Physics

Year 12

William Hulme's Grammar School
The best in everyone™
Part of United Learning

Overview	Physics is about understanding out natural world, from the smallest building blocks to the larger scale universe. We build on the knowledge of KS3 science by following the AQA GCSE physics course and extend beyond to prepare students for A Level study and to become scientifically informed citizens and pursue careers in science. Whether it be investigating, observing, experimenting or testing out ideas and thinking about them the way scientific ideas flow through the course supports students in building a deep understanding of physics. This will involve talking about, reading and writing about physics plus the actual doing, as well as representing physics in its main form of mathematics, and through developed theory. We will develop the knowledge and understanding of physics through opportunities for working scientifically, and AQA required practicals. The option module chosen for A-Level physics at this school is Astrophysics (AQA Unit 9), delivered in Year 13.

Autumn Term	■ **Unit 1 Measurement and Errors** (General physics skills) ■ **Unit 2 Particle and Quantum Physics** (The Standard Model, fundamental forces, wave-particle duality) ■ **Unit 3 Waves and Optics** (Refraction, diffraction, and optical fibres)	**Assessment** ■ Synoptic Test 1 ■ Required Practicals: Stationary waves, Diffraction ■ Mini-Tests on Practical skills
Spring Term	■ **Unit 4 Mechanics** (Forces and Motion, Newton's Laws and momentum, and materials) ■ **Unit 5 Electricity** (Circuits, superconductors, and power)	**Assessmen** ■ January Mock: Particles and Electricity ■ Requried Practicals: Acceleration due to freefall, Resistivity, Internal Resistance ■ Synoptic Test 2
Summer Term	■ **Unit 6 Further Mechanics** (Circular Motion, and Simple Harmonic Motion) ■ **Unit 7 Fields and their consequences** (Gravitational and Electric Fields)	**Assessment** ■ End of Year Mock (Paper 1 Topics) ■ Required Practicals: Pendulum & Mass-spring system, Young Modulus ■ Mini-Tests on Practical skills

Useful Resources for Supporting Your Child at Home:	Homework:
AQA Specification: https://filestore2.aqa.org.uk/resources/physics/specifications/AQA-7407-7408-SP-2015.PDF The specification is a list of everything you need to know for your A level physics that comes from AQA, the exam board. This is a good place to get an overview of everything you need to know.	**UpLearn:** Home | Up Learn We use the platform 'UpLearn' as part of our 6th forms independent learning framework, providing students with in-depth tutorials, worked examples, and exam questions. Students are expected to complete a minimum amount of every week, as part of their homework expectations. Past paper questions are also set from in class booklets.

Useful Resources for Supporting Your Child at Home:	Homework:
Carousel Learning https://app.carousel-learning.com/ Quizzes for homework, with the goal of assisting recall of content that has been covered. Study Packs for revision, which includes the options of flashcards alongside self-quizzing tools. **Seneca**: https://senecalearning.com/en-GB/ Seneca is a revision website designed to help you learn and check your knowledge. It is a great place to make sure you have your basic physics knowledge in place and will start to test if you can apply it. If you sign up with your school email address you will have access to the premium content. **Physics and Maths Tutor:** https://www.physicsandmathstutor.com/physics-revision/a-level-aqa/ This is the place to go to apply your knowledge. This website has a bank or exam questions and mark schemes so you can apply your physics knowledge to exam questions. They also have some notes, key definitions, and flashcards for each topic. **YouTube:** There are multiple great YouTube channels aimed at A level Physics that are a great place to revise the content of the course. They all have different styles so choose the ones you prefer. Tip: Go to the YouTube channel and click on the Playlists tabs. There you will find organised lists of videos to save you searching through hundreds of videos for your desired topic. ■ Physics Online: https://www.youtube.com/c/PhysicsOnline/featured ■ Science Shorts: https://www.youtube.com/c/ScienceShorts/featured **Physics Online:** https://www.alevelphysicsonline.com/aqa Links to videos about Y12 content (you have to pay for Y13 content) **Savemyexams:** https://www.savemyexams.co.uk/a-level/physics/aqa/17/ A website with notes, questions and past papers **Isaac Physics:** https://isaacphysics.org/alevel A website with lessons, questions and quizzes on A level content. **SudoStudy:** https://sudostudy.com/subjects/2 A website full of multiple-choice questions to practice. Note: These MCQs **do not** come from AQA – they come from the Cambridge International A Level. However, physics is physics so the majority of the content will be similar so you should be able to do most of the questions. **Revisely:** https://www.revisely.co.uk/alevel/physics/aqa/ A website with notes, exam questions and video links **Maths Made Easy:** https://mmerevise.co.uk/a-level-physics-revision/ A website with notes and practice questions	