SUBJECT:	Physics	**YEAR GROUP:**	12
COURSE:	A Level Physics (7407/7408)	**EXAM BOARD:**	AQA
SUBJECT INTENT:	*Year 12 builds the quantitative and conceptual foundations of the AQA A Level course. Mathematical skills (at least 40% of assessment) and the twelve required practicals underpinning the Practical Endorsement are embedded throughout, so that by the end of the year pupils are prepared for internal examinations covering the AS-level content.*		

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING	SPECIFICATION LINK
Autumn	**3.1 Measurements & Their Errors**	SI units, prefixes and conversions; random and systematic error; precision and accuracy; uncertainty calculations; order-of-magnitude estimation.	● uncertainty ● precision / accuracy ● significant figures	Builds on GCSE standard form; underpins every required practical and Paper 3.	3.1.1–3.1.3
	3.4 Mechanics & Materials	Scalars, vectors and equilibrium; motion, SUVAT and projectiles; Newton's laws; momentum, impulse and collisions; moments; work, energy and power; density, Hooke's law and the Young modulus.	● resultant / equilibrium ● momentum / impulse ● Young modulus	Builds on GCSE motion and forces; momentum recurs in Nuclear and Thermal. RP 3 & 4.	3.4.1–3.4.2
Spring	**3.3 Waves**	Progressive and stationary waves; amplitude, frequency, wavelength and phase; reflection, refraction and superposition; diffraction and interference.	● progressive / stationary ● superposition ● diffraction	Builds on GCSE waves; links to wave-particle nature of light. RP 1 & 2.	3.3.1–3.3.2
	3.5 Electricity	Current, potential difference and resistance; I–V characteristics; resistivity and superconductors; the potential divider; EMF and internal resistance.	● resistivity ● potential divider ● EMF / internal resistance	Builds on GCSE electricity; resistivity and capacitor work feed into Fields.	3.5.1–3.5.2
Summer	**3.2 Particles & Radiation**	Structure of the atom; particles and antiparticles; quarks and fundamental interactions; the photon model, the photoelectric effect and wave-particle duality.	● antiparticle ● quarks ● photoelectric effect	Applies momentum and wave ideas; leads to Nuclear Physics in Year 13.	3.2.1–3.2.2
	Year 12 Examinations	Consolidation of all five AS topics and the required practicals; internal end-of-year examinations covering the AS-level content.	● synoptic AS content ● required practicals	Consolidates the year ahead of the Year 13 topics.	All AS content

SUBJECT:	Physics	**YEAR GROUP:**	13
COURSE:	A Level Physics (7407/7408)	**EXAM BOARD:**	AQA
SUBJECT INTENT:	*Year 13 completes the AQA A Level specification, including the optional Turning Points in Physics topic. Mathematical and practical skills are interleaved and the twelve required practicals completed for the Practical Endorsement, so that by the end of the spring term pupils are prepared for the terminal examinations (Papers 1, 2 and 3).*		

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING	SPECIFICATION LINK
Autumn	**3.6 Further Mechanics & Thermal Physics**	Circular motion and simple harmonic motion; forced vibrations and resonance; thermal energy transfer, specific and latent heat; the ideal gas equation and kinetic theory.	• circular motion • SHM / resonance • ideal gas equation	Builds on energy and the Young modulus from Year 12; SHM underpins fields.	3.6.1–3.6.2
	3.7 Fields (Gravitational & Electric)	Gravitational fields and orbits; electric fields and potential; capacitance, charge and discharge.	• field strength / potential • capacitance • exponential decay	Builds on circular motion and Year 12 electricity.	3.7.1–3.7.4
Spring	**3.7 Fields (Magnetic) & 3.8 Nuclear Physics**	Magnetic flux and electromagnetic induction; transformers and alternators; Rutherford scattering; radioactive decay and half-life; binding energy; fission and fusion.	• magnetic flux / induction • half-life • binding energy	Builds on Particles & Radiation and momentum from Year 12.	3.7.5, 3.8.1
	3.12 Turning Points in Physics (optional)	The discovery of the electron; wave-particle duality; special relativity and the Michelson-Morley experiment.	• electron discovery • wave-particle duality • special relativity	Uses key historical experiments to synthesise threads across the course.	3.12.1–3.12.3
Summer	**Revision & A Level Examinations**	Synoptic revision across all core topics and Turning Points; focus on maths skills and Paper 3 practical-skills questions; A Level examinations (Papers 1, 2 & 3).	• synoptic links • maths skills • Paper 3 practicals	Draws together content and all twelve required practicals from Years 12–13.	All 3.1–3.8, 3.12