CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
J1502

Project Title
How Temperature Affects a Magnet's Strength

Abstract

Objectives/Goals
My objective is to find out if a magnet's strength changes due to temperature using liquid nitrogen, boiling water and ice water. My hypothesis was that the increase in temperature reduces the strength.

Methods/Materials
I took 3 identical permanent magnets and changed their temperature by immersing them in liquid nitrogen, boiling water and ice water. Thus the magnets# magnetic strength was measured by a Gauss meter at -196 degrees Celsius, 100 degrees Celsius and 0 degrees Celsius. After each immersion the zinc BBs were weighed and recorded.

Results
It was found that as expected, temperature affects the magnets, strength. When the temperature was higher the strength of the magnet was lower.

Conclusions/Discussion
The data supported my hypothesis - the higher the temperature the lower the magnetic strength. The heat caused the magnetic patterns in the magnet to get mixed up and not point in one direction, therefore causing the magnet to lose most or all of its magnetic strength.

Summary Statement
My project was about finding if the temperature of a magnet affects its strength.

Help Received
Aunt helped with graphs; Dad let me use lab at Caltech; Chemistry department at Caltech loaned Gauss meter