



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Aaron J. Christensen	Project Number J1802
Project Title Wood Truss Design 2	
Abstract Objectives/Goals To determine if the Warren with post truss is stronger than the Pratt Truss? Methods/Materials Wooden box/Test station. Douglas fir/Glue/Small nails-brads/Weights/Dial Indicator/Hammer/Brad nailer/Sand paper/Exacto knife/Saw/Camera Procedure 1) Build four different truss designs. a) Truss 1: Pratt truss design. b) Truss 2: Warren with Post truss design. c) Truss 3: Warren with loaded posts truss design. d) Truss 4: Reinforced Warren with loaded posts truss design. 2) Build a test platform. 3) Test three off each truss design. 4) Draw conclusions and make recommendations for each truss design. Compare test results to the analysis of each truss. Comment on how each truss failed. Results I have observed that my conclusions from last years project were not completely correct. Last year the Pratt truss was stronger than the Warren with posts truss. After loading the truss more evenly with the new and improved truss-loading platform, the two trusses are very nearly the same strength. The Warren with posts truss (T2) tested slightly stronger than the Pratt truss (T1). Truss # 3, the Warren with posts truss (minus the posts which do not support weight) tested to be the same strength of the Warren with all posts truss. Truss #4 was very cool. It was built with extra boards at the weak points. It supported a lot more load than the other trusses. Conclusions/Discussion My hypothesis was correct. The Warren with posts truss was stronger than the Pratt truss design. The vertical members tied to the diagonal members forming triangles really increased the strength of the trusses. Keeping the trusses rigid made them strong, the triangular configurations of truss members were able to resist the compressive and tension stresses found in the truss members.	
Summary Statement Testing Wood Truss Designs to determine which truss will support the most mass over span.	
Help Received I would like to thank my dad for helping me build my project, my mom for helping me put my board together, Mr. Ajit Randava for his help when I interviewed him, and my teacher for letting me do the project.	