



Class - VI January Month Class Work Notes

13. Magnets and Magnetism

Technical Words:

1. **Magnet** - an object that has the ability to attract objects that are made of certain materials
2. **Magnetic** - field the space around a magnet where the magnetic force of the magnet is exerted.
3. **Magnetic** - force the force exerted by a magnet on a magnetic material or an object that is made of a magnetic material.
4. **Repulsion** - the movement of objects away from each other due to a force pushing them apart.

A. **Short answer question.**

1. How will you decide if a material is magnetic or non-magnetic? Explain the process.

[Answer] To determine if a material is magnetic, one can bring a magnet close to it. If the material is attracted to the magnet, it is magnetic; if not, it is non-magnetic.

2. How can we identify the poles of a magnet?

[Answer] The ends of a magnet are called its poles. One can identify the poles of the magnet by placing it near iron filings. The places on the magnet where maximum iron filings stick are its poles. It is on the poles that the magnetic force is the strongest.

3. Is it possible to make a magnet with only one pole (north or south)? Why or why not?

[Answer] No, it is not possible to make a magnet with only one pole because magnets always have two poles, a north and a south pole. If a magnet is broken, each piece will have its own pair of poles.

4. What are the three types of magnets?

[Answer] The three types of magnets are permanent magnets, temporary magnets and electromagnets.

5. Why should you gently handle magnets? What will happen if they are dropped or hit repeatedly?

[Answer] Magnets should be handled gently because dropping or hitting them can weaken their magnetic properties or even break them. This can make them less effective in their intended applications.

B. Long answer question.

1. How will you identify the four directions if you are lost in the forest with a compass on your phone?

[Answer] To identify the four directions using a compass on one's phone, hold the phone flat and level, and observe where the compass needle points. The end of the needle that points to the 'N' on the compass represents the north direction. From there, one can determine east, west and south by following the clockwise sequence.

2. Why is repulsion said to be the surest test of a magnet?

[Answer] Repulsion is considered the surest test of a magnet because one end of the material will repel the like pole of the magnet. If both ends of a material attract the magnet, it is not a magnet but a magnetic material.

3. Why is the Earth said to be a magnet?

[Answer] The Earth, as a whole, behaves like a magnet. It has a magnetic field. The north pole of the Earth's magnetic field is near the geographic South Pole and the south pole of the Earth's magnetic field is near the geographic North Pole. Since unlike poles attract, the north pole and south pole of a freely suspended magnet are drawn towards the magnetic south pole and north pole of the Earth's magnet, respectively. Thus, a freely suspended magnet always comes to rest in the north-south direction.

4. Describe the process that you would follow if you wanted to magnetise a paper clip made of iron?

[Answer] To magnetise a paper clip made of iron, you can rub a strong bar magnet along the length of the paper clip repeatedly in one direction. This process aligns the magnetic domains in the iron, making it a temporary magnet.

5. List five uses of magnets.

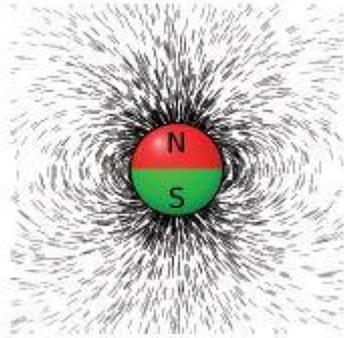
[Answer] Uses of magnets include: Compasses for navigation, Electric motors and generators, Magnetic closure mechanisms in bags and doors, Magnetic resonance imaging (MRI) in medicine, Data storage devices like hard drives.

6. Describe how we should store magnets.

[Answer] Magnets should be stored by keeping them away from magnetic materials like iron or steel to prevent them from losing their magnetism. They should also be stored in pairs with their opposite poles facing each other to avoid unintended attraction or repulsion. Storing magnets in a cool, dry place is essential to prevent corrosion and damage.

C. Image-based question.

1. When a circular magnet is kept with some iron filings, they arrange themselves as shown below.
Why does this happen?



[Answer] This happens because magnets have two poles, a north pole and a south pole. When iron filings are sprinkled near a circular magnet, they align themselves along the magnetic field lines produced by the magnet. The iron filings act like tiny magnets and arrange themselves to connect the north and south poles of the circular magnet, following the direction of the magnetic field lines. This arrangement demonstrates the magnetic field pattern around the circular magnet.

1. Assertion: A magnet always has two poles.

Reason: A magnet can have more than two poles depending on its shape.

Ans: Option C

2. Assertion: The magnetic field around a magnet is strongest at its poles.

Reason: The magnetic field lines are closest together at the poles of the magnet.

Ans: Option A