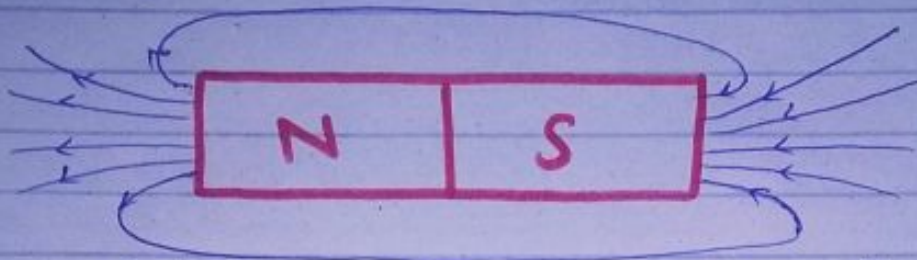


Electromagnetism

Magnetic field:-

- Produce due to moving charges.
- Origin is still unknown.
- Direction: S-pole $\rightarrow$ towards; N-pole $\rightarrow$ away.
- Always in closed shape.



- Isolated north or south pole is not possible.
- $\rightarrow$ Similar poles repel (N-N), (S-S)
- $\rightarrow$ opposite poles attract (N-S), (S-N)

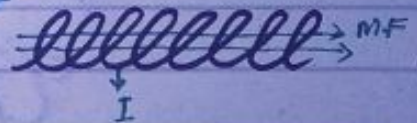
- Magnetism (material) $\rightarrow$ first time magnetic field observed.

Direction

- When I is in straight line, direction of magnetic field is circular path.

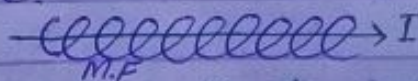


- When I is in circular path, direction of magnetic field is straight line.

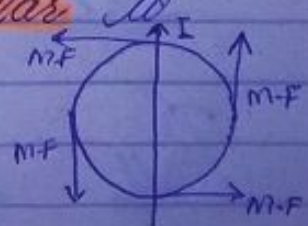


$\Rightarrow$ The M.F produced in earth due to $\rightarrow$ molten iron and nickel.

- Direction of M.F is always perpendicular to direction of I .



- The value of M.F in direction of current is equal to zero.



The first magnet discovered in universe is $\rightarrow$ Magnetite (Fe_3O_4) was found in core of iron.