



**Year:** Year 5

**Subject:** Science

**Title:** Forces

**What key knowledge do I need to have before this unit?**

In Year 2, I looked at changing the shape of some objects through squashing, twisting, bending and stretching.  
 In Year 3, I learnt that friction is a contact force between two surfaces.  
 I can explain push and pull force and name examples of each (Year 3)

**Key outcomes:**

**What I need to know by the end of this unit of work:**

- I understand that friction always works in the opposite direction to that in which the object is moving.
- I can explain how friction is useful in everyday life, such as in helping car tyres to grip the road and enabling brakes to slow down a bicycle wheel.
- I can explain how the amount of air resistance is affected by the size and shape of an object and how people use this knowledge when designing objects
  - I understand that the more streamlined an object is, the less water resistance will act upon it
- I know that the force of gravity always acts towards the centre of the Earth because Earth has the greatest mass compared to the objects on it.

**Key knowledge:**

**Key Vocabulary:**

**Definition:**

Friction is a contact force that is caused by one object being pushed across the surface of another.

Friction can stop or slow down a moving object.

A stationary object will only move when the force applied is greater than the friction, which acts in the opposite direction to the movement.

Friction has many useful applications, such as in the use of brakes to slow down a vehicle and sandpaper to smooth a surface.

Air resistance is a type of friction force on an object moving through air.

The greater the surface area of an object, the greater the air resistance.

Parachutes have a large surface area, to give them greater air resistance to slow down the skydiver.

Air resistance increases with speed.

Force

contact force

frictional force

motion

air resistance

water resistance

gravitational force

weight

independent variable

dependent variable

controlled variables

a push or a pull

a push or a pull that affects objects which are touching

a contact force that is caused by one object being pushed across the surface of another

the change in the position of an object

a type of friction force on an object moving through air

a type of friction force on an object moving through water

a non-contact force caused by objects with mass pulling each other

the downwards gravitational pull on an object

what is changed

what is measured

what is kept the same