

What should I already know?

Magnetic forces can act at a distance
 Magnets can attract or repel each other.
 Magnets can attract or repel other materials.
 Magnets have two poles



Year 5/6 Science Spring 1 : Forces

Our Questions

How do we use forces in our everyday lives?

What is gravity and how does it affect us?

What is air resistance and how does it affect us?

What is water resistance and how does it affect us?

What is friction and how does it affect us?

How can mechanisms help us?

Simple machines
 These are used to make tasks easier. This means you need to use less force.

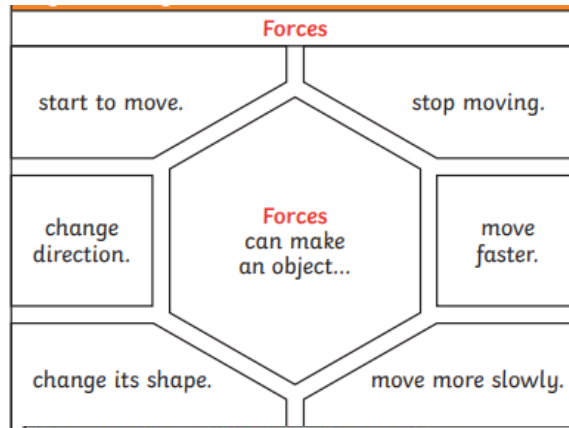
Force Pivot

A lever tilts on a pivot which is nearer to the end of the pivot with a heavy load.

Load Force

Pulleys have a rope or cable which goes over a wheel. This is pulled to lift, lower or move heavy objects.

Gears are toothed wheels which lock together and turn each other to form simple machines.



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

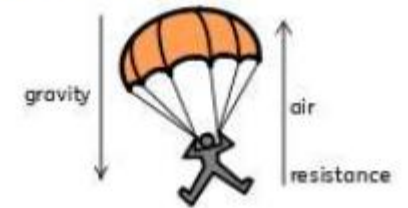
Weight is how strongly gravity is pulling an object down. It is measured in newtons (N).

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.

Significant scientists	
Traditional	
<p>Galileo Galilei (1564-1642)</p>	<p>He was an Italian scientist. He discovered that if two objects of similar shape and size are dropped, they will fall at the same rate.</p>
<p>Sir Isaac Newton (1642-1726)</p>	<p>He was an English scientist and mathematician. He 'discovered' the concept of gravity when sitting under a tree and an apple fell to the ground near him.</p>

- Gravity is the force that pulls objects to the centre of the Earth.
- Air resistance pushes up on the parachute, opposing the force of gravity. This makes the parachute land more slowly.



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 Vocabulary

Force	Something that causes an object to start moving, stop moving, slow down, speed up, change direction or change shape.
Magnetism	A force which results in magnetic materials attracting or repelling.
Gravity	A force that causes unsupported objects to fall towards the centre of the Earth
Force metre	A piece of equipment that measures the force. Force is measured in NEWTONS.
Air resistance	A force that slows down an object as it falls through the air.
Water resistance	A force that slows down an object as it moves through water.
Friction	A force that slows an object down and is created when two surfaces rub past each other
Mechanisms	A device that allows a small force to have a greater effect Levers, pulleys and gears are examples of these that are simple machines.
Lever	A rigid bar on a pivot, used to move a fixed load.
Pulley	A wheel with a grooved rim and cord, used to change the direction of a force and move heavy objects.
Gear	A toothed wheel that works with others to change the force needed to move an object.