

# Forces – Year 5

| Key vocabulary          |                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>force</b>            | A force is a push or a pull. Forces make objects start moving, stop moving, speed up, slow down or change direction.    |
| <b>gravity</b>          | A force which pulls things down towards the centre of the Earth.                                                        |
| <b>forcemeter</b>       | Piece of equipment used to measure the size of a force.                                                                 |
| <b>Newton (N)</b>       | The unit for measuring force.                                                                                           |
| <b>air resistance</b>   | The force that slows down objects that move through air.                                                                |
| <b>water resistance</b> | A force that slows down objects moving through water.                                                                   |
| <b>friction</b>         | When one surface moves against another, the rubbing force that tries to stop them is called friction. It gives us grip. |
| <b>mechanisms</b>       | A device that allows a small force to be increased to a larger force.                                                   |
| <b>simple machines</b>  | Levers, pulleys and gears are all types of simple machines.                                                             |

## Real-life examples of forces in action



A skydiver falls fast until they open their parachute.



Dolphins have a streamlined shape.



A non-slip mat uses friction.



Seeds fall to the ground because of gravity.

| Significant scientists                                                                                                       |                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Traditional                                                                                                                  |                                                                                                                                                              |
| <b>Galileo Galilei</b><br>(1564-1642)<br>  | He was an Italian scientist.<br>He discovered that if two objects of similar shape and size are dropped, they will fall at the same rate.                    |
| <b>Sir Isaac Newton</b><br>(1642-1726)<br> | He was an English scientist and mathematician.<br>He 'discovered' the concept of gravity when sitting under a tree and an apple fell to the ground near him. |
| Contemporary                                                                                                                 |                                                                                                                                                              |
| <b>Emma England - Aeronautical engineer</b><br>Emma works as part of a team designing the wings of aircrafts.                |                                                                                                                                                              |

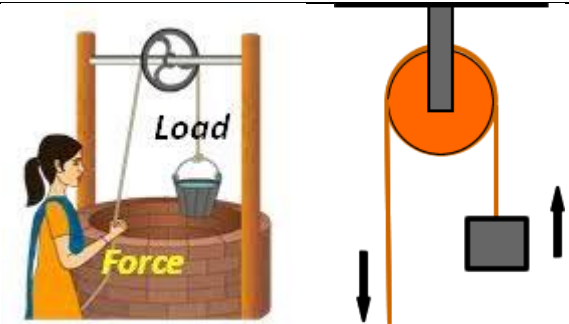
## Simple machines

These are used to make tasks easier. This means you need to use less force.



Force Pivot

A **lever** tilts on a pivot which is nearer to the end of the pivot with a heavy load.



**Pulleys** have a rope or cable which goes over a wheel. This is pulled to lift, lower or move heavy objects.



**Gears** are toothed wheels which lock together and turn each other to form simple machines.