Brainbox learn easy

Chapter 10

GRAVITATION

Gravity:

Is one of the most basic forces in the universe. It plays a fundamental role not only in the structure of our solar system but also in the way objects behave on Earth.

Gravitaion:

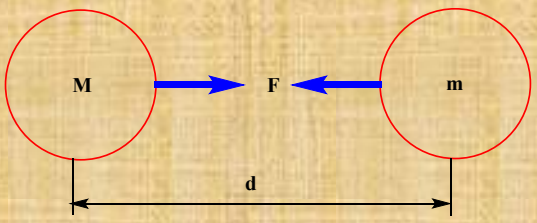
Gravitation is the force of attraction between two objects in the universe. Gravitation may be the attraction of objects by the earth.

This force is proportional to the product of masses of the objects and inversely proportional to the square of the distance between them. It is independent of medium.

Gravitational force $\frac{GMm}{r^2}$.

➢ Universal Law of Gravitation:

- The universal law of gravitation states that, 'Every object in the universe attracts every other object with a force which is directly proportional to product of the masses and inversely proportional to the square of the distance between them'.



F = Gravitational force

G = Universal gravitational constant

d = Distance between M and m

$$F = G\frac{Mm}{d^2}$$

- The SI unit of G is $N\,m^2kg^{-2}$ and its value is $6.673\times10^{-11}\ N\,m^2kg^{-2}$.
- The strength of the gravitational attraction between two objects depends on two factors.
- How big the objects are (how much mass they have) and
- How far apart they are.