



# CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

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<b>Project Title</b> <b>Does Calcium Strengthen Eggshells?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of my project was to determine if feeding hens calcium in the form of oyster shell, which is 37.62% calcium, would strengthen their eggshells. Oyster shell can be purchased at most feed stores as a feed supplement for chickens.</p> <p><b>Methods/Materials</b> The procedure that I used for testing eggshell strength started with nine hens and the eggs they laid. These hens were already being fed a commercial layer mix from the feed store. Layer mix has 3 to 4% calcium already in it. Then I had an egg crusher made. The crusher consisted of a square board with a rod in each corner. The lid was another square board with holes drilled in the corners for the rods which allow the top to slide up or down. I placed one egg at a time in the crusher and slowly added weight using water until the eggshell broke. I then measured how much weight was used to break the eggshell. I repeated this process after adding oyster shell along with the hens' diet of layer mix for 30 days. I then crushed those eggs and graphed the weight where each eggshell failed. I then compared the difference between the eggshell failure before and after adding the calcium.</p> <p><b>Results</b> The results of my investigation showed that the addition of calcium in the form of oyster shell does increase the shell strength of the hens' eggs. The strength of the eggshells ranged from 0.45 kg up to 4.54 kg of additional weight required to break the eggs.</p> <p><b>Conclusions/Discussion</b> After completing my science project, I learned that it is very important to add calcium supplements to my hens' diet. In conclusion, even if you feed your chickens a commercial layer mix you should still offer them oyster shell if you want stronger eggshells. It is even more important to give chickens oyster shell if you only feed them scratch because scratch contains no other source of calcium.</p>	
<b>Summary Statement</b> This project was done to see if the addition of calcium to a hen's diet improves the strength of her eggshell.	
<b>Help Received</b> My dad built the egg crusher for me; my sister showed me how to make graphs and how to convert pounds into kilograms; my mom helped type and edit my reports.	