

# Physics Year 11 Week 5

Free Fall

# Free Fall

Free fall is defined as the motion of an object undergoing an acceleration of 'g'.

Acceleration is a **vector quantity** — and 'g' acts **vertically downwards**.

The magnitude of 'g' is usually taken as **9.81 ms<sup>-2</sup>**,

The **only force** acting on an object in free fall is its **weight**.

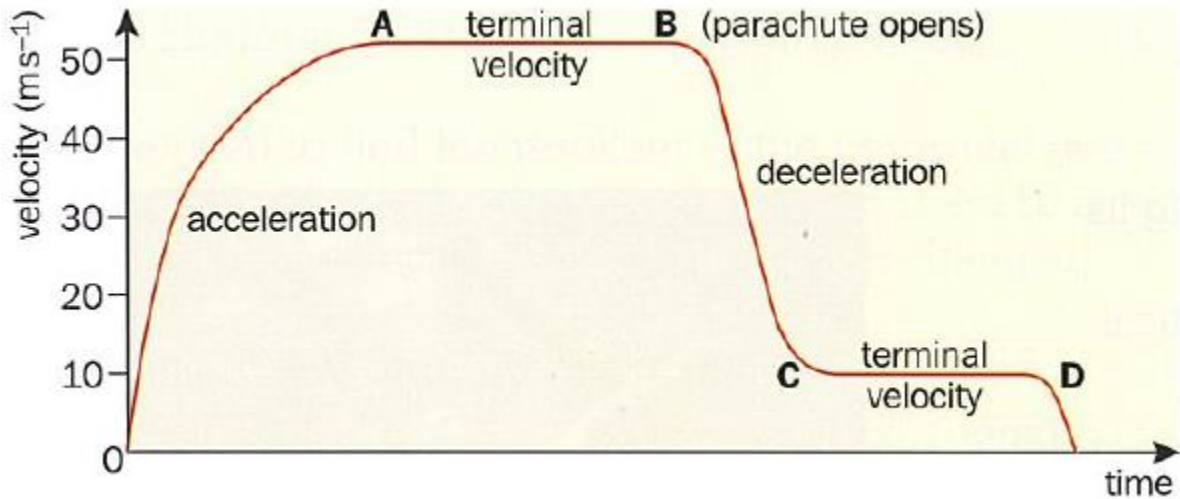
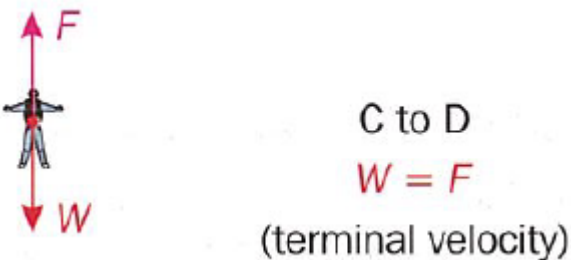
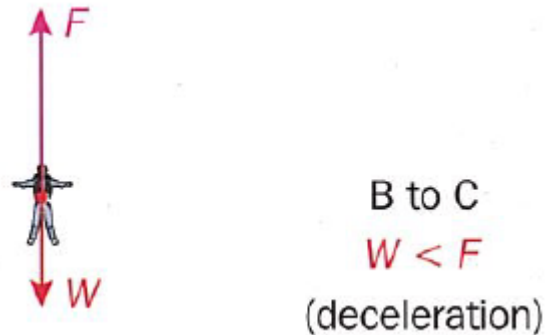
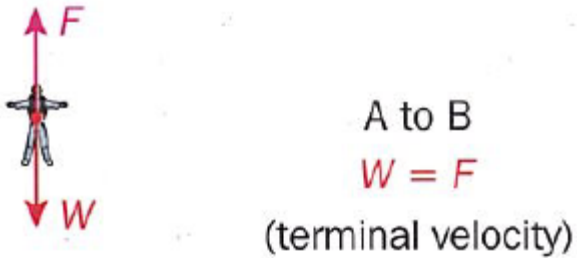
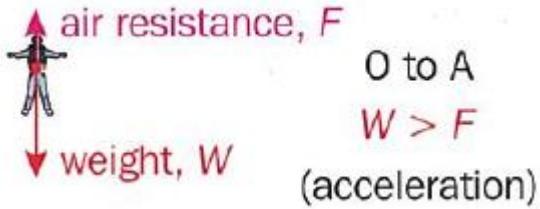
Objects can have an initial velocity in any direction and still undergo **free fall** as long as the **force** providing the initial velocity is **no longer acting**.

***All Objects in Free Fall Accelerate at the Same Rate***

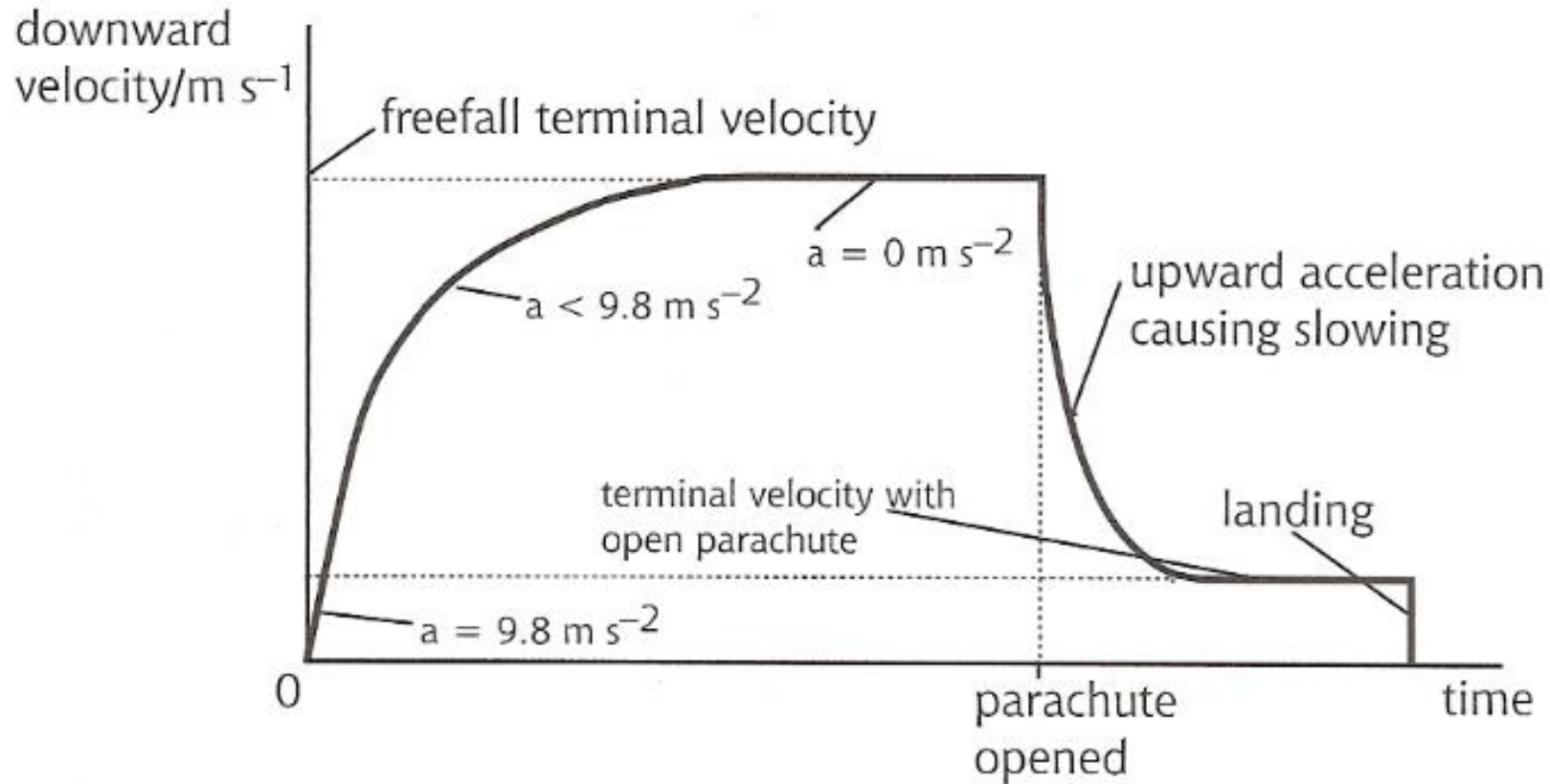
***Replace a with g in the Equations of Motion***

- g = gravitational field strength
- Measured in newtons per kilogram

# Terminal Velocity



# VT Graph of a Parachute



# The Old "Sheep Jumping Out of a Plane" Trick

1) Gains Speed

2) Still Gaining Speed

3) Losing Speed

4) Steady Speed

5) No Speed

