



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sawyer L. Judge</b>	<b>Project Number</b> <b>J1113</b>
<b>Project Title</b> <b>An Oily Matter: Does Crude Oil Affect Decomposition and Fossilization?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The Gulf of Mexico oil spill was a hot topic in the news this past year. There are many concerns about the lasting effects of the spill on the Gulf and surrounding area's precious ecosystem. Crude oil caused the deaths of many animals and settled to the bottom of the ocean floor. The objective of my experiment was to create and examine several Gulf-like environments to discover if crude oil altered decomposition and/or specimen imprints.</p> <p><b>Methods/Materials</b> To begin my experiment, I predicted that adding crude oil to an environment similar to the Gulf would slow decomposition rates and yield better imprints. I tested this using fifty jars. My variables included combinations of dirt, sand, crude oil, and ocean water. The idea was to simulate an environment similar to the Gulf of Mexico area. I conducted three trials across eight environments using orange peels and chicken bones. Observational and quantitative measurements were taken in my experiment. The jars were set on a shelf exposed to the outside light from 14 November until 12 December. After four weeks, I carefully removed each specimen and logged my data. I measured pH levels weekly to ensure normal levels existed.</p> <p><b>Results</b> After analyzing my data tables, charts, and graphs, I found that the presence of crude oil in an environment tended to slow decomposition. If all other factors are favorable, it is possible that such an environment could form a clear imprint and eventual fossil.</p> <p><b>Conclusions/Discussion</b> All other conditions willing, introducing crude oil to an environment could decrease decomposition rates and increase the chances of creating an imprint in dirt or sand. This information may suggest that areas with past oil spills may be rich in developing fossils.</p>	
<b>Summary Statement</b> This experiment simply shows that the presence of 100% crude oil slows decomposition and may improve imprints (start fossilization) in certain environments.	
<b>Help Received</b> Feedback from parents, science teacher, school judges, and county judges.	