

Key vocabulary	
force	A force is a push or a pull. Forces make objects start moving, stop moving, speed up, slow down or change direction.
gravity	A force which pulls things down towards the centre of the Earth.
forcemeter	Piece of equipment used to measure the size of a force.
Newton (N)	The unit for measuring force.
air resistance	The force that slows down objects that move through air.
water resistance	A force that slows down objects moving through water.
friction	When one surface moves against another, the rubbing force that tries to stop them is called friction. It gives us grip.
mechanisms	A device that allows a small force to be increased to a larger force.
simple machines	Levers, pulleys and gears are all types of simple machines.

Real-life examples of forces in action



A skydiver falls fast until they open their parachute.

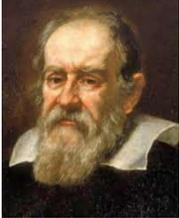


Dolphins have a streamlined shape.



A non-slip mat uses friction.

Forces – Year 5

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>
Contemporary	
<p>Emma England - Aeronautical engineer Emma works as part of a team designing the wings of aircrafts.</p>	



Seeds fall to the ground because of gravity.

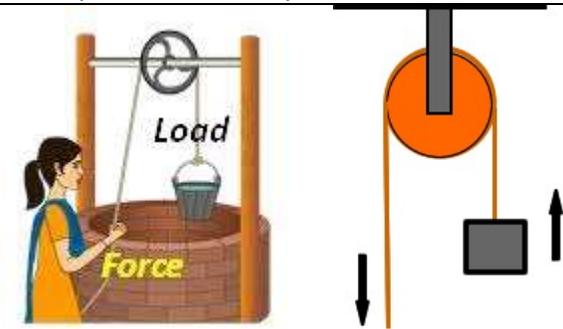
Simple machines

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.

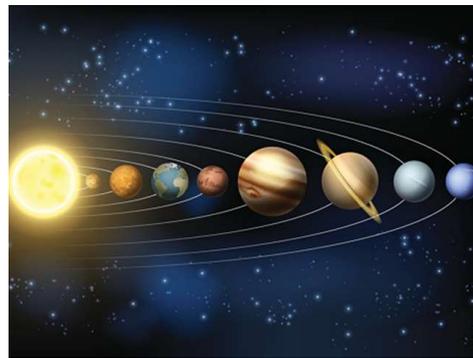


Pulleys have a rope or cable which goes over a wheel. This is pulled to lift, lower or move heavy objects.



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

Key vocabulary	
Earth	The planet we live on. It is the third planet from the Sun.
Sun	The Sun is the star at the centre of our solar system. It is not safe to look directly at the Sun, even when wearing dark glasses.
Moon	The moon is the only natural satellite of the Earth.
planets	Large round objects, made of rock or gas, that move around the sun.
solar system	The sun and all the planets that orbit around it.
star	A huge ball of glowing gas in space.
rotate	When an object rotates it turns (spins) on its axis.
orbit	The curved path that an object follows going around a star or a planet.



The Sun is a star at the centre of our solar system.

There are 8 planets in our solar system: **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.**

These all **orbit** (travel) around the sun.

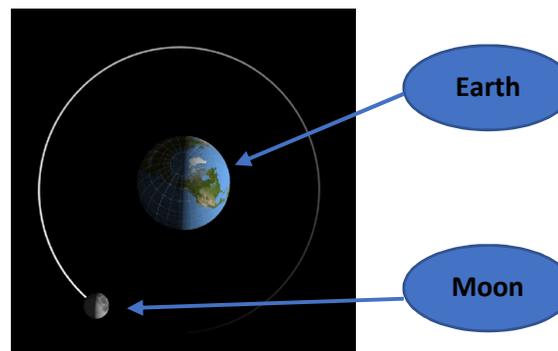
Earth and space – Year 5

Significant scientists	
<p>Nicolaus Copernicus (1473-1543)</p> 	Nicolaus was a Polish astronomer and mathematician who formulated the heliocentric model of the solar system that placed the Sun rather than the Earth at the centre of the universe.
<p>Maggie Aderin-Pocock (born 1968)</p> 	Maggie is a British space scientist and science educator. She is working on the observation instruments for the Aeolus satellite, which will measure wind speeds to help the investigation of climate change.

The Sun, Earth and Moon are approximately spherical bodies.

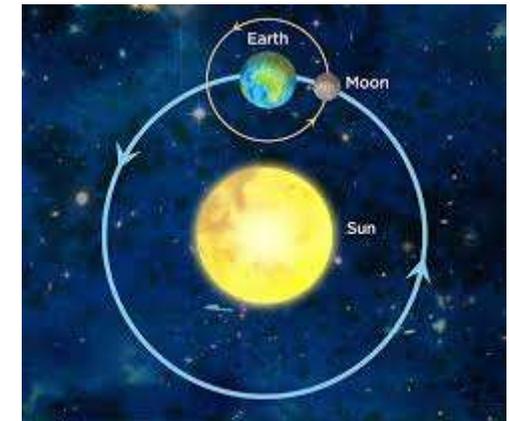
The moon orbits the Earth

It takes about 28 days to complete its orbit.



The Earth orbits the Sun.

It takes 365¼ days to complete its orbit around the Sun. This is a year.



The Earth rotates (spins) on its axis once every 24 hours.

