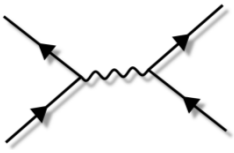

A Level Physics Online

Edexcel Physics – 9PH0

Module 2: Mechanics

You should be able to demonstrate and show your understanding of:	Progress and understanding:			
	1	2	3	4
Mechanics				
The 'suvat' equations for uniform acceleration in only one dimension: $v = u + at$ $s = \frac{(u+v)t}{2}$ $s = ut + {}^{1}/_{2}\,at^2$ $v^2 = u^2 + 2as$				
Displacement/time(d/t), velocity/time(v/t) and acceleration/time(a/t) graphs and be able to interpret and draw them				
Which physical quantities are derived from d/t, v/t and a/t graphs, along with cases of non-uniform acceleration and how to use these quantities				
Understand scalar and vector quantities and know examples of each type of Quantity and recognise vector notation				
Be able to resolve a vector into two components at right angles to each other by drawing and by calculation				
How to find the resultant of two coplanar vectors at any angle to each other by drawing, and at right angles to each other by calculation				
How to make use of the independence of vertical and horizontal Motion of a projectile moving freely under gravity				
Free-body force diagrams and how to draw / interpret them				
The equation ΣF = ma , and how to use this equation in situations where m is a constant (Newton's second law of motion), including Newton's first law of motion where a = 0 , objects at rest or travelling at constant velocity (**use of the term terminal velocity is important**)				
How to use the equations for gravitational field strength: $g = \frac{F}{m}$ $W = mg$				

You should be able to demonstrate and show your understanding of:	Progress and understanding:			
	1	2	3	4
CORE PRACTICAL 1: Determine the acceleration of a freely-falling object				
Newton's third law of motion and know the properties of pairs of forces in an interaction between two bodies				
Understand that momentum is defined as: $$p = mv$$				
The principle of conservation of linear momentum, understand how to Relate this to newton's laws of motion and understand how to apply this to Problems in one dimension				
Be able to use the equation for the moment of a force, Moment of force = Fx where x is the perpendicular distance between the line of action of the force and the axis of rotation				
The concept of centre of gravity of an extended body and apply the principle of moments to an extended body in equilibrium and how to apply it				
The equation for work ΔW = fδs , including calculations when the force is not along the line of motion and how to use				
The equation: $$\Delta W = F\Delta s$$ Along with calculations when the force is **not** acting along the line of motion				
The equation ΔE_{grav} = mgΔh for the difference in gravitational potential energy near the Earth's surface and how to apply it				
How to apply the principle of conservation of energy, including the use of work done, gravitational potential energy and kinetic energy				
The equations relating power, time and energy transferred or work done: $$P = \frac{E}{t}$$ $$P = \frac{W}{t}$$				
The equations: $$Efficieny = \frac{useful\ energy\ output}{total\ energy\ input}$$ $$Efficiency = \frac{useful\ power\ output}{total\ power\ input}$$ And when to use each one.				