

Knowledge Organiser-Year 5: Forces

Prior Learning: •Describe magnets as having two poles.
•Predict whether two magnets will attract or repel each other, depending on which poles are facing. •May have an awareness of how to make things stop and start.

VOCABULARY

Forces- changes the motion of an object. Pushes and pulls in a particular direction.

Gravity- a force which pulls things towards the centre of the Earth. Discovered by Sir Isaac Newton.

Earth's gravitational pull- pull that Earth exerts on an object pulling it towards the Earth's centre.

Weight- The measure of the force of gravity on an object.

Mass- a measure of how much matter (stuff) is inside an object.

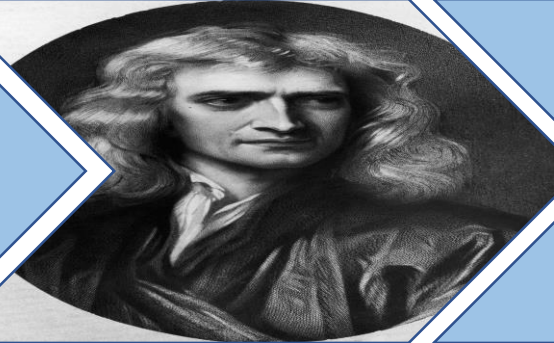
Air resistance- resistance or drag, acts against gravity on falling objects.

Water resistance- type of force that uses friction to slow things down that are moving through water.

Resistance- a force between surfaces that are touching.

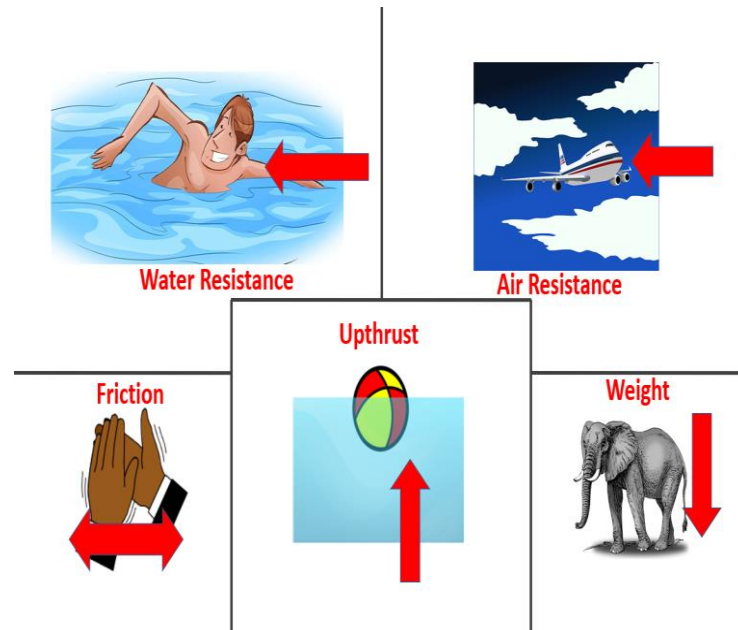
Sir Isaac
Newton

1643-1727



An English mathematician, physicist, astronomer and author who is famous for his laws of motion, theory of colour and the discovery of gravity. Gravity is measured in Newtons (N)

Types of forces.



My **WEIGHT** on Earth is around 560N



My **WEIGHT** on the moon is around 90N



My **MASS** is always 56kg!!

The weight of an object is caused by gravity pulling down on it. Objects with more mass have a greater weight, as the force of gravity pulls them down more strongly.

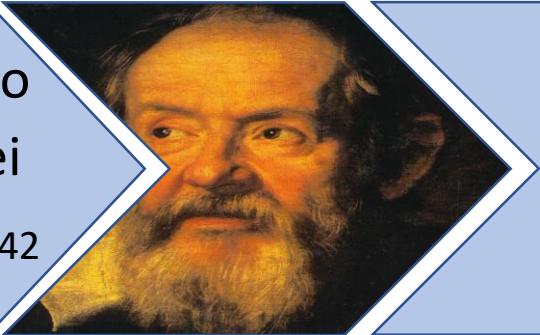


Key Knowledge-

- To demonstrate the effect of gravity acting on an unsupported object.
- To give examples of friction, water resistance and air resistance.
- To give examples of when it is beneficial to have high or low friction, water resistance, and air resistance.
- To demonstrate how pulleys, levers and gears work.

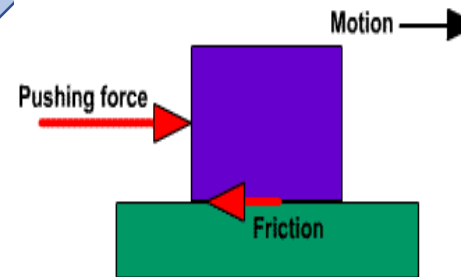
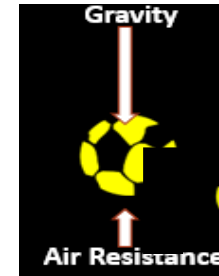
Measuring Time

Galileo Galilei
1564-1642

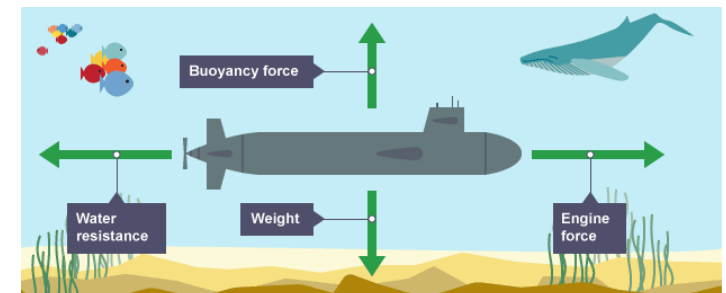
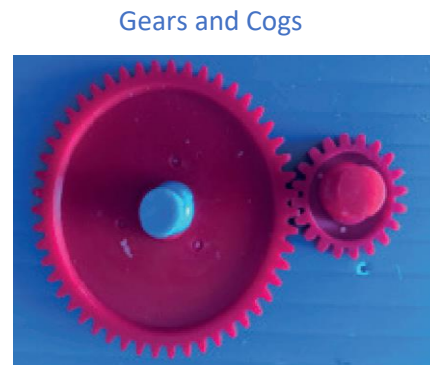
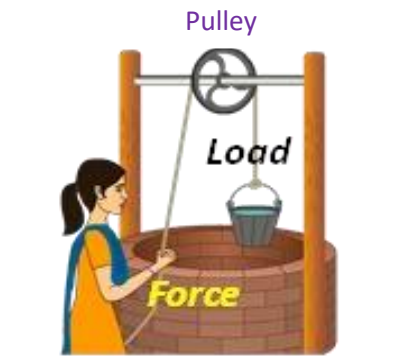
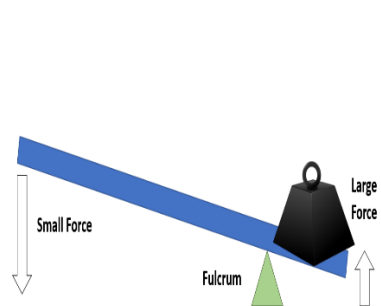


Studied speed and velocity, gravity and free fall. He invented thermoscope and military compasses. He measured time using pendulums.

Galileo Galilei carried out his pendulum investigations around 1602. He found out that the mass of the modelling clay does not affect how fast the pendulum swings. Galileo's results were used to make clocks with pendulums in them. These were much more accurate.



Levers, pulleys, gears and cogs.



Water resistance.

This submarine is streamlined, it has a pointed front to cut through the water and a smooth body to allow the water to flow over it.

Can be used to make a small force lift a heavier load. A lever always rests on a pivot.

Can be used to make a small force lift a heavier load. The more wheels in a pulley, the less force is needed to lift a weight.

Gears or cogs can be used to change the speed, force or direction of a motion. They turn in opposite directions when connected.

