



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Marie E. Jenkins	Project Number J0610
Project Title Determining the Effects on the Stability and Grabbing Ability of Soils with Different Compositions	
Abstract Objectives/Goals The purpose of my project was to determine which soil of the four basic types was the strongest in its grabbing ability, and then to see if changing the composition of the strongest soil would affect its stability. The reason I performed this investigation was to try to establish what it takes to create a sturdier ground for building structures and holding objects such as fence posts or telephone poles. Methods/Materials Using the three basic soils types: clay, sand (two types), and silt, I first determined which was the sturdiest by inserting wooden dowels under eight inches of soil, adding ten pounds of weight on top, then waiting one hour before pulling the dowels out with a force measuring device. I performed eight trials of each soil type. I then added natural and organic elements to the strongest soil to see if the soil stability would be affected. The elements added were grass cuttings, dry leaves and pods, and water (individually). Results I discovered that clay was the sturdiest soil and that the sandy soils were the weakest. The addition of the grass cuttings made the clay even stronger. However, the addition of water made the clay very unstable. Conclusions/Discussion My most interesting finding was that the presence of moisture can be a major factor in soil stability, which corresponded with my research regarding earthquakes and soil liquefaction. Through this project, I learned the value of evaluating soil strength and stability and the important role that soil can play in construction.	
Summary Statement My project was about studying the grabbing ability and stability of soils with different compositions.	
Help Received Mom helped with the board and typing. A friend helped drill holes in the bin and supplied one soil type. My mom's colleague (an Agricultural Specialist) identified the soils and supplied two soil types.	