Chapter 42: Weight

Def: The weight of an object is the amount of gravity acting on it.

Formula:

Weight = Mass x Gravity (Value of gravity = 10N/kg)

Weight is a force and is measured in newtons (N)

The pull of gravity on the earth is 10 newtons on every kilogram.

A 1 litre carton of milk has a mass of 1kg, therefore it's weight on earth is 10N (1 x 10)

Example:

On earth, the mass of a box of biscuits is 750g. Calculate it's weight!

Answer:

Mass is 750g but we must convert it to kilograms.

750g = 0.75kg (remember 1kg = 1000g)

Weight = Mass x Gravity

= 0.75 x 10

= 7.5N

However, the value of gravity differs. On the earth, the value on top of Mount Everest is approximately 9N/kg compared to 10N/kg at sea level.

On the moon, the value of gravity is approximately one-sixth the size on earth, giving it a value of 1.67N/kg

Example:
A man has a mass of 60kg. Compare his weight on earth to that on the moon.

Answer:
On Earth
Weight = Mass x Gravity
= 60 x 10
= 600N

Answer:
On the Moon
Weight = Mass x Gravity
= 60 x 1.67
= 100N


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