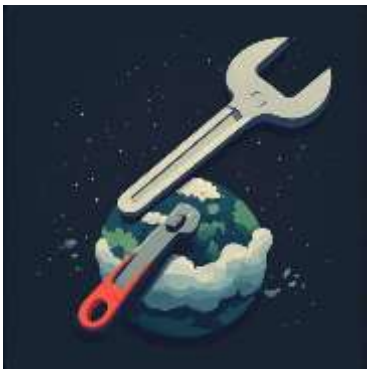
$S = \frac{1}{2} g t^2$ $v = g t$ $g_{earth} = 9.81\ m/s^2$ $g_{moon} = 1.62\ m/s^2$

Motion of a falling object (Earth & Moon) – Level 3 - Challenge

1. A tool is dropped from a **height of 20 m** on Earth.



a. Calculate the **time** taken to reach the ground. _____

_____

_____

b. Calculate the **final velocity**.

_____

_____

2. The same tool is dropped from **20 m** on the Moon.

a. Calculate the **final velocity**

_____

_____

b. Compare your answers with part 1. _____

_____

_____

3. Two objects are dropped at the same time, one on Earth and one on the Moon. Explain why the object on Earth reaches the ground first.

_____

_____

_____

4. Sketch a **Velocity** – **Time** Graph for:

    a. A falling object on **Earth**

    b. A falling object on the **Moon**

    On the same axes.

5. An astronaut says:

    "Objects fall slower on the Moon because there is no gravity"

    Do you agree? Explain your answer.