CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

Alexandra Morris

Project Number

J1124

Project Title

Readily Available Materials Save Environment

Abstract

Objectives

The objective of this study was to determine which readily available material would absorb used motor oil out of fresh water the most effectively while absorbing the least amount of water.

Methods

I tested oil absorption in fresh water using seven different readily available materials; feathers, thin wood shavings, thick wood shavings, silica based cat litter, clay based cat litter, cotton balls, and hay. Oil, water, and test materials were placed together in a large glass pan for one hour. Liquids were separated from solids using a strainer and observations and measurements of oil and water absorption were made.

Results

Feathers absorbed 125 mL of oil and 5 mL of water, thin wood shavings absorbed 124.5 mL of oil and 77 mL of water, silica based cat litter absorbed 124 mL of oil and 68 mL of water, clay based cat litter absorbed 85 mL of oil and 352 mL of water, thick wood shavings absorbed 73 mL of oil and 25 mL of water, cotton balls absorbed 69 mL of oil and 182 mL of water, and hay absorbed 55 mL of oil and 18 mL of water.

Conclusions

My conclusion was that my hypothesis was incorrect, this is because I predicted that cotton would absorb the most amount of oil and clay based cat litter would absorb the least amount of oil. After conducting my experiment I learned that feathers absorbed all of the oil and also very little water. I think that the feathers did the best because the fibers in the feathers are attracted to the oil but repel the water. I also learned that hay was the least absorbent because it only absorbed 55 mL of oil and 18 mL of water. Oil spills can be very detrimental to the environment and the marine life around it. My test results and research could provide a safe and efficient way to absorb oil out of water.

Summary Statement

In this project you will learn what readily available materials will absorb used motor oil out of fresh water the most effectively.

Help Received

My father helped me understand why the oil and water separates and does not mix, he also helped me dispose of the oil and the test products that absorbed the oil. My science teacher also helped me problem solve how to measure how much oil and water the test product didn t absorb.