

ATTRACTIVE NAILS

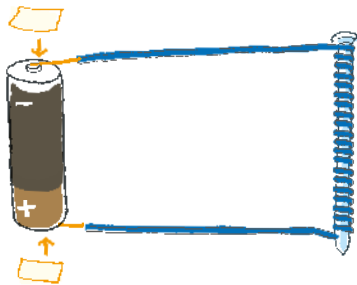
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The brief

Make your own electromagnet.

The method

1. Wrap the insulated copper wire around the iron nail, leaving 20cm of loose wire at either end.
2. Remove 3cm of insulation from the ends of the copper wire and attach to either end of the battery with tape.
3. You now have an electromagnet. The nail should attract the iron filings and paper clips.



How does it work?

Most magnets cannot be turned off. When electric current runs through a wire it creates a magnetic field – and that's why electromagnets can be turned on and off.

Running current through a wire produces a weak magnetic field – usually too weak to give us visible results. By coiling the wire closely, you amplify the magnetic influence which gives visible results.

Materials

Insulated copper wire – thin insulation is best

Tape

A battery

An iron nail

Iron filings
or paper clips

Did you know?

Many objects around you contain electromagnets.



They are found in electric motors and loudspeakers. Very large and powerful electromagnets are used as lifting magnets in scrap yards to pick up then drop old cars and other scrap iron and steel.