



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Maryam Khan</b>	<b>Project Number</b> <b>J0318</b>
<b>Project Title</b> <b>Power of the Arch: How Much Can 4 Eggshell Arches Hold &amp; Will the Weight They Can Hold Double with Twice the Eggshells?</b>	
<b>Objectives/Goals</b> My project was to discover the strength of arches using the questions: how much can four eggshell arches hold up, and will the weight they can hold up double with twice the number of eggshells? My hypothesis was that the eggshells will be able to hold up about 2 kg, and yes, the amount of weight will double with the number of eggshells.	
<b>Abstract</b> <b>Methods/Materials</b> I used twelve eggs, cellophane tape, scissors, a toothpick, three different sets of plates, and a gram scale. First, I poked a hole into the bottom of the egg with a toothpick and let out the contents. I then wound tape around the middle of the egg, to cut it in half easily. I had to make each egg as smooth and even on the bottom as possible. Because it was almost impossible to make all the eggs the same height, I piled star stickers on top to even it out. Next, I arranged four eggshells into a square and the remaining eight into another one. I stacked plates on top of the set of four eggshells until they broke down, and I recorded the results. I repeated the experiment with eight eggshells, and placed plates on top of them until they broke as well. I then recorded the results.	
<b>Results</b> I discovered that the set of four eggshells held up approximately 12 kg. The eight eggshells were able to hold up about 18 kg.	
<b>Conclusions/Discussion</b> These results show that my hypothesis of 2 kg was very off. I was also wrong in that the set of eight was only able to hold a little over 1.5 times the weight, not double.	
<b>Summary Statement</b> My project is about the amount of weight arches constructed of eggshells can hold.	
<b>Help Received</b> After I wrote my rough draft, my mother helped typed my report. My mom, aunt, and cousin helped organize my display board. My teacher, Selena Khan, proofread and helped me edit my report. My teacher, Selena Khan, advised me on how to improve my project.	