

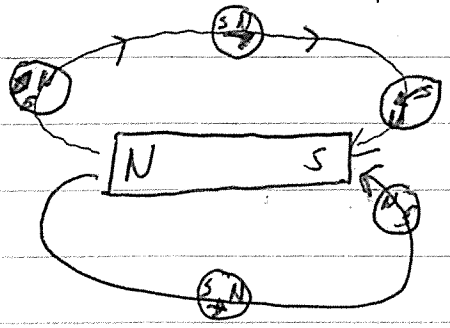
(1)

Magnetism

IB 4/11/05

Magnetic Field Lines - May be traced out with a Compass

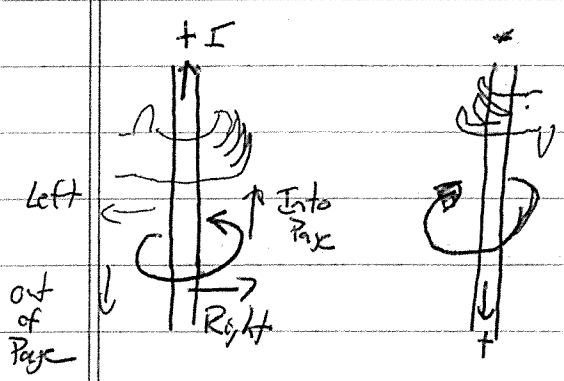
* The direction of the magnetic field (B) is in the direction that the N Pole of the Compass will point at that location



Each Magnetic Flux line Unit
1 Weber (wb)
Concentration of flux lines Unit
Tesla (T) vector Qty

Electromagnetism

- Wire carrying a current produced a magnetic field (We always look at conventional current) - Movement of + charge

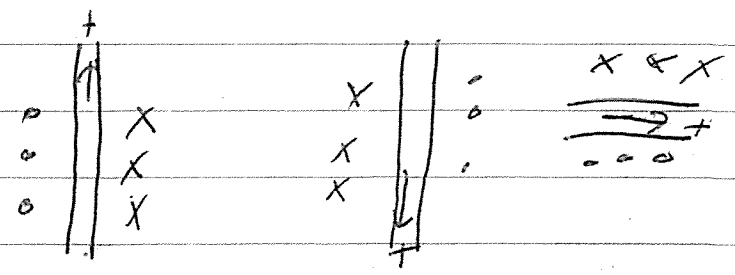
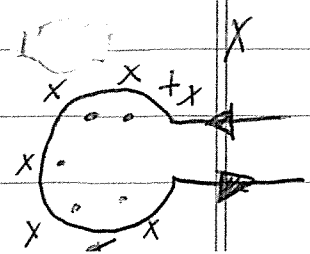


Right Hand Rule #1
use current (Proton Flow)
Thumb is direction of conventional current
Fingers curl in the direction of the Magnetic Field.

* The magnetic field is circular & it is perpendicular to the direction of the wire carrying the current.

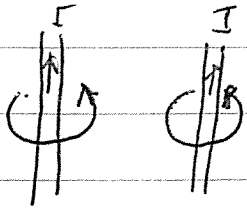
We represent direction with \bullet and \times

\bullet indicates direction out of page
 \times indicates direction into page

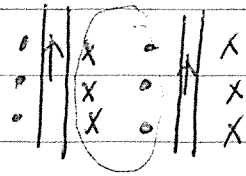


Current Carrying Parallel Wires

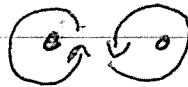
Current in Same Direction



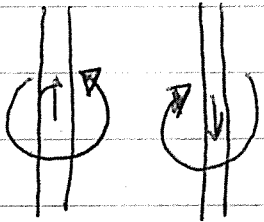
Magnetic Field attracts



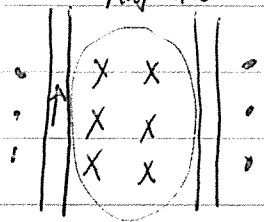
If 2 parallel wires carry current in the same direction, they will attract each other



Current in Opposite Direction



Magnetic Field Repels



If 2 parallel wires carry current in opposite directions, they will repel each other

The force on either wire is directly proportional to:

- ① current in 2 wires
- ② length of the wires
- ③ Inversely proportional to the distance between the wires.