



Hartismere
College



Applied Science

A STUDENT'S GUIDE TO APPLIED SCIENCE

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 Science at Grade 4, or BTEC Science with your teacher's recommendation.

This course provides candidates with the opportunity to develop appropriate skills, knowledge and understanding of scientific ideas and practices used by organisations, businesses and industry. It is set in a vocational context by using research, planning, analysis and experiments. At Hartismere, from September 2025, we study OCR Applied Science.

What will I learn on this Level 3 course?

The course will enable you to:

- Understand scientific principles associated with the application of biology, chemistry and physics
- Expand your experimental and practical skills and techniques
- Develop your interest in different areas of science as a career
- Understand the roles and skills of scientists, the importance of science in the work place, the public and the media

What kind of student is this course suitable for?

This course will appeal to students who:

- have an interest in all three sciences and would like to extend their interest and enhance their chances of gaining employment in a science based industry.
- enjoy learning through using scientific practical skills, developing theory and writing scientific investigations. As the name suggests, this is all about applying science to relevant real-world situations.
- to continue their education in a science based course at college or university.

What will I study and who with?

The certificates are split into a total of six units, with Units 1, 2 and 3 making up the Level 3 Certificate, and the Extended Certificate consisting of Units 1 to 6. Teachers are allocated based on speciality where possible and therefore you will be working with a wide range of staff from the Science Department.

Unit 1 – Fundamentals of Science

In this unit students will learn about the structure and composition of substances and how they can combine to form new useful substances.

Exploring living systems is equally rewarding, enabling students to find out more about yourself and how you are placed in your environment.

Students will also explore electrical circuits which will support understanding of applications of Physics, the fundamental theory which supports medical physics, and how we can interpret data about the physical world.

Unit 2 – Science in Society

In this unit students will learn about the skills scientists use and the roles they perform in an international scientific community. Students will examine different types of scientific data and learn how scientists use them to draw conclusions that can contribute to scientific advancement.

Students will investigate what makes a scientific theory different to a scientific law by reviewing past scientific discoveries. Students will explore current scientific developments and future challenges facing society that science will need to solve.

Students will consider ways that science is communicated in the scientific and wider communities, the implications of miscommunication and the importance of communication in driving future scientific advances.

Unit 3 – Investigating Science

In this unit students will learn about the role of a research scientist in industry by learning how to conduct scientific investigations. Students will develop the skills to research, plan and risk assess investigations before safely undertaking the practical tasks.

Students will learn how to collect and analyse data and communicate findings in a scientific report and a presentation. Finally, students will develop the skills to evaluate an investigation, including assessing the effectiveness of the methods used and suggesting improvements that could be made.

Unit 4 – Analytical techniques in chemistry

In this unit students will learn how to plan and perform practical investigations to separate substances and purify them. Students will also learn how to categorise different types of substance according to their physical properties and determine amounts present in a substance or solution.

Students will develop the skills to use chemical tests to identify the presence of specific ions and molecules and interpret spectra to provide information about the structure of molecules.

Studying this unit will help students develop analytical skills, make logical deductions and conclusions from observations and interpret results and data. Students will gain planning and problem-solving skills by selecting and applying techniques as well as understanding the principles behind the tests and equipment used.

Unit 4 – Environmental studies

In this unit students will learn to use primary and secondary data to study ecosystems. Students will develop the skills to carry out in situ fieldwork investigations to survey an area using different sampling techniques.

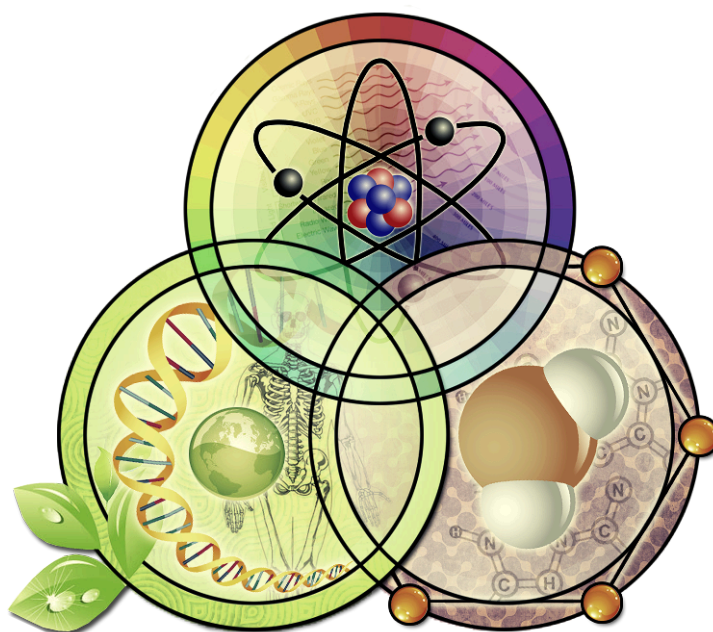
Students will learn about the different surveys available for studying the environment and how in situ and ex situ conservation strategies are used to protect species and their environments.

Students will also learn how to use online information to learn about biodiversity and compare different ecosystems. Finally, students will be able to research some of the strategies used to monitor and treat waste products in places such as landfill sites and water courses.

Unit 6 – Option Topic

This unit will be based on the student requirements and specialisations of the teaching staff but could consist of investigations, practical work and portfolio completion into one of the following:

- Microbiology
- Medical Physics
- Organic Chemistry



All topics build on prior knowledge from GCSE, enhancing familiar topics by increasing the depth of content.

What kind of qualification will I gain?

- The course in Year 12 consists of the Level 3 Certificate in Applied Science. This is the equivalent to an AS (certificate).
- Moving forward into Year 13 builds on the Level 3 Certificate and the qualification becomes an Extended Certificate, equivalent to an A level.
- Both qualifications carry UCAS points for gaining entrance to higher education.
- There are four levels of award – Pass, Merit, Distinction or Distinction*.

How is it assessed?

The assessment for the course is taken from a mixture of written external exams and coursework portfolios based on the experimental work performed in class.

Level 3 Certificate

OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Applied Science (Certificate)

For this qualification, students must complete two units:

- One mandatory externally assessed unit
- One mandatory NEA unit

Level 3 Extended Certificate (in addition to Level 3 Certificate work)

OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Applied Science (Extended Certificate)

For this qualification, students must complete five units across the two years:

- Two mandatory externally assessed units
- one mandatory NEA unit
- two optional NEA units

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

Students with Applied Science qualifications have a wide range of possible career and higher education opportunities as you learn and use a wide variety of transferable skills.

These include developing practical skills, working independently and improving your ability to analyse scientific processes involved in industry. These skills are in demand from employers, universities and colleges and are valuable in their own right.

Many students use their qualification to go straight into employment rather than higher education. A wide range of occupations is open to students with a certificate or extended certificate in Applied Science. This can include careers such as research, laboratory work and nursing.

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