Weight, Mass and Gravity

➢ Weight:

- It is the measure of the force of gravity acting on a body.
- It's unit is Newton
- Measured using spring balance

The formula for weight is given by:

w = mg

➢ Force of Gravity:

It the attraction force between 2 object or masses. (Earth attract objects)

- This has two important effects:

1) On the surface of a planet, which make all things fall towards the ground.

2) it gives weight to everything

➢ Weight and Mass are Not the Same

Mass:

"Mass is a measurement that refers to the amount of matter that makes up an object"

It is measure in Kilograms(kg).

- weight and force are acting on an object due to gravity
- Weight of the object depends on strength of gravitational force, large object= strong gravitational field.

Weight	Mass
Determined by gravity	Not determined by gravity
Changes depending on where you are in the Solar System	Stays the same wherever you are in the Solar System
Is a force	Is not a force
Measured in newtons	Measured in kilograms

Table 1. Weight vs. Mass.

- **Weight and mass are directly proportional to each other**

- **Weight (N)= mass (kg) * gravitational strength field(N/kg)**

increase in mass = increase in weight means $W \propto M$

- **For earth g= 9.8 N/kg**
- **For moon g= 1.6N/kg**