



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> Gabriela R. Mercado	<b>Project Number</b>  35440
<b>Project Title</b> How Does the Shape of an Eggshell's Arch Affect the Amount of Weight It Can Support?	
<b>Objectives/Goals</b> I experimented with three different eggshell arch shapes to see which would hold the most weight. I used the rounded end, the pointed end, and the long side of the shell as my three shapes. <b>Abstract</b> <b>Methods/Materials</b> After using a file to evenly divide the shells in half, three eggshell halves of the same shape were placed in a triangle formation on a flat tray. Books and magazines were gradually stacked on top of each trio. Three trials were done with each type of half. After each trial, I used a kitchen scale to measure how much mass (in grams) the eggshells held before they cracked. <b>Results</b> The round eggshell halves were able to hold the most, with an average weight of 8,273g. The pointed eggshells held the second most, with an average weight of 8,308g. The flatter sides were able to hold an average of 3,573g. In all three trials, the flatter sides held the least weight. The halves with the rounded end held the most weight in two out of three trials. <b>Conclusions/Discussion</b> My hypothesis was that the rounder ends of the eggshells would be the shape that would support the most mass before they cracked. This was supported by the average of my results. Results from experiments with naturally occurring arches could have implications for the use of man-made arches in the design and construction of buildings, bridges, and other structures that use arches as part of their design.	
<b>Summary Statement</b> The purpose of my project is to find what side of an eggshell can support the most weight.	
<b>Help Received</b> My mother bought my materials.	