

How can forces be used to move an object?

Skills

Why do unsupported objects fall towards the Earth?

To create a comparative or fair test on the effects of gravity.

How can you increase or decrease the speed of an object that moves over a surface?

To create a fair test to measure friction, water resistance or air resistance.

How do levers, pulleys and gears work?

To explore or research how mechanisms including levers/pulleys and gears function (e.g. trebuchet, sling shot, milk carton pulley).

Knowledge

- To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- To identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

What forces can be used to move an object?: Yr 5 Forces Knowledge Mat

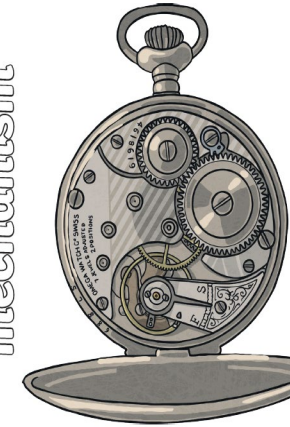
Subject Specific Vocabulary

Force	is the push or pull on an object with mass that causes it to accelerate.
Gravity	is a force which tries to pull two objects toward each other. Anything which has mass also has a gravitational pull. The more massive an object is, the stronger its gravitational pull is.
Earth	the planet on which we live.
Friction	is the resistance of motion when one object rubs against another. Friction works against the motion and acts in the opposite direction.
Water resistance	is a type of friction which acts upon an object moving through water.
Air resistance	is a type of friction between air and an object.
Mechanisms	is a system of parts working together in a machine. A piece of machinery.
Simple machines	Is any of the basic mechanical devices for applying a force such as levers, pulleys and gears.
Levers	Is a bar resting on a pivot, used to move a heavy load with one end when a force is applied to the other.
Pulleys	Is a wheel with a cord which acts to change the direction of a force and to raise heavy weights.
Gears	A toothed wheel which can apply a force to move a large weight.

Isaac Newton Galileo Galilei



mechanism



Sticky Knowledge about The Americas

The story is that **Isaac Newton discovered Gravity** when he saw a falling apple while thinking about the forces of nature.

Galileo carried out an experiment to show the pull of gravity on an object is the same, regardless of their different weights.

Objects fall towards the Earth because of the force of **gravity** acting between the Earth and the object.

Air resistance and water resistance are a type of friction.

That friction, air resistance and water resistance can be applied to effect the acceleration of an object.

To know that a streamlined shape of an object can be used to reduce the effects of friction, water resistance and air resistance.

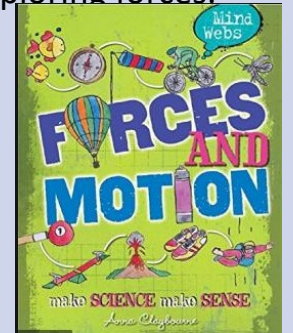
That a large surface area can be used to increase air resistance and water resistance.

To know that friction can have a different effect depending upon the material used.

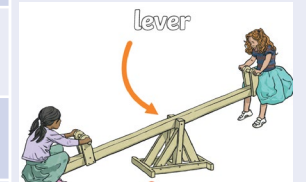
To know that levers, pulleys and gears can be used to move large weights using a smaller force.

Exciting books

Any scientific book exploring forces.



Gear, pulleys and levers:



pulley

Gears

