

Key Vocabulary:

Force – A force is a push or pull acting on an object as a result of the object's interaction with another object. Forces can make objects stop or start moving

Contact – Two things touching e.g. chair and hand

Distance – A space between two things e.g. magnet and material

Friction – When objects are pushed or pulled, an opposing force can be felt. This opposite force is called 'friction'.

Surface – The outside part or uppermost layer of something e.g. table, carpet etc

Magnet – A special object that produces a magnetic field. It attracts magnetic objects and repels non magnetic objects

Magnetic – Things that are magnetic are attracted to metal like iron, nickel, cobalt or steel

Attract – To pull together or draw in

Repel – To push back or away away

Materials – The matter from which a thing is or can be made

Poles – The two ends of a magnet are known as poles. There is the north pole and the south pole



Holy Family Halewood Year 3 & 4 Science Forces and Magnets



Learning Objectives:

- To explore what forces are and notice that some forces need contact between two objects, but magnetic forces can act at a distance
- To compare how things move on different surfaces
- To observe how magnets attract or repel each other and attract some materials and not others
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, & identify some magnetic materials
- To describe magnets as having two poles
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Friction:

Friction causes things to slow down or stop. The grip on our shoes stops us slipping.

Ice-skates on an ice-rink will move for a long time because there is very little friction. The rougher the surface, the greater the friction.



This rubbing of two surfaces can release energy, causing heat. (Try rubbing your hands together!)

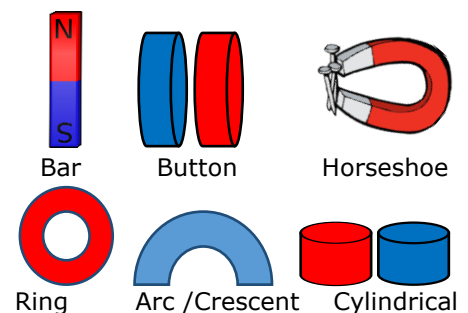


What is a Magnet?

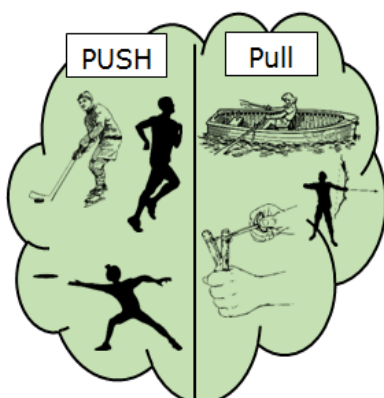
A magnet is a special object which produces an area of magnetic force around itself called a **magnetic field**.

If a **metal** object enters this magnetic field, they will be attracted towards the magnet and end up sticking to it. (Non-metallic objects such as wood, plastic or fabric would not be attracted to it.)

Here is a range of different magnets:



Pushes and Pulls:



Magnetic Poles:

When two magnets are close, they create pushing or pulling **forces** on one another. These forces are strongest at the ends of the magnets. The two ends of a magnet are known as the **north pole (N)** and the **south pole (S)**.

The Same poles repel / The opposite poles attract

If you try to put two magnets together with the **same** poles pointing towards one another, the magnets will push away from each other. We say they **repel** each other. Opposite poles **attract** and are brought together.

