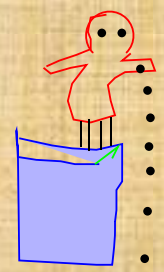
Brainbox learn easy

Chapter 10

GRAVITATION

➢ Free Fall:

- With negligible air resistance, falling objects can be considered freely falling. Objects of different shapes accelerate differently (stone vs feather).



➢ To Calculate The Value Of "g" (acceleration due to gravity):

- The acceleration due to gravity is denoted by 'g'.
- The unit of 'g' is same as the unit of acceleration ms^{-2}.
- From the second law of motion, force is the product of mass and acceleration. F = ma
- For free fall, force is the product of mass and acceleration due to gravity.

  $F = mg$

  Or $mg = \frac{GMm}{r^2}$

  Or $g \frac{GM}{r^2}$

Where ‘M’ is the mass of the Earth and ‘d’ is the distance between the object and the earth.

- For objects near or on the surface of the earth ‘d’ is equal to the radius of the earth R.
- $F = mg$ or $mg = \frac{GMm}{r^2}$ or $g\frac{GM}{r^2}$.