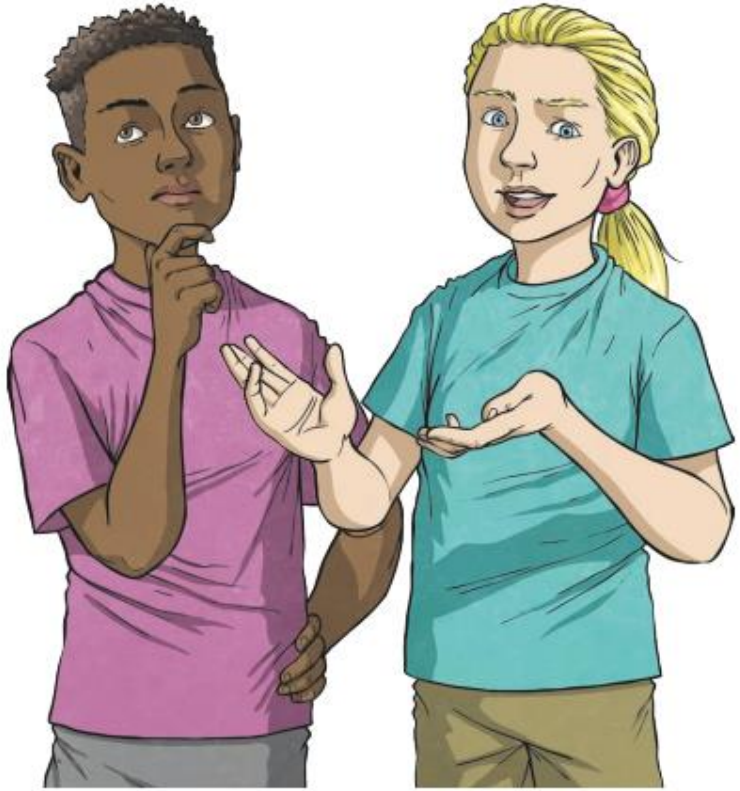
Forces and Magnets

Key Vocabulary	
forces	Pushes or pulls.
friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
surface	The top layer of something.



To look at all the planning resources linked to the Forces and Magnets unit, click here.

Key Knowledge

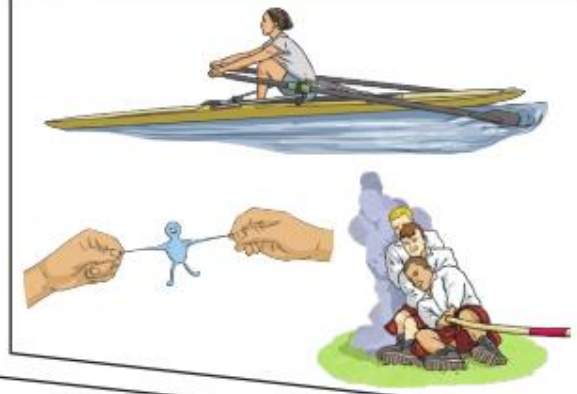
Different surfaces create different amounts of friction. The amount of friction created by an object moving over a surface depends on the roughness of the surface and the object, and the force between them.

The driving force pushes the bicycle, making it move.

Friction pushes on the bicycle, slowing it down.

Pushes

Pulls

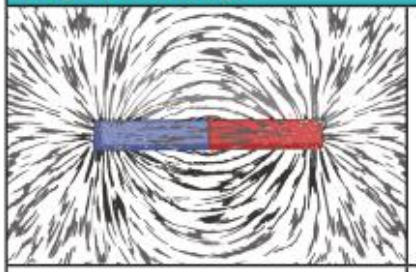


Forces will change the motion of an object.
They will either make it start to move, speed up, slow it down or even make it stop.

Key Vocabulary

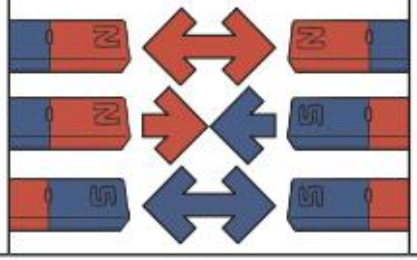
magnet	An object which produces a magnetic force that pulls certain objects towards it.
magnetic	Objects which are attracted to a magnet are magnetic. Objects containing iron, nickel or cobalt metals are magnetic.
magnetic field	The area around a magnet where there is a magnetic force which will pull 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).
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).

Key Knowledge



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.

States of Matter

Year 4

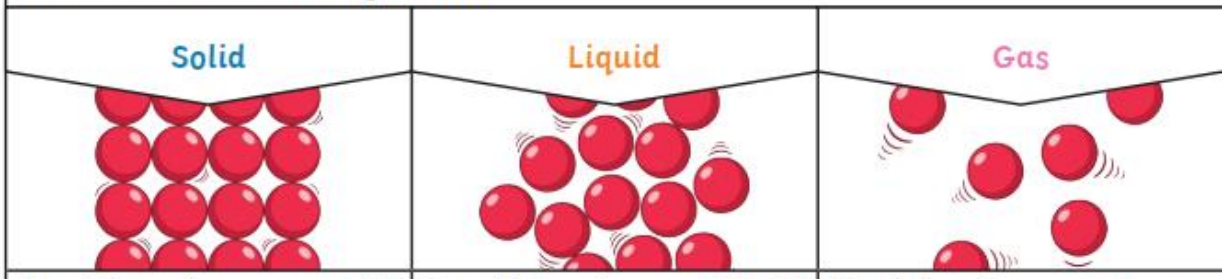
Key Vocabulary

states of matter	Materials can be one of three states: **solids**, **liquids** or **gases**. Some materials can change from one state to another and back again.
solids	These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. **Solids** take up the same amount of space no matter what has happened to them.
liquids	**Liquids** take the shape of their container. They can change shape but do not change the amount of space they take up. They can flow or be poured.
gases	**Gases** can spread out to completely fill the container or room they are in. They do not have any fixed shape but they do have a mass.
water vapour	This is water that takes the form of a **gas**. When water is boiled, it **evaporates** into a **water vapour**.

To look at all the planning resources linked to the States of Matter unit, click here.

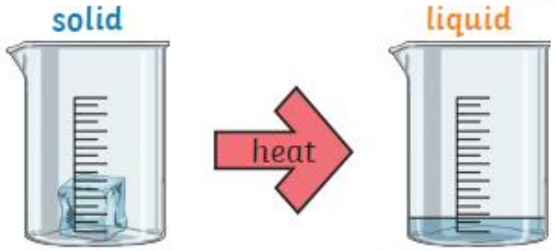
Key Knowledge

There are three states of matter.

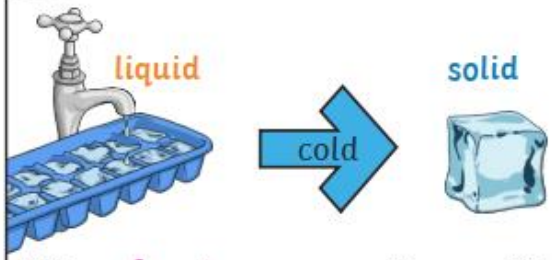


Solid	Liquid	Gas
Particles in a **solid** are close together and cannot move. They can only vibrate.	Particles in a **liquid** are close together but can move around each other easily.	Particles in a **gas** are spread out and can move around very quickly in all directions.

When water and other **liquids** reach a certain temperature, they change state into a **solid** or a **gas**. The temperatures that these changes happen at are called the boiling, **melting** or **freezing** point.



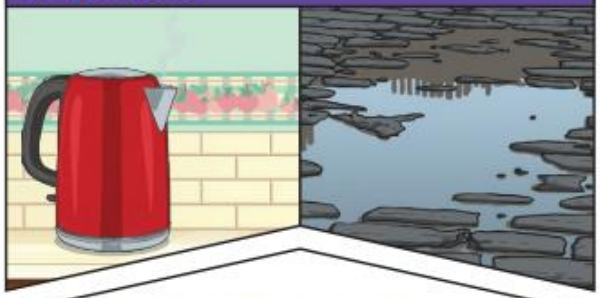
If a **solid** is heated to its **melting** point, it **melts** and changes to a **liquid**. This is because the particles start to move faster and faster until they are able to move over and around each other.



When **freezing** occurs, the particles in the **liquid** begin to slow down as they get colder and colder. They can then only move gently on the spot, giving them a **solid** structure.

Key Vocabulary	
melt	This is when a solid changes to a liquid.
freeze	Liquid turns to a solid during the freezing process.
evaporate	Turn a liquid into a gas.
condense	Turn a gas into a liquid.
precipitation	Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.

Evaporation



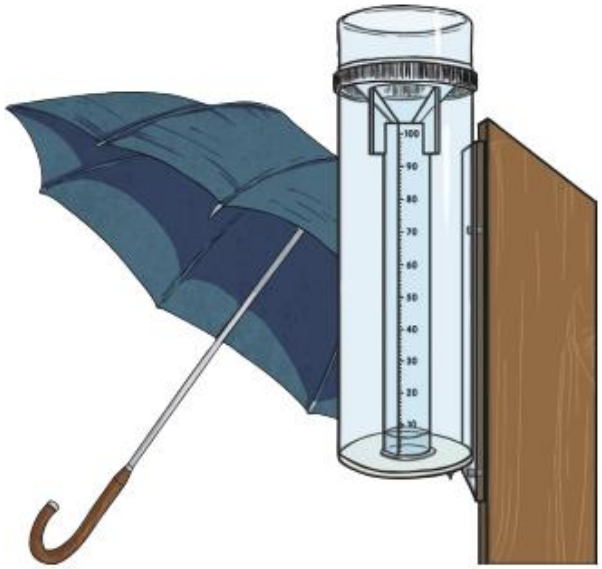
Evaporation occurs when water turns into water vapour. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air.

Condensation

Condensation is when water vapour is cooled down and turns into water. You can see this when droplets of water form on a window. The water vapour in the air cools when it touches the cold surface.

Condensation and **evaporation** occur within the water cycle.

1. Water from lakes, puddles, rivers and seas is **evaporated** by the sun's heat, turning it into water vapour.
2. This water vapour rises, then cools down to form water droplets in clouds (**condensation**).
3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (**precipitation**).



Maths

In maths, children will be learning about perimeter and length using different measures relating to grids, rectangles and rectilinear shapes. This will be followed by multiplying and dividing by 10 and 100 and then multiplication and division using the 3, 6, 9 and 7 times tables.

PE

The children will continue with the 20:20 Challenges and then the MK Sports Challenges including dance.

English

In English, children will be writing a non-chronological text (Information Text) based on dragons. This will include the text features headings, subheadings, using paragraphs, technical vocabulary and a glossary. They will then explore how to use descriptive language based on a setting to include expanded noun phrases, conjunctions and adverbial phrases.

Music

In music children will be learning about the orchestra and how is used to create different styles of music.

Science

The children will be learning about States of Matter: solids, liquids and gases. They will investigate how materials change state. The children will then explore the water cycle and understand the terms evaporation and condensation. During Science Week, the learning will be focused on forces and magnets, specifically how objects are attracted and repelled by magnets.

RE

The children will examine the role of belief in people's lives with the focus on key members of different religions.