Key Vocabulary

forces	Pushes or pulls.
gravity	A pulling **force** exerted by the Earth (or anything else which has **mass**).
Earth's gravitational pull	The pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's **gravitational pull** which keeps us on the ground.
weight	The measure of the **force** of **gravity** on an object.
mass	A measure of how much matter (or 'stuff') is inside an object.

The Moon has a smaller **mass** than Earth so the **gravitational pull** on the Moon is smaller than it is on Earth.
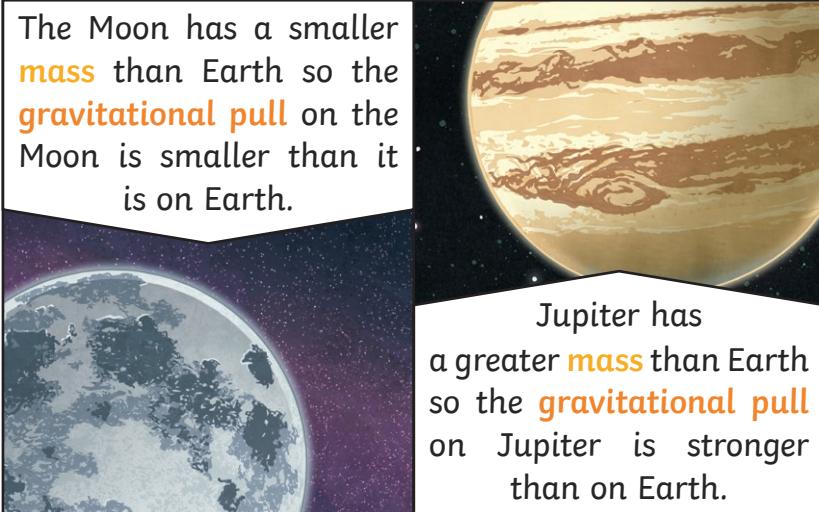
Jupiter has a greater **mass** than Earth so the **gravitational pull** on Jupiter is stronger than on Earth.

Key Knowledge

Forces

start to move.

stop moving.
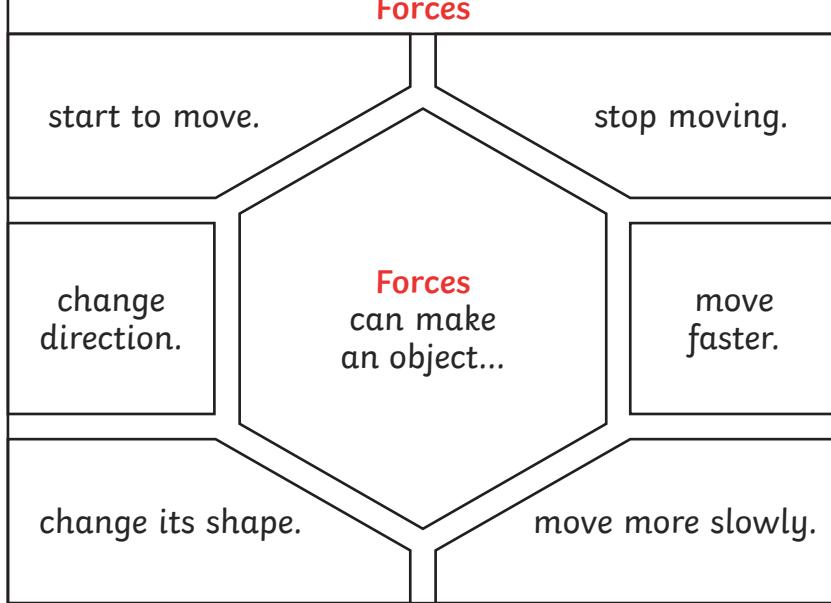
change direction.

Forces can make an object...

move faster.

change its shape.

move more slowly.
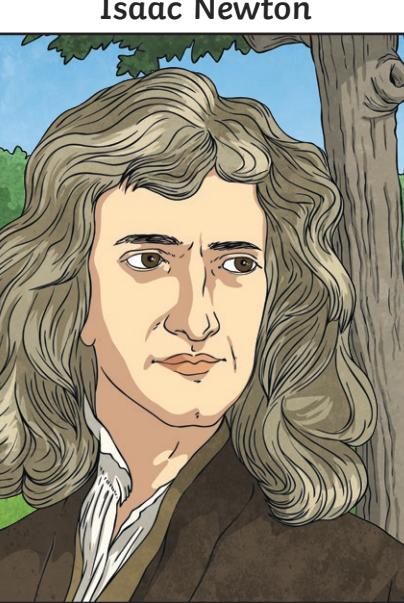
Isaac Newton

Isaac Newton is famously thought to have developed his theory of **gravity** when he saw an apple fall to the ground from an apple tree.

Mass is how much matter is inside an object. It is measured in kilograms (kg).

Weight is how strongly **gravity** is pulling an object down. It is measured in newtons (N).
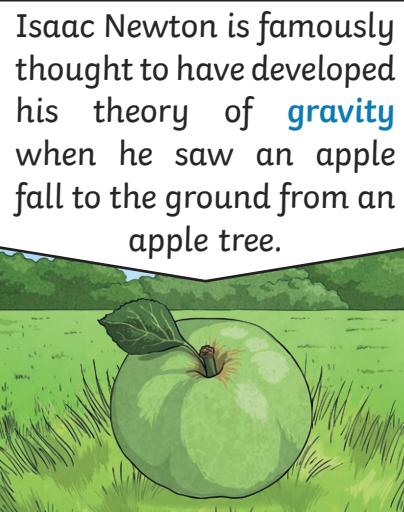
To look at all the planning resources linked to the Forces unit, click here.

Key Vocabulary

friction	A **force** that acts between two surfaces or objects that are moving, or trying to move, across each other.
air resistance	A type of **friction** caused by air pushing against any moving object.
water resistance	A type of **friction** caused by water pushing against any moving object.
buoyancy	An upward **force** that a liquid applies to objects.
streamlined	When an object is shaped to minimise the effects of **air** or **water resistance**.
mechanism	Parts which work together in a machine. Examples of **mechanisms** are pulleys, gears and levers.

This shark is **streamlined**.

It has a pointed nose to cut through the water, and a smooth, low, curved back to allow the water to flow over and around it.

It does not create much **water resistance** so it can move through the water quickly.

Key Knowledge

Examples of **forces** in action:

swimmer's **force** — **water resistance** — **gravity** — **air resistance** — cyclist's driving **force** — **friction**

Water resistance and **air resistance** are forms of **friction**. **Friction** is sometimes helpful and sometimes unhelpful. For example, **air resistance** is helpful as it stops the skydiver hitting the ground at high speed. **Friction** on a bike chain can make the bike harder to pedal so it is unhelpful.

Pulleys	Gears/Cogs	Levers
Pulleys can be used to make a small **force** lift a heavier load. The more wheels in a pulley, the less **force** is needed to lift a **weight**.	Gears or cogs can be used to change the speed, **force** or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.	Levers can be used to make a small **force** lift a heavier load. A lever always rests on a pivot.