Kingstone High School
Science Department
2025-2026

Kingstone High School is a non-selective school, and we welcome students of all aptitudes and abilities. Our size allows us to know our students well and we work hard to ensure that every student achieves their maximum academic potential through an individually tailored curriculum.

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1. Intent

Science at Kingstone is designed to fulfil the four principal arguments put forward by the ASE (ASE Guide to Secondary Science Education 2006) to justify the place of Science in the core curriculum:

1. The reliable and useful knowledge argument this argues that, in addition to useful knowledge needed to describe the world, a scientific habit of mind allows students to rationally tackle questions and problems based on empirical evidence.

2. The economic argument as developed countries continue to base their economies on STEM based careers and businesses, school Science can be seen as pre professional education which enables students to access careers in the modern world.

3. The cultural argument Science is one of the great achievements of our culture and students should have the opportunity to access this cultural capital and knowledge of how it was derived.

4. The democratic argument many of the dilemmas confronting the modern world are based around Science and STEM related topics. With adequate knowledge of these issues and the mindset with which to challenge ideas, citizens are likely to become democratically empowered and able to make informed judgements of their own.

In science education at Kingstone, the curriculum is built around two fundamental types of knowledge:

1. Substantive Knowledge – "The facts and concepts of science"

This is the content knowledge: the scientific facts, theories, models, and explanations that students are expected to learn.

Examples include:

- Biology: Cells, reproduction, ecosystems, genetics.
- Chemistry: Atoms, chemical reactions, the periodic table.
- Physics: Forces, energy, electricity, waves.

2. Disciplinary Knowledge – "How science works"

This is the working scientific knowledge: the skills and understandings of the scientific method, including how scientific knowledge is developed, tested, and evaluated.

Examples include:

- Designing fair tests
- Drawing conclusions from data
- Evaluating methods
- Understanding how evidence supports theories
- Knowing how peer review and repeatability contribute to scientific validity

At Kingstone we celebrate British Science week in March with a range of different opportunities for students to participate. We are looking to expand our extra-curricular package with a range of clubs and trips over the coming year.

2. Curriculum Map						
	Half term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Year 7	Introduction to science. 7I Energy. 7E Mixtures.	7A Cells. 7J Electricity. 7F Acids.	7B Reproduction. 7K Forces.	7G Particles. 7C Muscles and Bones.	7L Sound. 7H Atoms. 7D Ecosystems.	8E Combustion. 8A Food.
Year 8	8A Food and nutrition. 8E Combustion. 8F The periodic table. 8I Fluids. 8J Light.		8B Plants. 8C Breathing and respiration. 8D Unicellular organisms. 8G Metals and their uses. 8H Rocks. 8K Energy. 8L Earth in Space.		9A Genetics and evolution. 9B Plant growth. 9E Making materials. 9F Reactivity. 9I Forces and motion. 9J Forcefields and electromagnets.	
Year 9	B1 Core concepts in Biology. C1+2 States of matter and separating mixtures. P3 Energy.		B2 Growth. C3+4 Atomic structure and the Periodic table. P4 Waves.		B9 Ecosystems. C15 Heat changes in reactions. C17 The changing atmosphere. P5 Light.	
Year 10 GCSE	B4 Evolution and natural selection. C5 Ionic bonding. P1+2 Motion and Forces.	B3 Genetics. C 6, 7 covalent and metallic bonding. P1+2 Motion and Forces.	B5 Health and disease. C9 Calculations involving masses. P6 Radioactivity.	B6 Plants and photosynthesis. C10 Electrolysis. P7 Forces doing work.	B9 Ecosystems. C11 Obtaining and using metals. P8 Forces and their effects.	B9 Ecosystems. C12 Reversible reactions. P9 Electricity. Revision and end of year exams.

Year 11 GCSE	**B9 Ecosystems.** **C8 Acids.** **P9 Electricity.**	**B7 Coordination and control.** **C8 (continued).** **C13 Groups in the periodic table.** **P9 Electricity (continued).** **Mock exams.**	**B8 Exchange and transport.** **C14 Rates of reaction.** **P10 + 11 Magnetism, the motor effect and electromagnets.**	**B8 Exchange and transport (continued).** **C16 Fuels.** **P12 Particle model.** **P13 Forces.** **Revision.** **Mock exams.**	**Revision and exams.**	**Revision and exams.**

3. KS3 Information

At Kingstone we follow **The *Exploring Science KS3*** course. This is underpinned by principles of progression, scientific literacy, practical enquiry, engagement, inclusivity, and effective assessment. Our course aims to create confident, curious learners who are well-prepared for the demands of science at GCSE and in the wider world.

Within each topic there will be an assessed task which pupils will complete in exam conditions. This will be marked, and feedback will be provided.

Larger, exam style assessments will take place within the whole school key assessment windows. The dates for the key assessment windows are published on the whole school calendar.

4. KS3 Homework

Most of the Science homework is set on Educake, your child will be given login information to be able to access their tasks. The website to use is: https://my.educake.co.uk/ It is set in line with the whole school homework policy.

When appropriate alternate tasks may be set, such as revision for key assessments, research tasks or exam question practice.

5. GCSE Information

There are several routes through KS4 Science at Kingstone.

Combined Science

Most students will study Edexcel GCSE in Combined Science. This course has a range of Biology, Chemistry and Physics topics, and results in them gaining 2 GCSE qualifications.

The assessments for this are all in the summer exam window in year 11. with pupils sitting 6 exams, each one 1 hour 10 minutes long. More information about this can be found here: Edexcel GCSE Sciences (2016) | Pearson qualifications

There is no coursework linked to this course. However, all pupils must complete a range of core practical activities which could form part of the final GCSE assessments.

Triple Science

Some students choose to study Triple Science when selecting their options in Year 9. They follow the Edexcel GCSE in Biology, Chemistry and Physics. This results in them gaining 3 GCSE qualifications.

The assessments for this are all in the summer exam window in year 11. with pupils sitting 6 exams, each one 1 hour 45 minutes long. More information about this can be found here: Edexcel GCSE Sciences (2016) | Pearson qualifications

There is no coursework linked to this course. However, all pupils must complete a range of core practical activities which could form part of the final GCSE assessments.

Entry Level Certificate in Further Science

A small group of students will be offered the opportunity to study Entry Level Certificate in Further Science. This qualification recognises achievement at National Curriculum Levels 1, 2 and 3. For this qualification pupils sit 6 externally set tests, which are marked by their teacher and moderated by the exam board. More information about this can be found here: Edexcel Entry Level Certificate Science | Pearson qualifications

The table below shows how we have structured our assessments in GCSE Combined Science and the separate sciences GCSE Biology, Chemistry and Physics.

	GCSE Combined Science	GCSE Biology GCSE Chemistry GCSE Physics
Assessments	2 biology papers 2 chemistry papers 2 physics papers Each paper: 60 marks 1hr 10 mins	GCSE Biology: 2 papers GCSE Chemistry: 2 papers GCSE Physics: 2 papers Each paper: 100 marks 1hr 45 mins
Question types	multiple-choice questions, scaffolded and short answer questions, calculations, and extended open response questions	
How is content split across the papers?	Papers are split according to topic, with half the content for each discipline in one paper (e.g. Biology 1) and half the content in the second paper (e.g. Biology 2). The first topic in each specification lists key ideas that may be assessed in both paper 1 and paper 2. These are either fundamental ideas of the science, e.g. cells in Biology or atomic structure and bonding in Chemistry, or skills, e.g. handling units in Physics.	

(taken from: ttps://qualifications.pearson.com/content/dam/pdf/GCSE/Science/2016/teaching-and-learning-materials/Edexcel-GCSE-Science-Explaining-our-exams-guide.pdf)

6. GCSE Homework

Homework is set in line with the whole school policy for GCSE students.
Within the exams students will be tested on different assessment objectives (AO) the table below shows a description of each of these objectives and their weighting within the exams.

Objective		Weighting
AO1	Demonstrate knowledge and understanding of: • scientific ideas • scientific techniques and procedures	40%
AO2	Apply knowledge and understanding of: • scientific ideas • scientific enquiry, techniques and procedures	40%
AO3	Analyse information and ideas to: • interpret and evaluate • make judgements and draw conclusions • develop and improve experimental procedures	20%

Students will receive regular feedback on their classwork.

Within each topic there will be an assessed task which pupils will complete in exam conditions. This will be marked, and feedback will be provided.

Larger, exam style assessments will take place within the whole school key assessment windows. The dates for the key assessment windows are published on the whole school calendar.

On the run up to exam season additional revision sessions will be provided by members of the Science department. Pupils will be informed of these during their lessons.

7. Resources

In school pupils have access to the course textbook 'Edexcel (9-1) Combined Science Student Book' by Mark Levesley.

We give all pupils the opportunity to purchase a revision guide and workbook produced by the exam board to support them with their independent study. The book sold is: '**REVISE Edexcel GCSE (9-1) Combined Science Revision Guide'.**

For additional support online pupils have access to Educake (see the homework section for details). They can set up a free account on Seneca: https://senecalearning.com/en-GB/ . The BBC Bitesize website is also a valuable tool to support them with their independent work: https://www.bbc.co.uk/bitesize

8. Appendix - Our curriculum:

- Builds on students' prior learning creating a strong foundation for the exam years and further study
- Supports our four teaching principles of chunking, modelling, scaffolding and checking for understanding so that all students can access the material and make positive progress
- Focuses on embedding the core knowledge and vocabulary to help students feel secure when tackling more complex concepts, tasks or theories
- Is chunked to support knowledge retention and is sequenced effectively to provide opportunities for key aspects of the learning to be reviewed, revised and revisited
- Is given a context, with the Big Picture, so there is an understanding of how the learning fits and links to the subject and the wider world
- Has clear endpoints that monitor the success and progress of the individual
- Reinforces the importance of reading and promotes high standards of literacy and numeracy

AT KS3

At KS3, the school provides all students the opportunity to study a core EBacc offer of maths, English, science, languages, Geography and History alongside PE, Music, Music Technology, Design and Technology, Art, Drama, RE and SPHERE (run through our tutor programme).

Students complete a three-year KS3 with some subjects incorporating transition to GCSE within that time. All students are provided with a broad and balanced curriculum before they specialise, in the Spring of Year 9, depending on personal preferences and future career ambitions. Each year, option blocks are customised to meet the needs of the year group and offer a bespoke programme for them. A comprehensive careers programme is in place to support the option process.

Students are taught in mixed ability form classes in Year 7 based on information gathered during the transition process. These are refined in Year 8 and 9 and broadly set around language ability which further supports our language uptake for EBacc.

There is targeted provision and intervention for those students in Year 7 and 8 to develop and support any social, behavioural, emotional and well-being needs which have been, or could be, barriers to their learning and attainment.

The core subjects of English, Maths and Science have a dedicated HLTA working within the faculty to provide high quality, immediate intervention and support in these key subjects.

AT KS4

At KS4, the school provides students with the opportunity to studying the core subjects of maths, English and science (including Tripe Science) along with the foundation subjects of computing, PE and PSHE (which is delivered through our SPHERE tutor programme as in KS3). Choosing EBacc subjects of English, maths, the sciences, history or geography and a language is heavily encouraged to provide students with a broad and balanced curriculum as possible.

We offer students a wide range of other GCSE opportunities: Art and Design, Music, Media Studies, Ethics, Business Studies, Design and Technology, Food and Nutrition, Computing and PE. Alongside this, we provide students with opportunities to study alternative, vocational Level 2 qualifications in Travel and Tourism, Childcare and Sport.

Functional Skills from Entry Level to Level 2, in English and Maths, are also timetabled for those students who would benefit from achieving success in these core areas.

The core subjects of English, Maths and Science each have a dedicated HLTA working within the faculty to provide high quality, immediate intervention and support in these key subjects.