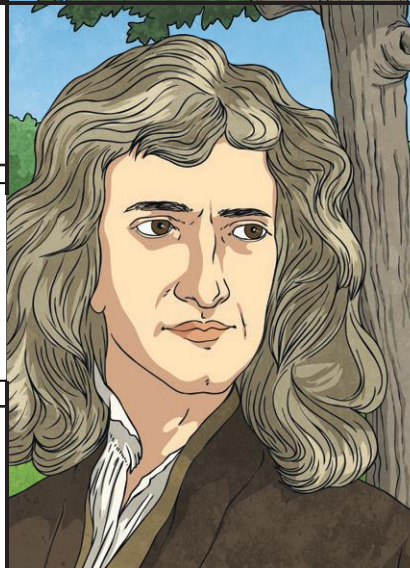




Key Vocabulary	
forces	Pushes or pulls.
gravity	A pulling force exerted by the Earth (or anything else which has mass).
Earth's gravitational pull	The pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.
weight	The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

Key Knowledge		Isaac Newton
Forces		
start to move.	stop moving.	
change direction.	move faster.	
Forces can make an object...		
change its shape.	move more slowly.	

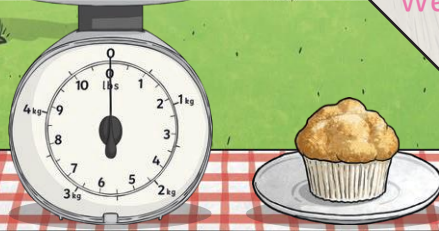
The Moon has a smaller **mass** than Earth so the **gravitational pull** on the Moon is smaller than it is on Earth.




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




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).

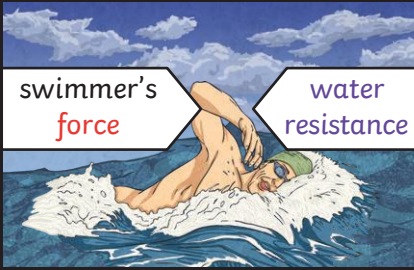




Key Vocabulary	
friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
air resistance	A type of friction caused by air pushing against any moving object.
water resistance	A type of friction caused by water pushing against any moving object.
buoyancy	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.

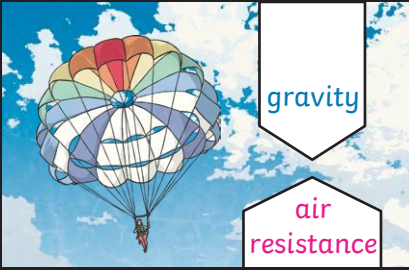
Key Knowledge

Examples of **forces** in action:



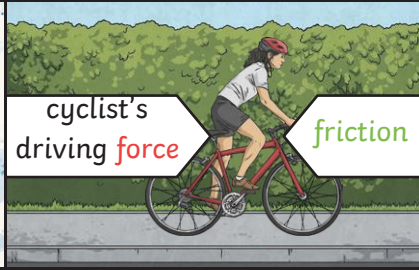
swimmer's **force**

water resistance



gravity

air resistance



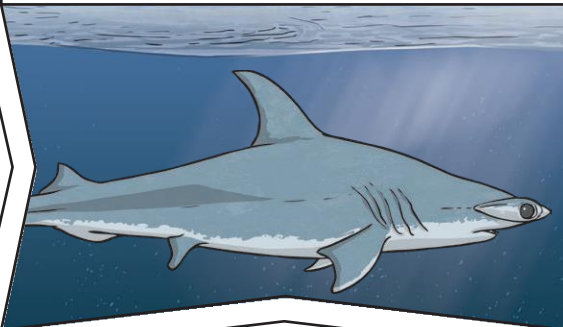
cyclist's **driving force**

friction


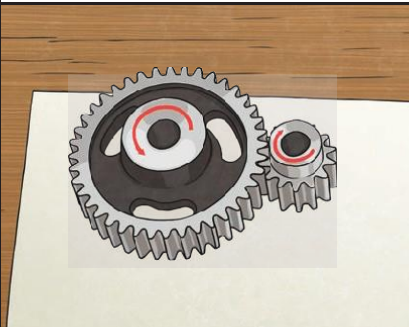

Water resistance and **air resistance** are forms of **friction**. **Friction** is sometimes helpful and sometimes unhelpful. For example, **air resistance** is helpful as it stops the skydiver hitting the ground at high speed. **Friction** on a bike chain can make the bike harder to pedal so it is unhelpful.

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.

This shark is **streamlined**.



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

Pulleys	Gears/Cogs	Levers
		
<p>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.</p>	<p>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.</p>	<p>Levers can be used to make a small force lift a heavier load. A lever always rests on a pivot.</p>