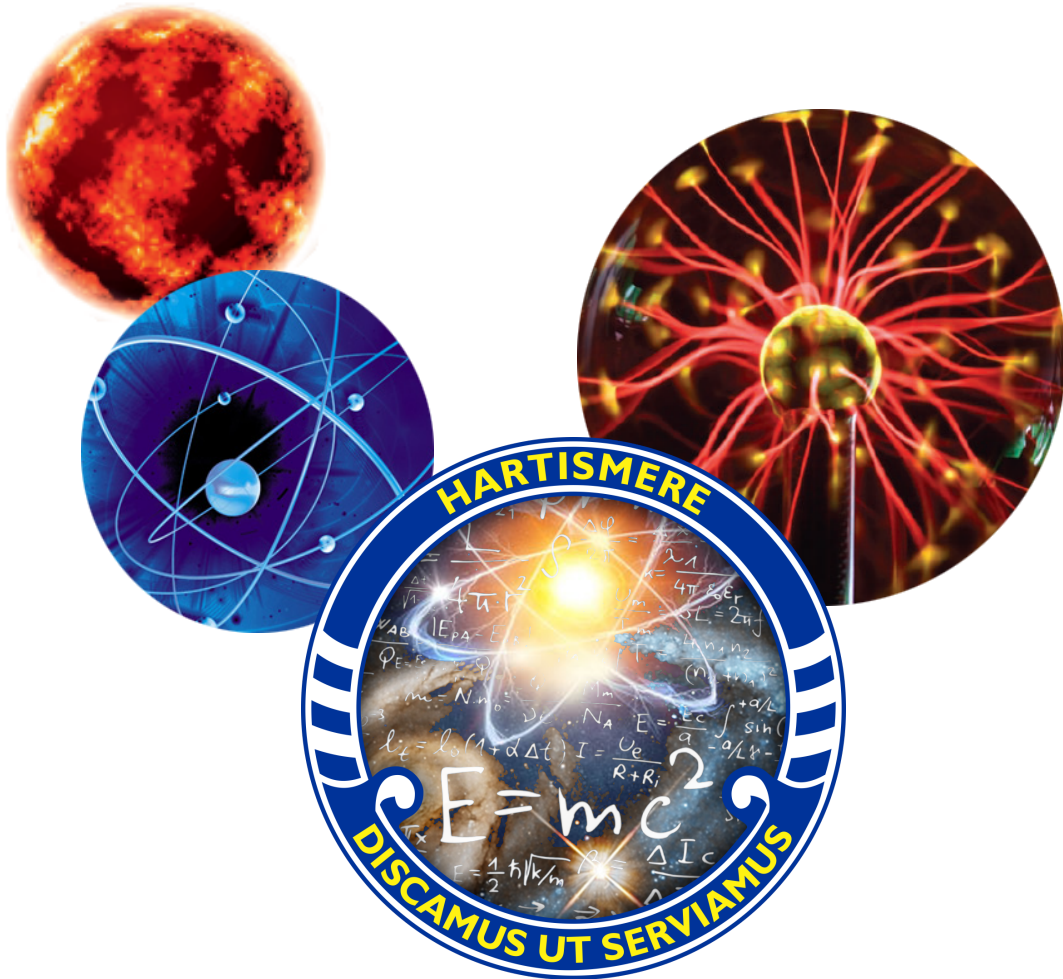




# Hartismere College



# Physics



## A STUDENT'S GUIDE TO THE AS/A LEVEL IN PHYSICS

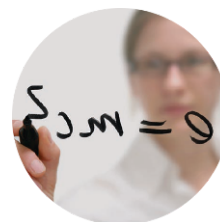
### What do I need to know or be able to do before taking this course?

In order to study this subject, it is usual to have a GCSE qualification in physics at grade 7 or above or Combined Science with at least one grade 7 and your teacher's recommendation. The course focuses on the study of all aspects of physics including developing practical skills for investigation.

### What will I learn on this A level course?

The course will enable you to:

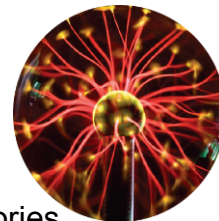
- expand on some basic concepts introduced at GCSE
- develop your interest in problem solving, applying mathematical formulas and understanding the laws of physics
- develop a clear philosophy of how the world works from the grand scale of the universe to the small scale of quantum mechanics
- appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society



### What kind of student is this course suitable for?

This course will appeal to students who:

- have an interest in problem solving and exploring complex theories
- enjoy applying mathematical equations in a physical context
- have a curiosity to question how things work or why
- enjoy being stretched and challenged when studying concepts which comprise topics from modern science
- want to keep their options open for further study in natural sciences, medicine, engineering, computer studies, physics, interior and spatial design



## What examinations will I have to take to get my qualification?

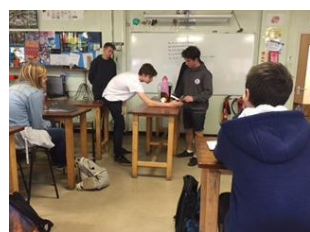
AS is short for Advanced Subsidiary. This is a standalone qualification studied for one year. All Hartismere students will sit AS exams so that they can have as much choice as possible about the subjects they continue with in year 13. All work in year 12 is preparation for the full A level qualification which is taken at the end of year 13.

### AS Level Physics (OCR)

Content overview	Assessment overview	
Content is split into four teaching modules: <ol style="list-style-type: none"><li>1. Development of practical skills in physics</li><li>2. Foundations of physics</li><li>3. Forces and Motion</li><li>4. Electrons, waves and photons</li></ol>	Breadth in physics (01) 70 marks 1 hour 30 minutes written paper	50% of total AS level
	Depth in physics (02) 70 marks 1 hour 30 minutes written paper	50% of total AS level
Both components assess content from all four modules		

The AS level begins with the development of knowledge and understanding of key ideas used to describe the motion of objects. It provides a stepping stone from GCSE to A level physics set out in a logical progression.

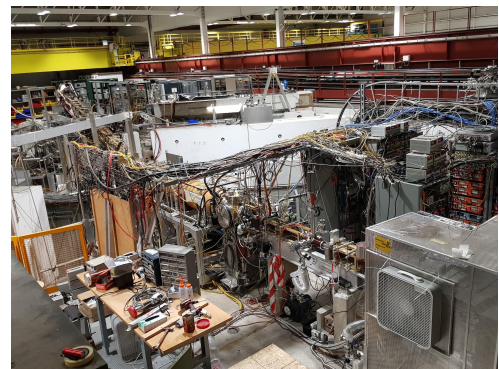
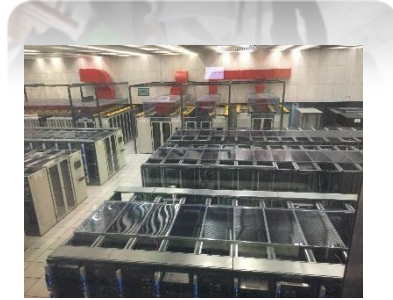
It also provides students with opportunities to develop both analytical and experimental skills. For example, the work of Galileo on falling objects can be used to illustrate how scientific ideas are modified and evaluated.



The second half of the AS level introduces the ideas of charge and current. This leads to considering the rate of energy transfer and use of components in a circuit. Students then progress onto the understanding of wave behaviour and various phenomena associated. The unit also covers the exciting introduction of quantum behaviour.



Physics students at:  
Engineering Festival, Imperial War Museum, Duxford  
Diamond Light Synchrotron, Oxford, IFLY Milton Keynes  
CERN, Geneva



## A-level Physics (OCR)

Content overview	Assessment overview	
Content is split into six teaching modules: <ol style="list-style-type: none"> <li>1. Development of practical skills in physics</li> <li>2. Foundations of physics</li> <li>3. Forces and motion</li> <li>4. Electrons, waves and photons</li> <li>5. Newtonian world and astrophysics</li> <li>6. Particles and medical physics</li> </ol>	Modelling physics (01) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Exploring physics (02) 100 marks 2 hours 15 minutes written paper	37% of total A level
	Unified physics (03) 70 marks 1 hour 30 minutes written paper	26% of total A level
	Practical endorsement in physics (04) * (non exam assessment) Details to be confirmed by Ofsted	Reported separately

The A level includes all the AS content and provides the opportunity to discuss the use of models to explain the elaborate physical world around us e.g. circular motion and astrophysics. It then goes on to provide an opportunity to discuss how scientific models and experimental evidence can be used to explain concepts such as radioactivity, medical physics and electromagnetic induction.

Students are expected to answer synoptic questions on all topics including: Newton's laws, momentum, circular motion and oscillations, thermal physics, electric and magnetic fields, capacitors and exponential decay, nuclear physics, medical imaging and models of the universe.





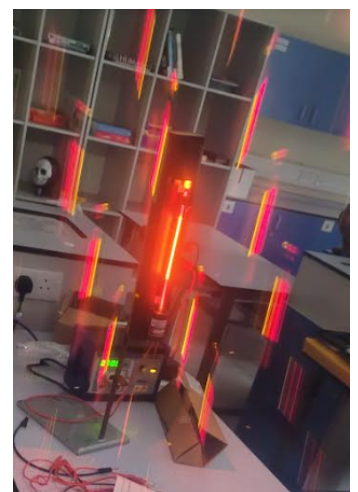
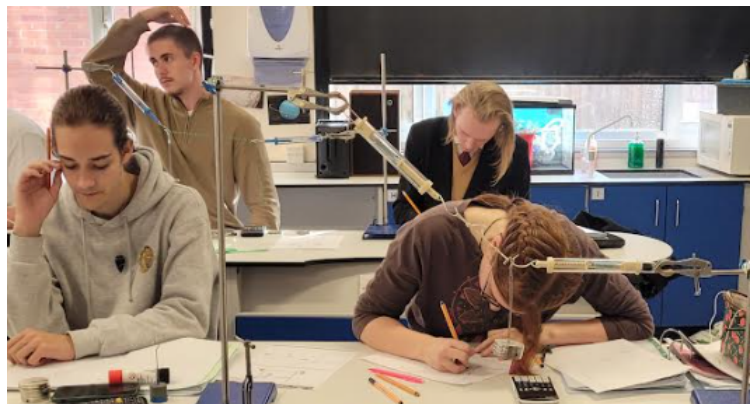
## What could I go on to do at the end of my course?

Students with AS or A Level Physics have a wide range of possible career and higher education opportunities. You will learn and use a wide variety of transferable skills during the course. These include developing problem solving skills, experimental and analytical skills, identifying and understanding the links between different concepts across topics. These skills are in demand from employers, universities and colleges and are also valuable in their own right.

Physics can be studied as a single subject in higher education or can be combined with a wide variety of other subjects.

Students with A level Physics can enter a very wide range of careers both inside and outside science including accountancy, banking, computing, marketing, defence and nuclear engineering, aeronautics and medical physics.

*“Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.” ~ Albert Einstein.*



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