CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
J0308

Project Title
Which Will Withstand the Weight?

Abstract

Objectives/Goals
For my project, I tested the problem: What shape of pole can withstand the most weight? I predicted the circular pole would do the best (hold the most weight without collapsing), while the star shaped pole will do the worst (hold the least weight).

Methods/Materials
Four pole structures were constructed out of identical white paper (circular, square, triangular, and 5-point star). A plastic disc of nominal weight was placed atop the upright pole. Weights of 2-ounce increments were placed atop the disc until each structure collapsed (failed). Recordings of weight used were made and each pole shape underwent 2 additional trials (3 total).

Results
In all three trials, the circular structure withstood the most weight. The triangular pole withstood the second most amount of weight. The square was third and the 5-point star fared the worst.

Conclusions/Discussion
I concluded that it is better to use circular poles (or a pole with fewer corners). The more corners a pole has, the weaker the pole will be.

Summary Statement
My project is the testing of different shaped pole structures in order determine which shape withstands the most weight.

Help Received
Sister instructed on graphics; Mother helped construct board; Father advised on engineering aspects