

Year 5 Knowledge Organiser - Forces



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**.

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.



Gravity

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



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.



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!

Key Vocabulary

force – a push or a pull

contact force – a push or a pull that affects objects which are touching

non-contact force – a push or pull that affects objects which are not touching

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

motion – the change in the position of an object

air resistance – a type of friction force on an object moving through air

water resistance – a type of friction force on an object moving through water

streamlined – having a shape which reduces air or water resistance

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

weight – the downwards gravitational pull on an object

lever – a rigid object that can rotate around a pivot

gear – a wheel with teeth

pulley – a cable on one or more wheels

