# Hollingworth Primary School Knowledge Organiser

**Topic: Forces** | **Year: 5** | **Strand: Physics**

## Famous Scientist

Isaac Newton (1643-1727) was an English scientist, mathematician and astronomer. He is considered one of the most important scientists in history.

During his lifetime, Newton developed the theory of gravity, the laws of motion (which became the basis for physics), and a new type of mathematics called calculus.

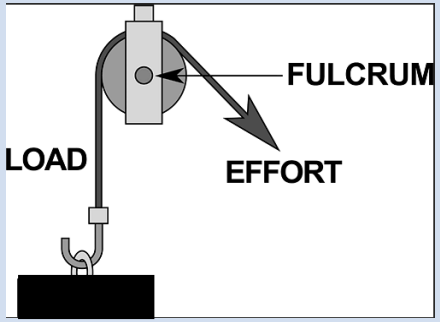
He also made breakthroughs in the area of optics such as the reflecting telescope.

## What should I already know?

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials but not others.
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some1 magnetic materials.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel.

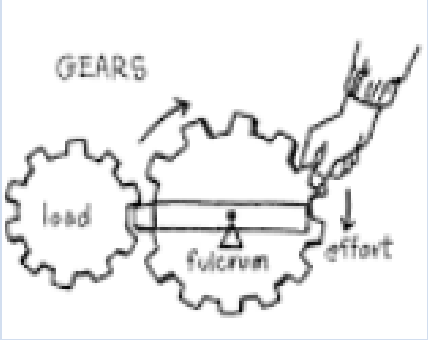
## Mechanisms

### Pulley




### Lever


### Gear




## Vocabulary Dozen

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|---|---|
| **air resistance** | a type of **friction** caused by air pushing against any moving object |
| **forces** | a process that causes a change in an object's shapes, speed or direction |
| **friction** | a **force** that acts between two surfaces that are moving |
| **gears** | a toothed wheel that works with others to change the speed, **force** or direction of a **mechanism** |
| **gravity** | a pulling **force** exerted by the Earth |
| **lever** | a rigid bar resting on a pivot that is used to move a heavy object |
| **mechanism** | parts which work together in a machine for example **pulleys**, **levers** and **gears** |
| **pulley** | a wheel with a grooved rim around that changes the direction of a **force** |
| **simple machine** | a basic mechanical device for applying a **force** |
| **streamlined** | when an object is shaped to minimise the effects of **air or water resistance** |
| **water resistance** | a type of **friction** caused by water pushing against any moving object |
| **weight** | the measure of the **force** of **gravity** on an object |

- A force is acting on an object when it changes its shape, speed or direction.
- There are two types of forces: contact forces (like pushes and pulls) and forces acting at a distance (like gravity).
- When an object is still, the forces acting on that object are balanced and equal.