



What is Gravity?

The **force** that pulls things to the centre of Earth (and other planets) is called **gravity**. Gravity also holds Earth and the other planets in their orbits around the Sun. The **force** of gravity exists on the Moon but it is not as strong as it is on Earth. This is because the Moon is much smaller than our planet. Objects with more **mass** have more **gravity**.

We are pulled down towards the ground because of **gravity**. **Gravitational force** pulls in the direction towards the centre of any object.

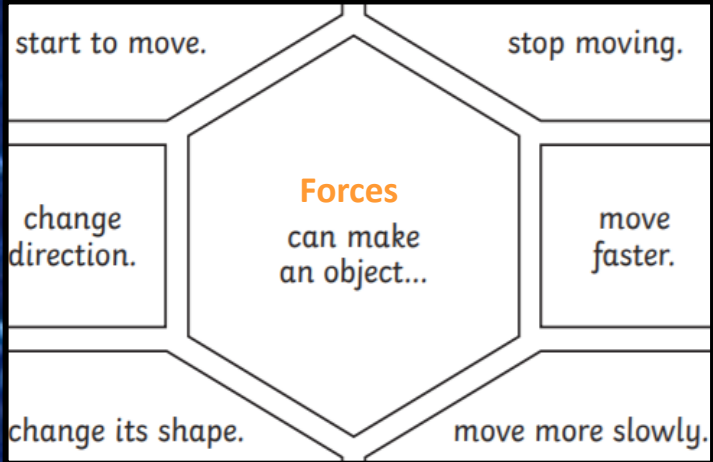
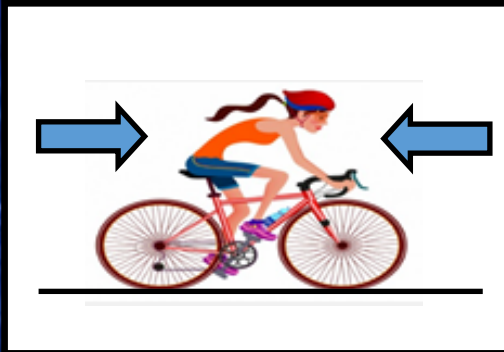
Sir Isaac Newton, an English mathematician and physicist, who lived from 1642-1727, is famously thought to have developed his theory of **gravity** when he saw an apple fall to the ground from an apple tree.



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

Weight is how strongly gravity is pulling an object down. It is measured in newtons (N).

Forces



Resistance

Friction is a force that acts between two surfaces or objects which are moving, or trying to move, across each other.

Air resistance is a type of friction. It is caused when air pushes against any moving object.

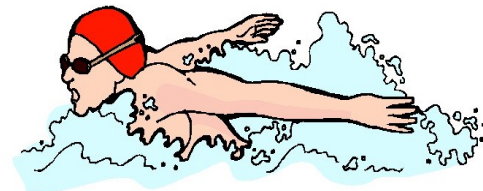
It is helpful when it stops a skydiver hitting the ground at high speed.



Buoyancy is an upward force that a liquid applies to an object.

Water resistance is a type of friction. It is caused when water pushes against any moving object.

It is unhelpful when it slows down a swimmer in a race.



When objects are **streamlined**, they are shaped to minimise the effects of air or water resistance.