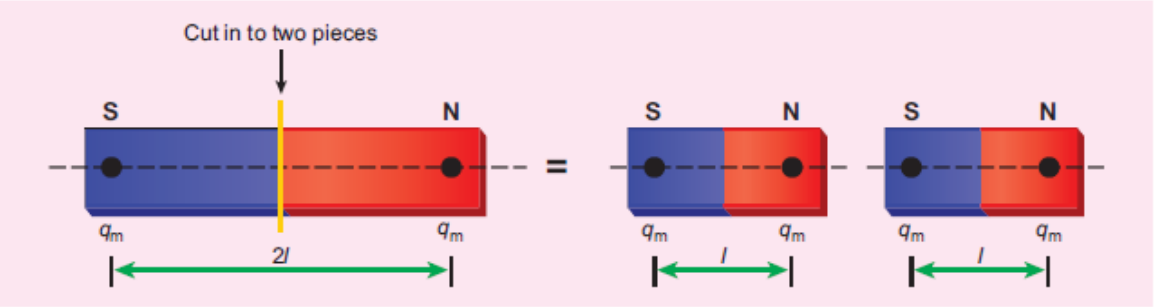
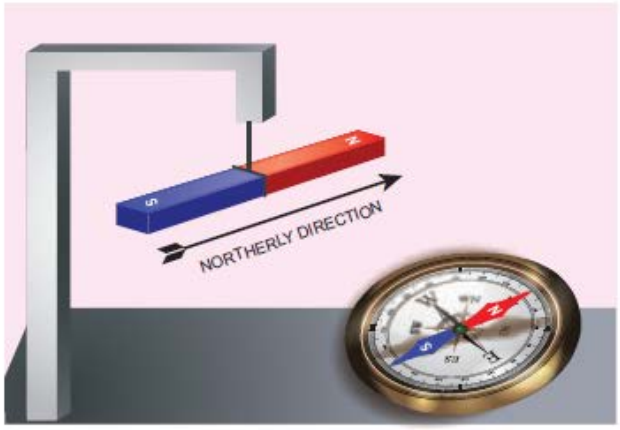
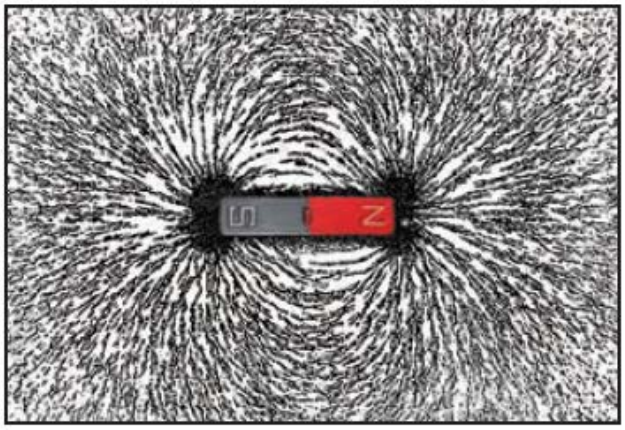
Properties of bar magnet

The following are the properties of bar magnet

- A freely suspended bar magnet will always point along the north-south direction.
- A magnet attracts another magnet or magnetic substances towards itself. The attractive force is maximum near the end of the bar magnet. When a bar magnet is dipped into iron filling, they cling to the ends of the magnet.
- When a magnet is broken into pieces, each piece behaves like a magnet with poles at its ends.
- Two poles of a magnet have pole strength equal to one another.
- The length of the bar magnet is called geometrical length and the length between two magnetic poles in a bar magnet is called magnetic length. Magnetic length is always slightly smaller than geometrical length. The ratio of magnetic length and geometrical length is $\frac{5}{6}$.
- $\frac{Magnetic\ \ lengt\ h}{Geometrical\ \ lengt\ h} = \frac{5}{6} = 0.833$




S
N
NORTHERLY DIRECTION


S
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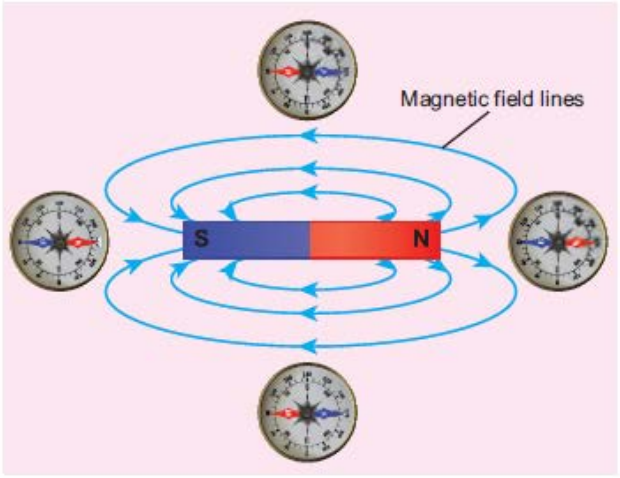
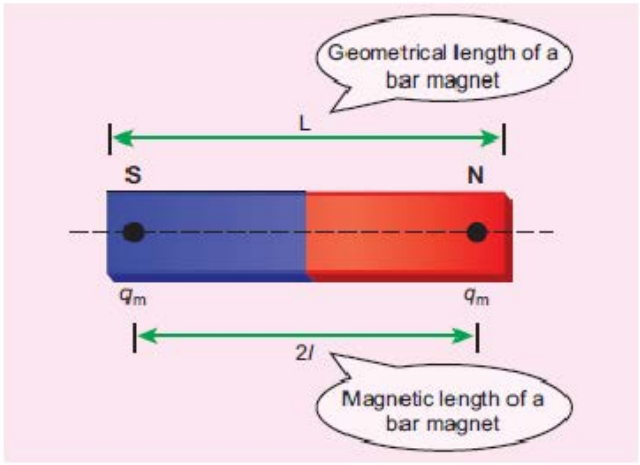

Magnetic field lines
S
N


Geometrical length of a bar magnet
L
S
N
q_m
q_m
2l
Magnetic length of a bar magnet