Magnetism!

In magnetism there are two poles. The North and South Poles. Similar to Electrostatics, liked poles repel and unlike poles attract.

When drawing magnetic field lines, you draw from North to South.

Ex:

If we cut a magnet in half what do we get?

 or

We can make objects lose their magnetism through heat. This is done by hammering the material or throwing it in the oven.

We draw magnetic field lines into the page sometimes. We also draw them out of the page. We represent this phenomenon with the following symbols:

The Right Hand Rules

*The 1st Right Hand Rule “Curly”*

Ex: If the current is going INTO the page, what is the magnetic field around the current carrying wire.

Ex: If the current is going out of the page, what is the magnetic field directly south of the wire?

*The 2nd Right Hand Rule “Slappy”*

Magnetic Formulas

The first formula is the magnetic field around a current carrying wire.

The second formula is F=BIL

F= Force (N)

B= Magnetic Field (T)

I= Current (A)

L= Length of the current carrying wire (m)

The Third (and final!) formula is

F=qvB

F= Force (N)

q= charge ( C )

v= velocity (m/s)

B = Magnetic Field (T)

Ex1: Find the magnetic field 5.2m away from a current carrying wire that has a current of 12A.

Ex2: Find the force acting on an 11A current carrying wire (that has a length of 5.0m) as it moves through a magnetic field of 4.20T

Ex 3: Find the force acting on a proton (q= 1.6 x 10-19C) if it is moving through a 35T magnetic field with a velocity of 2.75x108m/s.