



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Sydney E. Haupt	Project Number J1307
Project Title Can Common Materials Increase the Breaking Point of Ceramics?	
Abstract Objectives/Goals The purpose of my project was to determine if common materials could strengthen ceramics. Methods/Materials Five sample tiles were prepared for each of the following additive ingredients: glass, grog, aluminum mesh, and steel wool. A batch of plain clay was prepared and split into five equal samples. The test materials were prepared and were equal to 10% of the weight of the clay samples. The test materials were then individually mixed in with their portion of the clay. Five control samples were also prepared from the same batch of clay without any additives. The samples were then all fired in a kiln. An apparatus was created to measure the breaking point of each tile. In turn, each tile was placed on the apparatus and then weight was applied to the center of the tile in measured amounts until the tile fractured. Results The controlled samples held the most weight, followed by steel wool, glass, aluminum mesh, and finally grog. Conclusions/Discussion My conclusion is that as prepared, these materials could not strengthen ceramics. The test materials' size and way they mixed with the clay tended to introduce weak areas in the samples where the materials clumped together. If I were to do this project again, I would use smaller particles of the added materials and mix them more consistently.	
Summary Statement Can common materials be added to ceramics to increase its breaking point due to bending.	
Help Received Mother helped type and edit report, Mr Scott helped with editing, Father helped move heavy weights, use kiln and safely prepare sharp materials.	