



CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

Name(s) Clint Akarmann	Project Number J0801
Project Title How to Save Our Soil from Water Erosion	
Objectives/Goals This project was designed to test which ground cover would better protect soil from water erosion. Since Southern California has been particularly hit by the devastating rain storms and by the consequent mudslides of the winter 2004-2005, this was an important subject to investigate. The hypothesis was that grass and trees (sticks) would better protect soil from water erosion.	
Abstract Methods/Materials In this study, 9 containers were filled with an equal amount of soil collected in a mudslide area. A 1cm notch and 10 drainage holes were made in one extremity of each container. The following ground covers were tested; Container 1: Grass; Container 2: Grass and Sticks; Container 3: Furrows Perpendicular to Slope; Container 4: Woodchips; Container 5: Water Barriers; Container 6: Pine Needles; Container 7: Rocks at the Bottom of Slope; Container 8: Plain Soil; Container 9: Rocks on the Entire Slope. The containers were placed on a 15 degree angle slope, weighed every night before watering, and watered morning and night for 9 days.	
Results The greatest soil runoff was seen with Container 8: Plain Soil (-3.8% weight change), followed by Container 5: Water Barriers (-2.5%), and by Container 3: Furrows Perpendicular to Slope (-1.8%). Some soil got displaced toward the bottom part of the slope with Container 7: Rocks at the Bottom of Slope. No erosion or soil movement was observable with any of the other models.	
Conclusions/Discussion The hypothesis was supported because grass and trees (sticks) held the soil together and prevented it from being carried away by running water. The worst erosion patterns were seen on unprotected soil directly impacted by the water drops. Due to natural and human factors, water erosion and landslides have always been widespread in Southern California. Since people will continue to move in those geological unstable areas, it is critical to find ways to protect their lives and their properties. Establishing an appropriate ground cover is essential to ensure an efficient erosion control and to preserve California.	
Summary Statement Testing of the efficiency of nine different ground covers to protect soil collected in a mudslide area from water erosion.	
Help Received Parents and teacher guided me through the scientific method.	