

## Science KS4 Curriculum Intent, Implementation and Impact Overview

Year: 11 Subject: Combined Biology IMPLEMENTATION						
	Half Term 1 (7)	Half Term 2 (7)	Half Term 3 (7)	Half Term 4 (6)	Half Term 5 (5)	Half Term 6 (6)
<b>INTENT</b>  (AQA GCSE Combined Biology (9-1) GCSE specification coverage key concepts and skills ('Big ideas'))	<b>Context:</b> B13 – Inheritance  <b>Key Vocabulary:</b> Asexual, sexual, reproduction, meiosis, DNA synthesis, inheritance, genome, mutation, genetic disorders, screening  <b>Prior Learning / LTM:</b> Y7 Genes, Y8 Genes, Y9 Bio 2, GCSE B9, GCSE B8  <b>Cultural Capital:</b> Inheritance and genetic disorders.	<b>Context:</b> B14 – Variation B15 – Genetics and Evolution  <b>Key Vocabulary:</b> Variation, environmental, genetic, natural selection, mutation, selective breeding, genetic engineering, cloning Evolution, natural selection, speciation, extinction, antibiotic resistance, classification, domain, archaea  <b>Prior Learning / LTM:</b> Y7 Ecosystems, Y7 Genes, Y8 Genes, Y9 Bio 2, GCSE B13, GCSE B5, GCSE B6  <b>Cultural Capital:</b> Variation of life. Natural selection – evolution. Selective breeding in crops and agriculture. Cloning – Dolly the sheep. Ethics of genetic technology. Theories of evolution Extinction and fossils. Antibiotic resistance.	<b>Context:</b> B16 – Adaptations, interdependence, and competition  <b>Key Vocabulary:</b> Communities, interdependence, abiotic, biotic, quadrat, abundance, distribution, transect, quantitative, competition, adaptations, extremophiles, camouflage  <b>Prior Learning / LTM:</b> Y7 Ecosystems, Y7 Genes, Y8 Genes, Y9 Bio 2, GCSE B5, GCSE B6, GCSE B1, GCSE B3, GCSE B13, GCSE B14  <b>Cultural Capital:</b> Ecology and communities. Biodiversity. Possibility of extremophiles on other planets	<b>Context:</b> B17 – Organising an ecosystem B18 – Biodiversity and ecosystems  <b>Key Vocabulary:</b> Biomass, producers, consumers, trophic level, decomposers, decay, carbon cycle Biodiversity, population, pollution, formulation, deforestation, greenhouse gases, global warming, incident energy, agriculture, efficiency, sustainability,  <b>Prior Learning / LTM:</b> Y7 Ecosystems, Y8 Ecosystems, Y8 Genes, GCSE B14, GCSE B15, GCSE B8, GCSE B9  <b>Cultural Capital:</b> Food chains and impact on environment. Materials, water, and carbon cycles. Human population – explosion and migration. Pollution – air, land, water, deforestation, peat destruction. Impacts on the environment. Food security and sustainable food production.	<b>Context:</b> Revision and Retention  <b>Key Vocabulary:</b> Biodiversity, population, pollution, formulation, deforestation, greenhouse gases, global warming, incident energy, agriculture, efficiency, sustainability,  <b>Prior Learning / LTM:</b> KS2-KS4  <b>Cultural Capital:</b> N/A	<b>N/A</b>
All material in the Universe is made of very small particles				X		
Objects can affect other objects at a distance			X	X	X	
Changing the movement of an object requires a net force to be acting on it						

The total amount of energy in the Universe is always the same				x	X	
The composition of the Earth and its atmosphere		X		X	x	
Our solar system is a very small part of one of millions of galaxies in the Universe						
Organisms are organised on a cellular basis	x	x	x			
Organisms require a supply of energy and materials	x		x	x	X	
Genetic information is passed down from one generation of organisms to another	x	x	x			
The diversity of organisms, living and extinct, is the result of evolution		x	x	x	x	
Apply knowledge and understanding to explain observations.	x	x	X	X	X	
Use different types of scientific enquiry to answer scientific questions.	x		X	X	X	
Use technical terminology with confidence accurately and precisely.	x	x	X	X	X	
Apply mathematical knowledge to scientific understanding.	x	x	X	X	X	
Awareness of some of the social and economic implications of science		x	x	x	x	
<b>IMPACT</b>	Assessment: Trial exam 1 - Paper 1  Inheritance/Punnett MP  <b>Maths skills 1</b>  Progression to KS5:  2.6 Cell division 5.14 Hormonal communication 5.15 Homeostasis 6.19 Genetics of living systems 6.20 Patterns of inheritance and variation 6.21 Manipulating genomes	Assessment: Trial exam 2  Evolution/Fossils MP  <b>Maths skills 2</b>  Progression to KS5:  6.19 Genetics of living systems 6.20 Patterns of inheritance and variation 6.22 Cloning and biotechnology 4.10 Classification and evolution	Assessment: Trial exam 3  Quadrat/Abiotic/Biotic MP  <b>Maths skills 3</b>  Progression to KS5:  4.10 Classification and evolution 4.11 Biodiversity 6.23 Ecosystems	Assessment: Trial exam 4  Carbon Cycle MP  <b>Maths skills 4</b>  Progression to KS5:  6.24 Population and sustainability 6.23 Ecosystems 4.11 Biodiversity  6.22 Cloning and biotechnology	Assessment:  <b>External GCSE examinations May/June (AQA)</b>  <b>Paper 1</b>  <b>Paper 2</b>	

Cultural Capital is the body of knowledge a student needs so that they can flourish in the future and not be left behind. LTM = Long Term Memory.