

St. Andrews Scots Sr. Sec. School

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Session: 2024-2025 – Answer Key

Class: VI

Subject: Science

Chapter: Introduction to Magnetism

CHECK POINT 1

1. Magnetite, lodestone
2. Magnetic
3. Magnet
4. Magnesia

CHECK POINT 2

1. True
2. True
3. False
4. True

CHECK POINT 3

1. Directive property
2. North pole
3. Magnetic Compass
4. Keeper

Define these terms:

1. Magnetic domains:- It is a region in which the magnetic field of atoms are group together and aligned.
2. Magnetic field:- The area around the magnet in which magnetic materials are attracted is called magnetic field.
3. Demagnetisation:- The process of reducing or eliminating a materials magnetic properties is called demagnetisation.
4. Electromagnet:- It is the magnet that is uses an electric current to create a magnetic field.
5. Non magnetic material:- Material which are not attracted by magnets are called non magnetic material.

PRACTICE TIME

A. Tick the correct answer :-

1. (d)
2. (d)
3. (c)
4. (a)
5. (d)

B. Matching:-

1. (C)
2. (D)
3. (E)
4. (B)
5. (A)

C. Very Short answer type:-

1. A magnet is a substance that has the property of attracting objects made of iron, nickel, cobalt and their alloys.
2. Materials such as iron, nickel, cobalt and their alloys are attracted by the magnet. Such materials are called magnetic materials.
3. Materials such as wood, plastic, rubber, paper, brass, cotton, glass, copper, aluminium, stainless steel, etc. are not attracted by the magnet. They are called non magnetic materials
4. A freely suspended magnet rests in the north-south direction.
5. When like poles of two magnets are brought close to each other, the two magnets repel each other.
6. When a magnet loses its power, it is called demagnetised.

D. Short answer type questions:-

1. Magnets made from the pieces of iron are known as artificial magnets. Artificial magnets are made in rectangular, cylindrical, dumb bell shape horseshoe shape, ring shape and in needle shape.

2. The poles of a magnet always exist in a pair. If we break a magnet into two parts, each part will behave like a magnet, i.e., it will again have a north pole and a south pole.
3. When the magnetic compass is placed on a horizontal surface and the needle is allowed to come to rest, the needle aligns itself along north-south direction. The north pole of needle points towards the north and the south pole points towards the south. So the directions can be located easily with the help of a magnetic compass.
4. Precautions to be taken while handling magnets are:
 - Never hit or beat a magnet with anything.
 - Do not throw a magnet or let it fall on the floor.
 - Do not heat a magnet.
5. A magnet loses its power when it is dropped frequently or hammered or brought in contact with other magnets repeatedly or heated to a certain temperature.
6. The attractive property of a magnet is used to separate magnetic materials from nonmagnetic materials such as removing iron pieces from junk, adulteration of iron dust from tea leaves, etc.

E. Long answer type questions:-

1. An iron bar can be magnetised by following procedure:

Lay an iron bar on a table. Hold a bar magnet vertically at one end of the iron bar, so that one of the poles of the magnet (say N-pole) touches the iron bar. Rub the magnet along the length of the iron bar, till you reach its other end. Lift the magnet from the other end vertically and bring it back in the direction, so that the same pole touches the iron bar again.

Repeat the process for at least 40–50 times, until the iron bar gets magnetised.

Now, test it for magnetic property by bringing small iron pins near it.

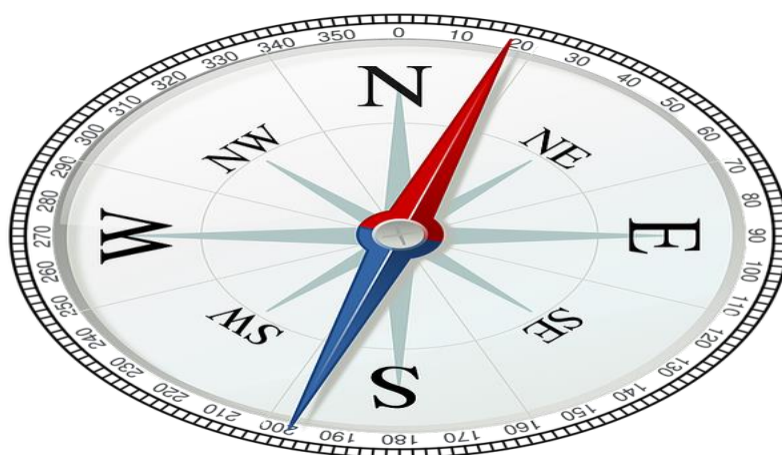
2. Repulsion is the sure test of magnetism. It can be proved by performing the following activity:

Suspend a bar magnet and bring any end of the object to be tested close to both the poles of the suspended magnet one-by-one.

If the end of the object is attracted by both the poles, then it is simply a magnetic substance and if the end of the object is repelled by one of the poles of the suspended magnet, then it is a magnet.

3. A magnetic compass consists of a small and lightweight magnetic needle pivoted at its mid-point so that it can freely rotate in a horizontal plane. The needle is enclosed in a flat circular aluminium box with a glass plate at the top. At the base of the box, the four main Directions the north (N), south (S), east (E) and west (W) and four subdirections, north-east (N-E), north- west (N-W), south-east (S-E) and south-west (S-W) are marked. Generally, the north pole of the magnetic needle is painted red and the south pole Blue or black.

Uses: A magnetic compass is used by sailors, navigators, pilots, soldiers, mountaineers, etc. to find the directions. It is also used by students in performing scientific experiments.



4. The power of a magnet is concentrated at its poles. It can be shown by the following activity:

Hold a magnet in one hand and a safety pin in the other hand. Bring both things close to each other. See that one of the poles of the magnet picks up the pin. Remove the safety pin from this pole and try to stick it to point A, slightly away from the pole, as shown in the figure. Similarly, try to stick the pin at point B of the magnet. The safety pin again goes back to the nearest pole. Now, remove the safety pin from the pole and try to stick it to the centre of the bar magnet at point C. The magnet does not hold the safety pin at its centre. Now, remove the safety pin from the pole and try to stick it to the centre of the bar magnet at point C. The magnet does not hold the safety pin at its centre.

This shows that the power of a magnet is the maximum at its poles and the minimum or negligible at its centre.

5. The magnetic behaviour of the earth is due to the movement of magnetic materials (iron and nickel) found in the molten state in the earth's core.

F. HOTS Questions :-

1. We can use a magnet to find out the missed needle easily because needle is a magnetic material.
2. When magnets are dropped frequently or hammered, they lose their magnetism because these activities disturb the alignment of atoms of magnet in their magnetic domains in which they are grouped.
4. To find the direction at a place, we can use the directive property of magnet as follows:

Tie one end of a thread in the middle of a bar magnet and suspend it from a wooden stand. Allow the magnet to come to rest. In the meanwhile, mark the directions on a piece of paper and place it on the base of the stand, with its centre just below the magnet. Disturb the direction of the magnet and allow it to come to rest.

Note the direction in which the magnet aligns itself after coming to rest. The magnet always rests in the same direction, i.e., north-south direction.

The direction left-hand side to north-south direction is always west. In this way, we can find the direction by using a bar magnet.

