

So far we have discussed how a force is needed to start something moving and to stop something moving. But what is a force?

- Forces are pushes, pulls and twists
- They can start, stop, change and objects direction, change the shape of an object
Demo with ball
- All forces are measured in Newtons
- Newton is the force required to give a 1kg mass an acceleration of 1m per second squared
- On Earth a 100g mass exerts approximately a force of 1N down. Or 1kg equals 10N

Weight =mass.gravity

Newton = Kg.m/s²

Gravity on earth gives an object an acceleration of approximately 9.8m/s²

Therefore a 1kg mass has a mass of - 1X 9.8m/s²=9.8kg. m/s² or 9.8N

Our first equation!! Before we work with it, lets look at the difference between mass and weight

- **Power point**
- Mass depends on the amount of matter and not on any external force
- Weight is a force due to gravity. Gravity can change and therefore so can the objects weight.

Questions:

- If an object has a mass of 5kg what is it's weight on planet earth. Take gravity as 10m/s²
- If an object has a weight of 35 Newtons what is its mass in Kg?
- If an object has a weight of 45 Newtons and a mass of 15kg. What is the force of Gravity?

Complete : Mass, Weight and Gravity WS