A DIFFERENT WAY TO GET MAGNETISM

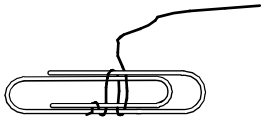
So far you've been looking at magnetism that comes from iron. But there is another source for magnetism. This is ELECTROMAGNETISM, and you can turn it on and off!

WHAT YOU NEED: a C battery, a long piece of coated wire, sandpaper, a large paper clip, a compass, and a 3x5 card (or a small piece of cardboard). A person to lend a hand would also be very helpful.

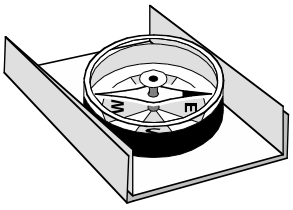
WARNING: DO NOT USE A RECHARGEABLE BATTERY IN THIS EXPERIMENT. RECHARGEABLE BATTERIES ARE DANGEROUS IF USED THIS WAY.

WHAT TO DO: 1) Sand away all the insulating varnish from each end of the wire. Be sure you get all the varnish off, at least one inch from one end of the wire, and two inches off the other end.

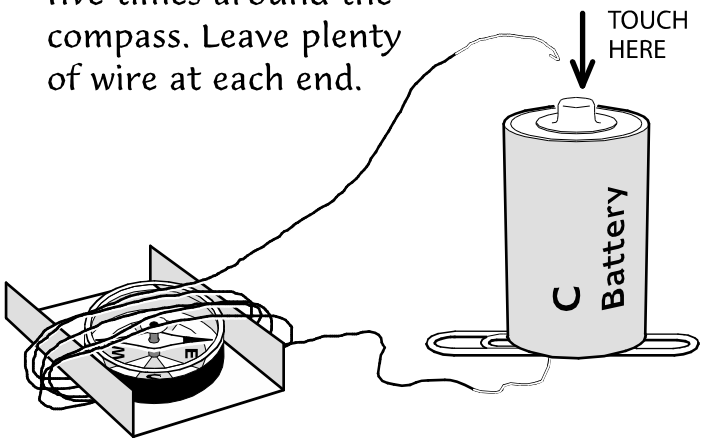
2 Wrap the 2 inches of sanded wire tightly around the paper clip to make a lead.



3 Make a trough for the compass. Use a 3x5 card folded in half, then folded around the compass, like this:



4 Wrap the wire four or five times around the compass. Leave plenty of wire at each end.



5 Stand the battery on top of the paper clip lead where the wire is wrapped. Briefly touch the other end of the wire to the top terminal of the battery.

What happens to the compass needle when you connect the battery?

6 Flip the battery upside down and try again. Does the compass needle do the same thing as before, or the opposite?

(If nothing happened either time, you probably have a loose connection. Hold the battery more firmly to both ends of the wire, and try the experiment again.)

7 Try to get the needle to spin by touching the wire quickly to the battery many times. What happens?

CONCLUSION

As you have learned, a compass is a magnetism detector. If the compass needle moves or jumps, we know there are magnetic fields present.

Did the compass needle move when no electricity flowed through the wire? _____

Did the compass needle move when electricity was flowing through the wire? _____

Why do you think it is called ELECTROMAGNETISM?