Teachers' notes for the workshop *How to teach the electric motor effect*

The video is on www.scienceteachingalive.com

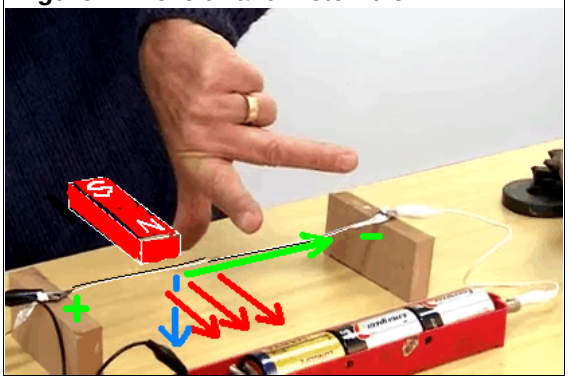
Figure 1 shows how to apply the Left-Hand Motor Rule.

The **F**orefinger shows the direction of the magnetic **F**ield, the **C**entre finger shows the direction the **C**harges are moving, and the **T**humb shows the direction of the **T**hrust on the charges.

Remember that the magnetic field direction is always AWAY FROM the North end of the magnet.

If you reversed N and S poles of that magnet, the thrust would be upwards instead of downwards.

Figure 1 *The left-hand motor rule.*



Internet sources you will find useful:

The Motor Effect

This site has three animations that you can play with:
http://www.bbc.co.uk/schools/gcsebitesize/science/triple_aqa/keeping_things_moving/the_motor_effect/revision/1/

Magnetism, **motors and generators**

http://www.youtube.com/watch?v=d_aTC0iKO68

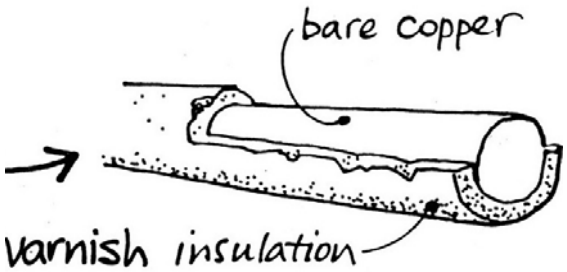
http://commons.wikimedia.org/wiki/File:Ejs_Open_Source_Direct_Current_Electrical_Motor_Model_Java_Applet_%28_DC_Motor_%29_20_degree_split_ring.gif

DC motor with commutator http://www.youtube.com/watch?v=Ue6S8L4On-Y

Notes on making the little motor that you see in the video

Remember to scrape the varnish off only one side of each straight section, as you see in **Figure 2.**

Figure 2 *Scrape the varnish off one-half of the wire.*



The video shows just one magnet next to the copper coil, but usually there are two magnets as you see in **Figure 3.**

Figure 3 *Current flows only when the bare wire makes contact with the paper-clip.*

.