

Subject: Physics

Teachers: Dr M S Catalan

Exam Board: AQA

NEWPORT GIRLS' HIGH SCHOOL

KS5 CURRICULUM OVERVIEW

Curriculum Intent & Organisation

This AQA course was chosen because it has the core aspects of physics such as Mechanics, Waves and Electricity, and it provides a good introduction to the new discoveries and developments made in the early part of the 20th century such as Quantum Mechanics and Particle Physics which are particularly interesting and relevant in this highly technological age. The second year topics on Fields, Forces and Further Mechanics, as well as the whole sections on Nuclear and Thermal Physics, are beautifully put together so that the interdependencies between the different subject areas become evident. The topics covered in AS make for an excellent preparation for the A2 course, and the option topics in the second year give enough variety and choice. The topics in the syllabus lend themselves easily to practical work allowing the pupils to gain hands-on understanding of the topics while honing in on their experimental skills. The course gives a very good overview of the subject and those who master it not only gain excellent problem-solving skills but a much better understanding of the laws that govern the universe we live in.

Examination Information

Option subject examined end of Year 13 by three examination papers with no coursework. There are 12 required practicals.

Facilitating Subject?

Yes

Impact of Prior Learning from KS4

We follow the AQA 9-1 GCSE Physics (single science) course which provides a good and broad basis for the prior learning needed at A-level. An outstanding grasp of the main physics concepts such as dynamics, force, energy and electricity to GCSE level is a must. The A-level course is heavily mathematical. A confident handle of graphs, algebra and trigonometry, at first instance, is essential.

Equipment Required for this course

- Standard classroom stationery
- Scientific Calculator
- 30-cm ruler
- protractor

Subject: Physics**Teachers:** Dr M S Catalan**Exam Board:** AQA

Curriculum Implementation – Areas of Focus Year 12		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none">• Measurements and their errors• Vectors and Scalars• Moments• Dynamics• Mechanics	<ul style="list-style-type: none">• Materials• Electricity• Waves	<ul style="list-style-type: none">• Particles and Radiation
Curriculum Implementation – Areas of Focus Year 13		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none">• Further Mechanics• Fields and their consequences	<ul style="list-style-type: none">• Nuclear Physics• Thermal Physics• Option Topic	<ul style="list-style-type: none">• Exams
Impact / Outcomes		
<p>Learning will be assessed throughout the course by:</p> <ul style="list-style-type: none">• Homework, classwork, quizzes and end-of unit tests• Practical assessment criteria (CPAC) for practical skills endorsement• AS End of year exam• Mock exam in January prior to A-level exams		
Homework / Self Study		
<p>Homework is set weekly. These are mostly problem-based questions for the pupil to attempt in their own time.</p> <p>In addition to time spent completing homework, independent study time must be used wisely by reading their class notes and summarising the concepts ready for revision in tests. This should preferably be done prior to attempting the homework set. Furthermore, pupils are expected to use the textbook by reading and preparing for their lessons ahead of time. The extra exercises and exam-style questions in the textbook should be used to prepare for quizzes and end-of-unit tests.</p> <p>Practical work and reports will also have to be done within their independent study time. Some aspects of their practical work requires research. Pupils are also expected to carry out extended reading around the subjects they are taking at A-level or the ones they plan to take at university. The department has some science and engineering magazines available for this within the school.</p>		

Subject: Physics

Teachers: Dr M S Catalan

Exam Board: AQA

Ways to support learning

- Students must have a good, quiet area to work both at home and in school. A-level requires a good deal of independent learning and pupils should make use of their time wisely. School breaks, particularly half-terms, should be used to take stock of the topics covered in the previous half-term and prepare for the next. It is not a good idea to overload one's free and study periods with too many extracurricular activities and part-time jobs.
- The textbook is an excellent resource and must be used as often as possible.
- Many practice questions can be found in the Student Out drive. There are extra worksheets, past papers as well as topic specific collections of questions with mark schemes.
- Extra exam workbooks and revision guides can be purchased from CGP.
- There are no specific websites that handle all the different topics well. **Isaac Physics** is used by a number of pupils. There are many YouTube videos that explain specific topics to A-level standard.

Field Work / Extension / Enrichment Opportunities

- Physics A-level Live
- Trip to Jodrell Bank (Astrophysics option)

Next Steps

Physics A-level is required for Physics and Physics related degrees (e.g. Physics and Philosophy, Astrophysics, Mathematical Physics) and most engineering degrees at university. Many university subjects such as Maths, Computer Science, Medicine, Pharmacy, Chemistry, Robotics, Product Design or even Law, consider Physics A-level favourably as the subject engenders very good problem solving skills, it instils excellent applied mathematics and logical skills, and it provides a wide range of experimental and data analysis skills. Physics is considered a facilitating subject for all degrees in all universities.

Degrees in Physics are very open ended because it is not a vocational degree. The skills learned in the subject can be applied in all areas of life post-university. Physics graduates can be found working in any technological field, from programming to product design, risk assessment companies, car design and testing, patent office and product testing, forensics, banking and marketing, many areas of medical physics, and even in law (e.g. patent law) to name a few.

For more information, contact Dr M S Catalan.