

# Forces Knowledge Organiser

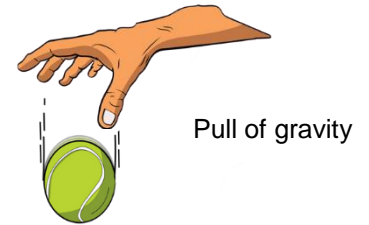
## Forces

A force is a push or pull that **acts upon an object**. We can't see forces, but they are an important part of our everyday lives. We **push and pull** objects to do many different things. When we push or pull objects we can **move** the object, **change the shape** of the object or **make the object change direction**.

## Gravity

Gravity is a force which **acts at a distance**. It is a **pull force** that pulls objects towards the centre of the Earth.

The planets and the Sun do not touch, yet the **planets stay in orbit** around the Sun due to the force of gravity.



## Examples of Pushes and Pulls

### Push



### Pull



## Did you know?

Sir Isaac Newton was a scientist who developed the first description of the force of gravity. Newton said that he started thinking about gravity after watching an **apple fall from a tree** but it did not actually hit him on the head, as it is often claimed!



## Friction

Friction is a **force created between two surfaces when they rub together.**

Friction creates heat and always **slows down an object.** Rough surfaces create more friction than smooth surfaces.



## Air Resistance

Air resistance is a force that acts in **the opposite direction to gravity. It acts between** a moving object and the air molecules around it, slowing the object down. Air resistance is a type of **friction. Parachutes** are used to increase air resistance and slow down the parachutist, so they can land safely. Modern cars and planes are **streamlined in design** to reduce air resistance, allowing them to move faster.



## Key Vocabulary

**Attract** - to pull towards

**Contact** - when objects touch

**Distance** - the length between two objects

**Force** - a push or pull that acts upon an object that can cause it to move, change shape or change direction

**Friction** - the force that acts upon one surface when it moves against another

**Gravity** - a pull force that acts at a distance

**Pull** - to move something towards

**Push** - to move something away

**Repel** - to push away

**Resistance** - an opposing or slowing force

## Water Resistance

Water resistance is the force responsible for making it difficult for us to **move through the water.** It acts between a moving object and the **water molecules** around it, **slowing the object down.**

