



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Stephanie A. Kolbusz	Project Number 31839
Project Title Bone Density	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine animal bone strength and weakness when they are exposed to household liquids, and what role density plays in protecting them. My hypothesis is that the vinegar will weaken the bones the most, and that the pork bones will be the most dense making them resistant to the liquids.</p> <p>Methods/Materials The pork ribs, turkey bones, and chicken bones were soaked in several household liquids (vinegar, lemon juice, soda, cleaner, and water) over a one month period. The weight of each bone was measured, along with a control set of bones, at 4 day intervals. At the end of one month, the hardness of each bone was tested.</p> <p>Results The pork bone weight did not increase and the hardness remained the same as the pork control bone. The chicken bones increased in weight and very soft compared to the chicken control bone.</p> <p>Conclusions/Discussion My hypothesis about the bone density was correct. The pig has the densest one since soaking in liquids did not increase their weight. The chicken bone was the least dense since it increased in weight in most of the liquids. My other hypothesis about the most effective liquid was incorrect, lemon juice weakened the bones the most, not vinegar.</p>	
Summary Statement To determine animal bone strength and weakness when they are exposed to household liquids.	
Help Received My parents helped me collect and prepare the bones, and showed me how to use the scale. Mrs. Leoncio, my science teacher, explained the proper research techniques and scientific method, and answered my questions.	