



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Hannah M. Mills

Science Fair Use Only

J0520

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9)

It's All Downhill From Here! A Brief Exploration of the Effect of Slope Angle on the Erosion of Soil.

Division

J Junior (6-8) J Senior (9-12)

Preferred Category (See page 5 for descriptions.)

5 - Earth Sciences/ Planetary Sciences/ Physical Environments

Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.)

Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.

Objective: My project investigated the rate of erosion of uniform soil samples at 15, 30 & 45 degree slope angles. I did this to test my hypothesis that when the steepness of a slope increases, the amount of soil eroded from it will increase.

Methods & Materials: A uniform loamy sand sample was obtained for use in all tests. A shallow, rigid plastic tray was filled with 2.25 kg of soil, compacted and placed at the selected slope angle. One liter of water was poured through a perforated cup over the upper end of the tray to simulate heavy rainfall. The water and eroded soil washed from the tray was collected and the results measured.

Results: Erosion rates increased significantly as the slope angle increased. Erosion rates at 30 degrees was, on average, over 50% higher than at 15 degrees. Erosion from the 45 degree sample was over 300% than the 15 degree sample.

Conclusion: Soil erosion rates increase as the slope angle increases.

Summary Statement (In one sentence, state what your project is about.)

This project investigated the effect of slope angle on soil erosion rates.

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

My Dad drove me to collect the soil samples, made the tray blocks and took photos. My sister helped hold the trays when I poured water over them.