

# A Level Physics

## at The Warriner School



### Physics

**Exam Board: AQA**

**Course Entry Requirements:**

**Grade 6/6 in GCSE Combined Science or 6 in GCSE Physics and a 6 in GCSE Maths**

**Course Content and Methods of Assessment:**

A level Physics consists of 8 compulsory modules:

- Measurements and their errors
- Particles and radiation
- Waves
- Mechanics and energy
- Electricity
- Further mechanics and thermal physics
- Fields
- Nuclear physics

We also undertake an optional module:

Astrophysics

**Assessment:**

The course is assessed in three exams at the end of the second year:

Paper 1 (modules 1-6) 85 marks 2 hour written paper	<b>34%</b> of total A level
Paper 2 (modules 6-9) 85 marks 2 hour written paper	<b>34%</b> of total A level
Paper 3 – Practical skills, data analysis & optional module 80 marks 2 hour written paper	<b>32%</b> of total A level

There is also a practical endorsement which assesses practical skills. This is continually assessed throughout the course by undertaking at least 12 formal practicals which are related to the content. On these, students will be assessed against the common practical assessment criteria, this will develop skills in practical work and prepare students for studying science at a higher level.

### Why study physics?

Physics is the study of the universe; the course covers so much from the very large such as galaxies and the big bang to the very small of sub-atomic particles. Physics is used to explain how and why things we observe take place and by using maths we are able to model and predict the outcome of many situations. Beyond developing an understanding of the function of the universe studying physics provides you with a number of transferable skills as well as being one of the most respected subjects to study at A-level which can often impress people when you do leave school, and of course above all it is lots of fun.

### Course structure

In the first year students are introduced to a number of fundamental principles of physics including particle physics, where they learn about matter and what it is made of, classical motion, electricity, and waves. The second year builds on this knowledge and explores the observable universe in more detail looking at nuclear physics, circular and simple harmonic motion, further electricity and astrophysics. Alongside these topics, there are a number of practicals which will be completed not only to increase skills but also to illustrate the concepts taught.

### **Higher Education and Employment Opportunities:**

Studying physics develops a lot of skills which are desirable both in further education and employment, such as numeracy, problem solving, abstract thinking, practical skills, literacy, resilience and organisation.

As it is seen as a very academic and often difficult subject studying A-level Physics offers an infinite number of amazing career opportunities including:

- Geophysicist/field seismologist
- Healthcare scientist, medical physics
- Higher education lecturer
- Radiation protection practitioner
- Research scientist (physical sciences)
- Scientific laboratory technician
- Secondary school teacher
- Meteorologist
- Petro-engineer
- Aerospace engineer
- Automotive engineer
- Mechanical engineer
- Software engineer
- Structural engineer
- Acoustic engineer
- Product/process development scientist
- Systems developer
- Technical author
- Finance and banking
- Airline pilot
- Many, many more

It is also possible to move into engineering, astrophysics, chemical physics, nanotechnology, renewable energy and more. The opportunities are endless and as the new jobs market expands the high skills base developed can only work to an advantage.

### **Learning Styles and Enrichment Opportunities:**

Teaching will comprise of theory work and a significant amount of mathematical analysis but physics, like all sciences, is a practical subject. Throughout the course students will carry out practical activities. These practicals will give students the skills and confidence needed to investigate the way things behave and work. It will also ensure that if students choose to study a physics-based subject at university, they will have the practical skills needed to carry out successful experiments at degree level. Students are expected to spend time outside of lessons broadening their knowledge by reading around the subject as well as consolidating their understanding through application of the different concepts.. There is an expectation of completing assignments and preparing for assessments as well as using the text book to complete summary questions from each lesson.