



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Rachel L. Kanonchoff	Project Number J0707
Project Title Slip, Slidin' Away	
Abstract Objectives/Goals To determine what additive(s) will most effectively stabilize and add to the shear strength of soil. Methods/Materials I used 40 lbs. of soil divided into six equal parts and added various substances (PVA fibers, silicone, cardboard, Portland cement, and lime). I made two cylinders per sample and two cylinders without any additive to use as a control. Using the cylinders of each soil mixture I tested them for shear strength using an unconfined compression test. Results The samples with the Portland cement had the greatest shear strength. However, it failed suddenly and would not be a good choice for a lot of places. The next best solution would be the samples with the PVA fibers. The silicone samples were very ductile but lacked shear strength. The lime samples were very crumbly and greatly decreased the shear strength of the soil. The cardboard samples increased the shear strength of the soil and recycled a currently unrecyclable product (the cardboard used was a pizza box which cannot be recycled). Conclusions/Discussion My results did not support my hypothesis, which was that the PVA fibers would most effectively increase the shear strength of the soil. The information gathered from this project can be used in every part of the globe. I feel that much more research should be done on this subject to find the best additives to stabilize soil.	
Summary Statement The purpose of this project was to find an additive that would most effectively increase the shear strength of soil.	
Help Received Mr. Gary Welling helped me with the testing at the CalPoly engineering laboratory. My mother helped me with the layout of my board.	