

Physics Yr7

Knowledge Organiser

Non- Contact Forces –

Newton	The unit of force
Newton meter	A piece of equipment that can be used to measure the size of the force
Gravity	The pulling force of the Earth on Objects
Force	A push or a pull
Friction	Friction When two objects rub together
Air resistance	Air resistance When an object rubs against air particles
Reaction	Reaction A force that acts in the opposite direction
Weight	Weight The force an object exerts on the ground due to gravity
Thrust	The force that drives on objects with an engine
Contact force	A force caused by the contact between two objects
Non-contact	A force between two bodies that are not in contact for example gravity
Free body diagram	A diagram which shows all the forces acting on an object

Force Diagrams

To show the forces acting on a body we use a free body force diagram. A free body force diagram shows all of the forces that are acting on the body. It has arrows that show the direction the force acts, the larger the arrow, the larger the force. A free body force diagram should always have labelled arrows.



Balanced and unbalanced Forces

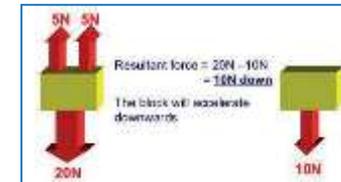
When we talk about the total force acting on object we call this the **resultant force**. When the forces acting in opposite directions are the same size we say the forces are balanced. This means one of two things:

1. The object is stationary (not moving)
2. The object is moving at a constant speed

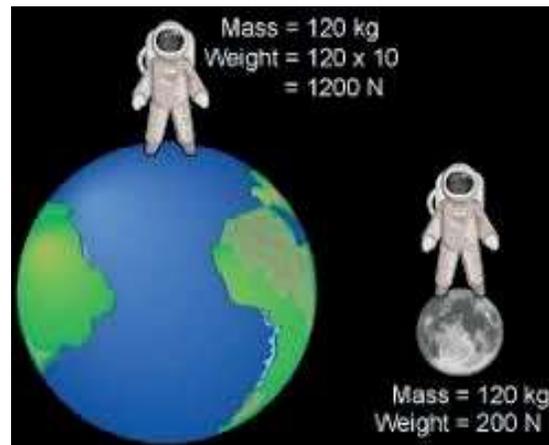
This is known as Newton's first law

If the forces are unbalanced on an object there are two things that could happen:

1. If the object is stationary then it will move in the direction of The resultant force
2. If the object is moving, then the object will speed up or slow down in the direction of the resultant force



Equation	Meanings of terms in equation
$\text{weight} = \text{mass} \times \text{gravitational field strength}$	Weight = Newtons, N Mass = kilograms, kg Gravitational field strength = Newtons per kilogram, N/kg



Weight and mass

Weight is not the same as mass. Mass is a measure of how much stuff is in an object. Weight is a force acting on that stuff.

Gravity:

- pulls objects on Earth towards the centre of the planet
- holds the Earth's atmosphere in place
- holds all the components of the solar system in orbit around the Sun
- holds all the components of the galaxy together