

PHYSICS AS/A2

THE PROGRAMME

In Year 12 (and AS) physics students will study: Physical quantities and units; Making measurements and analysing data; Nature of quantities; Motion; Forces in action; Work, energy and power; Materials; Momentum; Charge and current; Energy, power and resistance; Electrical circuits; Waves; Quantum physics.

For the full A level, all of the above topics are studied, plus: Thermal physics; Circular motion; Oscillations; Gravitational fields; Astrophysics and cosmology; Capacitors; Electric fields; Electromagnetism; Nuclear and particle physics; Medical imaging.

During VI Form lessons, you will experience various teaching methods and styles such as demonstrations, practical work, lectures, handouts/notes, ICT work and one-to-one support. You will be expected to work much more on your own than you did at GCSE and to take a greater responsibility for your own organisation and learning. There are five main areas that A level students need to be prepared for: organising time, coping with workload, note-taking, reading around the subject and self-motivation.

Students will sit the AS exams at the end of the first year of study. At the end of the course, the exams for the full A level will include questions on the whole of the course i.e. including those topics already examined at AS. All exams will have questions covering the whole of the relevant subject content – there are no “module” exams – and include a range of question styles: multiple choice, structured questions and longer answer essay questions.

Practical skills are now assessed separately and do not contribute marks to the overall A level grade but will be reported separately at the end of the full A level course as Pass/Fail on the “Practical Endorsement”. There is no practical endorsement for AS. Practical skills and knowledge will also be assessed on the written exam papers for both AS and A level.

WHY STUDY THIS SUBJECT?

It all began with Physics! Physics encompasses the study of the universe from the largest galaxies to the smallest subatomic particles. Physics is crucial to understanding the world around us, the world inside us and the world beyond us. It is the most basic and fundamental science. Physics challenges our imaginations with concepts like relativity and string theory and it leads to great discoveries, like computers and lasers, that led to technologies which change our lives- from healing joints, to curing cancer, to developing sustainable energy solutions. There are countless more examples of research in physics leading to the development of important technologies. It is hoped that today’s research on nanostructures (structures a billion times smaller than a meter), quantum information or photonics (basically electronics with light) will lead to the next generation of technologies including faster and more robust computers and communication systems – you could do that research!



CAREER POSSIBILITIES

Physics brings a broad perspective to any problem. Because they learn how to consider any problem, physicists are not bound by context. This inventive thinking makes physicists desirable in any field: along with mathematicians, physicists have the best job prospects of all graduates. As well as the more obvious careers such as engineering and astronomy, physics qualifications are a great foundation for careers in: Journalism, Law, Finance, Medicine and Computer Science.