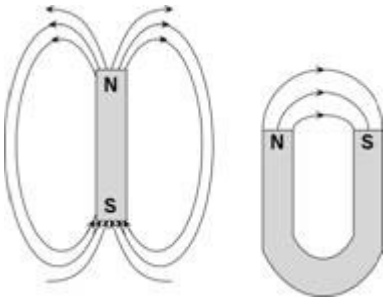


## 19. Properties of a Magnetic Field

- **Properties of Magnetic field lines**

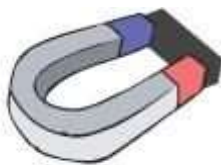
- Originate from the North pole and end at the South pole [outside the magnet]
- They are closed continuous lines
- Density of the lines increases near the poles and decreases away from the poles
- Lines never cross each other



- Like poles repel and unlike poles attract each other.
- The region where magnetic field lines are crowded has relatively greater strength
- The magnetic poles of the Earth continuously change their position with time i.e., the magnetic North Pole becomes the magnetic South Pole and vice-versa. This phenomenon of flipping of poles is known as **magnetic reversal**.
- The angle of the horizontal plane between the geographic North (true North) and the magnetic North is known as **magnetic declination**.
- A magnet loses its magnetic property when **dropped from a height** and **hammered**.
- Magnets lose their magnetic property on **heating**.
- Magnets can be stored safely as follows



Two bar magnets



Horse-shoe magnet

- Magnets should be kept away from cassettes, CDs, mobile, TVs, plastic cards, etc.
- Metal detectors are used for security purposes at various places. They work on the principle of electromagnetism.