

Forces Knowledge Organiser

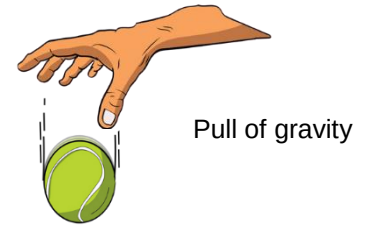
Forces

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.



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

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.



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.**

