



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Megan R. Wooley	<b>Project Number</b> <b>J0230</b>
<b>Project Title</b> <b>Under Pressure: Which Bridge Holds the Most Weight with the Least Flex?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project was to determine which bridge type, an arch bridge or a truss bridge, holds the most weight with the least flex. <b>Methods/Materials</b> An MIT bridge design program was used to design a truss and an arch bridge. From the computer design, scaled bridge patterns were created. Two models of each bridge type were built for testing. Bridges were measured and weighed on a scale. The bridges were positioned to span between two objects of equal height. Bricks were then stacked on the top and in the center of each bridge. The resulting flex in each bridge was measured with a micrometer as each additional brick was added. Weight was added to each bridge until each bridge type broke. <b>Results</b> The arch bridge withstood more weight with less flex in comparison to the truss bridge. <b>Conclusions/Discussion</b> My conclusion is that the arch bridge holds more weight with less flex. The arch bridge's anchors push out due to compression forces. This project showed that an arch design can enable a bridge to hold more weight.	
<b>Summary Statement</b> The purpose of this project is to test which bridge type will hold the most weight with the least flex.	
<b>Help Received</b> Dad helped with building bridges and buying supplies, Mrs. Borstel helped edit paper	