



COMBINED SCIENCE GCSE

Ofsted said: "Pupils and parents appreciate the quality of education and opportunities that they receive at Goldington. Pupils talk very enthusiastically about their 'fun' lessons where they learn well and the array of extra-curricular opportunities..." June 2016

COMBINED SCIENCE GCSE SPECIFICATION AT A GLANCE

EXAM BOARD: Edexcel

ASSESSMENT:

Paper 1: Biology 1

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts in biology
- Topic 2 – Cells and control
- Topic 3 – Genetics
- Topic 4 – Natural selection and genetic modification
- Topic 5 – Health, disease and the development of medicines

Paper 2: Biology 2

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts in biology
- Topic 6 – Plant structures and their functions
- Topic 7 – Animal coordination, control and homeostasis
- Topic 8 – Exchange and transport in animals
- Topic 9 – Ecosystems and material cycles

Paper 3: Chemistry 1

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts in chemistry
- Topic 2 – States of matter and mixtures
- Topic 3 – Chemical changes
- Topic 4 – Extracting metals and equilibria

Paper 4: Chemistry 2

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts in chemistry
- Topic 6 – Groups in the periodic table
- Topic 7 – Rates of reaction and energy changes
- Topic 8 – Fuels and Earth science

Paper 5: Physics 1

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts of physics
- Topic 2 – Motion and forces
- Topic 3 – Conservation of energy
- Topic 4 – Waves
- Topic 5 – Light and the electromagnetic spectrum
- Topic 6 – Radioactivity

Paper 6: Physics 2

Written examination: 1 hour and 10 minutes (60 marks) 16.67% qualification

Content overview:

- Topic 1 – Key concepts of physics
- Topic 8 – Energy - Forces doing work
- Topic 9 – Forces and their effects
- Topic 10 – Electricity and circuits
- Topic 12 – Magnetism and the motor effect
- Topic 13 – Electromagnetic induction
- Topic 14 – Particle model
- Topic 15 – Forces and matter

18 Core Practicals

Students will need to use their knowledge and understanding of these practical techniques and procedures in the written assessments.

- 1.6 Microscopes
- 1.10 pH on enzyme activity
- 1.16 Osmosis
- 6.5 Photosynthesis
- 8.11 Respiration
- 9.5 Field-work techniques
- 2.11 Distillation and paper chromatography
- 3.6 Neutralisation and pH
- 3.17 Copper sulphate crystals
- 3.31 Electrolysis
- 7.1 Rates of chemical reactions
- 2.19 Force, mass and acceleration
- 4.17 Speed, frequency and wavelength
- 5.9 Refraction
- 10.17 Electrical circuits
- 14.3 Densities of solid and liquids
- 14.11 Properties of water
- 15.6 Forces to a spring

SUPPORTING TRIPS AND ACTIVITIES

Year 9: Robotics Competition

Year 9/10: Teen Tech event

Year 10: Science Live event

Year 10/11: Bedford School Observatory

Year 11: Various 'Science in Industries' trips

SHOULD MY CHILD STUDY COMBINED SCIENCE?

Key information about the new science GCSEs

Since September 2016, there are four GCSE qualifications in science that students could take: there will be no single GCSE science option.

There is a new 9–1 grading system, replacing A*–G: Foundation tier covers grades 1–5 and Higher tier covers grades 4–9.

There are no controlled assessments in the new qualifications.

Students each carry out core practicals which are outlined in the specifications. 15% of marks in exam papers are for knowledge, understanding and application of practical skills.

Questions assessing students' use of mathematical skills make up 10% of the assessments for biology, 20% for chemistry, 30% for physics and 20% for combined science. There is also some recall of equations required in physics.

What will my child gain from science?

You will receive two GCSE qualifications from studying the Combined Science course. The syllabus will enable students to:

- 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 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.

Where will science take my child?

- Engineering (Electronic, Chemical, Civil or Mechanical Engineer)
- IT (Games developer, Software Programmer, Network Engineer)
- Energy and Utilities (Electrician, Petroleum Engineer, Geoscientist, Plumber)
- Transport and Logistics (Mechanic, Pilot, Air Traffic Controller)
- Construction (Tradesperson, Architect, Construction Manager)
- Medicine and Healthcare (Doctor, Nurse, Pharmacologist)
- Animal Science (Veterinary nurse, Zoologist, Botanist)
- Sports and Fitness (Athlete, Nutritionist, Physiotherapist)
- Police and Emergencies (Paramedic, Crime Scene Investigator, Police Officer)
- Science and Research (Chemist, Forensic Scientist, Research Scientist)
- Medicine and Healthcare (Doctor, Nurse, Pharmacologist, Toxicologist)
- Materials Sciences (Metallurgist, Nanotechnology researcher, Lab technician)

FREQUENTLY ASKED QUESTIONS

How are the new GCSE Science qualifications assessed?

When students take their exams the qualifications will now be completely linear. This means that all examinations will be taken in the same exam series at the end of Y11.

Will there be any coursework as part of the course?

There will no longer be a coursework unit in the GCSEs. Practical work is still a very important part of the science GCSEs, not only to consolidate learning, but also to develop skills in planning, analysing and evaluating. These practical skills will be assessed as part of the written examinations at the end of the course.

Will everyone sit the same exams at the end of the course?

There will be Foundation tier and Higher tier papers, and students must sit all six exams at the same tier. Foundation tier is for students who are aiming for grades 1–5, and Higher tier is for students who are aiming for grades 4–9.

As it's a double award qualification, students will receive two grades. These grades could be the same number, e.g. 6, 6 or 7, 7. However, some students may receive a grade with adjacent numbers, e.g. 6, 7. This will signify a student who is at an intermediate point between the standard required for a 6, 6 grade, and the standard required for a 7, 7 grade.

What will the assessments look like?

The assessments will all follow the same format, regardless of subject or tier. There will be a mix of question types which will include a mix of multiple choice questions, short answers, and longer extended answers (worth up to 6 marks).

Further reading/ suggested revision materials:

Edexcel GCSE (9-1) Biology Student Book

Edexcel GCSE (9-1) Chemistry Student Book

Edexcel GCSE (9-1) Physics Student Book

Edexcel GCSE (9-1) Combined Science Student Book

For further information, please contact:

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