

CHAPTER 13

# Magnetic Effects of Electric Current



## Magnetic field & Field lines:

“The space around a magnet in which its influence can be felt is called a Magnetic field”.

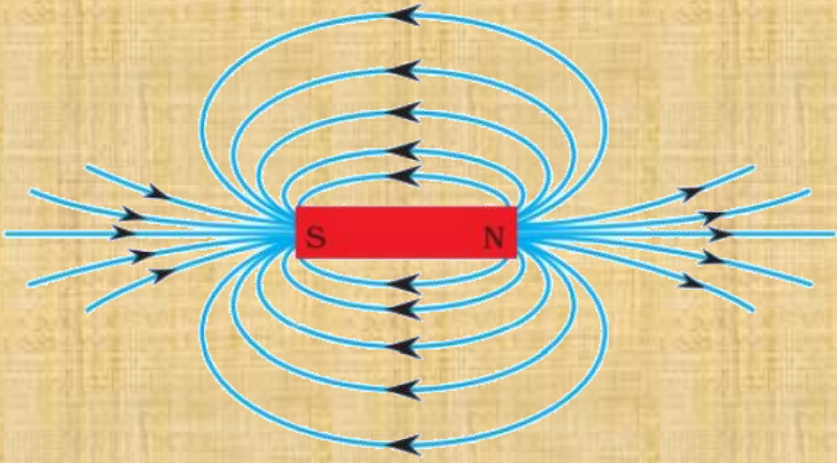
The path followed by a unit north pole placed in a magnetic field is called Magnetic line of force.

Let us consider a bar magnet and a compass needle is kept near one of the poles.

A compass needle is a small bar magnet, whose one end points towards north and is called North seeking pole and Vice versa.



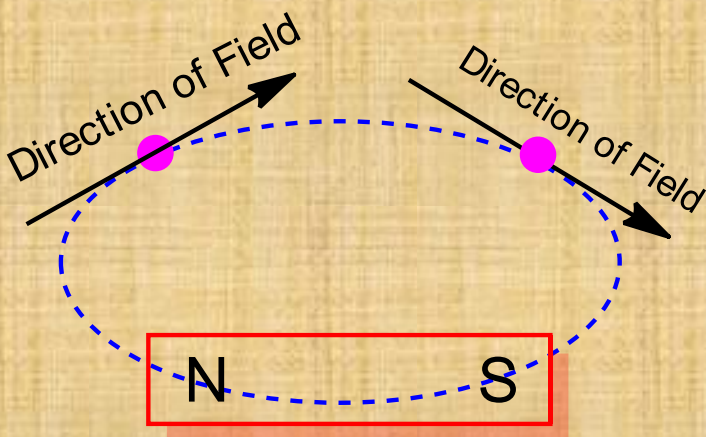
**Fig.** Drawing a magnetic field line with the help of a compass needle

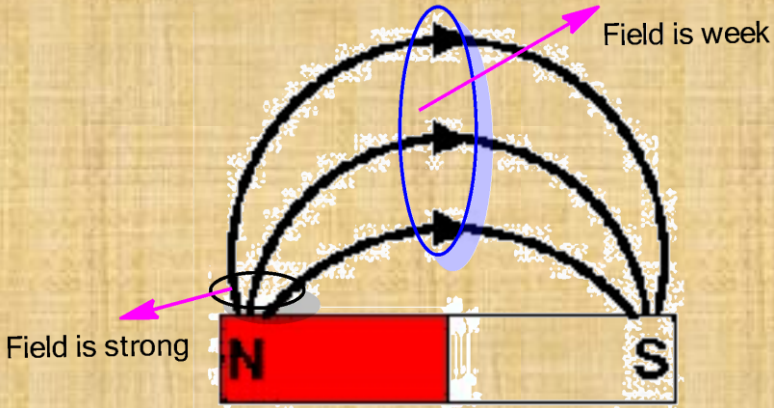



*Field lines around a bar magnet*

### Properties:

- (1) They start from north pole and end at South Pole. Inside the magnet they travel from S to N.
- (2) They are closed loops.
- (3) They do not intersect with each other.
- (4) They are closer at the poles and far away in the middle.
- (5) The tangent drawn at any point on this line gives the direction of magnetic field.
- (6) Magnetic field is stronger where the lines are crowded and weak where the lines are far away from each other.





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