CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1903

Project Title
Thermoelectric Effect

Abstract

Objectives/Goals
The objective of my project is to determine how does a change in temperature affect the voltage being generated due to the Thermoelectric Effect. The Thermoelectric Effect is a phenomenon that generates voltage due to a temperature difference between two connected metals. I believe that more of a temperature difference generates more voltage.

Methods/Materials
The final experiment was conducted using a Seebeck device connected to a multi-meter. A lamp, ice cubes, and room temperature in 6 different combinations were used to create a temperature difference on both sides of the device. An infrared thermometer was used to record the temperature on both sides of the device and generated output voltage was recorded using multi-meter. Before using a Seebeck device, conventional metals like copper and aluminum were used to attempt to replace the device but the experiment did not produce measureable voltage.

Results
The results matched my hypothesis where more voltage was consistently being generated when the temperature difference was higher.

Conclusions/Discussion
My conclusion is that because more of a temperature difference generates more voltage this phenomenon can be used to convert excess heat/cold into usable electricity. More research is required in this area to see how much wattage we can get.

Summary Statement
My project studies the relation between the temperature difference of two connected metals and voltage generation due to the Thermoelectric Effect.

Help Received
Parents helped in typing, formatting and proofreading the report; Parents helped in purchasing materials and record some data; Parents taught how to create graphs in Excel