



## IMAGINING TOMORROW: ALTERNATE ENERGY FUTURES

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### Middle School Clean Energy Region I: Western MA

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*“The Effect of Temperature on  
the Electrical Output of a  
Sediment Battery”*

#### ABSTRACT:

The purpose of this experiment was to see the effect of temperature on the electrical output of a sediment battery.

A sediment battery was constructed using two graphite electrodes, conducting wire, a 500 ohm resistor, conductive and non-conductive epoxy, a clear plastic container and mud and seawater from Nantucket which contains *Geobacter metallireducens*. The sediment battery was put in three different temperatures (6°C, 20°C, 27°C) under controlled conditions and the electrical output was recorded. The sediment battery had a higher electrical output in an environment of 27°C, which was the highest temperature that the sediment battery was tested in. The lowest electrical output was at the lowest temperature, 6°C. Since the electrical output increased at a higher temperature this helps to understand ideal conditions for a sediment battery made with *Geobacter*. This research may help make sediment batteries (microbial fuel cells) more effective than they have been in the past.