



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Kent Gleim	Project Number 29061
Project Title Investigating the Percolation Rate of Volatile Fluids in Different Type of Soils	
Abstract Objectives/Goals My first objective is to discover how far the volatile fluid I am using percolated down the test soils. My second objective is to find any effects during the process before and after combustion. My last objective is to find the average distance of each test soil and compare the results. Methods/Materials How I accomplished my tests was by first inserting 17 inches of the test soil into a 18 inch clear plastic tube. I used three different types of soils for this project and in the soils consists of very fine sand (all purpose sand), fine sand (play sand), and course sand (which will be formed from all purpose sand, play sand, all purpose gravel). Then I poured two ounces of charcoal lighter fluid on top of the sand and let it percolate for 45 seconds. Then I measured how far the fluid percolated, tilted the tube horizontally, and poured out the sand. Once the test soil is lain out on the ground, I lit the soil with a lighter and measured how far the flame traveled. I did this 9 more times and found the average distance. I also repeat these tests and instead of 45 seconds I let the liquid percolate for 2 minutes. Results My one of my results were that the play sand or fine sand had the farthest percolation rate before and after combustion for the 45 second trial and the 2 minute trail. I also discovered that my hypothesis was somewhat right and wrong, I thought that before ignition the course sand would percolate the farthest, but instead it had the 2nd farthest rate. I also thought that the very fine sand would have the the lowest percolation rate which was correct. My other hypothesis was that after combustion the play sand or fine sand had the farthest percolation and that the course sand would get the lowest percolation rate, which was correct. Conclusions/Discussion After my project was over I found that 2 ounces of the volatile fluid I used equaled up to about 15 minutes once lit. I even found out that that by compressing the sand the distance of how far the liquid percolates changes. One very odd thing I found was that the fine sand, which was slightly damp, may have causing it to open the pores of the sand allowing the fluid to glide right by. My last discovery was concerning the fine sand; the fluid percolated to a certain point and then flowed down half on one side of the sand. This ends my conclusion with the play sand probably being the most flammable.	
Summary Statement Reseaching how far down flammable fluids go into the Earth.	
Help Received Parents helped setting up the board	