GOLDINGTON ACADEMY

SEPARATE SCIENCES GCSE

Ofsted said: "Relationships between teachers and pupils are excellent." February 2022

SEPARATE SCIENCES GCSE SPECIFICATION AT A GLANCE

EXAM BOARD: Pearson Edexcel

ASSESSMENT

Biology Paper 1:
Written examination 1 hour 45 minutes, (100 marks) 50%
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

Biology Paper 2:
Written examination 1 hour 45 minutes, (100 marks) 50%
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

Chemistry Paper 1:
Written examination 1 hour 45 minutes, (100 marks) 50%
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
- Topic 5 – Separate chemistry 1

Chemistry Paper 2:
Written examination 1 hour 45 minutes, (100 marks) 50%
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
- Topic 9 – Separate chemistry 2

Physics Paper 1:
Written examination 1 hour 45 minutes, (100 marks) 50%
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
- Topic 7 – Astronomy

Physics Paper 2:
Written examination 1 hour 45 minutes, (100 marks) 50%
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 11 – Static electricity
- Topic 12 – Magnetism and the motor effect
- Topic 13 – Electromagnetic induction
- Topic 14 – Particle model
- Topic 15 – Forces and matter

Practical Content:
24 Core Practicals (8 Biology, 8 Chemistry and 8 Physics)

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

Separate Biology:
1.6 Microscopes
1.10 pH on enzyme activity
1.16 Osmosis
6.5 Photosynthesis
8.11 Respiration
9.5 Field-work techniques
1.13B Chemical reagents
5.18B Antiseptics and antibiotics

Separate Chemistry:

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
5.9C Acid-alkali titration
9.6C Ions in unknown salts
9.28C Combustion

Separate Physics:

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
5.19P Thermal energy

SUPPORTING TRIPS AND ACTIVITIES:

A variety of science and STEM activities, clubs and trips are offered throughout the academic year.

SHOULD MY CHILD STUDY SEPARATE SCIENCES?

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.

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 separate sciences?

You will receive three GCSE qualifications from studying the Separate 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 separate sciences take my child?

Where can biology take you?

- Medicine and Healthcare (Doctor, Nurse, Pharmacologist)
- Agriculture (Ecologist, Farmer, Tree Surgeon)
- Animals (Veterinary nurse, Zoologist, Botanist)
- Sports and Fitness (Athlete, Nutritionist, Physiotherapist)
- Police and Emergencies (Paramedic, Crime Scene Investigator, Police Officer)

Where can chemistry take you?

- Science and Research (Chemist, Forensic Scientist, Research Scientist)
- Medicine and Healthcare (Doctor, Nurse, Pharmacologist, Toxicologist)
- Engineering (Chemical Engineer)
- Materials Sciences (Metallurgist, Nanotechnology researcher, Lab technician)

Where can physics take you?

- Engineering (Electronic, 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)

FREQUENTLY ASKED QUESTIONS

How is GCSE Science assessed?
For each of the separate sciences students will sit two exams at the end of Year 1

Will there be any coursework as part of the course?
There is no 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. 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. (The science department
will give guidance on the appropriate tier of entry and whether separate or combined science would be more appropriate. In the separate science pathway, students can choose different tiers for different disciplines. So, for example, a student may choose to sit physics and chemistry at higher tier and biology at foundation tier.

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

Do you have to take Separate Science GCSEs if you want to do A-level Science?
By taking sciences separately at GCSE level, you will cover more content and find you're better prepared if you want to take science
A-levels. But if you decide not to go for all three science GCSEs, don't worry, it doesn't mean you can't go on to do
science at A-level.
If you're already thinking about university and careers and are interested in science-based degrees and jobs, then it is definitely worth considering taking separate science GCSEs.

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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