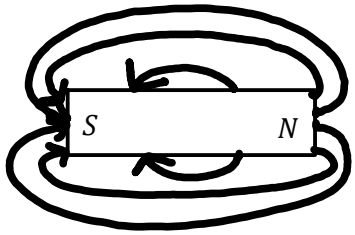
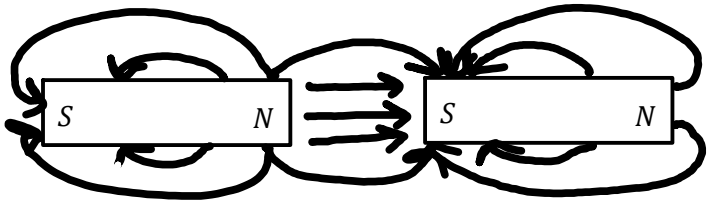
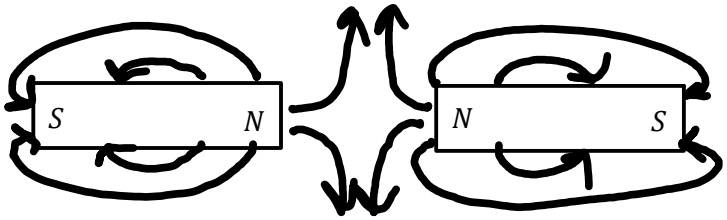
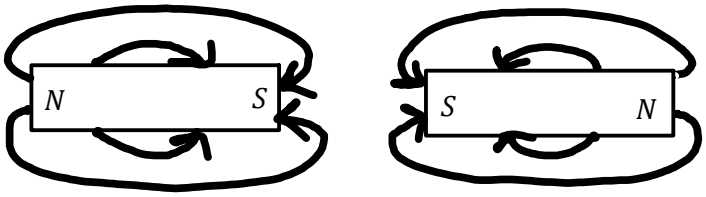
P12 - 10.1 - Magnets Notes

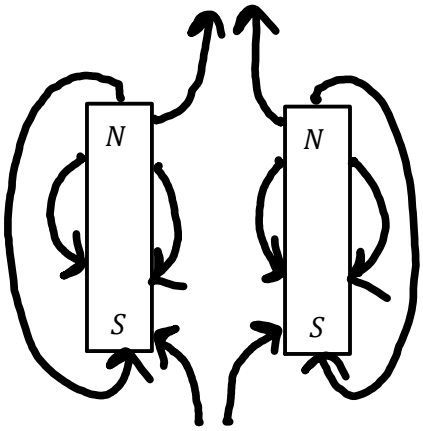
Magnetic Field — a Force field created by electirc current and magnetic dipoles $North \rightarrow South$

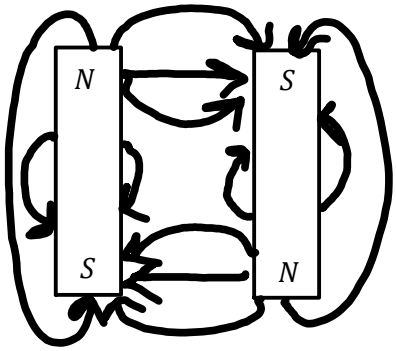










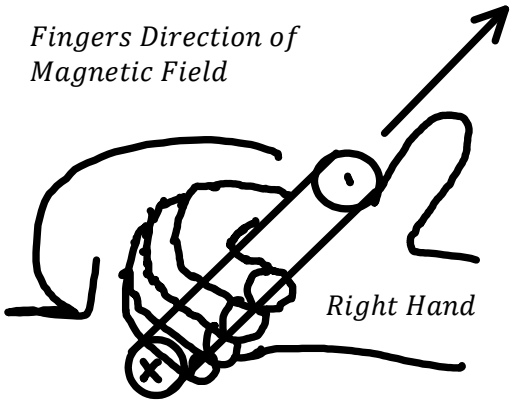


P12 - 10.2 - Mag 1st/2nd Right Hand Rules Notes

1st Right Hand Rule

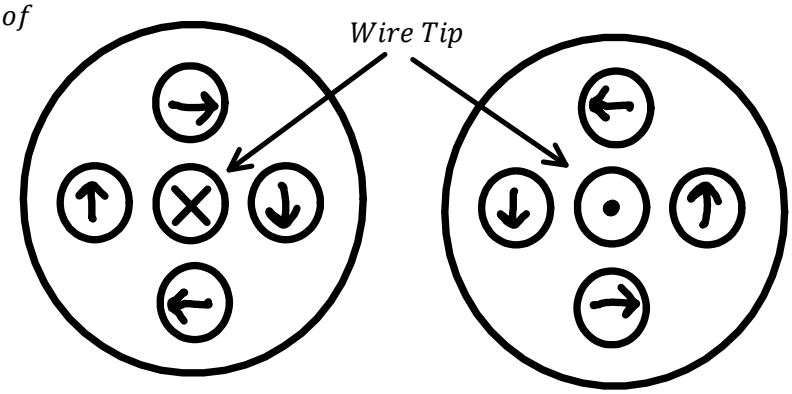
Thumb Direction of Current Flow

Fingers Direction of Magnetic Field

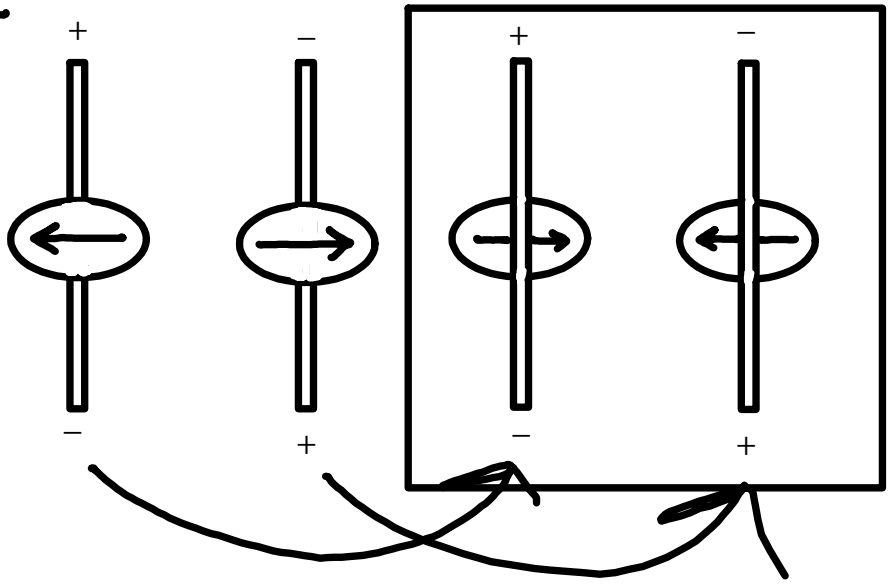


*Bow and Arrow**

Wire Tip



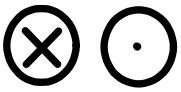
Current into the page *Current out of the page*



+ve Protons! Electrons* LHR*

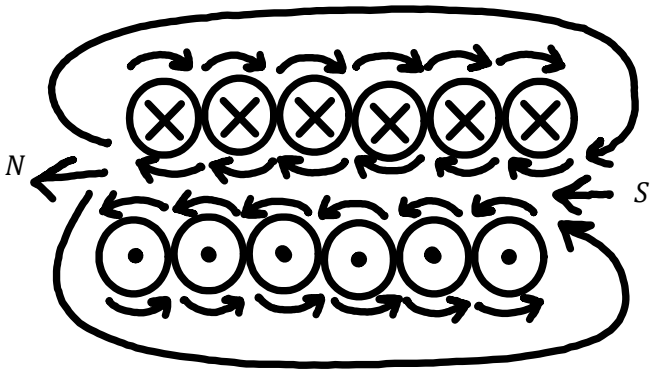
*Positive to Negative** $+ \rightarrow -$

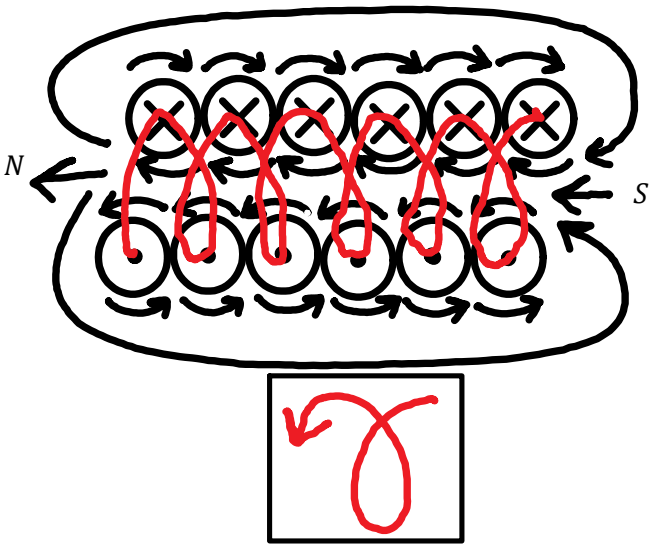
2nd Right Hand Rule

Fingers: Current 

Thumb: Point North $N \rightarrow S$ *(Magnetic field lines)*

Solenoid: A coil of wire aka Electromagnet

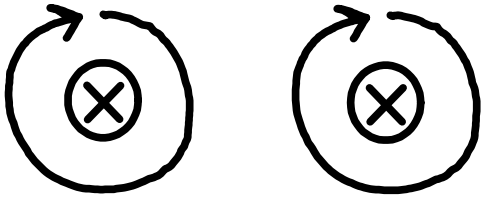




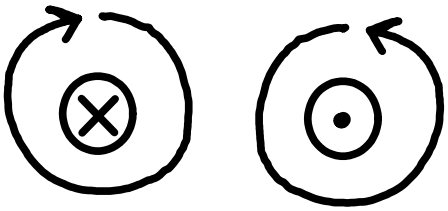
P12 - 10.3 - Mag 3rd Right Hand Rules Notes

3rd Right Hand Rule

Parralel wires with current flowing in the same direction will attract



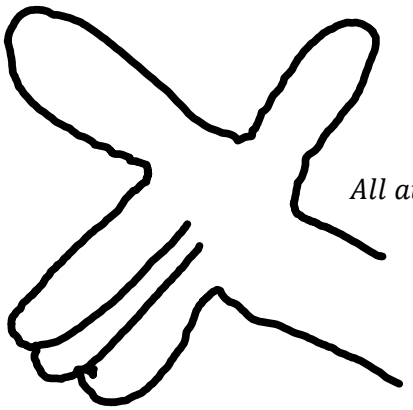
Parralel wires with current flowing in the opposite direction will repel



Index Finger
Magnetic Field

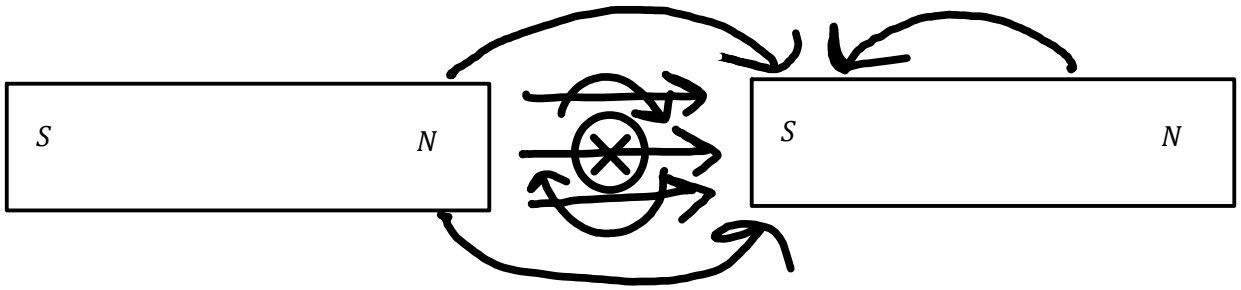
$N \rightarrow S$

Thumb Current
Particle Motion



All at 90^0

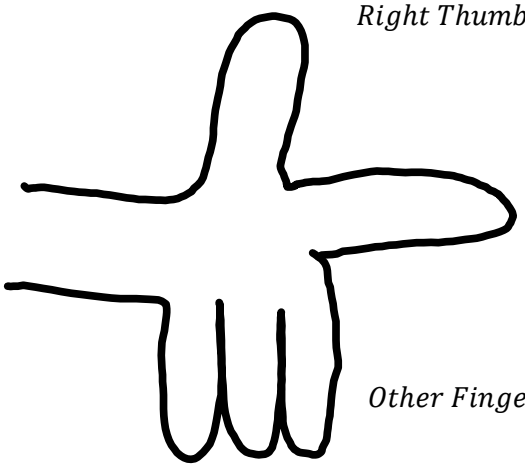
Other Fingers
Force



Force is down the page!

Perpendicular!

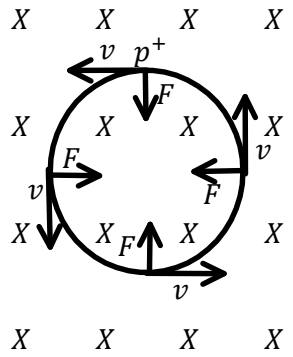
Right Thumb (Into the page)



Right Index (To Right)

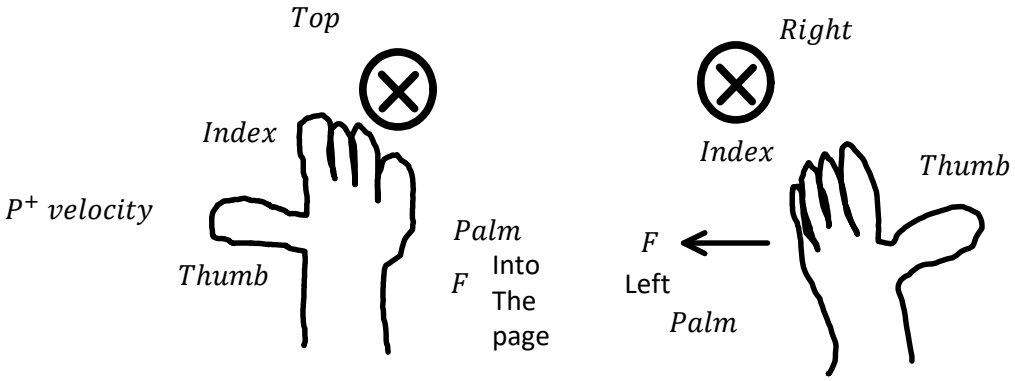
Other Fingers (Down)

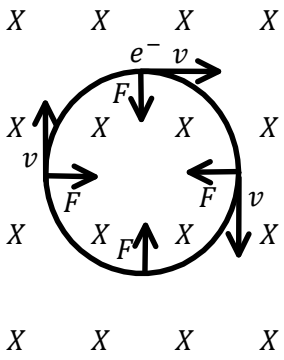
P12 - 10.3 - Mag 3rd Right Hand Rule Notes



X: *Field into page*

p^+: *Use RHR*





X: *Field into page*

e^-: *Use LHR*

P12 - 10.4 - Induction Notes

Electromagnetic Induction – Generation of an EMF from changing of magnetic fields

Lenz Law: Induced magnetic field works against the applied force