

Key Stage 5 (12)	
Course title: Biology A level	
Exam board: AQA	
Specification code: 7402	
Autumn 1 (September – October) to Autumn 2 (October – December)	<p>TEACHER 1- Biological molecules (monomers and polymers, carbohydrates, lipids, proteins, nucleic acids, water, inorganic ions) Exchange (Surface area to volume ratio, gas exchange) Students are introduced to molecular biochemistry, building their understanding of the basic structures in biology. Information on a microcellular scale aids later understanding at larger scales. Students build on prior knowledge from year 10 when discussing exchange.</p>
	<p>TEACHER 2- Cells (cell structure, cell cycle, transport across cell membranes, cell recognition and immune system) Students build on the basic principles (cells and cell transport) of Biology introduced in years 9 and 10. These are the fundamentals on which all other biological knowledge is built. Understanding cell membrane structure and cell transport then leads onto the role of the immune system with antigens and phagocytosis as the link. Understanding antibodies requires knowledge of protein structure from teacher 1 as well as prior knowledge from year 10.</p>
Spring 1 (January – February) to Spring 2 (February – March)	<p>TEACHER 1- Exchange (Digestion and absorption, mass transport in animals and plants) Students build an understanding of organ systems linking to year 10 work on organisation. Understanding of digestion requires prior knowledge from enzymes and cell transport earlier in year 12. Understanding of transport in plants requires knowledge of properties of water and cell transport earlier in year 12.</p>
	<p>TEACHER 2- Genetic information, variation, and relationships between organisms (DNA, genes and chromosomes, DNA and protein synthesis, genetic diversity due to mutation and meiosis, genetic diversity and adaptation, species and taxonomy, biodiversity within a population, investigating diversity) Understanding of the genetic information topic requires knowledge of both DNA and protein structure from teacher 1 the previous term. This also builds on material covered in both years 10 and 11, with teachers being aware that combined science students do not have as much prior knowledge. Understanding of the genetic diversity topic is crucial for students to understand the teacher 2 content in year 13.</p>
Summer 1 (April – June) to Summer 2 (June – July)	<p>Key stage 5 (12) content review and assessment. Populations and ecosystems</p>
	<p>As we finish the year key stage 5 (12) content, the progress of students is assessed using AS papers, in order to inform predicted grades. Student now move on to the ecology aspects of topic 7. This material suits this time of year with the better weather affording greater chance of practical opportunity. This material needs covering in advance of the field trip in the summer. Practical work completed throughout the year means that students now have sufficient skills to plan their own investigation as part of their practical endorsement.</p>

Key Stage 5 (13)	
Course title: Biology A-Level	
Exam board: AQA	
Specification code: 7402	
Autumn 1 (September – October) to Autumn 2 (October – December)	TEACHER 1 - Energy transfers in and between organisms (Photosynthesis, respiration, energy and ecosystems, nutrient cycles).
	Having looked at ecosystems at a microscopic level, students now return to the microscopic to examine the key reactions for life. Information from year 10 is combined with knowledge of biological molecules from year 12 and the reactions of photosynthesis and respiration are considered in detail. From this, students return to the macroscopic looking at how carbon cycles through an ecosystem, then examining other nutrient cycles.
	TEACHER 2 - Genetics, Populations, inheritance (Inheritance, populations, speciation).
	Students build on their knowledge of inheritance from year 11, then link back to more recent work on natural selection in year 12, again expanding on this.
Spring 1 (January – February) to Spring 2 (February – March)	TEACHER 1 - Organisms respond to changes in their internal and external environments (survival and response, receptors, control of heart rate, nerve impulses, synaptic transmission, skeletal muscles, homeostasis and negative feedback, control of blood glucose concentration, control of blood water potential).
	Students make links back to year 11 to explain how organisms respond to changes in their environment, making their way from simple to complex system. Knowledge of biochemistry and cell transport from year 12 informs this.
	TEACHER 2 - The control of gene expression (recombinant DNA technology, DNA probes, genetic fingerprinting mutation and protein structure, non-coding DNA, regulating transcription and translation, gene expression and cancer, genome projects).
	Teacher 2 concludes with challenging material linked to cutting edge science. Year 11 material on gene technology is expanded. Students then take their knowledge of transcription and translation from year 12 and extend this to explain how genetically different cells can diversify into a wide range of specialised cells. This topic requires a high level of prior understanding as well as the analysis skills built up over the past two years.
Summer 1 (April – June) Summer 2 (June – July)	Exam preparation - interpreting questions, maths and statistics in biology, essay skills, exam practice.
	Skills focused preparation has been found to be key in allowing students to achieve the highest grade possible. Students now have knowledge of the whole course and can attempt challenging synoptic questions, including the essay where both depth and breadth of knowledge are assessed.