

Windsor Sixth Form

Physics A Level

Course outline

Faculty	Science
Subject	Physics
Course title and code	GCE AS & A Level (Physics A) - 1451 AS Level 2450 A Level
Exam Board	AQA
Subject mission statement	<p>From ancient observations of the cosmos through to the latest technology to hit the streets, physics plays an important role in every person's life. The AQA A level physics specification teaches the fundamental principles of physics that explain the universe around us, highlighting real-world applications. The specification has a bedrock of How Science Works to show how physics affects modern life and teach skills relevant to future careers.</p>
Course outline	<p>Year 1 - AS Level (50% of the TOTAL A Level Marks)</p> <p>Unit 1: Particles, Quantum Phenomena and Electricity (75 minute exam - 40% of AS Level, 20% of total A Level)</p> <ul style="list-style-type: none"> • The nucleus including particles, antiparticles and photons hadrons and leptons the quark model • Quantum phenomena including photoelectricity, energy levels and photon emission, wave particle duality • Electricity including electrical quantities, resistivity, circuits and components, alternating current. <p>Unit 2: Mechanics, Materials and Waves (75 minute exam - 40% of AS Level, 20% of total A Level)</p> <ul style="list-style-type: none"> • Mechanics, including motion along a straight line, projectile motion, Newton's laws of motion, energy and power, • Properties of materials, including density and the Young modulus, • Waves, including longitudinal and transverse waves, progressive and stationary waves, refraction, diffraction and interference. <p>Unit 3: Investigative and Practical Skills (20% of AS Level, 10% of total A Level)</p> <ul style="list-style-type: none"> • Selection and use of various equipment, • Making observations and measurements, • Processing of data, • Analysing and evaluation of results.

	<p>YEAR 2 - A2 LEVEL (50%of the TOTAL A Level Marks)</p> <p>Unit 4: Fields and Further Mechanics (105 minute exam - 20% of A Level)</p> <ul style="list-style-type: none"> • Further mechanics, including momentum, • Circular motion and simple harmonic motion, • Fields including gravitational fields, electric fields, capacitors, magnetic fields and electromagnetic induction. <p>Unit 5: Nuclear Physics, Thermal Physics and Optional Unit (105 minute exam - 20% of A Level)</p> <ul style="list-style-type: none"> • This section builds on key ideas about particles and energy from Unit 1 and covers probing the nucleus, radioactivity, nuclear instability and nuclear energy • Thermal properties of materials, ideal gases and kinetic theory of gases. • The Optional Unit provides students with opportunities to develop knowledge and understanding in one further area (probably astrophysics or medical physics) <p>Unit 6: Investigative and Practical Skills (10% of A Level)</p> <ul style="list-style-type: none"> • Selection and use of various equipment, • Making observations and measurements, • Processing of data, • Analysing and evaluation of results.
<p>Goes well with</p>	<p>While it not essential to study A Level Mathematics alongside A Level Physics it can be highly beneficial. The mathematical nature of many of the Physics topics are well supported by the skills and techniques used in the Mathematics course.</p>
<p>Careers and Higher Education</p>	<p>The skills learnt from a physics qualification are highly sort after in many careers. Analytical thinking, problem solving and the ability to back opinions with evidence are important parts of many careers. Physics is a good starting point for careers in industry, health service or the financial sector.</p> <p>A level physics also opens the door to many higher education courses including physics, other sciences and engineering.</p>
<p>Completed by</p>	<p>Mr D Butler (October 2010)</p>