Combined Science on a Page 2024 / 2025

Science GCSE Combined Science (Trilogy) 601/8758/X

Subject Leader: Pam Sutliff

CURRICULUM INTENT:

Our science curriculum is sequenced so that students build an increasingly deep knowledge within scientific themes. New content is introduced in small steps, and students are supported to develop their understanding by connecting this new content with their prior knowledge. Knowledge is revisited over the years to restimulate memory in new contexts. Where appropriate, meaningful links are made with other subjects, particularly geography and mathematics.

Our curriculum links learning to real-life contexts and highlights the relevance of science to everyday situations. Curiosity is nurtured through a practical approach and students develop confidence in the skills and security in the knowledge needed to achieve the highest aspirations.

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Key Stage 3

Year 7

Students start year 7 learning about safety in the lab, becoming familiar with risk assessment and using apparatus and gain their Bunsen burner license. This allows them to progress to using chemicals so that they can carry out practical work to explore chemical reactions. Throughout year 7 students learn the fundamentals of biology, chemistry and physics through direct instruction, checking of understanding, modelling and discussion.

Term 1	7.00 Introduction to Science, 7.01 Particles, substances and mixtures,,	Term 2	7.02 Fundamentals of physics, 7.03 Cell and Organisation	Term 3	7.04 Chemical changes	Term 4	7.05 Organ Systems, 7.06 Sound and Light	Term 5	7.06 Sound and Light (part 2), 7.07 Materials	Term 6	7.08 Life Cycles

The lesson sequence starts with the fundamentals of science and working in the lab. so that students can build knowledge linked to prior learning in each science discipline, biology, chemistry and physics. Do now activities are used to revisit prior learning to promote recall and retention of knowledge. Homework activities supplement lessons with a range of activities to consolidate learning eg. learn ley words, spellings and definitions, maths for science eg. calculating means and fun practicals eg. melting ice and craters.

Year 8

The year 8 curriculum builds on the scientific concepts introduced in year 7, using a range of teaching methods including direct instruction, research, modelling and exploration through lab. practical work. Classwork is supplemented with homework to consolidate learning and practice skills. Homework includes a range of activities including key word spellings and definitions, practical tasks eg. Indicators and Bird Survey and maths skills eg. calculating weight.

Term 1	Ecological relationships and classification	Term 2	Light and Space, Periodic Table	Term 3	Digestion and nutrition, Electricity & magnetism	Term 4	Materials and the EarthDigestion and nutrition, Electricity & magnetism	Term 5	Revision of year 7 and 8 content in preparation for the end of year exam.	Term 6	Plants and photosynthesis

The sequencing of the curriculum interweaves the three science disciplines and builds on prior fundamental concepts. Do now tasks are used to check recall and understanding of previously learned topics that are then developed within the lesson. eg. Students need to understand about elements before they can appreciate the arrangement of the periodic table and cell structure is required for an understanding of photosynthesis.

Year 9

During year 9 students complete the National Curriculum for key stage 3 using a range of learning styles including direct instruction, modelling and practical work.

Term 1	Plants and photosynthesis, Matter	Term 2	Forces in Action, Reactivity	Term 3	Energetics and Rates, Sounds waves	Term 4	Biological systems and processes	Term 5	Biological systems and processes	Term 6	GCSE Cell biology

The year 9 curriculum builds on KS3 content taught in year 7 and 8 to ensure that students have good comprehension of the full National Curriculum. There is a large degree of cross over between KS3 and KS4 allowing students to start to extend their knowledge and understanding of more complex concepts. Do now tasks are used to check recall and understanding of previously taught content and lessons are supplemented with homework tasks that consolidate student learning.

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Key Stage 4

Year 10

The year 10 curriculum builds on the National Curriculum for KS3 and covers the KS4 GCSE contents. Students study the three science disciplines of biology, chemistry and physics through different routes - GCSE Combined Science (Trilogy) equivalent to two GCSEs or GCSE Biology, GCSE Chemistry and GCSE Physics. Students learn through direct instruction, modelling, practical work and independent research. Required practicals are an important part of the exam assessment and allow students to learn through hands on exploration while developing working scientifically skills including planning, recording data, graph skills, analysis and evaluation. Homework is integral to our curriculum and provides a structured opportunity for students to consolidate their learning through the use of online tools eg. Seneca and past paper questions.

Term 1	Cell Biology, Atomic Structure and the Periodic Table, Electricity, Organisation	Term 2	Bonding structure and the properties of matter, Energy, Infection and Response, Quantitative chemistry	Term 3	Bioenergetics, Chemical Change, Particle model of matter,	Term 4	Homeostasis and Response, Energy Changes and Atomic Radiation	Term 5	Revision and preparation for the end of year 10 exam	Term 6	Ecology and Electromagnetism

The three science disciplines are timetabled separately in year 10 and sequencing within each subject builds on previously learned fundamental concepts. Do now tasks are used to check recall and understanding of previously taught topics that are then developed within the lesson. eg. Students need to understand about atomic structure before they can comprehend ionic and covalent bonding and reactivity. The topic of bioenergetics builds on the basics of photosynthesis taught at KS3. Homework is used to consolidate learning and practise skills required eg. numeracy and extended writing.

Year 11

The year 11 curriculum completes the National Curriculum for KS4 and the GCSE content. Students study the three science disciplines of biology, chemistry and physics through different routes - GCSE Combined Science (Trilogy) equivalent to two GCSEs or GCSE Biology, GCSE Chemistry and GCSE Physics. Students learn through direct instruction, modelling, practical work and independent research. Required practicals are an important part of the exam assessment and allow students to learn through hands on exploration while developing working scientifically skills including planning, recording data, graph skills, analysis and evaluation. Homework is integral to our curriculum and provides a structured opportunity for students to consolidate their learning through the use of online tools eg. Seneca and past paper questions.

Term 1	Inheritance, variation and Evolution, Rates of Reaction, Waves	Term 2	Ecology, Organic Chemistry, Forces	Term 3	Chemical Analysis, Electromagnetism	Term 4	Chemical Analysis, Electromagnetism	Term 5	Revision Programme	Term 6	Year 11 New Knowledge will be complete by 3/7/2025 Year 11 Coursework deadline is

The three science disciplines are timetabled separately in year 11 and sequencing within each subject builds on previously learned fundamental concepts. Do now tasks are used to check recall and understanding of previously taught topics that are then developed within the lesson. eg. Students need to understand about forces before they can comprehend electromagnetism. Homework is used to consolidate learning and practise skills required eg. numeracy and extended writing.