

Science: KS4 Triple Science

Subject:

Triple (Separate) Science GCSEs in Biology, Chemistry and Physics (From January Year 9 - 11)

Triple Science now forms the new core GCSE curriculum that all students are expected to follow, plus additional content that stretches the students understanding to provide better preparation for further study at A Level. Students will obtain three separate GCSEs in the individual disciplines of Biology, Chemistry and Physics.

Exam board - AQA

Course Titles: GCSE Biology, GCSE Chemistry and GCSE Physics.

Grading - New 9-1 system.

We believe that Science has something to offer every student, and students will start being co-taught along with Combined Science students in Year 9, but then separate out into a new class in Year 10.

Science is an important part of everyday life, from knowing how to treat infections. Combined Science provides the fundamentals that all students are expected to know to explore further study at Key Stage 3. However, those seeking to go into a Science based career should be considering Triple Science.

Purpose and aims

The sciences should be taught in ways that ensure students have the knowledge to enable them to develop curiosity about the natural world, insight into working scientifically, and appreciation of the relevance of science to their everyday lives, so that students:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics,
- develop understanding of the nature, processes and methods of science, through different types of scientific enquiry that help them to answer scientific questions about the world around them,
- develop and learn to apply observational, practical, modelling, enquiry, problem-solving skills and mathematical skills, both in the laboratory, in the field and in other environments,
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitative.

Team members:

Teaching Team:

Mr C Williams (Head of Science) - Biology and vocational specialist.

Mrs K Tatham (Second in Science) - Chemistry specialist.

Mrs H Kaushal (Lead Teacher) - Biology Specialist and BTEC Lead Verifier.

Mr P Ellison - Physics specialist and DofE Co-ordinator.

Mr A Riaz - Chemistry and Physics specialist.

Mrs E Cameron - Biology and Sports Science specialist.

Miss N Sohail - Chemistry and Biology specialist.

Miss A Davies - Biology and Chemistry specialist.

Mr R Blaize - Assistant Head Teacher - Computer Science specialist.

Support Team:

Mrs M Bibi - Curriculum Area Teaching Assistant.

Mrs J Redfern - Biology specialist technician.

Mrs V Nolan - Chemistry specialist technician.

Mr J Yates - Physics specialist technician.

Facilities:

We have seven laboratories spread across the two buildings that form the Main Block and Trent Building. These are serviced by three specialist technicians who also support extra curricula activities.

Curriculum Summary: (KS4)

Students will follow a topic based curriculum based around the AQA Triple Science Biology, Chemistry and Physics courses. There will be six examinations (two in each discipline of Biology, Chemistry and Physics) leading to three full GCSE qualifications. To ensure students are entered for the appropriate tier they are set from Year 9, but these sets are reviewed regularly throughout their Key Stage 4 learning based on attainment and progress.

Biology exams	Chemistry exams	Physics exams
Paper 1 - Topics 1-4	Paper 1 - Topics 8-12	Paper 1 - Topics 18-21
Written exam - 1 hour 45 minutes	Written exam - 1 hour 45 minutes	Written exam - 1 hour 45 minutes
Foundation or Higher Tier 100 Marks 50% of the total GCSE	Foundation or Higher Tier 100 Marks 50% of the total GCSE	Foundation or Higher Tier 100 Marks 50% of the total GCSE
Paper 2 - Topics 5-7	Paper 2 - Topics 13-17	Paper 2 - Topics 22-24
Written exam - 1 hour 45 minutes	Written exam - 1 hour 45 minutes	Written exam - 1 hour 45 minutes
Foundation or Higher Tier 100 Marks 50% of the total GCSE	Foundation or Higher Tier 100 Marks 50% of the total GCSE	Foundation or Higher Tier 100 Marks 50% of the total GCSE

Within the topics students will be expected to not only develop their understanding of the scientific "big Ideas" but also to develop practical skills through a series of required activities that they must know to ensure success in their examinations.

Biology Topics	Chemistry Topics	Physics Topics
<ul style="list-style-type: none"> • Cell Biology. • Organisation. • Infection and response. • Bioenergetics. • Homeostasis and response. • Inheritance, variation and evolution. • Ecology. 	<ul style="list-style-type: none"> • Atomic structure and the periodic table. • Bonding, structure, and the properties of matter. • Quantitative chemistry. • Chemical changes. • Energy changes. • The rate and extent of chemical change. • Organic chemistry. • Chemistry of the atmosphere. • Using resources. 	<ul style="list-style-type: none"> • Energy. • Electricity. • Particle model of matter. • Atomic matter. • Forces. • Waves. • Magnetism and electromagnetism. • Space physics.

Links to useful sites:

https://www.cgpbooks.co.uk/whoAreYou?page=gcse_science_range_9_1_explained
<http://www.bbc.co.uk/education/subjects/zrkw2hv>
<https://www.youtube.com/user/myGCSEscience>
<http://www.docbrown.info/page17/2016-0-index.htm>
<https://www.my-gcse-science.com/choose/>
<http://www.aqa.org.uk/subjects/science/gcse>

Extra-curricular activities available in the CA:

Weekly intervention as per the whole school rotation with English and Mathematics. Key stage 4 and 5 students are also invited to attend Saturday school between 10am and 12pm for additional support.

Key trips the Science department try to run each year for all year groups are:

- Natural History Museum - London.
- Leicester Space Centre.
- Manchester Museum of Science and Industry.
- Birmingham Big Bang Fair.