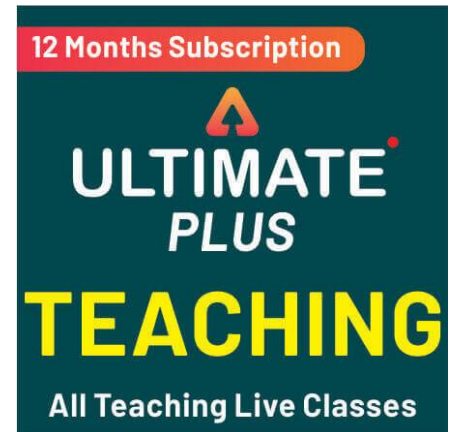


MAGNETS AND THEIR ROLE

Magnetic and Non-magnetic Materials

1. **Magnetic materials:** Those materials that get strongly attracted by a magnet are called magnetic materials. Examples of magnetic materials include iron, cobalt, nickel, and their alloys like steel, etc.
2. **Non-magnetic materials:** Those materials that do not get attracted by the magnets are called non-magnetic materials. Examples of non-magnetic materials include rubber, plastic, stainless steel, glass, water, feather, paper, mica, gold, silver, leather, etc.



Properties and Uses of Magnets

1. The magnets are able to attract the magnetic materials. Since the magnetic materials only get attracted towards a magnet, magnets are very useful in separating the magnetic materials from the non-magnetic materials.
2. For example, when the metal pieces have to be separated from a pile of wastes, huge magnets are used to pull them out.
3. Further, iron fillings can be easily separated from sulphur.
4. When we bring the iron fillings near to a magnet, they get attracted to its end and stick to it.
5. This also shows that the ends of a magnet have maximum magnetic force in case of a bar magnet.
6. These ends of a magnet (e.g., in bar magnet) are called the poles of a magnet.
7. Such magnets that have poles are permanent magnets, that is, their magnetic properties remain constant.
8. A magnetic field is the range of space surrounding a magnet where the magnet's effect can be felt.
9. The arrow on the magnetic lines in the diagram is showing the direction of magnetic force, that is, from North Pole to South Pole.
10. Each magnet has two kinds of poles as when the poles of two magnets are brought near each other in different combinations, the observation is not same.

The poles of the magnet are attracted to each other; however, the other side of one of the magnets showed repulsion between the poles. The naming of the pole of the magnet is based on earth's magnetic field. As earth also behaves like a large magnet, it was observed that if a magnetic needle was suspended freely, it points toward the geographical north; hence, that pole was named as the north pole of the magnet. This also shows that the earth's north geographical pole is its magnetic South Pole and unlike poles attract each other.

This property of magnets is used in a compass, which is a magnetized needle that can spin freely. The compass helps the navigators and sailors to find directions.

