**Biology Curriculum Map – Key Stage 4**

**Year 10**

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| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **SB3 – Genetics**  This unit covers chromosomes and the DNA Code, and studies how traits are passed on between generations. | **SB3 – Genetics**  Sources of genetic variation  **SB4 – Natural Selection and Genetic Modification**  The theory of evolution by natural selection, and how new species and breeds arise over time, including human evolution. | **SB4 – Natural Selection and Genetic Modification**  Human impacts on genetic change, including selective breeding and genetic engineering. | **SB5 – Health, Disease, and the Development of Medicines**  This unit defines health and studies communicable and non-communicable diseases, as well as the human immune system and barriers to infection. | **SB5 – Health, Disease, and the Development of Medicines**  Continues building on the immune system, and looks at development of medicines and antibiotics  **Summer PPE Exams** | **SB9 – Ecosystems and Material Cycles**  This unit covers the definition of ecosystems and the idea of interdependence between all organisms. It also covers the carbon, water, and nitrogen cycles. |
| **Assessment:**  Year 10 transition test.  6-mark question on dominant and recessive traits in genetics. | **Assessment**  End of topic test – SB3 Genetics  6-mark question on evolution of breeds and varieties | **Assessment:**  6-mark question on antibiotic resistance  End of topic test – SB4 Evolution | **Assessment:**  6-mark question on health data analysis  End of topic test – SB5 Health and Disease | **Assessment:**  6-mark question on virus life cycles  PPE Exam – Paper 1 covering chapters SB1 to SB5 | **Assessment:**  6-Mark question on biofuels  End of topic test – SB9 Ecology |
| **Builds upon:**  Key principles of inheritance and DNA.  Sexual and asexual reproduction. | **Builds upon:**  Evolution - that organisms change over time  That Darwin came up with a theory to explain evolution | **Builds upon:**  Evolution - that organisms change over time  How DNA contains instructions for the characteristics of organisms | **Builds upon:**  The structure of bacteria  That imbalances in diet can lead to obesity and deficiency diseases  Healthy lifestyles | **Builds upon:**  The structure of bacteria  That recreational drugs can affect behaviour, health and life processes | **Build upon:**  How life on earth depends on photosynthesis in plants and algae.  The interdependence of organisms, including food webs. |
| **Introduces:**  How gametes are produced by mitosis.  The structure of DNA. Mutations and how genes cause genetic variation.  Why certain characteristics are passed down through families. | **Introduces:**  Continuous and discontinuous variation due to genetic and environmental factors.  Darwin’s Theory of evolution by natural selection.  How different methods such as genetic analysis are being used to investigate  evolution. | **Introduces:**  How organisms are classified.  Selective breeding  Genetic modification  Antibiotic Resistance | **Introduces:**  How we define health  Some pathogens and the diseases they cause  How the spread of pathogens can be reduced or prevented  How the body is protected against infection  The immune system | **Introduces:**  How antibiotics work  How new medicines are developed | **Introduces:**  How ecosystems are organised.  How communities are affected by abiotic and biotic factors.  How the abundance and distribution of organisms are measured.  Parasites and mutualism.  Human effects on ecosystems.  The benefits of maintaining biodiversity. |

**Year 11**

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| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **SB6 – Plant Structures and their Functions**  This unit will help you learn about the process of photosynthesis and its importance, how  plant structures are adapted to their functions and how water, mineral ions and sugar are  transported through plants. | **Autumn PPE Exams**  **SB7 – Animal Coordination, Control, and Homeostasis**  This unit introduces you to hormones, metabolic rate, the menstrual cycle, blood glucose  and diabetes. | **SB8 – Exchange and Transport in Animals**  This unit introduces you to diffusion, different kinds of respiration, how the lungs are  adapted to their functions, and calculating cardiac output. | **Spring PPE Exams**  **Revision and Exam Technique** | **Revision and Exam Technique** | **GCSE Exams** |
| **Assessment:**  6-Mark Question on plant adaptations  End of Topic Test – SB6 Plants | **Assessment**  Mock Exam – Paper 1 covering chapters SB1-5  6-Mark Question on Thermoregulation | **Assessment:**  End of Topic Test – SB7 Homeostasis  6-Mark Question on cellular respiration | **Assessment:**  End of Topic Test on SB8 – Cardiovascular System  Mock Exam – Paper 2 covering chapters SB1 and SB6-9. |  |  |
| **Builds upon:**  That plants make their own food using photosynthesis  How light and chlorophyll are necessary for photosynthesis  How certain plant cells are specialised and adapted to their function | **Builds upon:**  How obesity is caused  The structure and function of human reproductive systems  The menstrual cycle  The structure of sperm and egg cells  How enzymes help digest food molecules | **Builds upon:**  How the digestive system gets glucose and other food molecules in the blood  How the respiratory system gets oxygen into the blood  Diffusion  Different animal cells and their adaptations |  |  |  |
| **Introduces:**  More about photosynthesis and how different factors affect its rate  How the rate of water uptake by a plant is affected by different factors  How the reactants and products of photosynthesis are transported  More specialised cells: palisade, root hair, xylem and phloem | **Introduces:**  Endocrine glands  How hormones are transported to their target organs  How the menstrual cycle is controlled by hormones  How hormones are used in contraception  About diabetes and how blood glucose is controlled  How Thyroxine and adrenaline affect the body  What a negative feedback mechanism is | **Introduces:**  More about diffusion, gas exchange and the surface area : volume ratio  More about the different types of respiration  How the lungs, heart, blood vessels and blood are adapted for their functions  How to calculate cardiac output |  |  |  |