

## KS5 Curriculum Plan 2022-2023

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Year 12	TOPIC	LP1	LP2	LP3	LP4	LP5
		Foundations of physics. Describing motion. Forces in action.	Energy power and resistance continued, electrical circuits.	Waves part 1	Waves part 2 and quantum physics	Capacitance and electric fields
		SI base quantities and units. Derived units. Prefixes and symbols. Error and uncertainty. Current and charge. Moving charges. Kirchoff's 1st law, Mean drift velocity. Circuit symbols. Potential difference and electromotive force. Electron gun. Resistance. I-V characteristics. Diodes	Resistance and resistivity. Thermistor. LDR's. Electrical energy and power. Paying for electricity. Kirchoff's laws and circuits. Combining resistors. Analysing circuits. Internal resistance. Potential divider circuits	Sensing circuits. Progressive waves. Wave properties. Reflection and refraction. Diffraction and polarisation. Intensity. Electromagnetic waves. Refractive index. Total internal reflection. Superposition of waves. Interference. Youngs double-slit experiment.	Stationary waves. Harmonics. Application to musical instruments. The photon model. The photoelectric effect. Einstein's photoelectric effect equation. Wave particle duality. Research report writing and presentation. Define capacitance. Superposition of waves. Interference. Young's double slit experiment. Stationary waves. Harmonics. Application to musical instruments	Calculate capacitance in series and parallel. Describe the discharging and charging of capacitors using exponentials. Coulomb's Law. Electric field strength. Permittivity. Charged particles in uniform electric fields. Electric potential and electric potential difference.
	Skills	Converting units. Rearranging equations. Calculating error and uncertainty. Interpreting graphs. Investigation: finding the resistivity of a wire. Investigation: resistors in series and parallel. Analysing circuits using Kirchoff's laws and electrical equations. Taking accurate measurements using digital and analogue meters. Investigation: waves on a string. Investigation: refractive index and critical angle. Investigation: sound waves and an oscilloscope. Complete accurate ray diagrams. Convert between radians and degrees. Read an oscilloscope trace. Researching, referencing, report writing, presentation. Method writing, risk assessments, analysing data.				
	Key Vocab	error, absolute, accuracy, reliability, precision, uncertainty, vector, scalar, Kirchoff, resistivity, semiconductor, electromotive force, potential difference, internal resistance, kilowatt hour, potential divider, electron gun.	Resistivity, Ohms law, Diodes, Ohmic components, Kirchoff's laws, circuits, potential divider	Amplitude, wavelength, period, frequency, phase difference, path difference, interference, diffraction, refraction, total internal reflection, superposition, constructive, destructive, node, antinode.	error, absolute, accuracy, reliability, precision, uncertainty, bias, independence. harmonic, overtone, fundamental frequency.	error, absolute, accuracy, reliability, precision, uncertainty, bias, independence. permittivity, faraday, lenz, weber, tesla.