

# Biology

**Curriculum Intent:** To ensure students maintain and develop their curiosity and excitement about the natural world. To develop all to be 'scientists' by embedding a culture of confidence and mastery underpinned by scientific enquiry. To develop their ability to see connections between science subject areas and become aware of some of the big ideas for understanding the world and to provide a high challenge, high quality science education for all our learners.

Year 12	Year 13
<p><b>Core knowledge:</b> Biological molecules including carbohydrates, lipids, proteins, enzymes and nucleic acids, cell structure, microscopy, transport across cell membranes, immunity, exchange with the environment, mass transport in animals and plants, the genetic code, genetic diversity and biodiversity.</p> <p><b>Procedural knowledge (how to.):</b> Use scientific theories and explanations to develop hypothesis. Evaluate methods and suggest possible improvements. Apply a knowledge of sampling techniques to ensure any samples collected are representative. Apply a knowledge of a range of techniques, apparatus, and materials to select those appropriate for both field work and for experiments. Translate data from one form to another. Represent distributions of results and make estimates of uncertainty. Carry out and represent mathematical and statistical analysis. Explain everyday technological applications of science. Use a variety of concepts and models to develop scientific explanations. Appreciate the power of limitations of science and consider ethical issues.</p> <p><b>Assessment:</b> Assessment 1: Cells &amp; Biochemistry. Assessment 2: Enzymes &amp; transport across cell membranes. Assessment 3: End of topic 1. Assessment 4: End of topic 2. Assessment 5: End of topic 3. Assessment 6: End of topic 4. Assessment 7: End of year – all Year 12 content.</p> <p><b>Homework:</b> Write-up of experimental work. Weekly review of work covered. Revision for tests x 7.</p> <p><b>Links to careers and personal development include:</b> Enabling students to recognise risks to their own wellbeing. Social development: Practice using a range of social skills in different situations. Confidence, Resilience and Knowledge: Mentally healthy, physically healthy, active lifestyle, healthy relationships.</p>	<p><b>Core knowledge:</b> Photosynthesis, respiration, energy in ecosystems, inheritance, population genetics, ecology, response to stimuli, nerves and muscles, homeostasis, gene expression, and recombinant DNA technology.</p> <p><b>Procedural knowledge (how to.):</b> Use scientific theories and explanations to develop hypothesis. Evaluate methods and suggest possible improvements. Apply a knowledge of sampling techniques to ensure any samples collected are representative. Apply a knowledge of a range of techniques, apparatus, and materials to select those appropriate for both field work and for experiments. Translate data from one form to another. Represent distributions of results and make estimates of uncertainty. Carry out and represent mathematical and statistical analysis. Explain everyday technological applications of science. Use a variety of concepts and models to develop scientific explanations. Appreciate the power of limitations of science and consider ethical issues.</p> <p><b>Assessment:</b> Assessment 1: Inheritance. Assessment 2: Photosynthesis &amp; respiration. Assessment 3: End of topic 7. Assessment 4: End of topic 5. Assessment 5: A level paper 1. Assessment 6: A level paper 2. Assessment 7: A level paper 3.</p> <p><b>Homework:</b> Write-up of experimental work. Weekly review of work covered. Revision for tests x 8.</p> <p><b>Links to careers and personal development include:</b> Enabling students to recognise risks to their own wellbeing. Social development: Practice using a range of social skills in different situations. Confidence, Resilience and Knowledge: Mentally healthy, physically healthy, active lifestyle, healthy relationships.</p>