Class – 6 - Ch – 12 – Fun with Magnets

III. Short answer type questions

Q.1 What is a magnetic compass used for?

Ans: A magnetic compass is used to find direction; its needle aligns with Earth's magnetic field showing North–South direction.

Q.2 How do small pieces of iron behave when brought close to a magnet?

Ans: Small pieces of iron are attracted and move toward the magnet; they collect at the magnet's poles.

Q.3 How does a magnet behave when brought close to another magnet?

Ans: Two magnets either attract or repel each other depending on which poles face each other: opposite poles attract, like poles repel.

Q.4 What are the materials used to make a permanent magnet?

Ans: Steel, cobalt, nickel, and special alloys like alnico and ferrite are used.

Q.5 Give one property of a permanent magnet.

Ans: A permanent magnet retains its magnetic properties for a very long time.

6. Why does a freely suspended magnet always align itself in a certain direction?

Ans: Because Earth acts like a giant magnet; the suspended magnet aligns with Earth's magnetic field so its north-seeking pole points toward geographic north.

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IV. Long answer type questions

Q.1 Give a short description of any activity to find the poles of a given magnet.

Ans: Activity Description

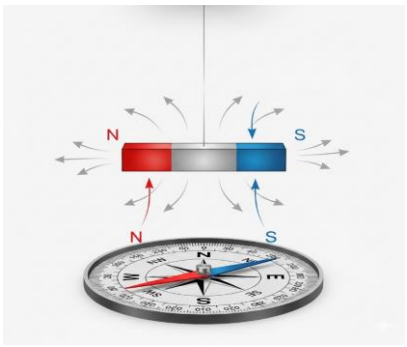
a) To find the poles of a magnet, you can perform a simple activity by freely suspending it.

b) The end of the magnet pointing towards the geographic north is its **North Pole** and the end pointing towards the geographic south is its **South Pole**. This principle is what makes a compass work.

c) Take a bar magnet and tie a thread around its center.

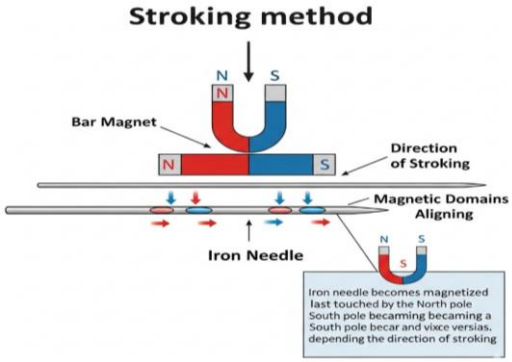
d) Hold the thread and suspend the magnet so it can swing freely.

e) Wait for the magnet to come to rest. The ends of the magnet will align themselves in the north- south direction of the Earth.



Q.2 Explain a simple method by which an iron needle can be magnetized.

Ans:



A simple and effective method to magnetize an iron needle is the **single-touch stroking method**. This process aligns the magnetic domains within the iron needle, turning it into a temporary magnet.

Steps:

a) Take a powerful magnet (like a bar magnet).

b) Place the iron needle on a flat surface.

c) Hold one pole of the bar magnet (e.g., the North Pole) and stroke the iron needle from one end to the other, lifting the magnet completely off the needle after each stroke.

d) Repeat this process for about 20-30 times, always stroking in the **same direction** and using the **same pole** of the magnet.

Explanation:

Inside unmagnetized iron, the tiny magnetic regions called **magnetic domains** are randomly arranged. When you stroke the iron needle with a magnet, the strong magnetic field of the magnet forces these domains to align in the same direction. The end of the needle where you start the stroke will acquire the same polarity as the stroking magnet's pole, while the other end will acquire the opposite polarity. The more you stroke, the more aligned the domains become, and the stronger the resulting magnetism of the needle.

Q.3 Write a short note on 'Care of Magnets'.

Ans: a) Do not drop, hammer, or heat magnets as they lose magnetism.

b) Store bar magnets in pairs with opposite poles together and keepers across the ends.

c) Keep away from moisture and corrosive substances.

d) Avoid placing magnets near sensitive electronic devices.

Q.4 What are magnets used for?

Ans: Magnets are used in compasses for navigation, in electric motors and generators, in loudspeakers, in magnetic storage devices, in medical imaging (MRI), in lifting heavy scrap iron, in maglev trains, and in many household items like fridge magnets and magnetic clasps.