

SCIENCE

KS4 (AQA GCSE Combined Science: Trilogy)

Course Overview

Our year eleven curriculum is fully staffed by Science subject specialists. We follow the AQA Combined Trilogy specification, we believe that Science is a set of ideas about the material world. We have included all the parts of what good science is at GCSE level: whether it be investigating, observing, experimenting or testing out ideas and thinking about them.

GCSE study in combined science provides the foundations for understanding the material world. Scientific understanding is changing our lives and is vital to the world's future prosperity, and all students should be taught essential aspects of the knowledge, methods, processes and uses of science. Our year eleven students are helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application.

Our year eleven curriculum provides well-designed, scaffolded opportunities throughout the course to prepare for the examinations at the end of this year. Our department strives to form a balance between promoting a love of learning and achieving excellent exam results.

YR11



Course Content

The AQA GCSE units covered in year eleven are:

1. Inheritance
2. Waves
3. Chemical analysis
4. Homeostasis
5. Organic Chemistry
6. Magnetism
7. Chemistry of the atmosphere
8. Rates of reaction
9. Forces

Skill Development

GCSE combined award science enables students to develop the following skills :

- 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 enquiries that help them to answer scientific questions about the world around them
- develop and learn to apply observational, practical, modelling, enquiry and problem-solving skills, both in the laboratory, in the field and in other learning environments
- develop their ability to evaluate claims based on science through critical analysis of the methodology, evidence and conclusions, both qualitatively and quantitatively.

Assessment objectives (AOs) are set by Ofqual and are the same across all GCSE Combined Science: Trilogy specifications and all exam boards.

The exams will measure how students have achieved the following assessment objectives.

- AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures.
- AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures.
- AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures.



When and how assessment of learning will happen (throughout the course)

Assessment in year eleven follows a unit of teaching. This is approximately once a half term. This assessment will be approximately 40 minutes long and take place under standard exam conditions. These assessments shall be built using past AQA GCSE questions relevant to the unit of study at that assessment point.

Formative assessment of progress and understanding will happen every lesson, the format of which could be questioning, mini-whiteboards or other strategies.

Once a half-term a specially designed piece of classwork shall be set, this work shall be teacher marked, a target given and DIRT time provided to each student. This replaces book marking in Science.

Well planned and designed Revision lessons allow for scaffolding of the skills learnt in the topic. This test will then be teacher marked and designated DIRT lessons to identify strengths and targets will follow.

In addition, mock exams are scheduled throughout the school year for year 11 students. This provides our students the opportunity to practise their knowledge retrieval skills and experience the standard operating conditions for public examinations. The mock exams are built using past AQA Combined science questions and allow a real insight into the progress of each student.

The final exams/ assessment

In the run up to mock exams and the final GCSE examinations, revision periods shall be provided to allow for consolidation of GCSE content taught. These are formally taught sessions to allow for final misconceptions to be addressed.

In AQA GCSE Combined Science (Trilogy) there are six public examinations, there is no coursework element to the Science course. However there are required practicals that are placed throughout the course which are assessed in the exams at the end of the course. These required practicals are completed in College, with our specialist equipment and staff. Students will be given notice ahead of time when these practicals are booked in so that they can take advantage of the offer of experiencing the practicals firsthand.

AQA GCSE exams in Combined Science: Trilogy include questions that allow students to demonstrate:

- their knowledge and understanding of the content developed in one section or topic, including the associated mathematical and practical skills or
- their ability to apply mathematical and practical skills to areas of content they are not normally developed in or
- their ability to draw together different areas of knowledge and understanding within one answer.



A range of question types will be used, including multiple choice, short answer and those that require extended responses. Extended response questions will be of sufficient length to allow students to demonstrate their ability to construct and develop a sustained line of reasoning which is coherent, relevant, substantiated and logically structured. Extended responses may be prose, extended calculations, or a combination of both, as appropriate to the question.

The examinations are:

Biology paper one:

- Biology topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.

Biology paper two:

- Biology topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology

Chemistry paper one:

- Chemistry topics 8–12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes

Chemistry paper two:

- Chemistry topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; and Using resources. Questions in Paper 2 may draw on fundamental concepts and principles from Sections 5.1 to 5.3.

Physics paper one:

- Physics topics 18–21: Energy; Electricity; Particle model of matter; and Atomic structure.

Physics paper two:

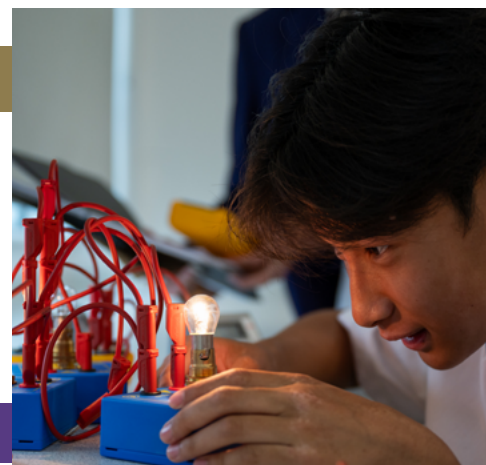
- Physics topics 22–24: Forces; Waves; and Magnetism and electromagnetism

Home Learning Expectations

Seneca revision tasks are set before the end of unit tests. These are metacognitive and adapt to the progress of the participant. This allows revisiting and retesting of ideas that were found to be difficult.

The homework should normally take about 40 minutes and might contain:

1. Consolidation of work covered in class
2. Completing comprehension exercises
3. Completing homework questions
4. Research and/or presentation of a given topic
5. Thorough learning for tests



Useful Information

Class information and revision can be found on each classes individual google classroom, this is along with announcements and interesting information/opportunities found by the class teacher.

- Revision guides are available in College at a discounted price, please contact your class teacher for more details and up to date discounts available.
- <https://www.savemyexams.com/gcse/biology/combined-science/aqa/18/revision-notes/-fantastic> revision notes with clear diagrams
- <https://revisionscience.com/gcse-revision/science/science-gcse-past-papers/aqa-gcse-science-past-papers-> website with past papers and mark schemes available
- <https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/assessment-resources-> AQA's own source of past papers and mark schemes for practice at home
- https://www.youtube.com/@Primrose_Kitten - very thorough youtube channel created by an ex-teacher. She has a website with paired resources and past paper questions
- <https://www.youtube.com/@Freesciencelessons-> fondly nicknamed "boring tie man" this youtube channel has a comprehensive coverage of the whole course
- <https://www.youtube.com/@Cognitoedu> - alternative format and different presenting style but still comprehensive coverage of the entire science course for revision
- <https://www.youtube.com/@ScienceShorts-> youtube channel which has shorter videos, good for specific areas of difficulty or reinforcing the content "little and often"

