



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Sofia Mendonca	Project Number J0916
Project Title Energy Production in a Soil Microbial Fuel Cell Using a Variety of California Soils	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective was to determine if the energy production in a soil microbial fuel cell is affected by soils from different location.</p> <p>Methods Soil samples were obtained from several locations in California. Soils were tested for composition by texture using a ruler, a graduated cylinder, and the USDA soil texture triangle. Soils were tested for soil nutrients using a commercially available NPK and pH kit. Soils were then mixed with water and placed in commercially available microbial fuel cells called Mudwatts. Voltage and current were measured with a digital multimeter and power was calculated.</p> <p>Results The soil from Clovis, CA produced the most power while the soil from Malibu produced the least power.</p> <p>Conclusions Repeated trials with multiple soils revealed statistical differences in power production. It is concluded that the type of soil is a strong factor in power production in a soil microbial fuel cell.</p>	
Summary Statement As measured by power produced, I found that there are significant differences in power production by soils from different locations in California.	
Help Received I designed and carried out the experiment myself after doing an internet search on Mudwatt setup techniques and soil nutrient analysis. Carolyn Mendonca is the local A.P. Environmental Science teacher from Clovis High School who provided instruction on how to do soil texture analysis. Pam Cruz is my	