

Key Vocabulary	
forces	Pushes or pulls acting on an object.
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		
Forces		
start to move.		stop moving.
change direction.		move faster.
change its shape.		move more slowly.
<p>Forces have a direction and magnitude. We can use arrows to represent this.</p> <p>The arrow head points in the direction the force is acting. The length of the arrow shows the magnitude. A greater force has a longer arrow and a lesser force has a shorter arrow.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↑</div> <div style="text-align: center;">↓</div> </div>		

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.

To look at all the planning resources linked to the Forces unit, [click here](#).

Key Knowledge			
<p>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.</p>			
<p>The driving force pushes the bicycle, making it move.</p>		<p>Friction pushes on the bicycle, slowing it down.</p>	
<p>Grass</p>	<p>Gravel</p>	<p>Sand</p>	<p>Road</p>

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 on an object in liquid. An object is buoyant if it floats.
streamlined	When an object is shaped to minimise the effects of air or water resistance .
magnet	An object which produces a magnetic force that pulls certain objects towards it.
magnetic field	The area around a magnet that attracts magnetic materials.
magnitude	The size of something.
density	A measure of how heavy something is compared to its size. This is the amount of mass per unit of volume.

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.

Magnetic ✓

These objects contain iron, nickel or cobalt. Not all metals are magnetic.

Non-magnetic ✗

These objects do not contain iron, nickel or cobalt.

Key Knowledge

Like poles repel.
Opposite poles attract.

Objects act differently in water than out of it. **Density** and **buoyancy** impact whether objects sink or float, and **water resistance** slows the speed that objects move through the water.