



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Jacob Carter; Carson Sheppard	Project Number J1904
Project Title Cracking Up: Egg Shell Strengths	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal was to find out if home farm chickens have egg shells that are stronger than caged chicken egg shells. Our hypothesis was that farm chicken eggs would be stronger because farm hens have stronger bones and more calcium for eggs than commercial caged hens.</p> <p>Methods/Materials Four groups of eggs were set up. Each group had 3 home farm eggs and 3 commercial eggs that were matched for weight. We built an "egg crusher". Eggs rolled off dowels set at 1", 3", 5", and 7". Then we measured the size of the fractures.</p> <p>Results The home farm eggs broke less than commercial eggs when they dropped from 1". The commercial eggs broke less than the farm eggs when they were dropped from 3", 5", and 7".</p> <p>Conclusions/Discussion Our results did not match our hypothesis. After searching more, we found out that there are many variables that affect shell strength, not just housing conditions. Also, many caged hens are fed enzymes to make their shells stronger.</p>	
Summary Statement Caged hens have harder egg shells than home farm chickens even though they may have osteoporosis.	
Help Received Our parents helped organize the experiment and get the materials. Mrs. Sheppard helped on research.	