CURIOSITY COMPASSION COURAGE

Academic Outline 2024-25

Subject: A Level Physics (OCR A)						
	Term 1 Aug-Oct	Term 2 Nov-Dec	Term 3 Jan-Feb	Term 4 Mar-Apr	Term 5 Apr-May	Term 6 Jun-Jul
Year 12	Foundations of Physics Quantities and units Making estimates Errors and uncertainties Scalars and vectors Forces and Motion Acceleration Projectile motion Investigating motion Stopping distances Forces in Action Mass, weight and force basics Net force Equilibrium Moments and torques Drag and terminal velocity Density, pressure and upthrust	Work, energy and power Work and power Kinetic energy and gravitational potential energy Conservation of energy Materials Hooke's law Elastic and plastic deformation Stress and strain The Young modulus	Laws of motion and momentum Newton's laws of motion Momentum Impulse and vehicle safety Electricity Circuits Current Potential difference Resistance and resistivity Types of conductor I-V characteristics Power and electrical energy Domestic electricity E.m.f and internal resistance Conservation of energy and charge in circuits The potential divider	Electricity Continue topic Waves Progressive waves Frequency, speed and intensity Electromagnetic waves Polarisation Reflection and refraction Refractive index and total internal reflection Superposition and interference Diffraction Two-source interference Young's double –slit experiment Diffraction gratings Stationary waves	Quantum Physics The photon model The planck constant The photoelectric effect Wave-particle duality Preparation for progression PPE	Progression PPE and Reteach informed from QLA Thermal physics Phases of matter and temperature Thermal properties of materials The gas laws The ideal gas equation The pressure of an ideal gas Internal energy of an ideal gas

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Year 13	Thermal physics Phases of matter and temperature Thermal properties of materials The gas laws The ideal gas equation The pressure of an ideal gas Internal energy of an ideal gas Circular motion and oscillations Circular motion Centripetal force and acceleration Simple harmonic motion Calculations with SHM Investigating SHM Free and forced oscillations Gravitational fields Gravitational fields Gravitational field strength Gravitational potential and energy Motion of masses is gravitational fields Astrophysics and cosmology The solar system Astronomical distances	Astrophysics and cosmology Stellar radiation and luminosity Stellar spectra The big bang The evolution of the universe Capacitors Capacitors Capacitors in circuits Investigating charging and discharging capacitors Charging and discharging calculations Electric fields Electric fields Uniform electric fields Electric potential Comparing electric and gravitational fields	Electromagnetism Magnetic fields Magnetic flux density Forces on charged particles Magnetic flux and flux linkage Faraday's law and Lenz's law Uses of electromagnetic induction Nuclear and Particle Physics Atomic structure The nucleus Particles and antiparticles Quarks and anti-quarks Radioactive decay Nuclear decay equations Exponential law of decay Half-life and radioactive dating Binding energy Nuclear fission and fusion Fission reactors	Nuclear and Particle Physics Medical Imaging X ray imaging Medical uses of nuclear radiation Medical uses of ultrasound	Preparation for A Level exams	A Level exams

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	Stellar evolution					