St George's School
Physics
KS5 Curriculum

PREREQUISITE KNOWLEDGE & SKILLS *The foundations needed to thrive in this subject.*	**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. **Key Skills developed during KS4:** **St George's course entry requirements:** Combined Science Trilogy: 6-6 **or** Physics: 6, Maths: 6 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)…" *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.* 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.
QUALIFICATION *Exam Board, aims and objectives.*	**AQA A Level Physics (7408)** Courses based on these specifications should encourage students to: • 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 The exams will measure how students have achieved the following assessment objectives. AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures. AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures: • in a theoretical context • in a practical context • when handling qualitative data • when handling quantitative data. AO3: Analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to: • make judgements and reach conclusions • develop and refine practical design and procedures

ASSESSMENT *Internal monitoring and final assessment.*	**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 **Final assessment:** A Level Exams (3 papers - 2 hours each) • 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 Practical assessment (pass/fail) – *teacher assessed* 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.
ENRICHMENT *Trips & Visits, wider reading, etc.*	**Visits and Events:** Cambridge Olympiads. **Wider reading:** Physics Review subscription available at a discount
NEXT STEPS *Where this subject can take you.*	**Related University Courses:** Physics, Engineering, Natural Sciences, Maths, Computer Science, Economics, Accountancy. **Career Paths:** Academia, research scientist, engineering, medical physics, astronomy, architecture, medicine, telecommunications, electronics, meteorologist, geophysics, teaching(!), finance, IT.

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

	Year 13
Autumn Term	**Topics:** Circular Motion, Simple Harmonic Motion (SHM), Gravitational Fields, Electric Fields **Skills:** Knowledge of key facts, Research skills, Presentation Skills, Mathematical skills in Science, Problem

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