

Scientist



Isaac Newton (discovered gravity and the 3 laws of motion)

Skills

I'm taking measurements like an aeronautical engineer.

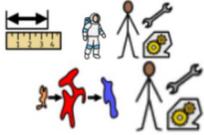
I'm using test results to make predictions like a mechanical engineer

Careers

Aeronautical engineer (designs, develops, manufactures and maintains aircraft)

Builder (builds structures)

Mechanical engineer (designs, analyses and manufactures mechanical systems)



Enquiries



Which shape parachute takes the longest to fall?

How long does a pendulum swing for before it stops?



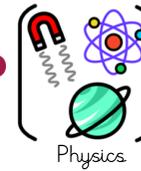
Do all objects fall through water in the same way?

Can you label and name all the forces acting on the objects in each of these situations?



How do submarines sink if they are full of air?

Main idea



Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Air resistance, water resistance and friction act between moving surfaces and slow forces down. Some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Types of Force

Key Learning

- explore falling objects and raise questions about the effects of air resistance.
- explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall.
- experience forces that make things begin to move, get faster or slow down.
- explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel.
- explore the effects of levers, pulleys and simple machines on movement.
- find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.

What you should already know

Some materials are attracted to magnets (magnetic), others are not.

Magnets have North and South poles and that the opposite attracts, same poles repel each other and will not stick together.

Magnets are useful in our everyday lives, such as keeping cupboard doors closed.

What comes next?

KS3 - Different types of forces. Describing motion: speed and the quantitative relationship between average speed, distance and time. Representation of a journey on a distance-time graph.

Key vocabulary

Accelerate	Gravity
Decelerate	Mass
Air resistance	Mechanism
Friction	Water resistance
Gear	
Fulcrum	
Lever	

Year 5: Forces



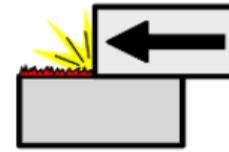
Accelerate: increase in speed (getting faster)



Decelerate: decrease in speed (slowing down)



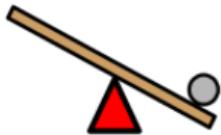
Air resistance: a force that acts in the opposite direction of a moving object and is a type of friction



Friction: the resistance of motion when one object rubs against another



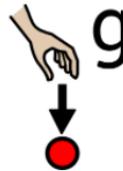
Gear: mechanical parts with cut teeth designed to fit with teeth on another part so as to transmit or receive force and motion



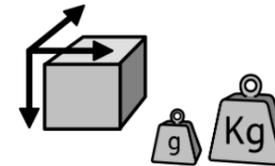
Fulcrum: the support on which a lever turns in lifting something. The place where a lever pivots.



Lever: a long, sturdy body that rests on a support called a fulcrum



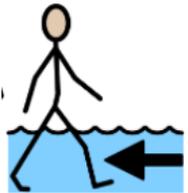
Gravity: a force of attraction that pulls together all matter (anything you can physically touch)



Mass: the amount of matter or substance that makes up an object.



Mechanism: the moving parts by which a machine operates. Eg. the mechanism of a watch



Water resistance: a force that tries to slow things down that are moving through water. It is a type of friction.

Year 5: Forces



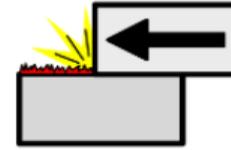
Accelerate



Decelerate



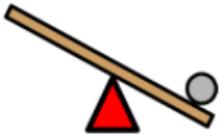
Air resistance



Friction



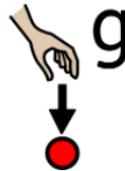
Gear



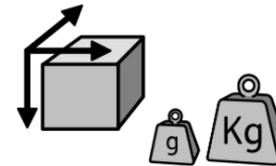
Fulcrum



Lever



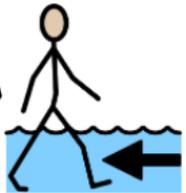
Gravity



Mass



Mechanism



Water resistance