

Science Y3 Autumn 1 Magnets

In this unit of work the children use first-hand experiences to investigate magnets. They will find out the names of the 2 poles on a magnet and observe what happens when they put the same and then opposite ends of the magnet together. They will conduct investigations into which materials are magnetic and non-magnetic.

In this unit children will:

- Children will investigate how magnets work and can differ in shape and size and find some of the different uses for them.
- They will find out how some forces need contact between 2 objects, but magnetic forces can act at a distance.
- The children will get to explore how the south and north pole differ on a magnet and investigate what repel and attract means.
- Through investigative work they will compare and group materials on the basis of whether they attracted to a magnet and identify some magnetic materials.
- Through first-hand experience they will make predictions as to whether 2 magnets will attract or repel each other, depending on which poles are facing.

Prior Learning

EYFS Know that there are similarities and differences in materials.

Year 1 Materials – know the names of simple materials and their properties.

Year 2 Materials – how a particular material is chosen to make an object because of the properties it has.

Cross Curricular Links

Geography Map work and looking at how the Earth works.

Key Vocabulary

Magnet - A material or object that produces a magnetic field. It attracts or repels magnetic objects, including iron.

Metal – A hard substance such as iron, steel, gold or lead.

Non - magnetic – An object that is not magnetic and will repel.

Opposite – Opposite is used to describe things of the same kind which are completely different in a particular way. For example North and South are opposite directions.

Push – When you push something, you use force to make it move away from you or away from its previous position.

Pull – When you pull something you hold it firmly and use force in order to move it away from you or away from its previous position.

Nuclear - relating to the nucleus of an atom.

Attract – If one object attracts another object, it causes the second object to move towards it..

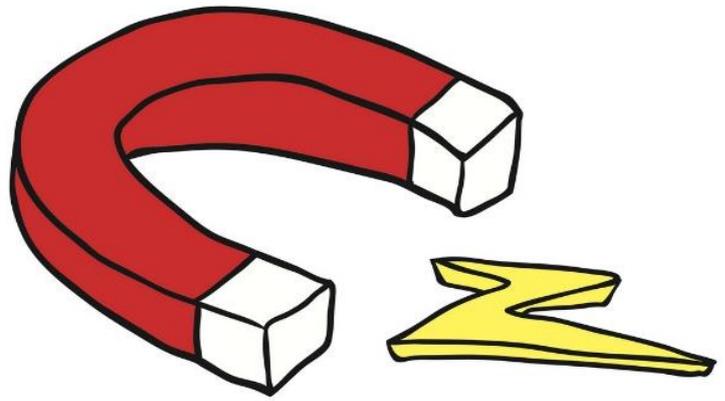
Repel – When a magnetic pole repels another magnetic pole, it gives out a force that pushes the other pole away.

Friction - The resistance of motion when one object rubs against another. Friction causes objects to slow down and the energy becomes heat.

Surface – The flat top part of something or the outside of it.

Key Knowledge

- All **forces** can be thought of as a **push** or a **pull** OR all forces can be thought of as **attracting** or **repelling**.
- **Forces act** on objects.
- **Forces** can cause movement and change of shape. They can also act on objects without causing movement or change of shape. **Forces** do not always have an obvious effect.
- **Magnets** are objects that produce an area of magnetic force called a **magnetic field**.
- When objects enter a magnetic field they will be attracted or repelled from the magnet, if they are magnetic.
- When magnets repel, they push away from each other.
- When magnets attract, they pull together.
- Objects that are attracted to magnets are magnetic.
- Iron and steel are magnetic.
- Aluminium and copper are non-magnetic.
- The ends of a magnet are called poles, one end is the north pole and the other end is the south pole.
- Opposite poles attract, similar poles repel.
- If you place 2 magnets so the south pole of one faces the north pole of another, the magnets will move towards each other. This is called attraction.
- If you place the magnets so that two of the same poles face each other, the magnets will move away from each other. They are repelling each other.



- The **Earth** is a giant **magnet**. Its magnetic field is like a bar magnet at its centre.
- Neodymium **magnets** are some of the world's strongest magnets.

Key Questions

- What affects the strength of a magnet?
- What everyday objects use magnets?
- Why isn't plastic magnetic?
- How many different types of magnet are there?