

# Forces

## Year 5



### Did you Know?

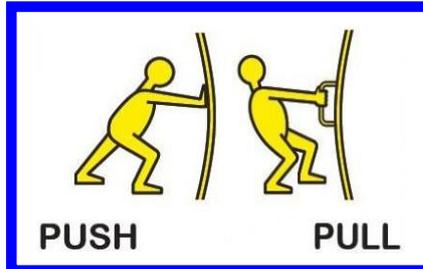
Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can make the bike harder to pedal so it is unhelpful.



### What is Force?

A force is really a push or a pull that makes something move or even turn around.

Imagine you're pushing someone on the swing, and they ask you to push harder and harder, the force gets bigger, and that then causes more movement. Or you're playing football, you give the ball a soft kick and it doesn't go too far too fast, but then you knock the ball out the park and it goes further and faster. The same thing happens when you pull something.



Sometimes two forces work together on something, and then their efforts are combined. This will either make the force bigger, or it will actually cancel the force altogether.

### Balanced Force



### Unbalanced Force



A force meter is used to measure force and the magnitude of that force. Force is measured in Newtons (N) and was named after Sir Isaac Newton, who is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree.



### Key Vocabulary to learn

**Air resistance** – A force that is caused by air with the force acting in the opposite direction to an object moving through the air

**Force** – A push or pull upon an object resulting from its interaction with another object

**Friction** – The resistance that one surface or object encounters when moving over another

**Gears** – A toothed wheel that works with others to alter the relation between the speed of a driving mechanism (e.g. engine) and the speed of the driven parts (e.g. the wheels)

**Gravity** – The force that attracts a body towards the centre of the earth

**Lever** – A rigid bar resting on a pivot that is used to move a heavy or firmly fixed load

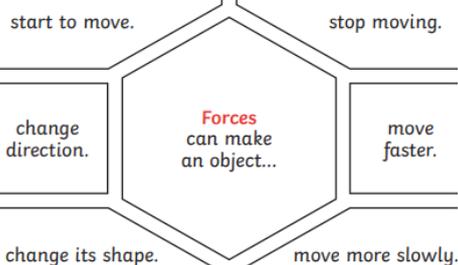
**Mass** – The weight measured by an objects acceleration under a given force or by the force exerted on it by gravity

**Pull force** – To draw or haul towards oneself or itself, in a particular direction

**Pulleys** – A wheel with a grooved rim around that changes the direction of a force applied to the cord

**Push force** – To move something in a specific way by exerting force

**Water resistance** - A force that is caused by water with the force acting in the opposite direction to an object moving through the water



### What is Gravity?

Gravity is the force that pulls objects down towards the centre of Earth. Gravity stops things from floating away into Space. When things go into the air, gravity pulls them down.

