

GCSE Option: Separate Sciences: GCSE Chemistry, GCSE Biology & GCSE Physics

Contact: Mrs E. Boxall

Course Structure & Overview

Exam Board: AQA

The Separate Science courses are suited to highly motivated students who wish to extend their scientific knowledge and understanding. Students should also have a relatively good mathematical ability as the mathematical content assessed in the final exam has increased.

*If students opt for Separate Science as one of their options they will take the following 3 GCSEs (and **not** take the Science Trilogy Double Award GCSE).*

GCSE Biology (8461)

The specification integrates the principles of 'How Science Works' throughout the units. You will see Biology in the context of your everyday lives by covering a series of topics related to the living world. The course is designed to help you understand how Science can be used to explain the world in which you live and the impact humans have. You will develop practical skills with hands-on work which will engage and enthuse you. You can see how science is used to solve problems ranging from infectious diseases to creating biofuels.

GCSE Chemistry (8462)

GCSE Chemistry gives you the opportunity to gain a good understanding of the nature of substances and how they react together. It will also teach you Chemistry that is used in business and industry; in addition to this you will see how our use of raw materials in fuels and manufacturing can affect the global and local environment. You will develop an understanding of topics such as chemical structures and their properties, chemical reactions and how to analyse substances. You will be encouraged to develop your practical skills through carrying out regular experimental work throughout the course.

GCSE Physics (8463)

GCSE Physics offers you the chance to gain a good understanding of the use and transfer of energy, waves, radiation and space and the application of Physics. The course is designed to give you the tools and concepts you need to be able to construct a scientific approach to solving problems. You will learn to ask and answer questions about the fundamental laws that govern natural phenomena. This is done by integrating 'How Science Works' and practical opportunities throughout the course.

Practical work is at the heart of each GCSE, you will master the practical skills required through regularly carrying out experimental work and learning important investigative techniques throughout each course, these skills will then be assessed in the final written exams.

Continued Overleaf

GCSE Option: Separate Sciences: GCSE Chemistry, GCSE Biology & GCSE Physics (Continued)

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Course Content

Each GCSE consists of 2 papers which will assess knowledge and understanding from distinct topic areas.

GCSE Biology

Paper 1 Biology - Topics 1 -4: Cell biology; Organisation; Infection and response and Bioenergetics (1hr 45mins,)

Paper 2 Biology - Topics 5 -7: Homeostasis and Response: Inheritance, variation and evolution and Ecology. (1hr 45mins)

GCSE Chemistry

Paper 1 – Chemistry - Topics 1 – 5: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes and Energy changes. (1hr 45mins)

Paper 2 – Chemistry Topics 6 - 10: Chemistry topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere and using resources. (1hr 45mins)

GCSE Physics

Paper 1 – Physics Topics 1 -4: Energy, Electricity, Particle model of matter, Atomic structure (1hr 45mins)

Paper 2 – Physics Topics 5 - 8: Forces, Waves, Magnetism and electromagnetism, Space physics (1hr 45mins)

Papers involve a selection of multiple choice, structured, closed short answer and open response questions. Each paper is worth 50% of the GCSE and can be sat at either Foundation (Grade 1-3) or Higher Level (Grade 4 -9). At the end of the course you will be awarded three separate GCSE grades.

Skills Developed

Separate Science GCSEs will:

- Give you a deep understanding of science to allow you to make decisions on scientific issues
- Allow you to design and carry out experiments
- Enable you to analyse information and draw conclusions
- Encourage you to evaluate information

Progression Routes

Students who enjoyed studying Separate Sciences have gone on to study A Level Chemistry, Physics or Biology. You can also study a Science related course post-16 such as engineering. If post-16 is not for you, employers will value the GCSE qualification as it encourages both academic and practical skills. These courses are also suitable for those students simply wanting to make themselves as attractive as possible to colleges and future employers.

Future Careers

Students can progress to any A level or BTEC level 3 science based qualification. GCSE Science is relevant to an enormous range of jobs and careers including: Agriculture, computing, engineering, environmental science, historic research and preservation, horticulture, marine science, medical and healthcare, sports based careers, technicians, veterinary, food science, beauty therapy sciences, sport and exercise sciences, pharmacy services, polymer technology or dental technology, laboratory and associated technical activities or clinical laboratory support.