



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

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Project Title The Effect of Different Types of Liquids on a Microbial Fuel Cell	
Abstract Objectives/Goals Our goal is not only to show our project at the Science Fair, it is also to help third world countries that have no electricity, have a renewable, affordable source of energy. A Microbial Fuel cell can power whole cities, and even small countries. Methods/Materials 2 5l Plastic Containers, 60 cm of cotton rope, 144 square inches of aluminum mesh, Copper wire(enough to reach from the voltmeter to the MFC), 10 gallon aquarium air pump, Sludge (collected from river), 1 gallon of water, 10 ounce of salt, Pot large enough to fit 15 cm of rope, 1 gallon of milk, 1 gallon of oil, 1 gallon of coke(R). Results The milk generated the highest amount of voltage, and the oil did not generate any amount of voltage. This shows that coke generated a higher amount of voltage than water, and that the highest amount of voltage was 6.3 volts. We concluded that the oil did not generate electricity because of its lack of bacteria. We also concluded that the bacteria in the liquids determine how much voltage is generated. Conclusions/Discussion In conclusion, the effect of soda on the energy produced by a Microbial Fuel Cell did not make the highest amount of voltage, and our hypothesis was incorrect, because in our hypothesis, we stated that soda will generate the highest amount of voltage. The experimental data did not support the hypothesis because out of water, oil, milk, and soda, the milk produced the most energy. We believe that the milk produced the highest amount of voltage because of the five bacteria in the milk, and the reaction of that bacteria with the anaerobic bacteria in the mud. The experimental data also showed that the oil produced no voltage, which leads us to believe that there is no interactable bacteria in vegetable oil. If we were to redo this project, we would have gotten the sludge from a different area, so we could compare the amount of anaerobic bacteria from both creeks and how it would affect the voltage produced by the microbial fuel cell. In future experiments, we would change the size of the electrodes.	
Summary Statement Our project is about creating renewable, affordable electricity for third world countries that cannot afford electricity.	
Help Received No help was used, except for our parents driving us to different places.	