CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)
Amelia A. Forrest

Project Number
J1407

Project Title
Electric Pressure: How Conductivity Changes When Pressure Is Applied

Abstract

Objectives/Goals
The objective of this project is to test how the conductivity of different materials change when pressure is applied to them.

Methods/Materials
3 10in. pieces of wire, 9-volt battery, Multimeter (includes milliamps), Sponges soaked in various solutions. Tested the conductivity of several sponges soaked with different solutions using a multimeter. The solutions used were distilled water, tap water(from the San Mateo County Water System), sugar water(with a 1 tbs of sugar for every cup of water, saltwater(with the same ratio), and a dry sponge(as a control).

Results
For each of five sponge treatments, 24 trials each with and without pressure were performed. The biggest changes with pressure in the measured current were in sponges treated with tap water and distilled water. Sponges treated with sugar water and saltwater had the highest current flow, but the flow did not change with pressure. The dry sponges had the lowest (and most variable) current flow, but it did not change on average with pressure.

Conclusions/Discussion
The averages in my data table show that tap water had the largest average change when pressure was applied. The different sponges used in this experiment may have affected the outcome. The sponges could have had different pH balances, which would have affected the conductivity. The weather could have also changed how much liquid the sponges absorbed.

Summary Statement
I found that when pressure is applied to tapwater, the change is conductivity is the greatest of all the materials tested.

Help Received
I designed the project methods myself. Scientists Jamie Butler and William Forrest helped me to understand electricity. My science teacher helped me to problem solve.