



The intent of the Year 9 Biology curriculum is to develop skills and knowledge that were initially explored at KS3 Level. Some previous content will be revisited and built upon, in addition to some novel topics and concepts that pupils have not met. Biology in Year 9 first of all explores cellular structures and processes at a microscopic level, before moving on to processes happening between cells and at an organism level. Pupils develop a broader skillset than that introduced at KS3, with more complex practical techniques covered and a range of mathematical skills learned.

We aim to:

- Instil curiosity about the natural world and how life is structured and sustained.
- Develop pupils' ability to observe, question, and investigate living organisms using scientific methods.
- Encourage the use of correct scientific vocabulary to describe biological processes clearly and confidently.
- Lay the groundwork for future learning in biology by developing critical thinking and problem-solving skills.
- Develop foundational knowledge of cell structure and function, including differences between plant, animal, and microbial cells, to support understanding and appreciation of all living organisms.
- Explore the processes of photosynthesis and respiration, highlighting their roles in energy transfer and the maintenance of life on Earth.
- Develop an appreciation of and understand the crucial importance of enzymes as biological catalysts, enabling vital chemical reactions to occur efficiently within cells, as without them, life could not be sustained.
- Encourage scientific thinking through practical investigations, reinforcing theoretical knowledge with hands-on experience.
- Foster curiosity about biological systems, preparing pupils for more advanced study in GCSE Biology and beyond.

Through engaging, practical lessons and real-world applications, pupils will begin to understand the relevance of biology to themselves, society, and the wider world.

Note: Pupils follow the OCR Gateway A specification for the Sciences. Year 9 is a common year at GCSE with all Biology content shared by the Combined Science and Separate Science awards. It is not until later in the GCSE course that pupils will differentiate in the pathway taken.

Link to Separate Science specification for Biology (J247) - [OCR GCSE \(9-1\) Biology A \(Gateway Science\) J247 Specification](#)

Link to Combined science specification (J250) - [GCSE - Gateway Science Suite - Combined Science A \(9-1\) - J250](#)



Year 9

Term	Topic	Knowledge and Skills	Useful Links
1	B1 – Cell Level Systems	Knowledge: In this unit, pupils study cellular structure, learning about the different components and their functions within cells. They use microscopy to observe cells and tissues, developing skills in using scientific equipment. Pupils explore enzymes, understanding their role in catalysing biochemical reactions. The study of respiration covers how cells convert glucose into energy, while photosynthesis focuses on how plants produce food using sunlight. Through hands-on experiments and observations, pupils gain a comprehensive understanding of these fundamental biological processes, enhancing their practical skills and scientific knowledge. Skills: Basic practical skills developed at KS3 are built upon in Year 9. Pupils explore the technique of microscopy and carry out calculations to work out either the magnification or actual size of specimens. Unit conversions are also practised and standard form used to express very small or very large numbers. Pupils also carry out investigative techniques into enzyme rate of	GCSE Biology (Single Science) - OCR Gateway - BBC Bitesize Biology Lessons GCSE Biology OCR Gateway Higher Triple Cognito Educake - Online Formative Assessment for Homework and Classwork



		action, setting up practical apparatus and working in groups to collect and study data.	
Assessments		Regular informal assessment via past paper question practise in lesson time or set for homework. This develops the skills required for answering the GCSE examinations in Year 11, such as decoding questions, command word interpretation and formulating answers appropriate to the numbers of marks available. A mid-unit low-stakes assessment and a more formal end-of-unit assessment are completed under exam conditions. Pupils are informed of these in advance with revision opportunities given for homework and in class, if time permits. These assessments are designed to check understanding of key concepts and identify areas for improvement. Pupils receive feedback on both assessments, with time allocated in class to review answers and address misconceptions. Checklists that breakdown learned criteria are also used in the unit to help pupils monitor their own progress and reflect on their understanding of the content.	
2	B2 – Scaling Up	Knowledge: In this unit, pupils study diffusion, osmosis, and active transport, learning how substances move across cell membranes. They explore mitosis, understanding cell division and its role in growth and repair. Pupils also examine specialized cells, such as nerve and muscle cells, and their unique functions. The unit extends to the heart and lungs, focusing on their roles in circulation and respiration. Additionally, pupils study transport in plants, learning how water and nutrients move through xylem and phloem. This comprehensive approach enhances their understanding of cellular processes and the interconnectedness of biological systems. Skills:	GCSE Biology (Single Science) - OCR Gateway - BBC Bitesize Biology Lessons GCSE Biology OCR Gateway Higher Triple Cognito Educake - Online Formative Assessment for Homework and Classwork



		Pupils continue to build on the mathematical skills they began to develop at GCSE level in B1. There is opportunity to carry out an investigation into osmosis, applying skills including calculating percentage change. Pupils can also relate learned knowledge of heart structure to a heart dissection activity, where they are encouraged to think perceptively about safe practical methodology and use of hazardous apparatus.	
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