

Year 3

Unit: Forces and magnets

Prior learning

EYFS – Explore how things work.
 EYFS – Explore and talk about different forces they can feel
 EYFS – Talk about the differences between materials and changes they notice.
 Year 2 – Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.

Later learning (not in Year 3)

Year 5 – Explain that unsupported objects fall towards the Earth because of gravity.
 Year 5 – Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.

Key Questions:

- What are the names of the poles found at each end of a magnet?
- Name a metal that is not magnetic.
- Name a pulling force.
- Name a pushing force.
- Where does the needle on a compass point?
- Name an object that is magnetic.
- Name an object that is not magnetic.

Intent:

Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
 Observe how magnets attract or repel each other and attract some materials and not others.
 Compare and group together everyday materials based on whether they are attracted to a magnet.
 Describe magnets as having two poles.

Different **surfaces** create different amounts of **friction**. The amount of **friction** created by an object moving over a **surface** depends on the roughness of the **surface** and the object, and the **force** between them.

The driving **force** pushes the bicycle, making it move.

Friction pushes on the bicycle, slowing it down.

Grass, Gravel, Sand, Road

Pushes

Pulls

Forces will change the motion of an object. They will either make it start to move, speed up, slow it down or even make it stop.

Like **poles** repel. Opposite **poles** attract.

A **magnetic field** is invisible. You can see the **magnetic field** here though. This is what happens when iron filings are placed on top of a piece of paper with a **magnet** underneath.

The needle in a compass is a **magnet**. A compass always points north-south on Earth.

Magnetic ✓

These objects contain iron, nickel or cobalt. Not all metals are **magnetic**.

Non-magnetic ✗

These objects do not contain iron, nickel or cobalt.

Vocabulary

Attract	Attraction is a force that pulls objects together. For example, when a north pole is placed near the south pole of another magnet, the two poles attract (pull together).
Forces	Pushes or pulls.
Friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
Magnet	An object which produces a magnetic force that pulls certain objects towards it.
Magnetic	Objects which are attracted to a magnet are magnetic. Objects containing iron, nickel or cobalt metals are magnetic.
Magnetic field	The area around a magnet where there is a magnetic force which will pull magnetic objects towards the magnet.
Poles	North and south poles are found at different ends of a magnet.
Repel	Repulsion is a force that pushes objects away. For example, when a north pole is placed near the north pole of another magnet, the two poles repel (push away from each other).
Surface	The top layer of something.