

| BIOLOGY CURRICULUM MAP                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
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| A. FORMAL KEY STAGE FIVE BIOLOGY ADVANCED LEVEL CURRICULUM                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
| Core Threads                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | By the end of key stage FIVE we want all students of Biology to <b>know</b> and <b>do</b> the following key things:<br>Confidently know & understanding high-level scientific ideas; apply concepts to wider scenarios; analyse qualitative & quantitative data with reasoning; write coherent conclusions; offer well-reasoned judgements; evaluate & refine practical procedures independently; and complete statistical Termly Tests. |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
| Prior Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | In KS5, students of Biology will build on the following <b>prior learning</b> :<br>GCSE knowledge and understanding of scientific terms and concepts; practical procedures; justification of scientific processes and variables; GCSE mathematical skills; evaluation of data; offering extended responses and justified conclusions; analysing data; explaining trends; using key apparatus and techniques.                             |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
| Future Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | The Curriculum in KS5 Biology will prepare students for the following <b>future learning</b> :<br>Undergraduate scientific study; an appreciation of wider scientific reading and linked theory in journals and publications; independent practical investigations.                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
| Year 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Term                                                                                                                                                                                                                                                                                                                                                                                                                                     | KEY KNOWLEDGE SKILLS CONCEPTS – TAUGHT, REVISED, REVISITED, AND LEARNT                                                                                                                                                                                                                                                                                                                                                              | Common Assessment End Points                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T1                                                                                                                                                                                                                                                                                                                                                                                                                                       | Developing knowledge & understanding of Cells, and Biological Molecules, applying knowledge to wider scenarios. <b>Required Practical on Enzymes. Develop competency for statistical tests</b> , analysis of data, drawing conclusions. Developing an independent study mind-set.                                                                                                                                                   | Carbohydrates and Cell structure Test<br>Common Practical Assessments                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T2                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cells, Biological Molecules, Transport across membranes; developing knowledge & understanding; <b>application to wider scenarios</b> ; depth of description; link key processes. Conduct and evaluate Required Practical on Plant Root Cells, Plant Water potential, & Cell-Surface Membranes.                                                                                                                                      | Proteins & Enzymes and Mitosis Test.<br>Common Practical Assessments                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T3                                                                                                                                                                                                                                                                                                                                                                                                                                       | Cells, Exchange & transport, <b>Genetic variation</b> . Independently apply knowledge & understanding to wider scenarios; increasing depth of description; developing Apparatus and Techniques Competencies. Causation & correlation. Embed independent study & skills of self-reflection.                                                                                                                                          | Biological molecules: Exchange and transport and Transport Membranes Test                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T4                                                                                                                                                                                                                                                                                                                                                                                                                                       | Exchange & Transport; <b>Genetic variation</b> ; independent application to wider scenarios with increasing depth of description. <b>Antimicrobial Substances Required Practical</b> . Apparatus Techniques. Independently make judgements; and evaluate practical procedures. <b>Microbiologist</b> .                                                                                                                              | Exchange and Transport and Genetic variation Test. Common Practical Assessments                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T5                                                                                                                                                                                                                                                                                                                                                                                                                                       | Exchange and Transport, <b>Populations; independent application to wider scenarios</b> with increasing depth of description' Link key processes; complete statistical tests. Required Practical on <b>Dissection of Animal or Plant</b> and investigating factors on <b>distribution of species</b> . Hone practical procedures and Apparatus Techniques independently. <b>Surgeon</b> .                                            | Exchange and Transport and Genetic variation and populations<br>Common Practical Assessments        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T6                                                                                                                                                                                                                                                                                                                                                                                                                                       | Energy transfer in Organisms, Population; independent application to wider scenarios with increasing depth of description. <b>Independently refine practical procedures</b> . Make coherent conclusions, and complete End of year assessment. <b>Environmental Scientist</b> .                                                                                                                                                      | Interim Internal Mock Examinations<br>Common Practical Assessments                                  |
| Year 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Term                                                                                                                                                                                                                                                                                                                                                                                                                                     | KEY KNOWLEDGE SKILLS CONCEPTS – TAUGHT, REVISED, REVISITED, AND LEARNT                                                                                                                                                                                                                                                                                                                                                              | Common Assessment End Points                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T1                                                                                                                                                                                                                                                                                                                                                                                                                                       | Photosynthesis, Respiration, Responses, Nervous System Coordination. Demonstrate confident knowledge & understanding, application to wider scenarios, and depth of description. Required Practical's: Chromatography; Dehydrogenase Activity, Movement of an Animal. Re-visit Apparatus and Techniques skills. Complete <b>statistical tests</b> & draw coherent conclusions. Utilise independent study and self-assessment skills. | Photosynthesis, Energy in and between Organisms and Stimulus Test.<br>Common Practical Assessments  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T2                                                                                                                                                                                                                                                                                                                                                                                                                                       | Respiration, <b>Control of gene expression</b> , Homeostasis. Required Practical's: Respiration of Cultures; Glucose in a Sample. <b>Confidently use Apparatus &amp; Techniques</b> . Analyse and interpret data and correlations; evaluate, making well-reasoned judgements - applying to scenarios.                                                                                                                               | Respiration, Gene Expression, Nervous Coordination and Muscles Test<br>Common Practical Assessments |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T3                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Gene Technologies and Inheritance</b> , linking key processes. Honing the ability to analyse and interpret data and correlations; evaluate, making well-reasoned judgements - applying to a range of relevant scenarios. Hone self-study and independent study skills. <b>Geneticist</b> .                                                                                                                                       | Inheritance, Gene Technologies and Homeostasis Test                                                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T4                                                                                                                                                                                                                                                                                                                                                                                                                                       | Evaluate evidence and data associated with <b>Speciation, linking theory to wider contexts</b> . Focus on the application of key knowledge independently. Compose possible essay titles. Further Practice mathematical & statistical skills. Apparatus and Technique application.                                                                                                                                                   | Internal mock examinations                                                                          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | T5                                                                                                                                                                                                                                                                                                                                                                                                                                       | Hone mature study skills and utilise this in revision, synthesising all parts and components of the course to attempt any examination questions.                                                                                                                                                                                                                                                                                    | External Examinations                                                                               |
| B. WIDER KEY STAGE FIVE BIOLOGY CURRICULUM                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |
| <ul style="list-style-type: none"> <li>- Develop and embed a VESPA Mindset – becoming an independent learner with the Vision, Effort, Systems, Practices, and Attitude to succeed</li> <li>- <i>Biological Sciences Review</i> Magazine articles set as wider reading; A level Science Live Lectures. <b>News articles shared termly to promote careers consideration.</b></li> <li>- Careers Week in Term 6, with a focus in Biology on STEM careers linked to Biology.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                     |

| BIOLOGY CURRICULUM MAP                                                                                         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                              |
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| A. FORMAL KEY STAGE FOUR BIOLOGY GCSE LEVEL CURRICULUM                                                         |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                              |
| Core Threads                                                                                                   |      | By the end of key stage FOUR we want all students of Biology to <b>know</b> and <b>do</b> the following key things:<br>Confident knowledge & understanding of key terms in Biology; practical competency high for all required practical activities and experiments; interpretation & analysis of qualitative and quantitative data with reasoning; coherent conclusions; well-reasoned judgements; evaluate and refine practical procedure.                                                                |                                              |
| Prior Knowledge                                                                                                |      | In KS4, students of Biology will build on the following <b>prior learning</b> : Key Stage Three understanding of key processes, such as fundamental biological reactions of photosynthesis and respiration, living organisms relating to cell structures, ecosystems and cell structures; Key Stage Three skills of analysis and evaluation; maths skills, including calculating percentages and averages; simple evaluation of practical procedure; knowledge of key equipment; consideration of variables |                                              |
| Future Knowledge                                                                                               |      | The Curriculum in KS4 Biology will prepare students for the following <b>future learning</b> : Utilise knowledge in well-reasoned explanations; independently refine and evaluate practical procedure; analysis utilising wider maths skills and statistical Termly Tests                                                                                                                                                                                                                                   |                                              |
| Year 10                                                                                                        | Term | KEY KNOWLEDGE SKILLS CONCEPTS – TAUGHT, REVISED, REVISITED, AND LEARNT                                                                                                                                                                                                                                                                                                                                                                                                                                      | Common Assessment End Points                 |
|                                                                                                                | T1   | Build on knowledge from units on Organisation. Bioenergetics: Respiration; confident knowledge and understanding, application to wider scenarios, depth of description. Focus on extended response. Develop knowledge of Infection and Response. <b>Respiratory Physiologist</b> .                                                                                                                                                                                                                          | Bioenergetics Test                           |
|                                                                                                                | T2   | Continue knowledge of <b>Infection and Response</b> developing in-depth explanations; reading and researching independently for information; analysing quantitative data about disease incidence. Develop knowledge of Homeostasis and the Nervous System. <b>Virologist. Epidemiologist</b>                                                                                                                                                                                                                | Communicable Disease and Nervous System Test |
|                                                                                                                | T3   | Continue knowledge and understanding of Homeostasis, offering well-reasoned judgements. <b>Use Required Practical 7 – Reaction Times. Apparatus Techniques. Mathematics skills: interpret data to develop conclusions. Relate medical intervention of dialysis to ethical considerations. Medical Careers. Physiotherapist.</b>                                                                                                                                                                             | Homeostasis and Endocrine System Test        |
|                                                                                                                | T4   | Build on Reproduction content from KS3 and develop knowledge and understanding of Homeostasis, Required Practical Germination to plan and utilise Apparatus Techniques. Build on Cell Biology to introduce genome in greater depth, <b>considering history of genetics, associated terminology and ethical considerations. Geneticist.</b>                                                                                                                                                                  | Homeostasis and Endocrine System Test        |
|                                                                                                                | T5   | Build on knowledge from Cells and DNA unit to develop a confident knowledge and understanding of <b>Inheritance, Variation and Evolution, and apply to wider scenarios</b> with depth of description. Hone interpretation and analysis of data with reasoning and coherent conclusions. <b>Evolutionary Biologist.</b>                                                                                                                                                                                      | End of Year Examination                      |
|                                                                                                                | T6   | Build on knowledge from previous Units. Focus on Inheritance, Variation and Evolution, developing confident knowledge and understanding, and application to wider scenarios. Focus on extended response and detailed descriptions. Draw coherent conclusions, offering well-reasoned judgements <b>relating to genetic problems. Occupational Therapist.</b>                                                                                                                                                | Inheritance, Variation and Evolution Test.   |
| Year 11                                                                                                        | Term | KEY KNOWLEDGE SKILLS CONCEPTS – TAUGHT, REVISED, REVISITED, AND LEARNT                                                                                                                                                                                                                                                                                                                                                                                                                                      | Common Assessment End Points                 |
|                                                                                                                | T1   | Build on Inheritance, Variation and Evolution, developing confident knowledge and understanding, and application to wider scenarios. Focus on extended response and detailed descriptions. Draw coherent conclusions, offering well-reasoned judgements <b>relating to genetic problems. Geneticist.</b>                                                                                                                                                                                                    | Year 11 Biology Mock Examination             |
|                                                                                                                | T2   | Begin unit 7 and develop confident knowledge & understanding in <b>Ecology</b> , build on prior knowledge of Infection and Response and Bioenergetics. Required Practical <b>Field Investigations</b> to plan, implement Apparatus and Techniques, <b>develop sampling techniques and use them in more complex contexts, such as unfamiliar ecological habitats. Environmental Scientist.</b>                                                                                                               | Year 11 Biology Mock Examination             |
|                                                                                                                | T3   | Develop confident knowledge & understanding in Ecology, working scientifically, Use Required Practical Decay to plan, implement apparatus and technique <b>skills of measurement and observation</b> and <b>maths skills of calculating</b> the rate of change of graphical skills.                                                                                                                                                                                                                         | Ecology and Cumulative Knowledge Test        |
|                                                                                                                | T4   | Relate knowledge from previously learned topics to wider scenarios relating to Ecology, making links to the <b>role of genetics and variation in biotechnology for the future</b> . Model how to bridge the big ideas when linking in extended response. <b>Research Scientist.</b>                                                                                                                                                                                                                         | Ecology and Cumulative Knowledge Test        |
|                                                                                                                | T5   | Focus on application of learned understanding. Concreting of learned understanding. Planning of possible extended response titles. Practice maths skills, with a focus on application of examination style questions. Practice apparatus and techniques application.                                                                                                                                                                                                                                        | External Examinations                        |
| B. WIDER KEY STAGE FOUR BIOLOGY CURRICULUM                                                                     |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                              |
| - Careers Week in Term 6, with a focus in Biology on STEM Careers in Biology - Y12 & Y13 Science Live Lectures |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                              |