



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> Nicholas H. Anicetti	<b>Project Number</b> <b>J1801</b>
<b>Project Title</b> <b>Under Pressure: The Effect of Bridge Design on Bridge Weight Bearing Capacity</b>	
<b>Abstract</b> <b>Objectives/Goals</b> For my 2004 Science Fair Project I did a project on the weight capacity of 4 types of bridges, The Plank Board, The King Post, The Truss and The Arch. The Control was the Plank Board. I did five repeated trials. My Hypothesis was that the Arch would hold the most. <b>Methods/Materials</b> I built the bridges using wooden coffee stir sticks and index cards. To test them, I placed weights in a bucket suspended from the bridge one at a time until the bridge collapsed. <b>Results</b> I found after doing the experiment that The Truss held the most weight, The King Post the second, the Arch the Third and the Plank Board the least. My Hypothesis was not supported in this test. <b>Conclusions/Discussion</b> In my results, I discovered that the truss was the strongest bridge. My research showed the arch bridge should be the best based on other tests, projects and information found in books and posted on the internet. I think my science fair project results were affected by some problems in the construction and testing of the bridges. I used wood to build my bridges, and some of the bridges warped before drying, causing me to redo some of the bridges. The materials I used for the arch were not ideal; the design restricted horizontal support, and the wood splintered in some cases when bent into the arch shape. Also, the tables I used for the experiment would become unlevelled (they budged just a little bit) after I leveled them. Also, one of my bridges fell off my shelf into my brother's fish tank, and this probably affected my results. To improve my experiment, I would have had a machine build the bridges so they would all be exactly the same. I could research other materials that would be better for the project. Also I would have a lab that kept all outside variables constant such as light, heat, and wind. Furthermore, two exactly level tables would help.	
<b>Summary Statement</b> A project on how much weight different small scale model bridges can hold before collapsing over a wide trench.	
<b>Help Received</b> Funding, shopping for materials and time alone (without my curious brothers) and some editing generously donated by my mom and dad..	