Holy Cross Primary Catholic Voluntary Academy – Science – Physics - Forces

Science is a way of discovering what's in the universe and how those things work today, how they worked in the past, and how they are likely to work in the future.

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

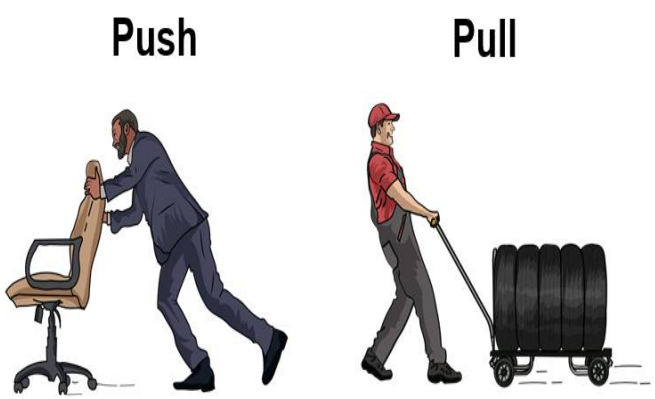
Push - to move something away

Repel - to push away

Resistance - an opposing or slowing force

Key Knowledge:

Examples of Pushes and Pulls



What is a force?

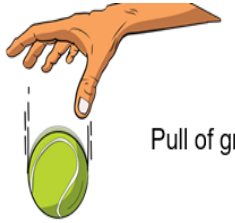
A force is a push or pull that **acts upon an object**. **We can't see forces**, but they are an important part of our everyday lives. We **push and pull** objects to do many different things. When we push or pull objects we can **move** the object, **change the shape** of the object **or make the object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

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!

Gravity

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



Pull of gravity

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

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.

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.**