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Build an Electromagnet

An electromagnet is a type of magnet that attracts metals with the help of electricity. Professor Hans Christian Oersted coined the term electromagnetism in 1820, which refers to the ability of a wire to carry electric current to produce a magnetic field.

[1]

Build an Electromagnet, Gina Clifford

Electromagnets are widely used in motors and generators, magnetic locks, loudspeakers, magnetic separation of materials and a whole lot more. To better understand the concept of electromagnetism and how its whole mechanism works, let us create our own electromagnet!

Materials

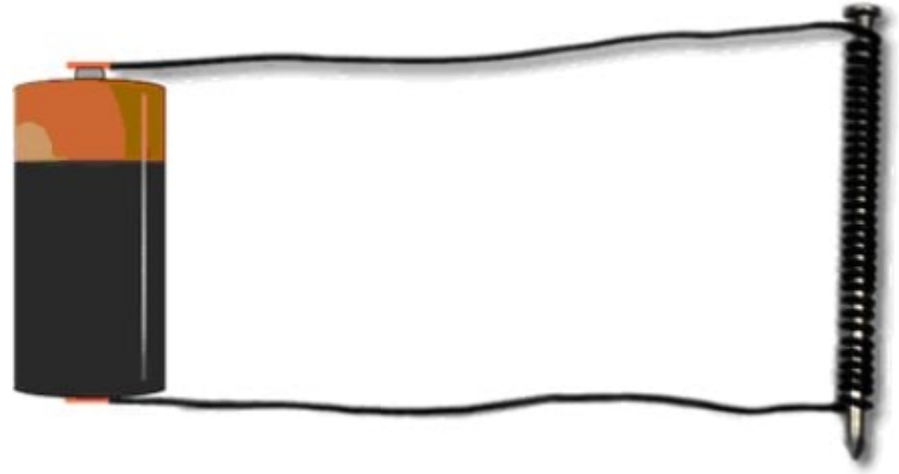
To create your own electromagnet, you will need the following materials:

- Large iron nail (approximately 3 inches in length)
- Thin coated copper wire
- Dry cell batteries
- Electric tape
- Iron fillings, paper clips and other magnetic items

Procedure

Take the 3-inch nail and the thin covered copper wire, and wrap the copper wire around the nail, leaving at least 10 inches of it at the end. Make sure you don’t overlap the wires when you wrap it around the nail. Take your scissors or cutter, and cut the wire allotting about 8 to 10 inches on the other end too.

The next step is to attach the wires to the terminals of the battery. Do this by first peeling the plastic covering off the copper wire, and attach one end to the positive terminal of the dry cell battery, and the other end to the negative terminal of the battery. Get your electric tape and tape both ends of the wire to the battery terminals to keep them in place.



Source: sciencebob.com [2]

Get your iron fillings, paper clips and other magnetic items available at your place then test your electromagnet.

Discussion

Electromagnets work as long as there is electricity running through a wire, as this will automatically allow you to generate a magnetic field. You must be wondering how electromagnets are different to the ordinary magnets that we have lying around in our house. Unlike these ordinary magnets, the magnetic field the electromagnet creates is only temporary. As long as there is a continuous flow of electrons, the electromagnet will work. The ordinary magnets on the other hand do not need electric current to work.

Do you know what else is cool? Get a paper and put the iron fillings on it, while holding the electromagnet underneath the paper. Watch the iron fillings arrange themselves, forming the shape of the electromagnet's magnetic field! Amazing huh?

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