

**What should I already know?**

- The shape of some materials can be changed when they are **stretched, twisted, bent** and **squashed**.
- Know how different toys move.
- Know what a **force** is and be able to explain that a **push** and **pull** are types of **forces**.
- That when **forces** are applied to an object they allow them to move or stop moving.
- The strength of the **force** determines how far and fast an object moves.

**Big ideas this works towards:**

*Forces are different kinds of pushes and pulls that act on all the matter that is in the universe. Matter is all the stuff, or mass, in the universe.*

**Vocabulary**

attract	If one object <b>attracts</b> another object, it causes the second object to move towards it
bendy	an object that bends easily into a curved shape
friction	the <b>resistance</b> of <b>motion</b> when there is contact between two <b>surfaces</b>
force	the <b>pulling</b> or <b>pushing</b> effect that something has on something else
gravity	the <b>force</b> which causes things to drop to the ground
magnet	a piece of iron or other material which attracts <b>magnetic</b> materials towards it
magnetic field	an area around a <b>magnet</b> , or something functioning as a magnet, in which the <b>magnet's</b> power to <b>attract</b> things is felt
metal	a hard substance such as iron, steel, gold, or lead
motion	the activity of changing position or moving from one place to another
non-magnetic	an object that is not <b>magnetic</b>
opposite	<b>Opposite</b> is used to describe things of the same kind which are completely different in a particular way. For example, north and south are <b>opposite</b> directions
position	The <b>position</b> of someone or something is the place where they are in relation to other things
pull	When you <b>pull</b> something, you hold it firmly and use <b>force</b> in order to move it towards you or away from its previous <b>position</b>
push	When you <b>push</b> something, you use <b>force</b> to make it move away from you or away from its previous position
resistance	a <b>force</b> which slows down a moving object or vehicle
squash	pressed or crushed with such <b>force</b> that something loses its shape
stretchy	slightly elastic
surface	the flat top part of something or the outside of it
twist	turn something to make a spiral shape

**What will I know by the end of the unit?**

What are forces?

- **Forces** are **pushes** and **pulls**.
- These **forces** change the **motion** of an object.
- They will make it start to move or speed up, slow it down or even make it stop.
- For example, when a cyclist **pushes** down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves.
- When the cyclist **pulls** the brakes, the bike slows down and eventually stops.

How do different surfaces affect the motion of an object?

- **Forces** act in **opposite** directions to each other.
- When an object moves across a surface, **friction** acts as an **opposite** force.
- **Friction** is a **force** that holds back the **motion** of an object.
- Some **surfaces** create more **friction** than others which means that objects move across them slower.
- On a ramp, the **force** that causes the object to move downwards is **gravity**.
- Objects move differently depending on the **surface** of the object itself and the **surface** of the ramp.

How do magnets work?



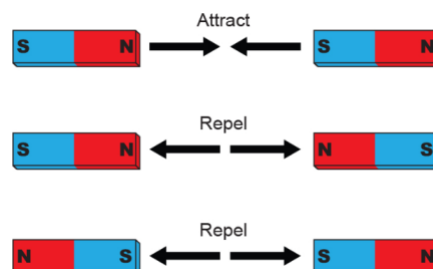
- **Magnets** produce an area of **force** around them called a **magnetic field**.
- When objects enter this **magnetic field**, they will be **attracted** to or **repelled** from the **magnet** if they are **magnetic**.
- When **magnets repel**, the **push** each other away
- When **magnets attract**, they **pull** together.

Which materials are magnetic?

- Objects that are **magnetic**, are **attracted** to **magnets**.
- Iron and steel are **magnetic**.
- Aluminium and copper are **non-magnetic**.

How do magnetic poles work?

- The ends of a **magnet** are called poles.
- One end is called the north pole and the other end is called the south pole.
- **Opposite** poles **attract**, similar poles **repel**.
- If you place two **magnets** so the south pole of one faces the north pole of the other, 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.



**Year 3 - Science**

**Topic: Forces and Magnets**

**What can magnets do?**

**Physics**

