

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^{-2}** ,

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

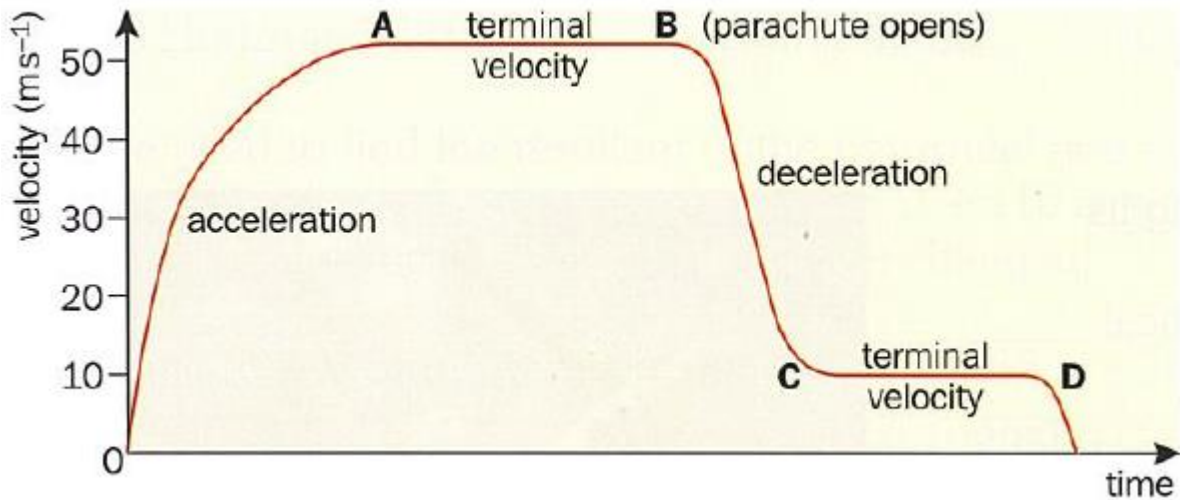
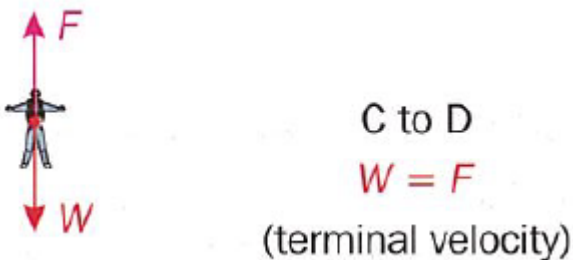
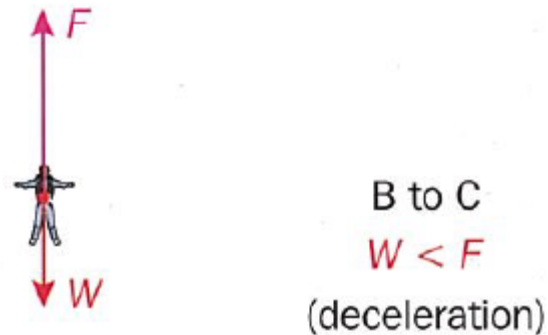
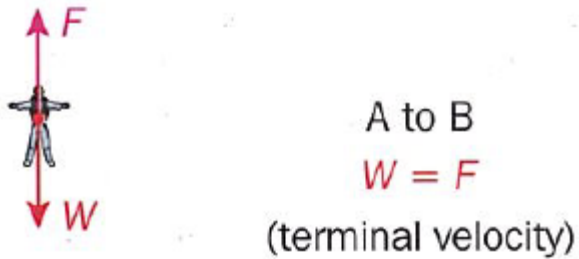
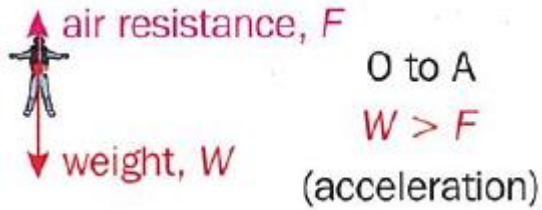
Objects can have an initial velocity in any direction and still undergo **free fall** as long as the **force** providing the initial velocity is **no longer acting**.

All Objects in Free Fall Accelerate at the Same Rate

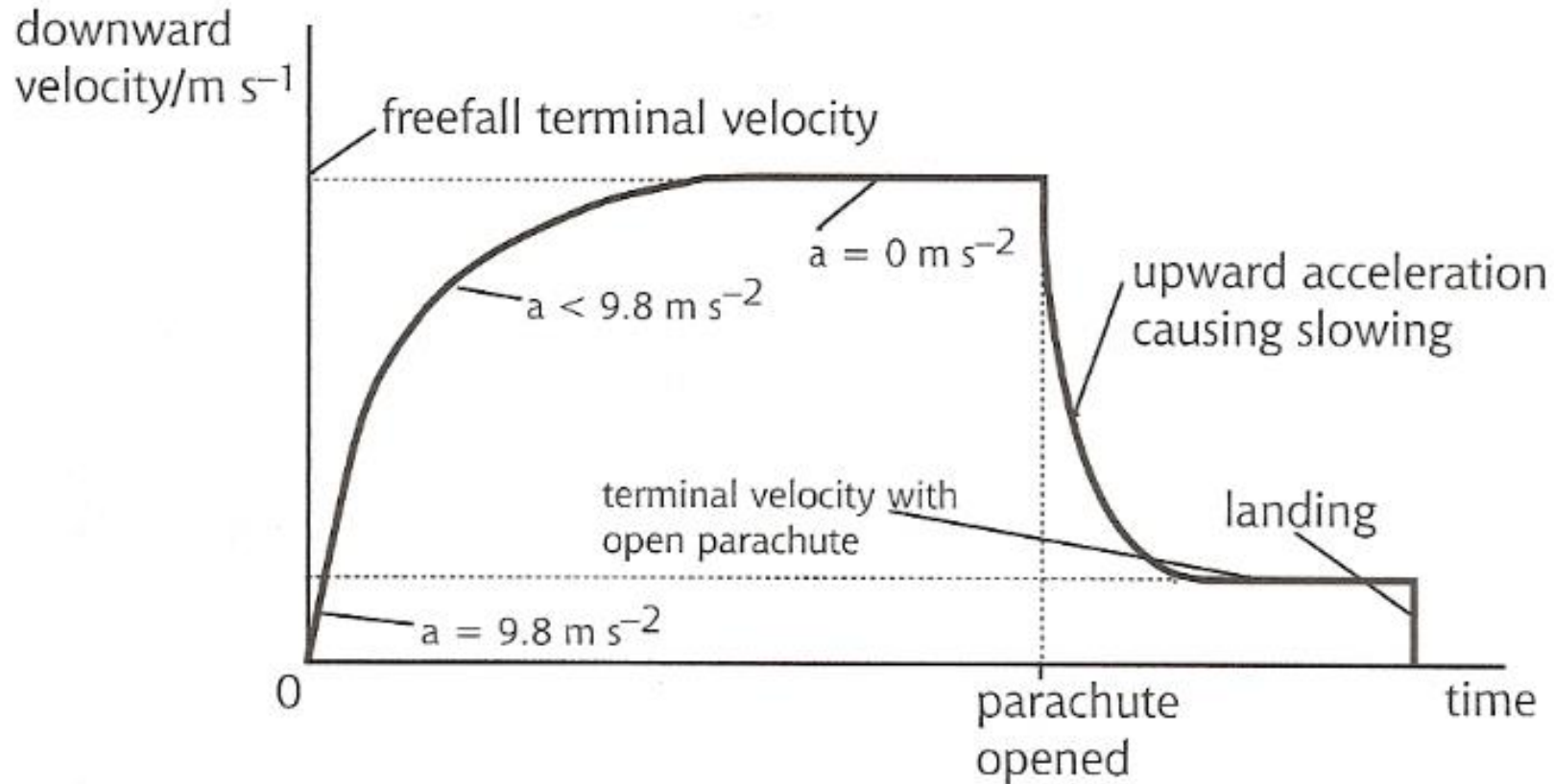
Replace a with g in the Equations of Motion

- 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

