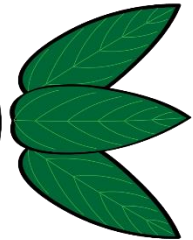
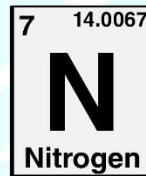
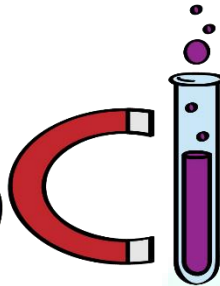
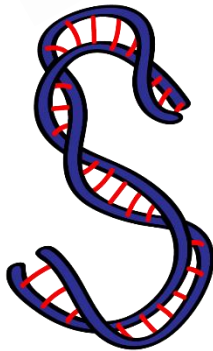




ASPIRE
INTERNATIONAL SCHOOL



Science Department

2023/2024

Year 7

Term 1, Revision Pack (Lesson 3.1)

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Name:

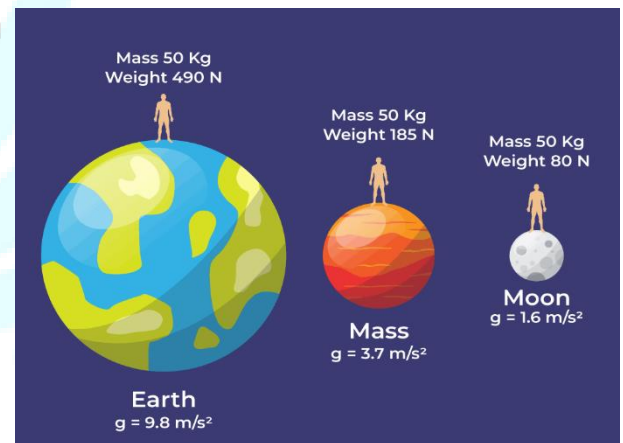
Class:

Study Notes (Lesson 3.1)

Gravity is the force that pulls any object towards the centre of the Earth.

- Each object has a gravity.
- Increasing the mass of the planet increases its gravity.
- Due to that the Sun has the greatest gravity in the solar system.
- The strength of gravity decreases as you go further from a large object such as Earth. For example, if you travelled away from Earth in a spacecraft, the force of gravity from the Earth acting on you would get smaller.

What is the difference between mass and weight?



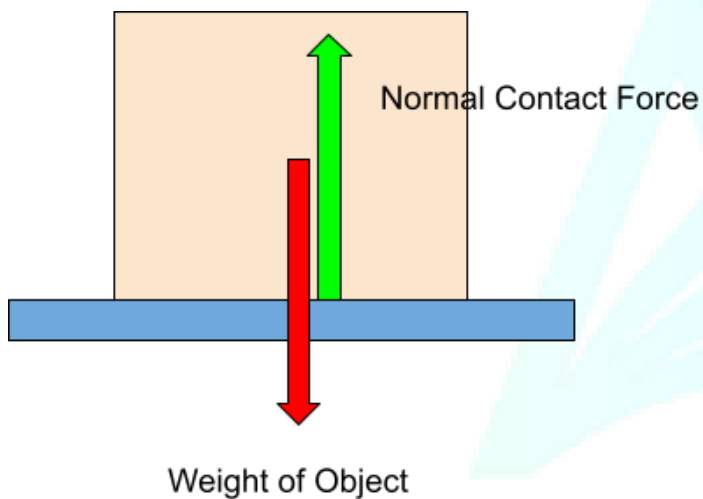
	Mass	Weight
Definition	Amount of matter in an object	Attraction force of gravity on any object towards the centre of the planet
Apparatus	Balance	Force meter (Spring scale)
Unit	Kg, g	N
Effect of changing the gravity	Constant whatever is the gravity	The higher the gravity, the higher the weight and vice versa

1- On a still surface:

- Why some objects are still on a surface and don't fall down?
(Example a book on a shelf)

Because the shelf is providing a pushing force in the opposite direction of the weight (gravity)

We call this a **contact force**.

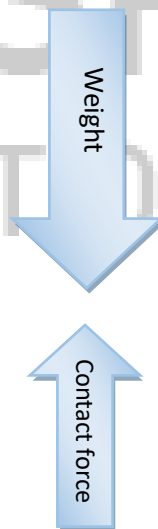


The object is still (doesn't fall down),
because

The contact force = weight

2- On a moving surface:

If the force of weight greater than the contact force, the object sinks.



The man sinks a quick sand, as

Weight is greater than the contact force

Note the difference of the size and length of the
arrow.

**The longer (or the thicker) the arrow, the greater
the force**

Calculating mass and weight on the Earth:

On Earth, the force of gravity is 10 N on every 1 kg of mass.

We use the following equation to calculate the weight:

$$\text{weight (N)} = \text{mass (kg)} \times 10 \text{ (N/kg)}$$

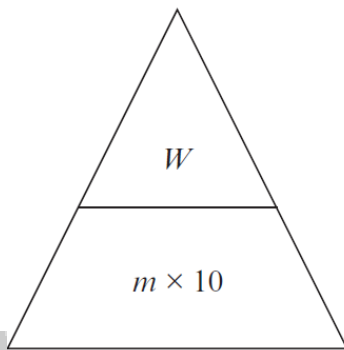
$$W = m \times 10$$

Example:

Calculate the weight of an adult who has a mass of 75 kg.

$$\begin{aligned} W &= M \times 10 \\ &= 75 \times 10 = 750 \text{ N} \end{aligned}$$

If the mass is unknown but you know the weight use the formula triangle to figure it out



Mass =

Remember to add the unit of the mass in Kg.

Example:

Calculate the mass of a car that has a weight of 8500 N.

$$\begin{aligned} \text{Mass} &= W \div 10 \\ &= 8500 \div 10 = 850 \text{ Kg} \end{aligned}$$