

Forces

Key Vocabulary

Air resistance	The force that slows down objects that move through air.
force	A push or pull that acts upon an object that can cause it to move, change shape or change direction
Force meter (Newton metre)	Piece of equipment used to measure the size of a force.
Friction	When one surface moves against another, the rubbing force that tries to stop them is called friction. It gives us grip.
Gravity	A force which pulls things down towards the centre of the Earth.
Mechanisms	A device that allows a small force to be increased to a larger force.
Newton (N)	The unit for measuring force.
Repel	To push away
Simple machines	Lever, pulleys and gears are all types of simple machines.
Water resistance	A force that slows down objects moving through water.

Gravity

Gravity is a force which acts at a distance. It is a pull force that pulls objects towards the centre of the Earth.

The planets and the Sun do not touch, yet the planets stay in orbit around the Sun due to the force of gravity.



Friction

When objects are pushed or pulled, an opposing force can be felt. This opposite force is called 'friction'. Friction causes things to slow down or stop. The grip on our shoes stops us slipping. Therefore, friction is great. An ice-skate on an ice-rink will move for a long time because there is very little friction. The rougher the surfaces, the greater the friction. This rubbing of two surfaces can release energy, causing heat. (Try rubbing your hands together!)



Air Resistance

Air resistance (sometimes referred to as drag) acts against gravity on falling or moving objects. It's what fills a parachute to help slow you down when falling from the sky. Object such as aeroplanes reduce air resistance because of their streamlined shape.



Water Resistance

Water resistance is a type of *friction* which can slow things down in the water. Water acts upon objects making them harder to pass through. A fish has a *streamlined* body shape to help it swim through water more easily. *Upthrust* is the name of the force which keeps things afloat in water. When gravity is greater than upthrust, the object sinks. When the two are the same, the object floats.



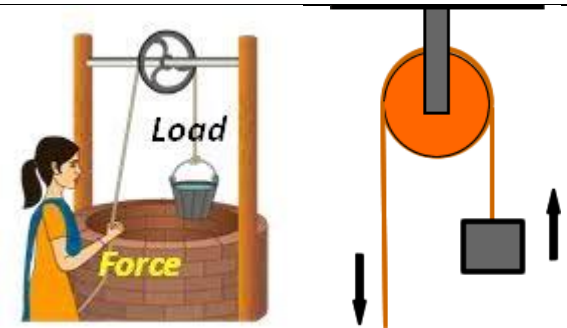
Simple machines

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.



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.