



Forces that oppose motion Knowledge Organiser

Key vocabulary

Force	a push, pull, twist or turn.
Gravity	a pushing force exerted by the Earth, it attracts objects towards the centre of the Earth.
Air resistance	the force that air exerts on a moving object.
Water resistance	the force that water exerts on a moving object
Friction	the force between 2 moving surfaces.
Mechanisms	machines or devices which help to achieve a result.
Weight	the measure of the force of gravity on an object, measured in Newtons (N)
Mass	the measure of how much matter is inside an object, can be measured in g/kg etc
Streamlined	when an object is shaped to minimise the effects of air or water resistance.
Buoyancy	an object is buoyant if it floats. This is because the weight of the object is equal to the upthrust.
upthrust	A force that pushes objects up, usually in water.
Newtons	Newtons are a measure of force named after scientist Sir Isaac Newton.
pulley	a machine that helps to move objects around by making a small force a large force

Types of Mechanism

Pulleys – they are used to reduce the amount of force needed to lift a load. The more wheels in a pulley the less force is needed to lift the weight.

Gears or cogs – are used to change speed, direction or force of a motion. When 2 gears are connected they always turn in the opposite direction to one another.

Lever – can be used to make a small force lift a lighter load. A lever always rests on a pivot or fulcrum.

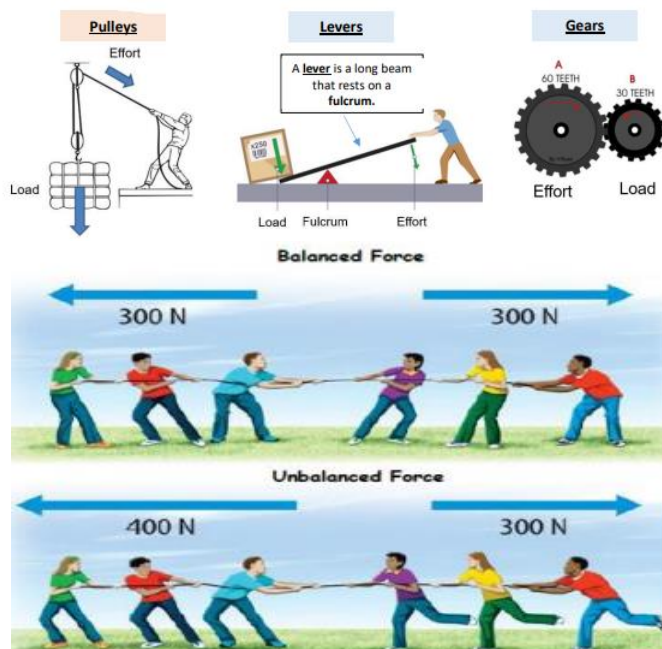
Types of Forces

Gravity – the force that pulls things to the ground. Gravity also holds Earth and other planets in their orbits around the sun.

Friction – friction is a force between 2 surfaces that are sliding or trying to slide across each other. Friction works in the opposite direction to which the object is moving. It slows down the moving object and also produces heat. It can be helpful in certain situations but not helpful in others.

Air resistance – a type of friction between air and another material. Aeroplanes and cars are streamlined so that they can move through the air as easily as possible.

Water resistance – a type of friction between water and another material. When you go swimming there is friction between your skin and the water particles



Force meter

Marked in Newtons and measures the weight of an object.

