St. XAVIER'S HIGH SCHOOL

Chapter 4
Fun with Magnets

Buzz words

1. **Repel**
2. **Attract**
3. **Magnetic**
4. **Non magnetic**
5. **Poles**
6. **Demagnetisation**
7. **Self demagnetisation**
8. **Natural magnet**
9. **Artificial magnet**
10. **Magnetic compass**

Definitions

1. **Magnetic Materials**- materials that are attracted towards a magnet. (Ex- iron, cobalt, nickel)
2. **Non Magnetic Materials-** materials that are not attracted towards a magnet. (Ex- plastic, paper, rubber, gold, silver)
3. **Demagnetisation**- if a magnet is heated, beated, hammered or dropped from a height it tends to lose its magnetism, this is known as Demagnetisation.
4. **Self Demagnetisation-** when a magnet loses its magnetism if it is not stored properly.
5. **Attractive Property-** the property of a magnet to attract magnetic objects towards itself.
6. **Directive Property-** the property of a magnet by which it arranges itself in the north-south direction.

Short answer type questions

1. What is a magnet? What was the name given to the first magnetic rock discovered?

A magnet is an object that attracts materials like iron, nickel and cobalt. It has two poles—north and south.
The first magnetic rock discovered was called **lodestone**.

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2. You are given a small toy. How will you know whether it is a magnet or not?

We can test it by bringing it near a known magnet.

- If the toy shows **repulsion**, it is definitely a magnet.
- If it only attracts, it may or may not be a magnet.
  Thus, **repulsion is the surest test of magnetism**.

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3. How can Sameeksha remove the fallen pins easily?

She can use a **magnet** to collect the pins. By moving the magnet over the area, the pins will stick to it and can be easily picked up.

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4. Is it possible to make three magnets out of a long, thin strip of a magnet? If yes, how? If no, why not?

Yes, it is possible.
If a long magnet is cut into three pieces, each piece will become a **separate magnet** with its own north and south poles.

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5. Name the instrument a sailor can use to move towards south. Also explain how he can use it.

The instrument is a **magnetic compass**.
It contains a freely rotating needle. The needle always points in the **north-south direction**. By observing the direction opposite to north, the sailor can find the **south direction** and move accordingly.

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6. Why is Anjana's magnet not attracting magnetic substances anymore?

The magnet may have **lost its magnetism** because it was dropped repeatedly. Dropping or heating a magnet can weaken or destroy its magnetic properties.

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7. Why are natural magnets not used in cranes to lift heavy loads?

Natural magnets are **weak** and do not have strong magnetic force.
Cranes require **strong electromagnets** to lift heavy loads, which natural magnets cannot provide.

Q.7 LONG ANSWER QUESTIONS

1. Differentiate between:

(a) Magnetic and Non-magnetic substances

Magnetic Substances	Non-magnetic Substances
Are attracted by a magnet	Are not attracted by a magnet
Example: Iron, cobalt, nickel	Example: Wood, plastic, rubber

(b) Natural and Artificial magnets

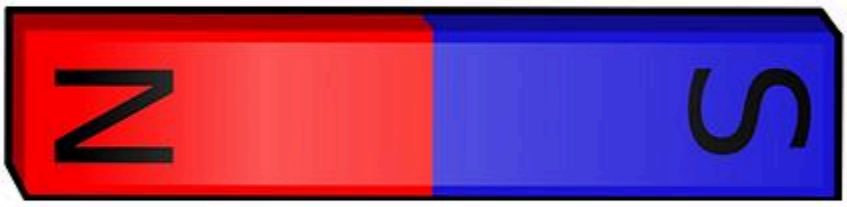
Natural Magnets	Artificial Magnets
Found in nature	Made by humans
Weak in strength	Stronger than natural magnets
Example: Lodestone	Example: Bar magnet, horseshoe magnet

2. What are the poles of a magnet? Discuss. Draw and label.

The **ends of a magnet**, where the magnetic force is strongest, are called **poles**.
There are two poles:

- **North Pole (N)**
- **South Pole (S)**

Like poles repel each other, while unlike poles attract each other.



3. Discuss the properties of a magnet.

The main properties of a magnet are:

1. **Attraction property** – A magnet attracts magnetic materials like iron.
2. **Directive property** – A freely suspended magnet always aligns in the north-south direction.
3. **Poles property** – A magnet has two poles: north and south.
4. **Interaction property** – Like poles repel and unlike poles attract each other.
5. **Poles cannot exist alone** – If a magnet is cut, each piece will have both poles.
