

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

Key Knowledge		Isaac Newton
<p><b>Forces</b></p> <p>start to move.                      stop moving.</p> <p>change direction.                      move faster.</p> <p style="text-align: center;"><b>Forces can make an object...</b></p> <p>change its shape.                      move more slowly.</p>		

<p>The Moon has a smaller mass than Earth so the <b>gravitational pull</b> on the Moon is smaller than it is on Earth.</p>	<p>Jupiter has a greater mass than Earth so the <b>gravitational pull</b> on Jupiter is stronger than on Earth.</p>
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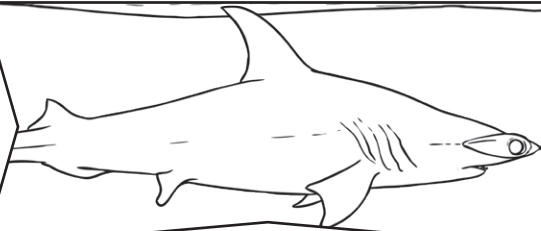
<p>Mass is how much matter is inside an object. It is measured in kilograms (kg).</p>	<p>Weight is how strongly gravity is pulling an object down. It is measured in newtons (N).</p>	<p>Isaac Newton is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree.</p>
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**Key Vocabulary**

<b>friction</b>	A <b>force</b> that acts between two surfaces or objects that are moving, or trying to move, across each other.
<b>air resistance</b>	A type of <b>friction</b> caused by air pushing against any moving object.
<b>water resistance</b>	A type of <b>friction</b> caused by water pushing against any moving object.
<b>buoyancy</b>	An object is buoyant if it floats. This is because the weight of the object is equal to the <b>upthrust</b> .
<b>streamlined</b>	When an object is shaped to minimise the effects of <b>air</b> or <b>water resistance</b> .
<b>mechanism</b>	Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of <b>mechanisms</b> are pulleys, gears and levers.
<b>upthrust</b>	A <b>force</b> that pushes objects up, usually in water.

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.

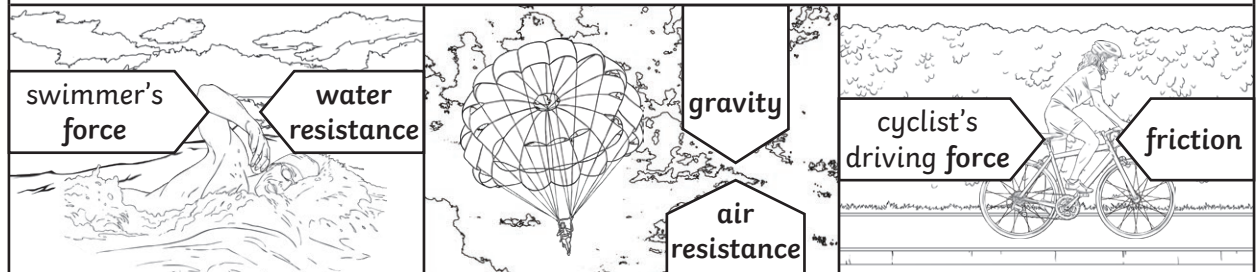
This shark is **streamlined**.



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

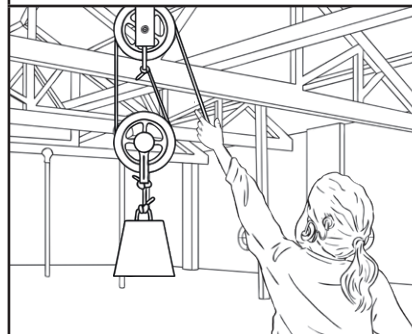
**Key Knowledge**

Examples of forces in action:



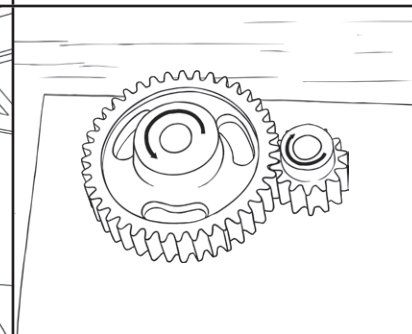
**Water resistance** and **air resistance** are forms of **friction**. **Friction** is sometimes helpful and sometimes unhelpful. For example, **air resistance** is helpful as it stops the skydiver hitting the ground at high speed. **Friction** on a bike chain can make the bike harder to pedal so it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

**Pulleys**



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/Cogs**

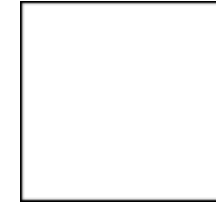
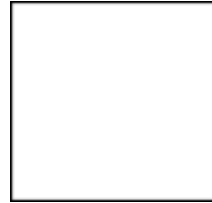


Gears or cogs can be used to change the speed, **force** or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.

**Levers**



Levers can be used to make a small **force** lift a heavier load. A lever always rests on a pivot.



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<b>weight</b>	The measure of the <b>force</b> of <b>gravity</b> on an object.

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



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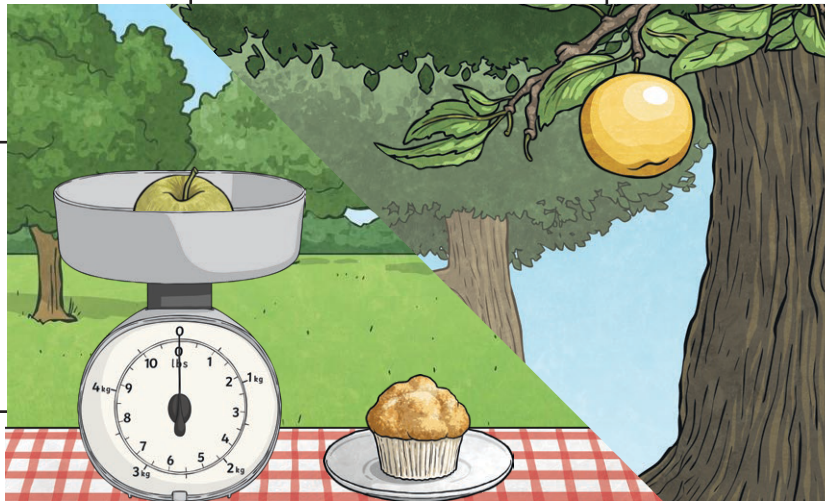
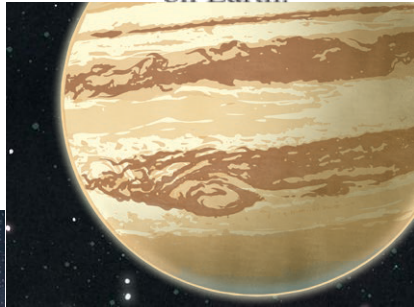
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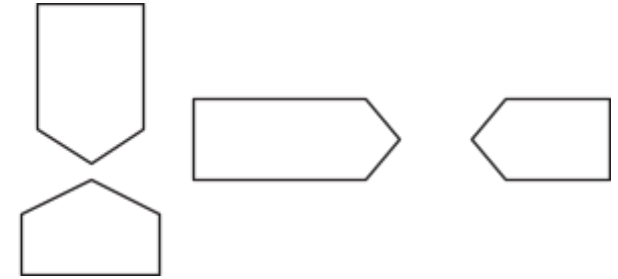
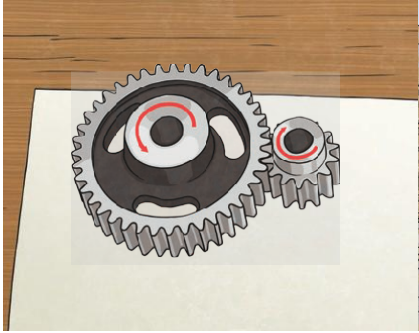
Jupiter has a greater **mass** than Earth so the **gravitational pull** on Jupiter is stronger than on Earth.



**forces**

Pushes or pulls.





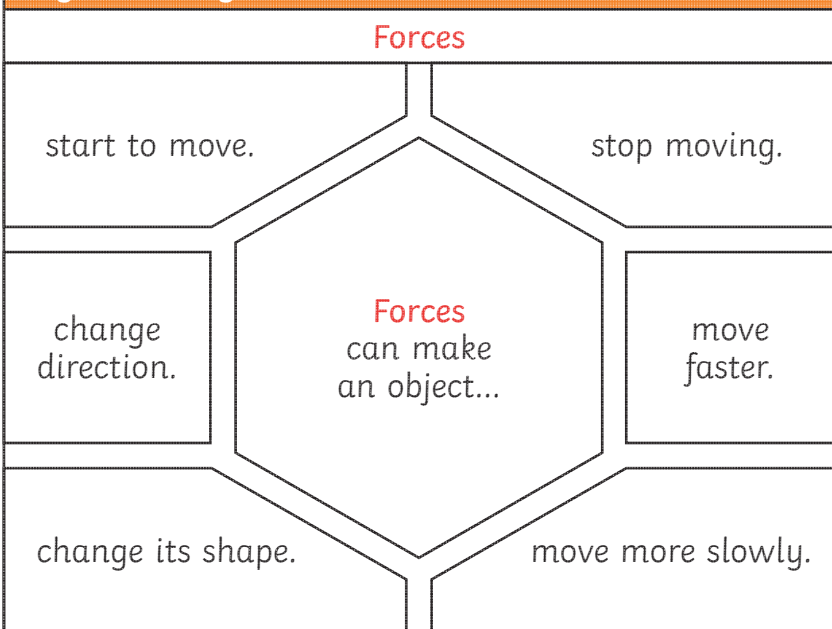

**This shark is streamlined**

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

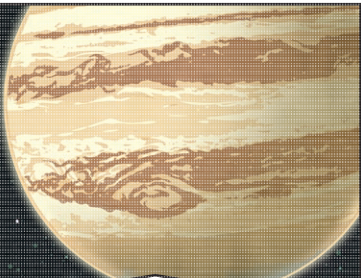
It does not create much water resistance so it can move through the water quickly.


<b>gravitational pull</b>	an object, pulling it towards Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.
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Key Knowledge		Isaac Newton
<p><b>Forces</b></p> 		

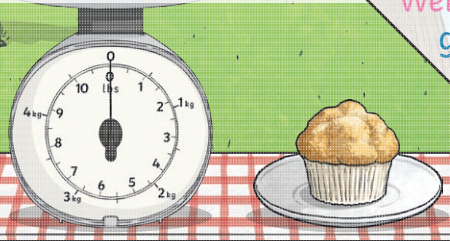
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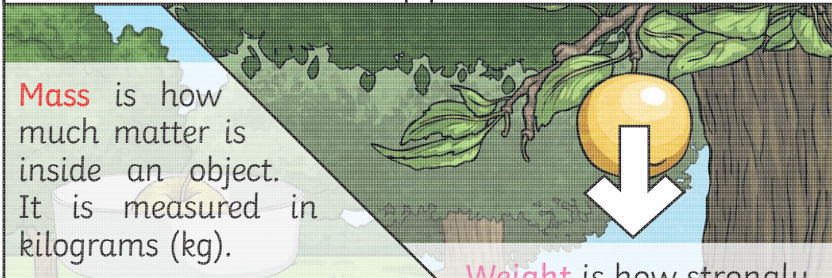


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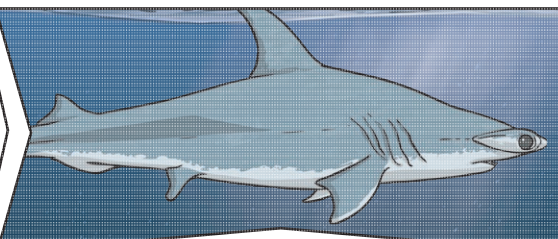


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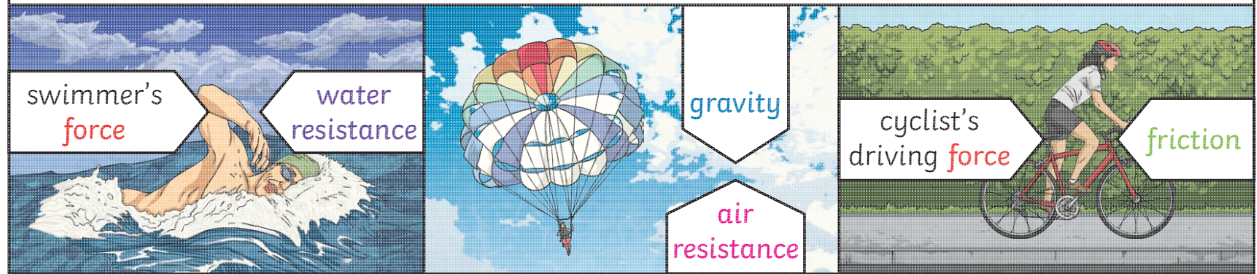
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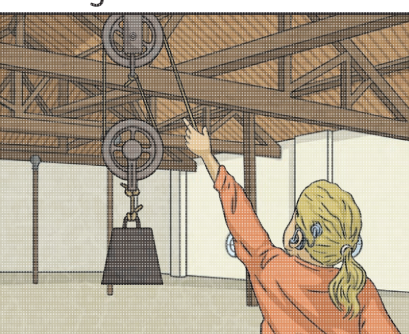
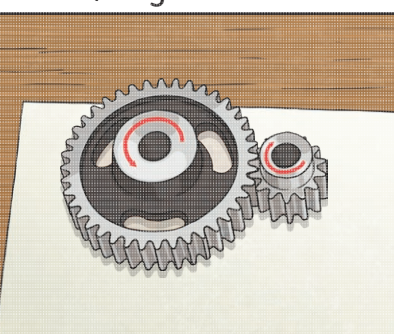
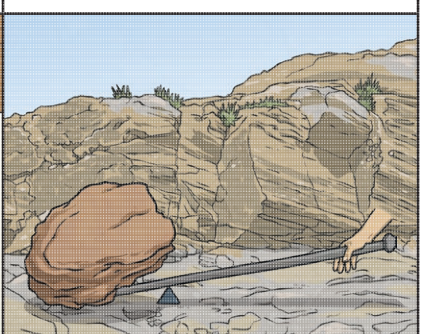
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Pulleys	Gears/Cogs	Levers
		
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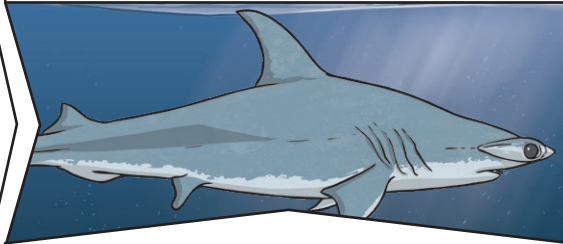


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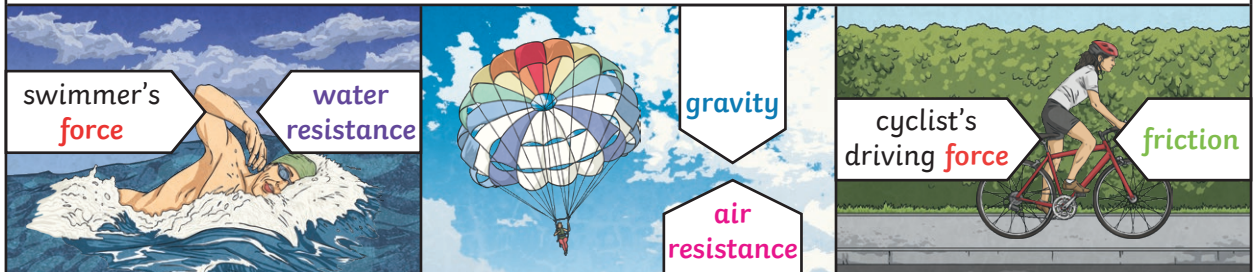
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