



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Alexander J. Elfar	Project Number J1006
Project Title Which Natural Material Absorbs Oil the Most?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this investigation was to determine which natural material absorbed the most oil. My hypothesis was that human hair would absorb the most oil and 100% cotton the second most amount of oil.</p> <p>Methods/Materials Eight natural absorbents: chicken feathers, cotton balls, green moss, human hair, sand, natural sponge, sawdust and wool were weighed, placed in mesh jewelry bags and soaked with motor oil and water in a mason jar. Each absorbent was soaked for 50 minutes on each side, removed from the liquid, hung to dry with string and tied onto a clothes hanger for 24 hours. The mesh bags were removed and weighed. Both the percentages and grams of oil absorbed were calculated.</p> <p>Results The results of this experiment indicated that 100% cotton absorbed the most amount of oil and human hair absorbed the sixth most amount of oil.</p> <p>Conclusions/Discussion The results of this experiment indicate that my hypothesis that human hair would absorb the most oil and cotton the second most amount of oil was rejected. Human hair absorbed the sixth most amount of oil and cotton absorbed the most amount of oil.</p> <p>In trials two and three, hair absorbed more oil than in trial one. This may have been due to the cleanliness of the hair since the hair used in trials one and two were from the same client, but collected on different dates. Trial three partially contained the same hair from trial two, and hair from another client with different hair texture. The type of hair and the cleanliness of the hair may have affected the absorption of oil. However, the increase of oil absorption in trials two and three for human hair did not affect the ranking of oil absorbed and still placed sixth. However, I observed that all the oil was absorbed by hair in trial two and makes me think that cotton may have absorbed water and oil, therefore increasing the total ending weight of the soaked absorbent.</p> <p>In order to help determine how much of the absorbed liquid was water and how much was oil, I should have isolated the absorbent to soak in water only, oil only and an oil and water mixture. Perhaps the isolation of each liquid would help determine if hair or cotton was the best natural absorbent.</p>	
Summary Statement The purpose of this experiment was to determine which natural material absorbed the most oil.	
Help Received My grandfather provided me with motor oil, sawdust and rubber gloves. My mother drove me to various places to obtain and purchase all my materials. My science teacher, Mr. Frank, for inspiring me to do an experiment with oil.	