

Homopolar motors

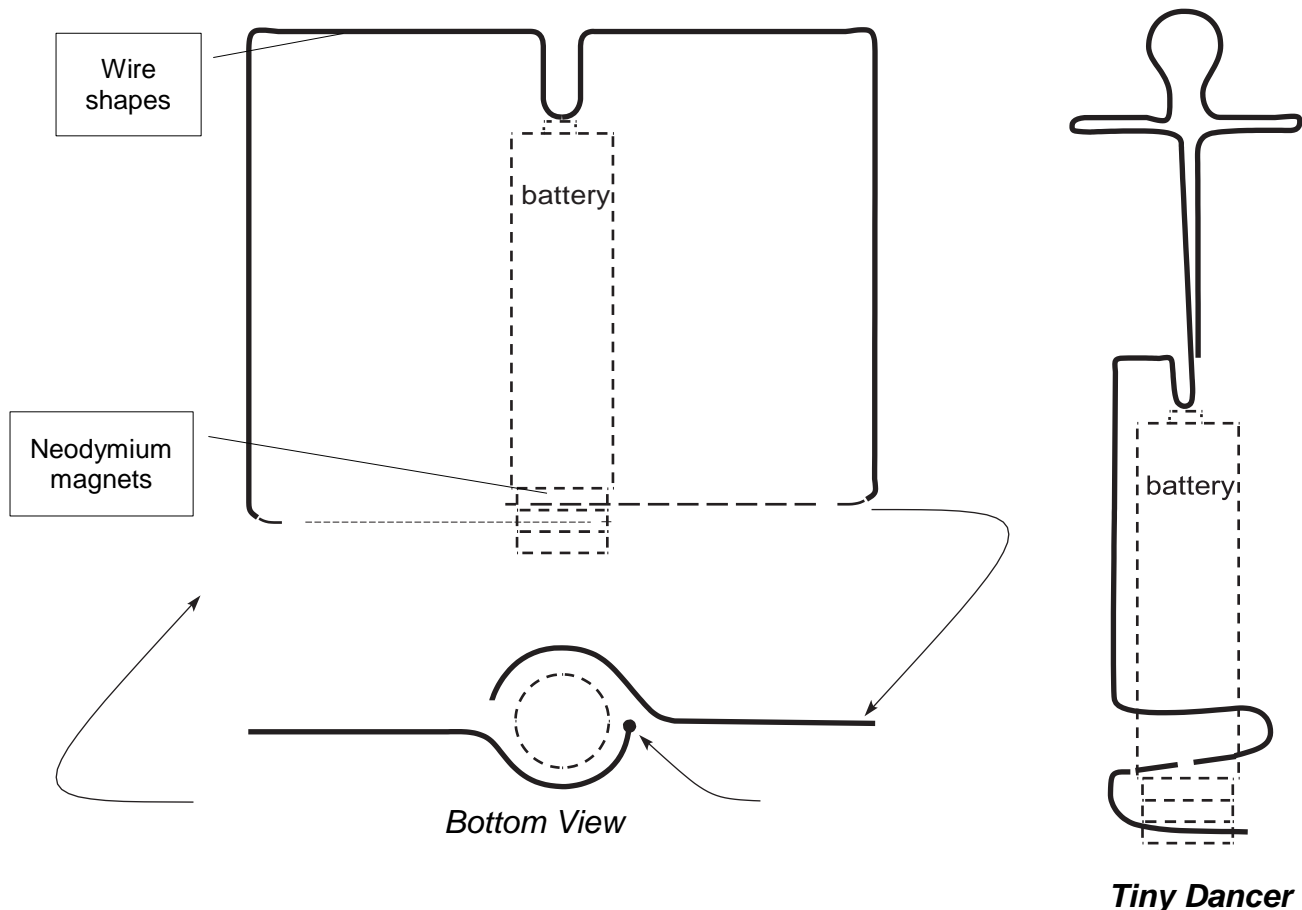
The motor with only one direct current flowing

These fun little guys don't require much to teach us a lot!

Danger!
Perform
these
activities
only with
competent
adult
supervision!!

Basic Homopolar Motor

(Try drawing in the electrical current and magnetic fields yourself!)



With some help from www.babbledabbledo.com

How to make them work well:

1. Make sure you're getting a strong electrical connection between the wire and the magnet – you may need sandpaper to rub off rust or any special wire coating. The battery connections must be clear too.
2. Make sure you have a fully charged battery.
3. Make sure there's no extra friction, caused by the wire rubbing against the table or the battery. The base of the motor needs to touch the magnet only.
4. You need strong magnets, Neodymium's are great, and round too! You can buy them online.
5. Use non-ferrous wire such as copper or aluminium. Steel with just get stuck!!

How they work

As electricity travels through a wire, it creates a magnetic field around that wire.

When the magnetic field from the wire comes in contact with the magnetic field of the permanent magnet, it pushes away from it, producing what is known as the *electromotive force*.

This is the basic idea behind almost all electric motors.