

Science Focus: Forces	Year Group: 5	Spring Term 1
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Key Knowledge:

Forces can make an object:

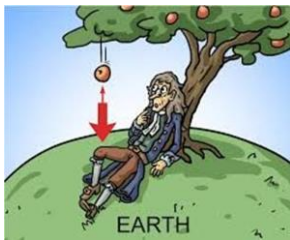
Start and stop moving, change direction, move faster, change its shape and move more slowly.

Gravitational Pull

The Moon has a smaller mass than Earth, so the gravitational pull on the Moon is smaller than Earth. Jupiter has a greater mass so the gravitational pull is stronger than on Earth. The greater mass, the stronger the gravitational pull.

Weight and Mass

Weight is how strongly gravity is pulling an object down. Measured in Newtons (N).



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



Key Vocabulary:

Forces: Pushes or pulls.

Gravity: A pulling force exerted (applied) by the Earth.

Earth's gravitational pull: The pull that Earth exerts on an object, pulling it towards the Earth's centre. It is the Earth's gravitational pull that keeps us on the ground.

Weight: The measure of the force of gravity on an object. It is measured in Newtons (N).

Mass: A measure of how much matter (stuff) is inside an object. It is measured in kilograms (kg).

Diagrams and Symbols:

Sir Isaac Newton

Isaac Newton is famous for developing his theory of gravity when he saw an apple fall to the ground from a tree.



Possible Experiments:

Dropping items to investigate gravity.

Weighing items to show mass.

Investigating the relationship between mass and gravity (the heavier the object, the quicker it will fall).

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Key Knowledge:

Examples of forces in action:

Water resistance and air resistance are forms of friction. The force of the water works against the swimmer.



Air resistance is helpful as it stops the parachutist from hitting the ground at high speed.



Most fish, for example, Sharks, are streamlined, meaning that their bodies are designed to not create much water resistance. This allows them to move through the water quickly.

Possible Experiments:

Investigating if mass affects how quickly an object falls.

Investigating friction by testing how fast a car moves on different surfaces.

Investigating what happens when the pivot (what a lever rests on) moves.

Key Vocabulary:

Friction: A force that acts between two surface 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.

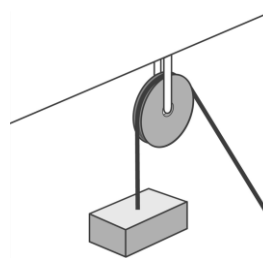
Water resistance: A type of friction caused by water pushing against any moving object.

Buoyancy: An upward force that a liquid applies to objects.

Streamlined: When an object is shaped to minimise the effects of air and water resistance.

Mechanism: Parts which work together in a machine. Examples of mechanisms are pulleys, gears and levers.

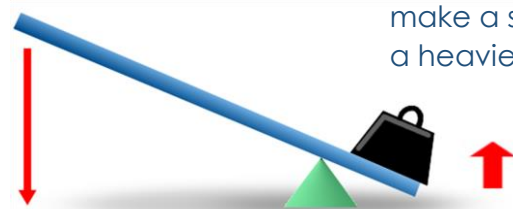
Diagrams and Symbols:



Pulleys can be used to make a small force lift a heavy load.



Gears or cogs can be used to change the speed, force or direction of a motion.



Lever can be used to make a small force lift a heavier load.