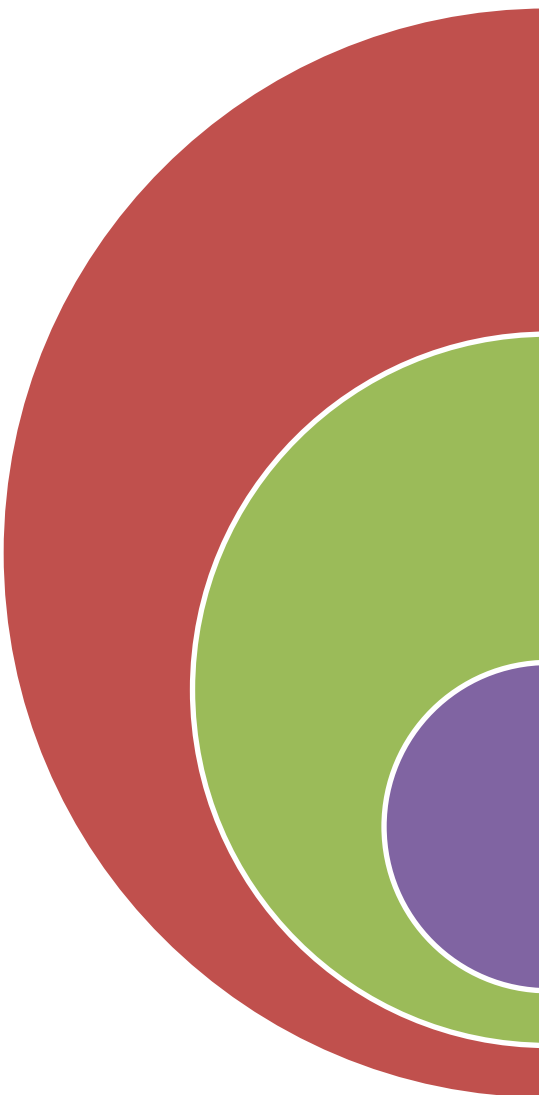


17 Magnetism

Physics Fundamentals for revision for
competitive examinations

Magnetism



Magnetism is the power of attracting iron filings and arranging them at the two extreme points of North and South Poles.

- No magnet has only one Pole
- All magnets indicates the direction towards the Magnetic North Pole of the Earth
- A loadstone found in nature is a natural Magnet.

Unlike poles attract each other and like poles repel one another. Bar magnet, horse shoe magnet, magnetic needle and compass are examples of artificial magnet as magnetism is induced in them.

- Induced magnetism is when an iron bar behaves like a magnet in the presence of a magnet. On removing the magnet, it no longer shows any properties of a magnet.

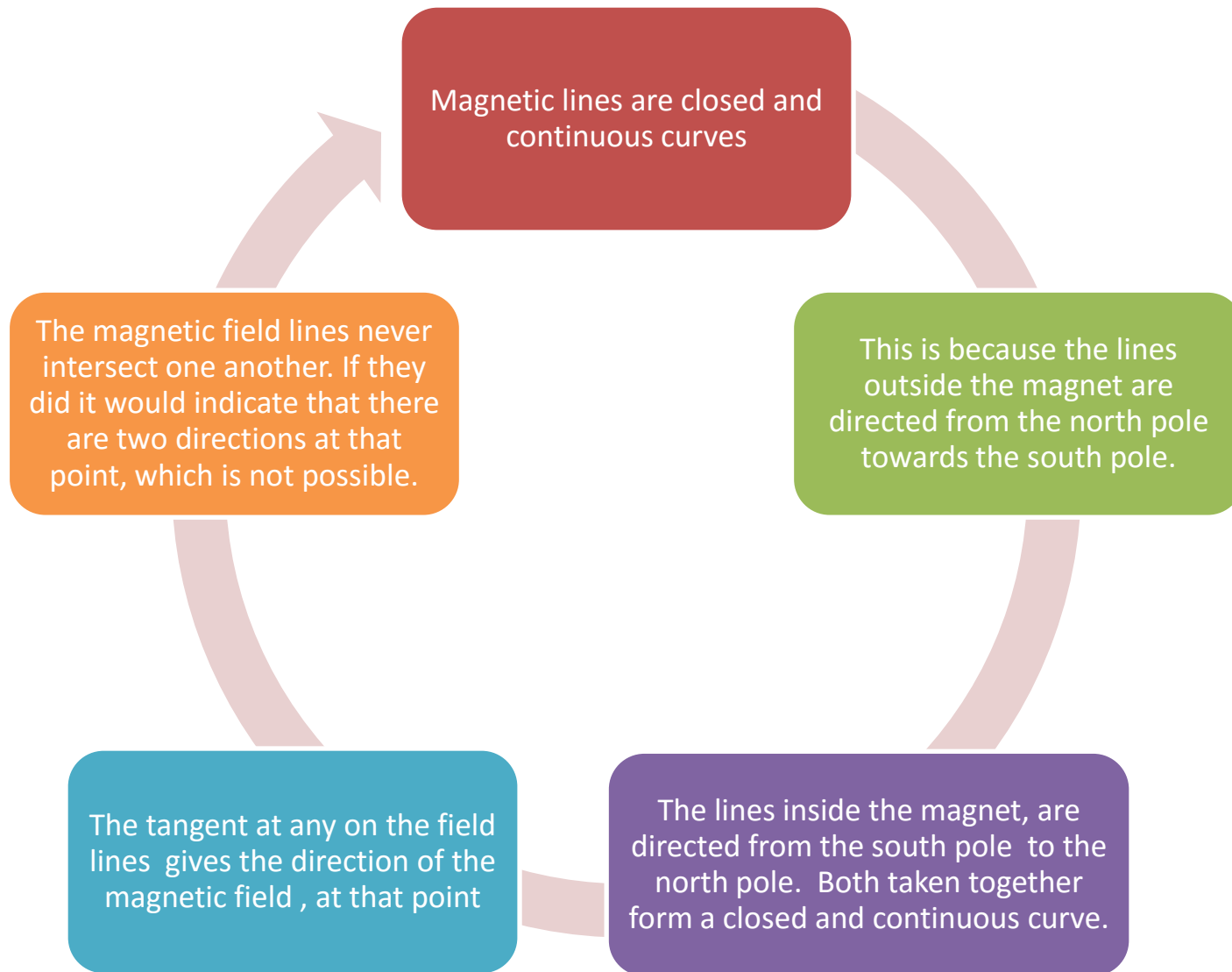
Effective length is the distance between the two poles of a magnet.

- The space around a magnet in which the needle of a compass rests in a direction other than the geographic north-south direction, is called magnetic field of the magnet.

A magnet can have two equal parts either along its axis or perpendicular to it.

- A magnetic field line is a continuous curve in a magnetic field such that tangent at any point of it gives the direction of the magnetic field at that point

Properties of a magnetic field



Magnetic field of the Earth: Geographical North is Magnetic South and vice versa

Two places where the magnetic needle becomes vertical are called the magnetic poles.

The magnetic equator is the line joining the places where the magnetic needle becomes horizontal.

Neutral points are where the magnetic field is equal in magnitude to the earth's horizontal magnetic field

- If North Pole of magnet faces geographical North, the Neutral points are situated symmetrically on either side of a magnet, at equal distances from the centre, in east-west direction. If NP faces geographical South, Neutral points are symmetrical, in north-south directions.