

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:

Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance

Observe how magnets attract or repel each other and attract or repel some materials and not others

Compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials.

Describe magnets as having 2 poles

Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.

Children will investigate how magnets work and can differ in shape and size and find some of the different uses for them.

The children will get to explore how the south and north pole differ on a magnet and investigate what repels and attracts.

Use classification evidence to identify that some materials, but not all are magnetic.

Compare the strength of different magnets using a fair test and report their findings.

Prior Learning

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 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.

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 magnets are there?