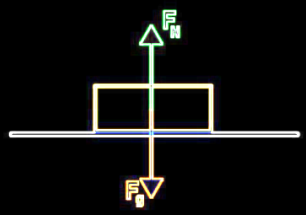
Net Force

Is the sum of all forces acting on a body, its SI unit is **N**

When body rest

The net force = 0 and the only forces acting on it are normal force (F_N) and gravitational force (F_g) in opposite directions

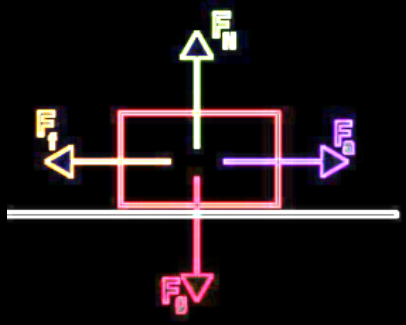


When body moving

Fnet = Fa + Fg + Ff + FN

Where,

- Fa is applied force,
- Fg is the gravitational force,
- Ff is the frictional force,
- FN is a normal force.



Mass

Amount of matter in body, it determines the strength of the gravitational attraction, its SI unit is **kg**

Weight

It is the amount of gravitional force acting on a body, its SI unit is **N**

Weight = mass x gravitational acceleration

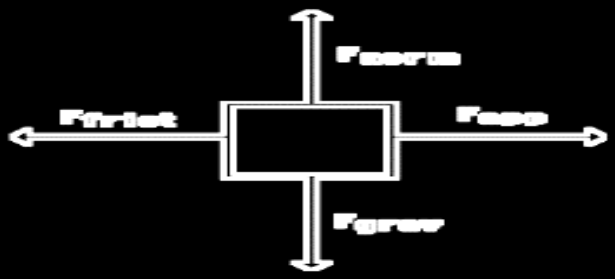
The weight of an object on earth is 6x larger than it is on the moon because the gravitational acceleration on earth is 6x the moon's

Acceleration

It is the change in velocity (speed or direction), it is measured in m/s^2

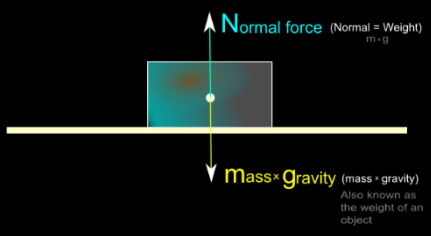
Free-body diagram

It is a diagram to show the direction and magnitude of each force acting on body



Friction

Is the force between two surfaces that are moving across eachother, it is always in the opposite direction to the motion, it slows down a moving object, its strength depends on the materials of the two surfaces, the rougher the surfaces, the more friction is produced



Friction = μN

Where μ is the coefficient of friction which is a constant depending on the material

And N is the normal force, which is equak to **mg cos(Θ)** in magnitude but opposite in directcion