



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Katherine Irajpanah	Project Number J0314
Project Title Which Type of Bridge Can Hold the Heaviest Load?	
Abstract Objectives/Goals The goal of this experiment was to see which of the three most common bridges (arch, deck truss, and beam) could hold the heaviest load, or weight. Methods/Materials In order to build these bridges, I had to first design them. My second step in conducting the experiment was gathering my materials, which consisted of balsa wood, dowels, carpenter's glue, dominoes, a hack saw, premixed cement, boxes to hold up the bridges, and an ounce scale to measure the dominoes weight. To test each of the three types of bridges, a copy of a ruler was placed against the back wall of each box holding the bridges. This was done to allow me to see if there was any change in the lateral height of the surface of each bridge. I began the experiment by weighing the dominoes and then placing them on top of the middle of the surface of each bridge. Results I found that the surface of the beam on the beam bridge had the most change in its lateral height. The truss bridge had minimal change when the weight was 2.4 lbs., and the arch bridge did not have any changes in its lateral height, even after placing 5.3 lbs. on its surface. Conclusions/Discussion From my research and experiment, I learned that these bridges did not break or have much of a lateral dip because of their great support system. The experiment proved that the arch bridge could hold a great deal of weight without breaking or bending. The arch bridge can hold the most weight of the three, the deck truss bridge can hold an average amount of weight, and the beam bridge could hold the least amount of weight.	
Summary Statement This experiment tested the arch, deck truss, and beam bridges to see which could hold the heaviest amount of weight.	
Help Received My mother helped copy edit my essay and cut some pieces of wood during the construction process of my bridges.	