



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Skyler Mattos; Morgan Waldner	Project Number J0319
Project Title Comparing Bridges: Arch, Suspension, or Beam?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to determine which bridge design: suspension, beam, or arch was the strongest. We predicted that the suspension bridge would hold the most weight because there are more support systems within the bridge that will help prevent the bridge from breaking so easily.</p> <p>Methods/Materials We built three different styles of bridges. In total we built twelve bridges, four per design. So, we built four suspension bridges, four beam bridges, and four arch bridges. We built all twelve bridges using modeling glue and balsa wood. After we built all of the bridges we broke nine of the twelve bridges by using sand as the weight that we added and an old structure testing device.</p> <p>Results At the end of our experiment we found out that our hypothesis was incorrect. In the end, the beam bridge design supported the most weight at eight pounds. the arch and suspension designs held less weight, each bridge held only two to two and half pounds each.</p> <p>Conclusions/Discussion In our experimnet the beam bridge design supported more weight. The beam bridges did weigh a little more than teh other designs so we could hypothsize that as one of the reasons it could hold more weight.</p> <p>We did further research after our experiment and learned that beam bridges are actually the weakest of all bridges and suspension bridges are the strongest. This led us to think that maybe our results have varied due to a fault in our design. Another factor that could answer why we got these results is due to the suspensioon bridge needing wire. Using wire made the task of building the bridge very difficult. In the end, we think we think we would have to do another experiment in order to figure out the cause of our varied results. In particular, we would need to focus on perfecting our bridge design.</p>	
Summary Statement Our project is about comparing three bridge designs to see which one will support the most weight.	
Help Received Teachers helped gather supplies and materials. Partner's mother helped us brainstorm for our report.	