Subject - KS5 EDEXCEL PHYSICS

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	**1 Working as a Physicist** 1.1 Units 1.2 Estimation **2 Mechanics** 2.1.1 Velocity and acceleration 2.1.2 Motion Graphs 2.1.3 Adding Forces 2.1.4 Moments 2.1.5 Newton's laws of motion 2.1.6 Kinematics equations 2.1.7 Resolving Vectors 2.1.8 Projectiles **Core Practical 1 - Determine the acceleration of a freely-falling** 2.2.1 GPE and KPE 2.2.2 Work and Power 2.3.1 Momentum 2.3.1 Conservation of Linear Momentum	**3 Electricity** 3.1.1 Electric Current 3.1.2 Electrical Energy Transfer 3.1.3 Current and Voltage Relationships 3.1.4 Resistivity 3.1.5 Conduction and Resistance 3.1.6 Semiconductors **Core Practical 2 - Determine the electrical resistivity of a material** 3.1.5 Conduction and Resistance 3.1.6 Semiconductors 3.2.1 Series & Parallel Circuits 3.2.2 Electrical Circuit Rules 3.2.3 Potential Dividers 3.2.4 EMF and Internal Resistance **Core Practical 3 - Investigating E.M.F. & Internal Resistance** 3.2.5 Power in Electric Circuits Content consolidation/ exam technique practise Revision for AS Paper 1 and Paper 3a Centre Assessments	**AS Paper 1 & Paper 3b Centre assessment.** **4 Materials** 4.1.1 Fluids, Density and Up-thrust 4.1.2 Fluid movement 4.1.3 Viscous Drag 4.2.1 Hooke's Law 4.2.2 Stress, Strain & the Young's Modulus 4.2.3 Stress-Strain Graphs BPhO Senior Physics challenge	**5 Waves & Particle nature of light** 5.1.1 Wave basics 5.1.2 Wave types **Core practical 6 - Determine the speed of sound in air** 5.2.1 Wave Phase and superposition 5.2.2 Stationary Waves **Core Practical 7 - Investigate the effects of length, tension and mass per unit length on the frequency of a vibrating string or wire.** 5.2.3 Diffraction 5.2.4 Wave interference **Core Practical 8 - Determine the wavelength of light from a laser or other light source using a diffraction grating** 5.3.1 Refraction 5.3.2 Total Internal reflection 5.3.3 Lenses 5.3.4 Image formation 5.3.5 Polarisation 5.4.1 Wave-Particle Duality 5.4.2 The photoelectric effect 5.4.3 Electron Diffraction and interference 5.4.4 Atomic electron energies	5.3.1 Refraction 5.3.2 Total Internal reflection 5.3.3 Lenses 5.3.4 Image formation 5.3.5 Polarisation 5.4.1 Wave-Particle Duality 5.4.2 The photoelectric effect 5.4.3 Electron Diffraction and interference 5.4.4 Atomic electron energies Content consolidation/ exam technique practise Revision for AS Paper 2 and Paper 3b Centre Assessments	**AS Paper 2 and Paper 3b Centre assessments.** **6 Further Mechanics** 6.1.1 Energy in collisions 6.1.2 More Collisions **Core Practical 9 -Investigate the relationship between the force exerted on an object and its change of momentum** **Core Practical 10 - Use ICT to analyse collisions between small spheres** 6.2.3 Circular Motion 6.2.2 Centripetal force

Year 13						
	7 Electric & Magnetic Fields 7.1.1 Electric Fields 7.1.2 Millikan's oil drop experiment 7.1.3 Radial electric fields 7.1.4 Coulomb's law 7.2.1 Capacitor basics 7.2.2 Charging and discharging capacitors 7.2.3 Capacitor Mathematics **Core Practical 11 - Display and analyse the potential difference across a capacitor as it discharges through a resistor** 7.3.1 Magnetic Fields 7.3.2 Electric motors 7.3.3 Magnetic forces 7.3.4 Generating electricity 7.3.5 Alternating current **Core Practical 12 - Calibrate a thermistor in a potential divider circuit as a thermostat**	**8 Nuclear and Particle Physics** 8.1.1 A nuclear Atom 8.1.2 Electrons from atoms 8.2.1 Particle Accelerators 8.2.2 Particle detectors 8.2.3 The LHC 8.3.2 The Particle Zoo 8.3.3 Particles & Forces 8.3.4 Particle reactions Content consolidation/ exam technique practise Revision for A Level Paper 1 and Paper 3c Centre Assessments	**A Level Paper 1 and Paper 3c Centre assessments.** **9 Thermodynamics** 9.1 Heat and Temperature 9.2 Internal energy 9.3 Heat transfer **Core Practical 13 - Determine a value for the specific latent heat of Ice** 9.4 Ideal gas behaviour **Core Practical 14 - Investigate the relationship between the pressure and volume of a gas at fixed temperature** 9.5 Kinetic Theory equations **10 Nuclear Radiation** 10.1 Nuclear radiation 10.2 Rate of radioactive decay 10.3 Fission & Fusion 10.4 Nuclear Power Stations **Core Practical 15 - Investigate the absorption of gamma rays by lead**	**11 Gravitational Fields** 11.1 Gravitational Forces 11.2 Gravitational Fields **12 Space** 12.1 Starshine 12.2 Stellar classification 12.3 Distances to the stars 12.4 The age of the universe 12.5 The fate of the universe **13 Oscillations** 13.1 Simple Harmonic Motion (SHM) 13.2 SHM Mathematics 13.3 SHM Energy 13.4 Resonance & Damping **Core Practical 16 - Determine the value of an unknown mass using the resonant frequencies of known masses on a spring** Content consolidation/ exam technique practise Revision for A Level Paper 2 and A Level Paper 3 Centre Assessments	**A Level Paper 1 and A Level Paper 3 Centre assessments.** Content consolidation/ exam technique practise	**Official Examinations** **A Level Paper 1** **A Level Paper 2** **A Level Paper 3**