

Biology on a Page 2024 / 2025

Biology

GCSE Biology

Subject Leader: Pam Sutliff

CURRICULUM INTENT:

Our biology curriculum is sequenced so that students build an increasingly deep knowledge. All students learn the 3 science disciplines, biology, chemistry and physics at KS3 and KS4 but the most able scientists are selected to study for the three single science GCSEs rather than GCSE Combined Science (Trilogy) equivalent to two GCSEs. In biology, 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 biology 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. Students continue to study biological courses at university including medicine, dentistry, physiotherapy and marine biology.

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Key Stage 4

Year 10	The year 10 biology curriculum builds on the National Curriculum for KS3 and covers the KS4 GCSE content. 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, Organisation	Term 2	Infection and Response	Term 3	Bioenergetics	Term 4	Homeostasis and Response	Term 5	Revision for end of year 10 exam	Term 6	Ecology - Required practicals
	The topics are sequenced so that content builds on previously learned concepts. Topics on paper 1 of the GCSE are delivered first to maximise revision time prior to the year 10 exams and scaffold the progress to GCSE. 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 cell structure before they study the function of the chloroplast and 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 biology curriculum completes the National Curriculum for KS4 and the GCSE content. 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	Variation, Inheritance and Evolution	Term 2	Ecology	Term 3	Revision programme	Term 4	Revision programme	Term 5	Revision Programme	Term 6	Year 11 New Knowledge will be complete by 1/17/2025 Year 11 Coursework deadline is
	Variation, Inheritance and Evolution is the final large module to be studied for GCSE Biology. Thorough understanding is dependent on understanding of fundamental concepts previously taught eg. Cell structure and the cell cycle is required for comprehension of reproduction and chromosomes. The final topic is ecology that revisits the practical work completed during the summer of year 10 and adds the related theory. Do now tasks are used to check recall and understanding of previously taught topics that are then developed within the lesson. Homework is used to consolidate learning and practise skills required eg. numeracy and extended writing. A structured revision programme is used on completion of first teaching to ensure that students have plenty of opportunity to consolidate their understanding through topic reviews, knowledge checks and past paper questions.											

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Key Stage 5

Year 12	The A level biology curriculum builds on knowledge and understanding from GCSE. Induction work always students a taster of a biology practical when they study the effect of caffeine on the heart rate of daphnia. Students are taught by direct instruction, modelling and practical work. Successful students will be awarded a certificate of practical competence in biology demonstrating their ability to use a range of apparatus including a microscope and colorimeter as well as plan investigations, record accurate data, analyse data and evaluate their method. These are recorded for monitoring in PAG folders. Students also develop skills including research skills, note taking and give presentations to the class. A highlight of the A level is our biology fieldwork during which we study a range of local habitats and Blakeney Point in Norfolk.											
	Term 1	Cell Biology, Biochemistry	Term 2	Biological membranes, Enzymes and nucleic acids	Term 3	Exchange and Transport in animals, Cell division	Term 4	Exchange and Transport in plants, Genetic Biodiversity	Term 5	Communicable Disease and the immune system	Term 6	Ecology including biology fieldwork
	The A level biology curriculum starts with the fundamental concepts of cell biology and biochemistry that allows development to understanding biological systems and processes. We foster curiosity in students through practical work and at times use flipped learning where students are required to read about a topic before a lesson therefore allowing students to discover key terms and then make links during lessons. Do now tasks are used to check recall of prior learning. Homework is integral to the A level biology course as we develop students as independent learners who are confident to discuss, question and express their own views.											

Year 13	The A level biology curriculum is completed in year 13, building on knowledge and understanding from GCSE and year 12. Students are taught by direct instruction, modelling and practical work. Revision of prior learning is integrated throughout the course through do now tasks and synoptic links building the full jigsaw of the A level Biology specification. Students use booklets of exam questions on each topic to check their knowledge and recall but also develop exam skills in interpretation and use of correct biological terminology. Students complete their Practical Activity Group (PAG) folder and demonstrate their competence in the twelve sections within their PAG folders.											
	Term 1	Photosynthesis, Communication and Homeostasis including neural communication	Term 2	Respiration, Excretion as an example of homeostatic control	Term 3	Genetics and Evolution, Patterns of Inheritance, Hormonal Communication	Term 4	Cloning and Biotechnology,	Term 5	Manipulating Genomes	Term 6	Year 13 New Knowledge will be complete by 3/14/2025 Year 13 Coursework deadline is 5/1/2025
	The year 13 A level biology curriculum builds prior learning eg Development of basic knowledge of bioenergetics and cell structure to gain a more in depth understanding of biochemical pathways. The basics studied at the start of year 12 are required to understand action potentials and the mechanisms for hormone action. We foster curiosity in students through practical work, in year 13 students use gel electrophoresis for DNA analysis and immobilise enzymes to produce lactose free milk. Do now tasks are used to check recall of prior learning. Homework is integral to the A level biology course as we develop students as independent learners who are confident to discuss, question and express their own views. Topic specific question booklets are set to facilitate revision.											