

Forces and Magnets

Keyword	Definition
Speed	How fast an object is moving
Acceleration	Speeding up
Pull	A force that is applied to an object to make it move
Balanced	Two forces are equal and opposite so resultant force = 0N.
Resultant Force	The force that is left when two forces are added or subtracted
Friction	A force that opposes the motion of a moving object.
Push	A force that is applied and causes an object to move
Drag	A force that resists motion through the air.
Lift	A force that uses motion to make objects rise up.
Upthrust	An upwards force pushing on an object in fluids. Like air or water
Reaction or Normal Force	A force that stops you falling through the floor.

Introduction to forces

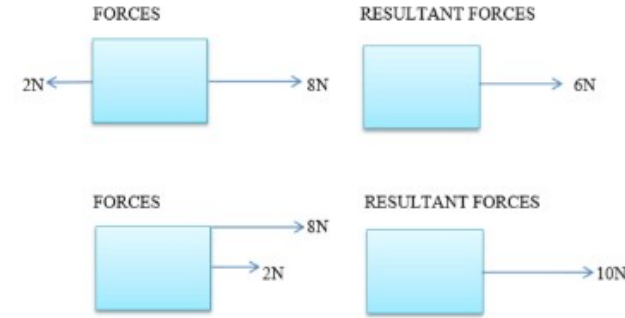
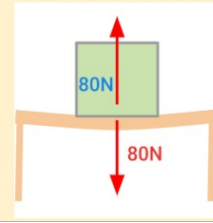
Forces can be a **push** or **pull**. Forces can explain why an object moves the way they do, or doesn't move at all.

Examples of contact forces. Friction, compression, normal force and air resistance.

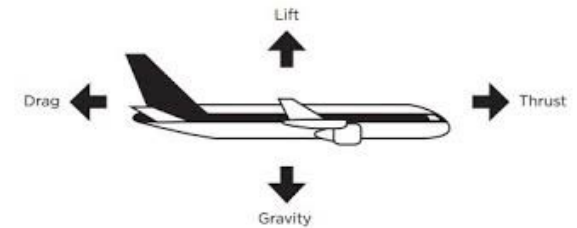
Examples of non-contact forces. Gravity, magnetism, and static electricity.

Forces are measured in **Newtons**.

Forces can be measured by a **Newton meter**



- **Balanced forces**
- **Resultant Force of 0N**
- **Object stays at constant velocity**



Speed

The speed of an object tells you how fast or slow it is moving. You can find the average speed of an object if you know the distance it has travelled and the time taken to travel that distance.

$$\text{speed (m/s)} = \frac{\text{distance travelled (m)}}{\text{time taken (s)}}$$

Poles of a magnet



South

North

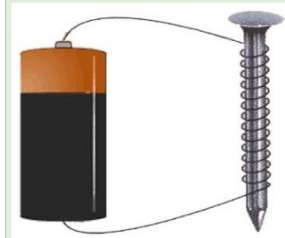
Opposite poles attract



Like poles repel



Electromagnets



An electromagnet is a temporary magnet created by passing an electric current through a coil of wire

To make an electromagnet stronger you can:

1. Add a magnetic core (iron nail etc)
2. Increase the number of coils
3. Increase the current

Distance Time Graphs

A distance time graph has the time on the x axis and the distance on the y axis. If an object is stationary (not moving) the line **will be horizontal**. If the line is diagonal the object is moving at a constant speed. If the line has a larger gradient (steeper), it means it is moving faster. If the line is going back towards the x axis it is **returning to its starting point**.

