

Tips for making an electromagnet

Electric charges in motion create magnetic fields. An electromagnet is a magnet that can be turned on and off. Electromagnets run on electricity and are only magnetic when the electricity is flowing. You can create an electromagnet with a simple coil of wire and a battery.

What you need

- A battery
- Copper wire
- A large iron nail
- Small paper clips or staples

Instructions

- Wrap the copper wire around the nail. Try not to overlap the wire.
- Now remove about 3 cm of the plastic coating¹ from both ends of the wire and attach the one wire to one end of a battery and the other wire to the other end of the battery.
- Put the point of the nail near a few paper clips and it should pick them up.

What's happening?

In this experiment the battery is a source of electrons. When you connect the wire to the battery, the electrons flow through the wire. If there is not a complete circuit, the electrons will not flow. Electrons behave like little magnets and when they flow through a wire, they create a magnetic field, which transforms the nail into a magnet that can pick up paper clips and staples.

GLOSSARY

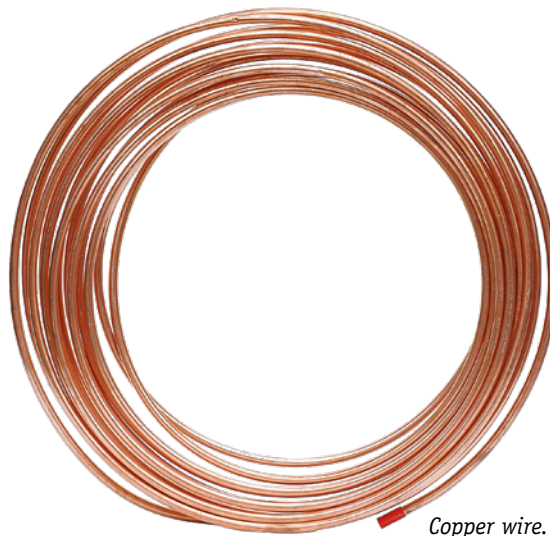
1 covering, layer



A battery.



Clips.



Copper wire.



Iron nails.