Biology Curriculum Map – Key Stage 4

Year 10

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

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			