



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Paige E. Farrell</b>	<b>Project Number</b> <b>J1804</b>
<b>Project Title</b> <b>Which Truss Do You Trust?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Objective: The objective of this project is to evaluate which truss bridge design will hold more weight, the Pratt or the Warren design. My hypothesis is that if I put weight on two model bridges, one constructed as a Warren truss bridge and the other built as a Pratt truss bridge, then the Pratt truss will hold the most weight. I think the Pratt truss will hold more weight based on research I did which said it was stronger and because the Pratt model has more trusses on it.</p> <p><b>Methods/Materials</b> Materials and Methods: The first step I did for this project was to research truss bridges and collect materials including popsicle sticks, balsa wood, glue and clamps. Using these materials I constructed trusses 24 inches long based on two different designs. Next I connected two of the same trusses one popsicle stick apart and glued a two foot piece of balsa wood in the middle of the trusses making the bridge platform. Then I piled two stacks of books the same height, put a bridge on top of the two stacks so that there was one inch of each end of the bridge on each of the two stacks. Finally I put weights on the middle of the span for each bridge. Using a digital camera, I took pictures of every addition of weight and collected my data.</p> <p><b>Results</b> Result: The results of my experiment support my hypothesis that the Pratt design would be stronger than the Warren design. The Pratt design held sixteen more pounds before it collapsed than the Warren did. The Pratt held forty-two pounds compared to the Warren which held twenty-six before collapsing.</p> <p><b>Conclusions/Discussion</b> Conclusion: My conclusion is that the Pratt truss held more weight than the Warren truss because the Pratt design has more trusses. This makes it better able to withstand additional stress.</p>	
<b>Summary Statement</b> Two model truss bridges, one built as a Pratt truss the other built as a Warren truss, were compared to see which one could withstand the most weight.	
<b>Help Received</b> Dad helped purchase materials and supervised construction; Mom proofed my final content.	