Name: …………………………….   GCE AS Physics Unit 2

Motion		
Scalars and Vectors	Can you add vectors together?	🟧
Addition		
Subtraction	Can you define the difference between a scalar and a vector?	🟧
Equilibrium		
Resolution	Can you resolve (calculate) missing forces on a beam if it is in equilibrium?	🟧

Moments		
Force	Can you define a moment?	🟨
Perpendicular		
Principle of moments	Can you calculate the moment of a force around a pivot?	🟨
Centre of mass		
Balanced	Can you identify the centre of mass for a uniform beam and find its weight using its mass?	🟨
Torque		
	Can you define the principle of moments and use it to find the forces on a beam?	🟨

Motion in a straight line		
	Can you interpret a velocity-time graph highlighting when an object is accelerating, decelerating, stationary, or moving at a constant speed.	
Displacement		
Speed		🟩
Velocity	Can you calculate the instantaneous speed of a moving object from a velocity-time graph?	
Acceleration		🟩
Velocity-time graphs	Can you calculate the average speed or acceleration of an object from a velocity-time graph?	
Uniform		🟩
	Can you explain what is meant by Terminal Speed and the conditions required for this to happen using ideas about forces?	
SUVAT equations		
Terminal Speed		🟩
Gradient	Can you use a variety of SUVAT formulas to calculate missing values in different scenarios?	
Acceleration due to gravity (g)		🟩
ms^{-2}	Can you interpret a displacement-time graph and calculate the velocity of an object at any point?	
Deceleration		🟩

Projectile Motion

Vertical motion
Horizontal motion

Friction
Lift
Drag
Air Resistance = Velocity^2

Trajectory

Question	Status
	🟩 green
Can you use the SUVAT equations or acceleration equation to solve how far an object will fall or travel horizontally within a given scenario?	
	🟧 orange
Can you describe the effect of friction on a moving object but remember that friction is usually ignored in the test questions?	
	🟧 orange
Can you recall the relationship that the air resistance for an object is equal to the velocity squared?	
	🟧 orange
Can you recall that the horizontal motion of a projectile is **independent** of the vertical motion, and explain this idea in a long written paragraph?	
	🟧 orange

Newton's laws of motion

Three laws of motion
F = m.a
Equal and opposite forces
Forces acting on an object
Balanced
Unbalanced
Constant mass
Resultant

Question	Status
	🟦 blue
Can you define Newton's three laws of motion?	🟦 blue
Can you use the relationship F= m.a to find the force, mass or acceleration of a moving object?	🟦 blue
Can you draw a graph of velocity-time data and interpret	🟦 blue
Can you calculate the Resultant force acting on an object?	🟦 blue

Momentum

Mass
Velocity
Rate of change of momentum
Impulse
Force-time graphs
Impact forces
Elastic Collision
Inelastic Collision
Conservation of momentum

Question	Status
	🟦 blue
Can you define momentum and give the units?	🟨 yellow
Can you calculate the momentum of an object?	🟨 yellow
Can you explain what happens to momentum during an elastic and an inelastic collision?	🟨 yellow
Can you describe the difference between an elastic and inelastic collision?	🟨 yellow
Can you describe and show mathematically how momentum is conserved in collisions?	

Work, Energy and Power

Topic	Question	
Energy Transfers	Can you calculate the work done using the relationship Fcosθ?	
Work done		
Efficiency	Can you calculate the rate of energy being transferred using P = ΔW?	
Area under displacement-time graph		
Percentage efficiency	Can you calculate the efficiency and percentage efficiency of a system?	
Energy conservation		
Gravitational Potential Energy	Can you recall what the area under a force-displacement graph gives us?	
Joules		
Kinetic Energy	Can you recall how energy is conserved when an object transfers it from one use to another?	
Power		

Properties of Solids

Topic	Question	
Density	Can you calculate the density of a material?	
Hooke's law		
Tensile Stress and Strain	Can you describe the difference between stress and strain?	
Elastic Stress and Stain		
Plastic behaviour	Can you describe the features on a characteristic curve for stress and strain on a material?	
Brittleness		
Elastic limit		

Young Modulus

Topic	Question	
Energy stored	Can you calculate the Young Modulus for a material?	
Fracture		
Kinetic Energy	Can you identify on a graph the area where the material behaves according to Hooke's law?	
Potential Energy		
Units of stress	Can you recall the units for stress and strain?	
Pascal's		

Waves

Topic	Question	
Oscillation	Can you describe what a progressive wave is?	
Medium		
Amplitude	Can you define path difference?	
Wavelength		

Terms	Questions	Status
Speed	Can you use the relationships between wavelength and speed to find the frequency of a wave?	☐ (white)
Path difference		☐ (orange)
Phase	Can you explain the difference between a transverse and a longitudinal wave?	☐ (white)
Speed of light		☐ (blue)
Frequency	Can you describe the behaviour of a particle at any point on a transverse or longitudinal wave?	☐ (white)
		☐ (blue)
Polarisation		☐ (white)
Polarising materials	Can you give the characteristics of Transverse waves?	☐ (yellow)
Transverse waves only		☐ (white)
	Can you explain how the direction of particle movement in a wave is related to the direction that energy travels along it?	☐ (yellow)
Polaroid		
Transmitter		☐ (white)
Receiver	Can you explain what a polarising material is?	☐ (yellow)
Vacuum		☐ (white)
Alignment of aerials	Can you explain why aerials need to be aligned a certain way in order to receive a signal?	☐ (yellow)
		☐ (white)
Stationary Waves		☐ (yellow)
Nodes	Can you identify the points on a wave where you would find nodes and anti-nodes?	☐ (white)
Anti-nodes		☐ (white)
First Harmonic	Can you describe how a stationary wave is formed?	☐ (white)
Frequency		☐ (white)
Amplitude	Can you explain what a harmonic is?	☐ (white)
Fundamental frequency		☐ (green)
		☐ (white)
Refraction		☐ (green)
Refractive index	Can you calculate the refractive index for a given transparent material?	☐ (white)
Total internal reflection		☐ (blue)
Core	Can you describe the conditions needed for total internal reflection?	☐ (white)
Cladding		☐ (blue)
Optical fibre	Can you explain the function of the core and the cladding of a piece of optical fibre?	☐ (white)
Critical Angle		☐ (blue)
	Can you calculate the critical angle of a material?	☐ (white)
	That's it. Again.yeye	☐ (blue)