

**Grade 6**  
**Reading - Science**

**“The Marvelous World of Magnetism”**

Magnetism is a force of attraction or repulsion that acts at a distance. It is due to the motion of electric charges. Everything that exists is made up of particles that have some kind of electrical charge. When particles are charged and moving, they create a magnetic field. This invisible area around the magnet is what causes the force of magnetism. The strongest areas of a magnet are at its ends, which are called poles.

There are two types of poles: north and south. Like poles repel each other, and opposite poles attract. This is similar to electric charges, where like charges repel and opposite charges attract. If you take a bar magnet and cut it in half, you will get two new magnets, each with a north and a south pole. No matter how many times you divide a magnet, you will always get smaller magnets with both a north and south pole.

One of the most common types of magnets that we interact with is a refrigerator magnet. These are usually permanent magnets, which keep their magnetic properties over time. Another type is an electromagnet, which is made by passing an electric current through a wire. An electromagnet's strength can be adjusted by changing the amount of electric current that flows through the wire.

The Earth itself acts like a giant magnet. The planet's magnetic field is created by the movement of molten metal inside its core. This magnetic field protects the Earth from harmful solar radiation. Without it, life as we know it could not exist. Compasses work because they have a tiny bar magnet inside them that aligns with the Earth's magnetic field, pointing north and south.

Understanding magnetism is crucial in many areas of science and technology. For instance, magnets are used in medicine to create images of the inside of the body through MRI machines. They are also used to generate electricity in power plants. The more we learn about magnetism, the more we can use it to our advantage in various fields.

Multiple Choice Questions:

1. What is magnetism?
  - A) A force of repulsion only
  - B) A force of attraction only
  - C) A force of attraction or repulsion that acts at a distance
  - D) The motion of electric charges
  
2. What are the strongest areas of a magnet called?
  - A) Edges
  - B) Poles
  - C) Center
  - D) Surface
  
3. What happens when like poles of two magnets are brought close to each other?
  - A) They attract
  - B) They repel
  - C) Nothing
  - D) They stick together

4. What type of magnet can have its strength adjusted?

- A) Permanent magnet
- B) Bar magnet
- C) Electromagnet
- D) Refrigerator magnet

5. How does the Earth protect itself from harmful solar radiation?

- A) With its atmosphere
- B) With its magnetic field
- C) With its oceans
- D) With its mountains

6. What do compasses align with to point north and south?

- A) The Sun
- B) The Moon
- C) The Earth's magnetic field
- D) The stars

7. What is a permanent magnet?

- A) A magnet that loses its magnetism over time
- B) A magnet that can have its strength adjusted
- C) A magnet that keeps its magnetic properties over time
- D) A magnet that does not have poles

8. What is created by the movement of electric charges?

- A) Electric field
- B) Magnetic field
- C) Gravitational field
- D) Friction

9. What happens when a bar magnet is cut in half?

- A) It loses its magnetism
- B) One half becomes a north pole, and the other becomes a south pole
- C) Each half becomes a new magnet with both a north and south pole
- D) It becomes an electromagnet

10. Where are magnets used in medicine?

- A) For surgeries
- B) To create images of the inside of the body
- C) For dental work
- D) To measure blood pressure

Answers:

- 1) Answer: C) A force of attraction or repulsion that acts at a distance | Explanation: Magnetism is a force that can either attract or repel, and it acts at a distance due to the motion of electric charges.
- 2) Answer: B) Poles | Explanation: The strongest areas of a magnet are at its ends, which are called poles.
- 3) Answer: B) They repel | Explanation: Like poles of magnets repel each other, while opposite poles attract.
- 4) Answer: C) Electromagnet | Explanation: An electromagnet is made by passing an electric current through a wire, and its strength can be adjusted by changing the amount of current.
- 5) Answer: B) With its magnetic field | Explanation: The Earth's magnetic field, created by the movement of molten metal inside its core, protects the planet from harmful solar radiation.
- 6) Answer: C) The Earth's magnetic field | Explanation: Compasses have a tiny bar magnet inside them that aligns with the Earth's magnetic field, pointing north and south.
- 7) Answer: C) A magnet that keeps its magnetic properties over time | Explanation: A permanent magnet retains its magnetic properties over a long period, unlike temporary magnets.
- 8) Answer: B) Magnetic field | Explanation: The movement of electric charges creates a magnetic field, which is an area around the magnet where magnetic forces can be felt.
- 9) Answer: C) Each half becomes a new magnet with both a north and south pole | Explanation: No matter how many times you divide a magnet, you will always get smaller magnets with both a north and south pole.
- 10) Answer: B) To create images of the inside of the body | Explanation: Magnets are used in medicine in MRI machines, which create detailed images of the inside of the body.