

Year 12 Physics

Students study AQA A level Physics. They study 9 topics over two years, all of which are examined in 3 exams at the end of year 13. Knowledge builds on the practical skills picked up in KS4 in much more detail, identifying and calculating uncertainties in investigations. These skills link into all units throughout KS5.

Students study topics encountered in KS4 such as 'Waves' and 'Electricity', but in much more depth. Students will encounter some topics such as 'Quantum Phenomena' for the very first time.

As there are two teachers per class at KS5, two sets of topics run alongside each other. Students also have 1 supervised independent study period per week called a 5th period. We are very keen to ensure that all students have a similar experience whoever their teacher. All students carry out the same assessments and practicals and we use common markschemes and grade boundaries to ensure parity.

Each lesson begins with a Brain in Gear retrieval task. There will be teacher input of some kind followed by tasks which use prior learning to develop greater knowledge understanding. Once understanding is established then students develop their ability to apply this to unfamiliar situations. This may all happen within 1 lesson or over a series of lessons dependent upon the topic. Practical skills and other skills such as data analysis are built into lessons throughout the two years of the course.

At the end of each topic students complete a topic test made up of past exam questions. This is then marked and graded and used to identify strengths and areas in need of attention.

There is no coursework but a "Practical Endorsement" is awarded at the end of the course provided students have demonstrated a suitable level of skill in a wide variety of specified practical techniques

Year 12 Curriculum	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic(s)	Topic 1: Particles and radiation Atomic Structure Stable & Unstable Nuclei Particles, antiparticles & interactions Photoelectric effect & Quantum Phenomena	Topic 2: Electricity Current, Potential Difference & Resistance IV characteristics Resistivity Power & Energy EMF & Internal Resistance Potential Dividers	Topic 3: Mechanics & Materials Forces in Equilibrium Moments Graphs of Motion Newton's Laws of Motion Projectiles	Topic 3 (cont): Mechanics & Materials Momentum & Impulse Work, Power & Energy Density Hooke's Law Young Modulus & Stress-Strain Graphs	Topic 4: Waves & Optics Wave characteristics Superposition & Interference Stationary Waves Diffraction & refraction	Y12 Summer exam (Topics 1-4) - Revision - Feedback - Support Topic 5: Further mechanics & thermal physics Circular Motion Simple Harmonic Motion Thermal Energy Transfer Gas Laws Kinetic Theory of Gases
Assessment	<p>Homework tasks are set to reinforce, practice and apply concepts. Practice exam questions are frequently used to gain experience and understand the level of detail required. Students sometimes self assess their own work with some homeworks being given with answers so that students are expected to complete, mark and correct their own work. This increases as students progress through the course and become more adept at this.</p> <p>Students sit end-of-topic tests which use past exam questions (larger topics also have tests at suitable point(s) through the topic. Students sit an end of year exam on topics 1-4.</p> <p>The practical endorsement is worked towards throughout the course. Essential experimental physics skills are divided into 12 "required practicals" and these are assessed whenever suitable practical work is encountered during the course. Different prescribed experiments are met across the course and are assessed when they are taught within the context of a particular topic. The assessment is carried out using the exam board criteria (CPAC) and are met on a number of occasions over the duration of the course. In addition, students must understand both the experimental techniques and physics underlying these practicals and this is assessed through the end of topic tests and exams.</p>					

Independent Work

Questions on classwork and exam questions

Practical write ups or planning

Responding to feedback

Revision

5th period work - this can be a variety of different activities, studying a topic independently from given resources, completing a test, completing classwork or questions, planning practicals, working in groups on presentations etc.