CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J0510

Project Title
Sticky Surfaces: What Affects the Surface Tension of Water the Most?

Abstract

Objectives/Goals

This project is entitled #Sticky Surface: What Affects the Surface Tension of Water the Most? Liquid Dish Soap, Salt, or Rubbing Alcohol?# The purpose of this project is to observe which solution(s) reduce water#s surface tension, or the ability of water to stick together, the most effectively. The hypothesis stated that if liquid dish soap is added to water, then the surface tension of water will be reduced because the hydrophobic ends of soap will stick out of the water and separate the water molecules from each other, causing the attraction between water molecules to weaken, thus reducing the surface tension.

Water, a liquid dish soap solution, a salt water solution, and a rubbing alcohol solution will each be dripped on ten pennies until the penny overflows and the surface tension breaks. Each of the forty trials will be recorded and observations will be taken as needed. The results of these procedures were that the pennies dripped with water were able to hold an average of 1.26 mL of liquid, the pennies dripped with the liquid dish soap solution were able to hold an average of 0.60 mL of liquid, the pennies dripped with the salt water solution were able to hold an average of 1.12 mL of liquid, and the pennies dripped with the rubbing alcohol solution were able to hold an average of 0.61 mL of liquid. In this particular experiment, the liquid dish soap solution caused the most reduction of water#s surface tension, which supports the hypothesis

Summary Statement

This project will be investigating which of the following solutuions of water, liquid dish soap, salt water, and rubbing alcohol, will have the greatest effect on reducing the surface tension of water.

Help Received

Mrs. White helped me with my questions and my conclusion, and my mom helped me gather the materials.