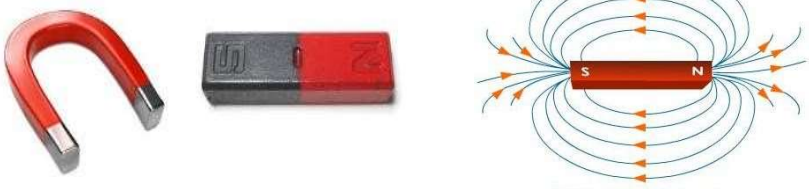
SCIENCE

Fun with Magnets

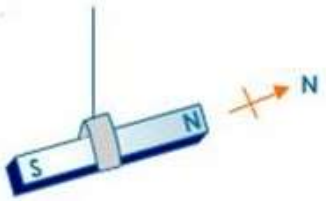
Magnet

- A magnet is a material or an object which produces a magneticfield.



Property of a Magnet

- When a bar magnet is suspended freely, it always comes to rest in the North-Southdirection.



Discovery of Magnets

- The most popular legend for the discovery of magnets is that of an elderly Cretan shepherd named Magnes, who lived about 4,000 yearsago.
- To control his herd, he used a stick which got attached to a rock, and he had to pull hard to free the stick.
- This rock was a natural magnet, and it attracted the iron tip of thestick.
- The rock was named magnetite, after either Magnesia orMagnes.
- Magnets made from pieces of iron are known as artificialmagnets.
- Artificial magnets are available in differentshapes.

Examples:

Bar magnet	
Horse-shoe magnet	
Cylindrical or a ball-ended magnet	

Types of Magnets

- Two major types of magnets are: Permanent magnets and temporarymagnets.

Permanent Magnets

- These magnets retain their magnetism over a long period oftime.

Temporary Magnets

- These magnets retain their magnetic properties only under certainconditions.

Magnetic and Non-Magnetic Materials

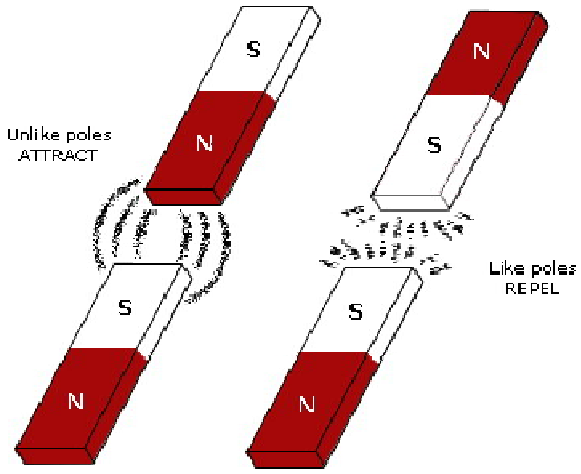
Magnetic Material

- The material which gets attracted towards a magnet is known as magneticmaterial.
- Examples: Iron, nickel andcobalt.

Non-Magnetic Material

- The material which is not attracted towards a magnet is known as non-magneticmaterial.
- Examples: Paper, plastic, wood andglass.

Poles of a Magnet



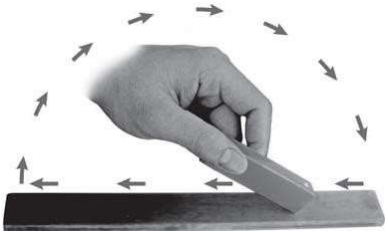
- Magnets have two poles, called the North (N) and the South (S)poles.
- There are no magnets with only onepole.
- The end of the magnet which points towards the North is called the North Pole of the magnet, while the end of the magnet which points towards the South is called the South Pole of themagnet.
- Like poles repel each other, whereas unlike poles attract eachother.

Finding Directions

- A device known as a compass is used as a navigationalinstrument.
- It is usually a small box with a glasscover.
- It has a dial with directions marked on it, and a magnetised needle is pivoted inside the box, which can rotatefreely.

- The compass is kept at a place where directions are to be found and is rotated until the north (N) and the south (S) marked on the dial are at the two ends of theneedle.
- The ‘N’ mark on the compass points to the north. North corresponds to 0°. The angles increase clockwise. So, East is 90°, South is 180° and West is270°.

Make your Own Magnet



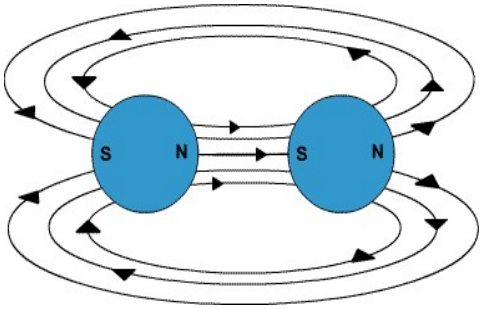
- A magnet can be made using basic materials available at home such as a rectangular piece of iron and a bar magnet by moving it along the length of the ironbar.
- Place a pin or some iron filings near the iron bar to check whether it has become amagnet.

Attraction and Repulsion between Magnets

- Magnets exert forces of attraction or repulsion on eachother.

Attraction

- When two magnets or magnetic objects with different poles are brought close to each other, a force of attraction pulls themtogether.



- Magnets also attract materials such as iron, nickel andcobalt.

Repulsion

- When two magnets or magnetic objects with like poles face each other, a force of repulsion pushes themapart.