## Biology – Combined Science Overview

Year 10										
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6				
Topic	· Key concepts in Biology	· Cells and Control	· Genetics	· Natural Selection and Genetic Modification	· Health, Disease and the Development of Medicine	· Health, Disease and the Development of Medicine				
Key Concept	Cells and Cellular Processes	Cells and Cellular Processes	Organisms and their interactions with the environment	Organisms and their interactions with the environment	Biological systems for life	Biological systems for life				
Learning Objectives	· Describe the developments in microscopy. · Identify and state the role of subcellular structures in plant, animal and bacteria cells. · Explain digestion using enzyme action. · Show that substances are carried by diffusion, osmosis and active transport.	· Describe the stages of mitosis. · State the importance of mitosis in growth, repair and asexual reproduction. · Explain the process of cell specialisation. · Explain how the nervous system works including the specialised cells involved.	· State the importance of meiosis. · Describe the structure of DNA. · Discuss the causes of genetic variation. · Describe how the inheritance of some characteristics occurs in families.	· Describe the theory of evolution. · Show how different organisms are classified. · Evaluate selective breeding and genetic engineering.	Define the term health.     Describe diseases caused by named pathogens and strategies to reduce or prevent their spread.     Discuss human defence mechanisms.	· Show the stages in the development of new medicines.				
Scaffolding SEND	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes	glossaries, targeted questions, knowledge organisers, recall quizzes				

Key Vocabulary	magnification, resolution, eukaryotic, prokaryotic, gametes, precipitate, denatured, active site	mitosis, asexual reproduction, haploid, diploid, differentiation, meristems, elongation, neurotransmission, reflex arc	clones, meiosis, zygote, daughter cells, adenine, thymine, cytosine, guanine, alleles, homozygous, heterozygous, punnet square	evolution, Ardi, binomial system, resistance, pentadactyl limb, classification	communicable disease, non- communicable diseases, pathogens, immune system, malnutrition, cirrhosis, stent, cardiovascular, immunisation	communicable disease, non- communicable diseases, pathogens, immune system, malnutrition, cirrhosis, stent, cardiovascular, immunisation
Formative Assessment	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback	6 mark question with teacher feedback
Summative Assessment	End of unit test	End of unit test	End of unit test	End of unit test	End of unit test	End of unit test
Careers	Equine dentist, forensic scientist, hydro therapist. marine biologist, neuroscientist, optician, paramedic.	Forensic scientist, lab technician, marine biologist, neuroscientist, optician paramedic	Botanist, conservationist, marine biologist	Immunologist, marine biologist, neuroscientist, zoologist	Journalist, lab technician, marine biologist, urologist, zoologist	Journalist, lab technician, marine biologist, urologist, zoologist
Links	To build on the use of a microscope, cell structure and adaptations.  To prepare for enzymes in digestion. In addition, describe substances moving by diffusion.	To build on how cells divide. In addition, the structure of plant and animal cells.  To prepare for the nervous system helping to coordinate actions in the human body.	To build on the difference between environmental and inherited variation.  To prepare for stating that a zygote is formed by two gametes fusing. In addition, the location of DNA in a eukaryote.	To build on DNA containing instructions for characteristics of organisms.  To build on Darwin devised a theory to explain how organisms change over time.	To build on the causes of obesity and deficiency diseases.  To prepare for stating how recreational drugs can affect behaviour, health and life processes.	·To build on the causes of obesity and deficiency diseases.  To prepare for stating how recreational drugs can affect behaviour, health and life processes.