

# Electromagnets

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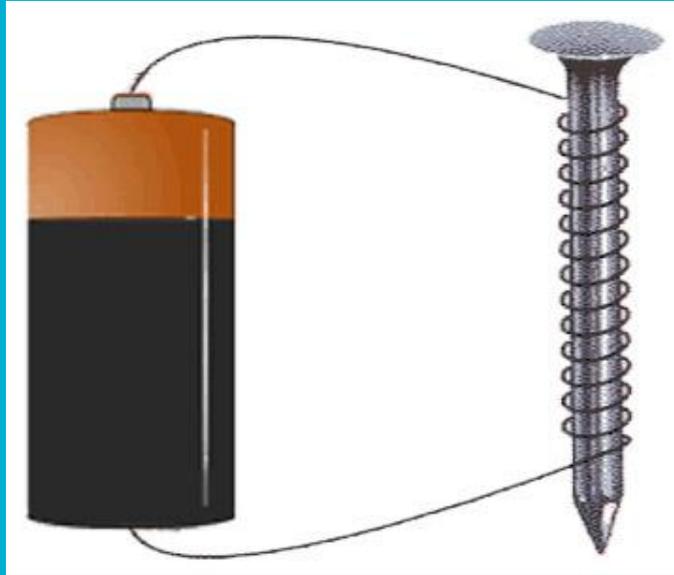
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# Phenomenon to be Investigated

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Produce an electromagnet and investigate some of its important properties.



# What are electromagnets?

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An electromagnet is a type of magnet in which the magnetic field is produced by an electric current. Electromagnets usually consist of wire wound into a coil. A current through the wire creates a magnetic field which is concentrated in the hole, denoting the center of the coil.

# Electromagnetic Interactions

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- The force of attraction or repulsion between electric charges is inversely proportional to the square of the distance between them.
- Magnetic poles come in pairs that attract and repel each other, as much as electric charges do.
- An electric current in a wire produces a magnetic field whose direction depends on the direction of the current.
- A moving electric field produces a magnetic field, and vice versa.

# Electromagnetic Waves and fields

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Electromagnetic radiation is created when an atomic particle, such as an electron, is accelerated by an electric field, causing it to move. The movement produces oscillating electric and magnetic fields, which travel at right angles to each other in a bundle of light energy

# Brief Experiment Explanation

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We wanted to test the attraction of the electromagnet that we created based on the percentage of the nail that we had covered in the wrapped wire.

# Hypothesis

The more the nail is covered the more the attraction of the objects used.

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# Materials

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- One 10 cm iron nail
- One copper wire
- One 9V battery
- One 7g iron earring

# Experimental Procedure

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1. We took the nail and we wrapped the copper wire around it
2. We wrapped the ends of the copper wire around the positive and negative poles of a 9-Volt battery
3. We

# Experiment

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100% the nail covered: 1.1cm 1.2m 1.5cm 1.3cm

60% the nail covered: 0.4cm 0.5cm 0.3

30% the nail covered: No results

# Conclusion

The more the nail is covered the more the attraction of the objects used and the hypothesis was confirmed

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# Bibliography

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- <https://en.wikipedia.org/wiki/Electromagnet>
- <https://www.quora.com/Is-graphite-magnetic>
- <https://www.livescience.com/38169-electromagnetism.html>