



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Benjamin W. Southward	Project Number 22230
Project Title A Bridge Too Weak	
Objectives/Goals My objective is to see if a suspension, truss or arch bridge will hold the most weight. I beleive the suspension bridge will hold the most weight. Abstract Methods/Materials I built three bridges out of balsa wood and glue. I also used string and thread on the suspension bridge. The bridges were anchored on a plank of pine. I tested the bridges with weights starting with .45kg and adding .45kg to the weight for each test. The weights were placed at the center of the span. I tested each different weight for one minute. I tested the bridges until only one bridge was not damaged. I repaired the bridges and repeted the test. All observations were recorded on paper and with a vidio camera. Results The suspension bridge held the most weight and was the only bridge that did not get damaged. Conclusions/Discussion My hypothesis was correct the suspension bridge held the most weight. During the experiment I noticed the wood structure on the bridges were bending in strange ways. It was very interesting to watch the beams on the truss and arch bridge bend when the roadway was under stress. As a continuation of this experiment I would place weights evenly across the spans to see if this would change the rulsults.	
Summary Statement To find out which bridge (suspension, truss or arch) will hold the most weight.	
Help Received My dad helped me while I built the bridges when needed. He helped me with the weights and filmed the tests.	