



# CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

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<b>Project Title</b> Gasoline Soaker-Upper	
<b>Abstract</b> <b>Objectives/Goals</b> There have been disastrous gasoline spills throughout history. In addition, the runoff from the rain carries gasoline into the surrounding soil causing even greater damage. If this gasoline contaminates the water system, then health effects such as damage to the central nervous system will occur in humans and animals. The objective of the experiment is to determine which of the five main soil types is the most gasoline-absorbent in order to prevent the water system from being contaminated. <b>Methods/Materials</b> Each soil(Sand, Silt, Clay, Loam, and Peat soil) was compared to the Control, which we chose as Cat Litter, due to Cat Litter's effective absorption. To measure the absorption, gasoline was poured onto each soil type, using a self-made apparatus with a 5x5 inch metal lattice filter within a large funnel, with a 300mL glass beaker to collect the remaining gasoline. <b>Results</b> Of the five soil types, Loam performed the best in absorbing the 300 mL of gasoline. Compared to the Control, which absorbed 54.8%, Loam absorbed 50.6% of the gasoline at a rate of 75.85mL/minute, only 6.3mL/minute slower than the Control. The least absorbent was Silt, which only absorbed 18.3% of the gasoline. <b>Conclusions/Discussion</b> Overall, Loam absorbed the greatest amount of gasoline following the two-minute contact time, at the quickest rate. This contradicted the hypothesis, because even though Clay may be the most water-absorbent soil type, water and gasoline have a completely different chemical makeup, therefore water and gasoline are absorbed at different rates. Future research would involve simulating a gasoline spill over a greater surface area and using Loam as the surrounding soil.	
<b>Summary Statement</b> Determining which soil type should be surrounding a gas station (or refinery), because in the event of a gasoline spill, there must be a gasoline-absorbent soil to prevent the gasoline from contaminating the water system.	
<b>Help Received</b> Mother and Father supervised when I handled the gasoline, and purchased the necessary materials; Science Teacher (Mrs. Tamara Reyes) helped revise report; MJ Penovich provided each soil type.	