

Science • Forces



Crucial Knowledge

- A force can be thought of as a push or a pull
- Applying forces to objects can change their shape.
- Gravity is a force that acts between all objects in the universe.
- Unsupported objects are pulled towards the Earth by the force of gravity
- As objects move across a surface there is friction when they rub against each other.
- Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water or the air and water may be moving over a stationary object.
- A force is measured in a unit called Newtons, named after a British scientist and mathematician called Sir Isaac Newton who discovered lots about forces including gravity
- Pull forces can be measured using a device called a force meter
- A mechanism is a device that allows a small force to be increased to a larger force. e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.



Key Vocabulary

Acceleration: the measurement of change in an object's speed.

Air resistance: a type of friction between air and another material.

Water resistance: a type of friction between water and an object passing through it.

Sliding / static friction: A contact force that slows things that are moving, or stops them moving at all

Pivot: the point around which an object can rotate or turn.

Fulcrum: the place where a lever pivots.

Gravity: the force that pulls everything down towards the centre of the Earth.

Weight: the heaviness of a person or object, caused by the downward pull of gravity

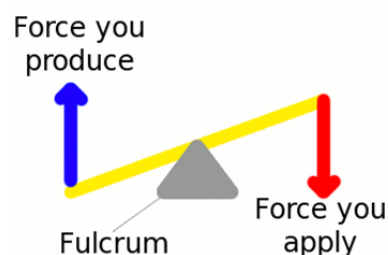
Load: the weight that needs to be moved.

Mass: is the amount of matter an object contains.

Streamlined: an object that is shaped to travel through air or water with as little resistance as possible.



Diagrams / Images



Important People



Isaac Newton influential 17th century Mathematician and scientist best known for developing his theory of gravity



William Kamkwamba
Inventor known for creating a wind turbine to generate electricity from scrap in his Malawian village

We Are Building Our Knowledge From

- Materials (Y2) Forces (Y3)

This will help when we learn about

- Earth and Space (Y5)