

Assembly Instructions

Assessment
Cross-curricular

Instructions

Assembly Instructions

If you do not want to use the ‘Jumbled Instructions’, this page has straightforward instructions to construct your own electromagnet.

Suggested Materials (For each group of students):

1 x D Cell (battery)

1 x large ferromagnetic (iron containing) nail. Any nail that sticks strongly to a magnet will work.

150 cm of copper wire (Use very thin wire, as it will allow more loops and is easier for students to work with.

Thick wire can be very difficult for students to manipulate.)

2 x alligator clips or 30cm piece of wire.

Construction Steps:

- Starting at the head of the nail and moving down, wrap tight loops of wire around the nail until approximately 3cm of the nail remains uncovered.
 - Do not overlap the wire. It is suggested in this lesson to have 85 loops total but that number can be modified based on the dimensions of the materials.
 - Leave at least 10cm of loose, unwrapped wire at each end.
- Hang the head of the nail off of the edge of the desk.
- Connect an alligator clip or the short bits of wire to each end of the wire that wraps the nail.
- Connect one alligator clip to the negative terminal of the battery.
- When ready to activate the electromagnet, attach the other alligator clip **BREIFLY** to the positive terminal of the battery.

- NOTE: You may want to have your students include a switch in the circuit if switches are available.

- ***SAFETY WARNING!!!** – A closed circuit with an electromagnet may get very hot! The circuit should never be left closed for more than a few seconds at a time. Students should be made aware that the circuit components might get hot to the touch.