

Physics at Samuel Whitbread Academy
Curriculum Sequencing

Year 12:

Course	Year	Term	Big Ideas	Subject Learning Checklist
Physics A Level	12	Term 1	Forces and motion	<i>Kinematics</i> <i>Equations of motion</i> <i>Measuring gravitational field strength</i> <i>Forces</i> <i>Resultant forces</i> <i>Terminal velocity</i> <i>Density</i> <i>Pressure</i>
		(Units taught simultaneously)	Electricity and circuits	<i>Charge</i> <i>Current</i> <i>Resistance</i> <i>Power</i> <i>Simple circuits</i> <i>Potential divider circuits</i> <i>Internal resistance</i> <i>Circuit analysis</i>
		Term 2	Energy and momentum	<i>Work</i> <i>Energy</i>

				<i>Power</i> <i>Kinetic energy</i> <i>Gravitational potential energy</i> <i>Materials</i> <i>Momentum</i> <i>Newton's laws of motion</i>
		(Units taught simultaneously)	Waves and interference	<i>Wave properties</i> <i>Wave speed</i> <i>Polarisation</i> <i>Refraction</i> <i>Reflection</i> <i>Interference</i> <i>Superposition</i> <i>Stationary waves</i>
		Term 3	Astrophysics and cosmology	<i>Stars</i> <i>Astronomical distances</i> <i>Parallax</i> <i>Hubble's discoveries</i> <i>The big bang</i> <i>Stellar nucleosynthesis</i> <i>The age of the universe</i>

		(Units taught simultaneously)		<i>Red shift</i>
			Quantum Physics and Medical Imaging	<i>Photons</i> <i>The photoelectric effect</i> <i>Wave-particle duality</i> <i>X-rays</i> <i>CAT scans</i> <i>PET scans</i> <i>Gamma scans</i> <i>Ultrasound</i>

Year 13:

Course	Year	Term	Big Ideas	Subject Learning Checklist
Physics A Level	13	Term 1	Gravitation and thermal physics	<i>Gravitational field strength</i> <i>Gravitational forces</i> <i>Circular motion</i> <i>Heat and temperature</i> <i>Specific heat capacity</i> <i>Brownian motion</i> <i>Gas laws</i> <i>Internal energy</i>
		(Units taught simultaneously)	Electric fields and electromagnetism	<i>Electric field strength</i> <i>Electric forces</i> <i>Capacitors</i> <i>Combinations of capacitors</i> <i>Magnetism</i> <i>Electromagnetism</i> <i>Transformers</i> <i>Magnetic forces</i>
		Term 2	Oscillations	<i>Simple harmonic motion</i> <i>Pendulums</i> <i>Masses on springs</i>

		(Units taught simultaneously)		<i>Damping</i> <i>Resonance</i> <i>Graphs of vibrations</i> <i>Energy in simple harmonic motion</i> <i>Radians and degrees</i>
			Nuclear and particle physics	<i>The nucleus</i> <i>Strong force</i> <i>Weak forces</i> <i>Radioactivity</i> <i>Half-life</i> <i>Decay</i> <i>Fission and fusion</i> <i>Fundamental particles</i>
		Term 3	Revision and mock exams	<i>Revision and exam preparation</i> <i>Mock exams</i>