



St George's School

Physics

KS5 Curriculum

<p>PREREQUISITE KNOWLEDGE & SKILLS <i>The foundations needed to thrive in this subject.</i></p>	<p>Who should study this subject? You will be well suited to this course if you enjoy GCSE Physics, have an interest in engineering, have strong mathematical skills, have a keen interest in how the world works, enjoy problem solving, and want to develop your scientific practical skills.</p> <p>Key Skills developed during KS4:</p> <p>St George's course entry requirements: Combined Science Trilogy: 6-6 or Physics: 6, Maths: 6</p> <p>St George's 6th Form Requirements: "A minimum of five full GCSEs or equivalent at grades 9–5, which would include English (Language or Literature)..."</p> <p><i>It is not essential that students take A Level Mathematics, but it is strongly recommended due to the highly mathematical nature of the subject, especially in the latter parts of the 2-year course.</i></p> <p>It is strongly advised to reach grade 7 or above in the Physics papers of Double or Separate Science to cope with the more challenging A Level content and a grade 7 or above in GCSE Maths due to the very numerate nature of the Physics A level.</p>
<p>QUALIFICATION <i>Exam Board, aims and objectives.</i></p>	<p>AQA A Level Physics (7408) Courses based on these specifications should encourage students to:</p> <ul style="list-style-type: none">• develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject• develop essential knowledge and understanding of different areas of the subject and how they relate to each other• develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods• develop competence and confidence in a variety of practical, mathematical and problem solving skills• understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society• use theories, models and ideas to develop scientific explanations• use knowledge and understanding to pose scientific questions, define scientific problems, present scientific arguments and scientific ideas• use appropriate methodology, including information and communication technology (ICT), to• answer scientific questions and solve scientific problems <p>The exams will measure how students have achieved the following assessment objectives.</p> <p>AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures.</p> <p>AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures:</p> <ul style="list-style-type: none">• in a theoretical context• in a practical context• when handling qualitative data• when handling quantitative data. <p>AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to:</p> <ul style="list-style-type: none">• make judgements and reach conclusions• develop and refine practical design and procedures

ASSESSMENT <i>Internal monitoring and final assessment.</i>	<p>Internal Assessment: End of Topic Tests, Yr 12 Exam, Yr 13 Mock Exam, Required practicals - 12 practicals (some with multiple parts) assessed throughout the course</p> <p>Final assessment: A Level Exams (3 papers - 2 hours each)</p> <ul style="list-style-type: none"> • Paper 1 - Sections 1 to 5 and 6.1 (Periodic motion) • Paper 2 - 6.2 (Thermal Physics), 7 and 8 • Paper 3 - Section A: Practical skills and data analysis, Section B: Turning Points in Physics <p>Practical assessment (pass/fail) – <i>teacher assessed</i> This does not directly contribute to the overall A level grade but a pass is essential for most science-based degree courses. Practical techniques and general scientific skills are assessed within the written exams.</p>
ENRICHMENT <i>Trips & Visits, wider reading, etc.</i>	<p>Visits and Events: Cambridge Olympiads.</p> <p>Wider reading: Physics Review subscription available at a discount</p>
NEXT STEPS <i>Where this subject can take you.</i>	<p>Related University Courses: Physics, Engineering, Natural Sciences, Maths, Computer Science, Economics, Accountancy.</p> <p>Career Paths: Academia, research scientist, engineering, medical physics, astronomy, architecture, medicine, telecommunications, electronics, meteorologist, geophysics, teaching(!), finance, IT.</p>

Year 12

Autumn Term	<p>Topics: Quantum Phenomena, Particle Physics, Forces and Equilibrium, Motion (SUVAT)</p> <p>Skills: Knowledge of key facts, Research skills, Presentation Skills, Mathematical skills in Science, Problem Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: End of Topic Tests, Required Practical Lab Reports</p>
Spring Term	<p>Topics: Electric Current, DC Circuits, Newton's Laws, Momentum, Energy</p> <p>Skills: Knowledge of key facts, Mathematical skills in Science, Problem Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: End of Topic Tests, Required Practical Lab Reports</p>
Summer Term	<p>Topics: Materials, Waves, Optics</p> <p>Skills: Knowledge of key facts, Mathematical skills in Science, Problem Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: Year 12 Exam, End of Topic Tests, Required Practical Lab Reports</p>

Year 13

Autumn Term	<p>Topics: Circular Motion, Simple Harmonic Motion (SHM), Gravitational Fields, Electric Fields</p> <p>Skills: Knowledge of key facts, Research skills, Presentation Skills, Mathematical skills in Science, Problem</p>
--------------------	--

	<p>Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: End of Topic Tests, Required Practical Lab Reports</p>
<p>Spring Term</p>	<p>Topics: Thermal Physics, Ideal Gases, Radioactivity, Capacitors, Magnetic Fields</p> <p>Skills: Knowledge of key facts, Research skills, Presentation Skills, Mathematical skills in Science, Problem Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: Year 13 Mock Exam, End of Topic Tests, Required Practical Lab Reports</p>
<p>Summer Term</p>	<p>Topics: Nuclear Energy, Electromagnetic Induction</p> <p>Skills: Knowledge of key facts, Research skills, Presentation Skills, Mathematical skills in Science, Problem Solving, Practical Skills, Presentation of data, Analysing data, Risk Assessing.</p> <p>Assessment: End of Topic Tests, Required Practical Lab Reports</p>