. The beam bridge, which held the least weight, supported only 29 1/3 lbs.</p> <p><b>Conclusions/Discussion</b> I concluded from this experiment that the truss bridge withstands the most weight in a short distance of coverage out of the three models I tested. The truss bridge supported the most weight because of weight distribution through the cantilever arms and the small triangular structures, which help take some of the weight away from the bottom and distribute the weight throughout the bridge.</p>	
<b>Summary Statement</b> My project consisted of testing three models of bridges (arch, truss and beam) to determine which model supported the most weight.	
<b>Help Received</b> My mother and step-father assisted me with sawing the wood, and supervised my testing.	