# CALIFORNIA STATE SCIENCE FAIR
# 2006 PROJECT SUMMARY

**Name(s)**
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**Project Number**
**J0928**

**Project Title**
## The Percolation and Depth Rate of Motor Oil in Soils

**Abstract**

**Objectives/Goals**
The objective of my project was to determine and compare how much and how fast motor oil can pollute and harm our soil. My goal was to find which soil could withhold motor oil the most. I believe that loam would have the fastest percolation rate and the deepest depth. I also believe that clay would have the slowest percolation rate and the least depth.

**Methods/Materials**
Four types of soil were collected: sand, clay, loam, and potting soil. Four tubes were then filled with 10 inches of each soil. 1/2 cup of motor oil was measured and poured into each tube one at a time. The tubes were then observed every thirty minutes for two hours. Then every hour for two hours, the tubes were measured and recorded into a data sheet. The previous steps were then repeated until there was a total of 10 trials. For my control group, I mixed all of the soils (sand, clay, loam, and potting soil) together and repeated the original steps until 10 trials were completed with 1/2 cup of water.

**Results**
The percolation rate of sand averaged a total of 2.28 inches the first hour and .15 more the second hour; it had a depth average of 2.73 inches. Loam percolated a total of 3.28 inches the first hour and .50 more the second hour; it had a depth average of 3.78 inches. Clay percolated a total of 2.23 inches the first hour and .43 more the second hour; it had a depth average of 2.66 inches. Potting soil had a percolation total of 4.51 inches the first hour and .32 more the second hour; it had a depth average of 4.83 inches. My control group had a percolation total of 8.03 inches the first hour and .55 more the second hour. The depth rate of my control group totaled approx 8.58 inches.

**Conclusions/Discussion**
I had learned a lot from my experiment. I discovered that my first hypothesis, for loam, was incorrect, but my second hypothesis, for clay, was correct. I also found out that, overall, motor oil percolates slower than water. In conclusion, my project will benefit people to help keep our environment clean. It will also inform people to clean oil spills quickly.

**Summary Statement**
By conducting an experiment with motor oil in soils, I determined and compared the percolation and depth rates to find how oil polluted soil.

**Help Received**
Mother edited finished board; father collected motor oil; Mrs. Cloud revised rough drafts.