

Key learning

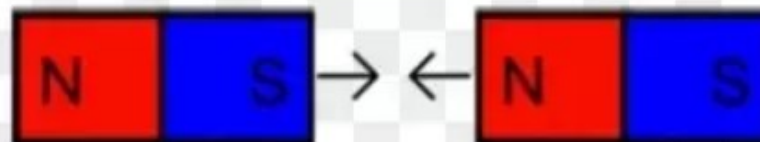
A force is a push or a pull and is measured in Newtons. Friction is a force between two surfaces that are sliding against each other. A push, pull and friction all need contact between two objects for the force to make the object move.

Magnets create pushing and pulling forces and do not need contact to work. Magnetic forces act at a distance. For example, a magnet will attract or pull paper clips towards it without touching the paperclips.

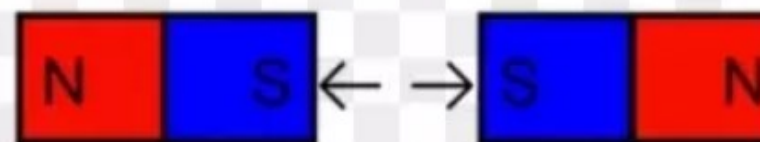
The two ends of a magnet are known as the north and south poles. If the same poles are facing each other, the magnets will push or repel each other and they will not touch. If the opposite poles are facing each other, the magnets will pull or attract each other and they will touch.

Everyday materials can be sorted into magnetic and non-magnetic. Magnetic materials will stick to magnets and non-magnetic materials will not. Nickel, iron and cobalt and their alloys are magnetic. Steel is magnetic because it is an alloy which contains iron. Copper coins are not magnetic as they don't contain iron, nickel or cobalt.

Magnets are used in everyday life for a wide variety of purposes. Huge magnets are used at scrap yards to help lift cars and other scrap metal. Fridge and freezer doors have magnetic seals to ensure the door stays shut. MRI (Magnetic Resonance Imagers) machines are used in hospitals to help doctors look at the soft tissue and organs inside a human body.



Opposite poles attract



Same poles repel



Prior Learning to Reactive

This is the first time this subject is discretely taught within the Primary Curriculum.

- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Year 2- the word force will be introduced)

Scientific Skills

Comparing how different things move and grouping them.

Raising questions and carrying out tests to find out how far things move on different surfaces, and gathering and recording data to find answers to their questions.

Exploring the strengths of different magnets and finding a fair way to compare them.

Sorting materials into those that are magnetic and those that are not.

Looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another.

Identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

Key vocabulary

Force	An influence which changes the direction of an object, usually a push or a pull.
Friction	The resistance that a surface or an object encounters when moving over another.
Attract	A physical force which pulls objects towards magnets.
Repel	A physical force which pushes objects away from magnets.
Magnet	An object or device that gives off an external magnetic field.
Magnetism	A physical phenomenon which results in attractive or repulsive force between two objects.
Magnetic pole	The two points of a magnet from which the lines of magnetic force are directed.
Magnetic field	The area around a magnet within which the force of magnetism acts.