CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
Maxwell M. Mileck

Project Number
J1816

Project Title
Over or Under

Abstract

Objectives/Goals
The goal is to determine whether an overhead Warren truss bridge or an underhead Warren truss bridge is capable of holding more weight.

Methods/Materials
Aircraft grade western spruce and three-ply plywood were used to construct four identical Warren trusses. Two of the trusses were tested upright and two were tested upside down. Bricks were applied evenly on the bridges until they collapsed.

Results
The overhead truss bridges held more weight than the underhead truss bridges. The first overhead truss held 225.5 pounds and the second held 258.5 pounds. The first underhead truss held 181.5 pounds and the second held 214.5 pounds.

Conclusions/Discussion
The research conducted on this subject showed that the underhead Warren truss bridge should have held more weight, but the tests results showed that the overhead truss bridge consistently held 44 pounds more than the underhead truss. The results were suprising but gave an obvious answer to the question: the overhead Warren truss bridge can hold more weight than the underhead Warren truss bridge.

Summary Statement
I set out to discover whether an overhead Warren truss bridge or an underhead Warren truss bridge could hold more weight.

Help Received
Father supplied construction materials and gave advise on contruction of bridges.