Name(s)	Project Number
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Project Title

Interfering with a Magnetic Field

Abstract

Objectives/Goals

For my experiment I tested to see if specific non-furious elements can interfere with a magnetic field.

My hypothesis was that if I place different elements between my magnet and iron filings, then the magnetic field will be changed in some way.

Methods/Materials

For my experiment I would place a magnet a fixed distance from the iron filings, with an element in between, and see if the field looks any different from the control.

Materials:

1 bar magnet, 2 Petri Dishes, Iron Filings, 1 Iron Filing Filter, Mineral Oil, Camera, Foam Structure built to hold camera, Graph Paper, 1 Small Beaker, and Elements: Sodium (table salt), Zinc (modern pennies), Copper (a copper sheet), Magnesium (a fire starter), Sliver (mini .9999 sterling silver bars), Gold (5 grams of pure gold), Sulfer (inside of a road flare), Lead (fishing weights)

Results

The results of my experiment were exactly what I expected. My results show the density of the magnetic field (defined by the amount of lines made by the iron filings) in the bottom left square of my pictures. Control-27, Gold-21, Silver-23, Sulfur-25, Lead-24, Zinc-23, Sodium-20, Magnesium-17, Copper-25 (the lower the density the more of a change).

Conclusions/Discussion

These results show that all of the elements I chose for my experiment did interfere with the magnetic field (some more than others), proving my hypothesis to be correct.

There could have been other unknown variables causing sulfur, lead, and copper to not make as big of an impact on the magnetic field as other elements.

Practical applications of my research include shielding of magnetic interference or providing a barrier to magnetic fields. Examples: cell phone case.

Summary Statement

Can elements affect a magnetic field?

Help Received

My father helped to me to find the materials I needed.