Science KS4 Curriculum Intent, Implementation and Impact Overview

	Year: 10 Subject: Combined Biology IMPLEMENTATION					
INTENT (**AQA GCSE Combined Biology (9-1) GCSE specification coverage** key concepts and skills ('Big ideas')	**Half Term 1 (7)** **Context:** B1 Cells **Key Vocabulary:** Prokaryote, eukaryote, magnitude, electron microscope, differentiation, specialised, mitochondria, ribosome, diffusion, osmosis, active transport **Prior Learning / LTM:** Y8 Organisms, Y8 Genes, Y7 Organisms, Y9 Bio 1 **Cultural Capital:** Calculating orders of magnitude and estimating sizes of objects. Exchange surfaces and SA:V ratios	**Half Term 2 (7)** **Context:** B1 Cells, B2 Organisation **Key Vocabulary:** Mitosis, stem cell, aseptic, disinfectant, enzymes, digestion, non-communicable, pH, trachea, alveoli, platelet, plasma, artery, vein, capillary, atrium, ventricle **Prior Learning / LTM:** Y8 Organisms, Y8 Genes, Y7 Organisms, Y9 Bio 1 **Cultural Capital:** Healthy diet – nutritional, sport science diet and health. Therapeutic stem cell therapy	**Half Term 3 (7)** **Context:** B2 Organisation B3 Infection and Response **Key Vocabulary:** Cancer, malignant, benign, xylem, phloem, transpiration, translocation, infectious, virus, bacteria **Prior Learning / LTM:** Y8 Organisms, Y7 Organisms, Y9 Bio 1 **Cultural Capital:** Different forms of cancer and treatment. Diagnosing and treating infectious diseases.	**Half Term 4 (6)** **Context:** B3 Infection and Response B4 Bioenergetics **Key Vocabulary:** Fungi, protist, immune, vaccination, antibody, antigen, antibiotics, monoclonal antibody, deficiency, photosynthesis, endothermic **Prior Learning / LTM:** Y8 Ecosystems, Y9 Bio 1, Y9 Bio 2 **Cultural Capital:** Diagnosing and treating infectious diseases. Vaccination – COVID-19. Antibiotics vs painkillers. Alexander Fleming.	**Half Term 5 (5)** **Context:** B4 Bioenergetics B5 Homeostasis **Key Vocabulary:** Photosynthesis, limiting factor, respiration, anaerobic, aerobic, metabolism, central nervous system, reflex, neuron, motor, sensory **Prior Learning / LTM:** Y8 Ecosystems, Y8 Genes, Y7 Genes, Y9 Bio 2 **Cultural Capital:** Aerobic vs anaerobic respiration in sport. Metabolism – what is it and effects on the body. Reflexes and reaction times.	**Half Term 6 (6)** **Context:** B5 Homeostasis **Key Vocabulary:** Combined: Hormones, endocrine, diabetes, glucose Separate: Lens, cornea, ciliary muscles, cerebral cortex, cerebellum **Prior Learning / LTM:** Y8 Genes, Y7 Genes, Y9 Bio 2 **Cultural Capital:** Combined: Reaction times and starting times in sport. Hormones and impact on the body. Diabetes. Separate: The brain and brain damage. The eye and correcting vision. Phineas Gage.
All material in the Universe is made of very small particles	x	x				
Objects can affect other objects at a distance						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						
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	x	x	x

Organisms require a supply of energy and materials	x	x	x	x	x	x
Genetic information is passed down from one generation of organisms to another					x	x
The diversity of organisms, living and extinct, is the result of evolution						
Apply knowledge and understanding to explain observations.	x	x	X	X	X	X
Use different types of scientific enquiry to answer scientific questions.	x		X	X	X	x
Use technical terminology with confidence accurately and precisely.	x	x	X	X	X	x
Apply mathematical knowledge to scientific understanding.	x	x	X	X	X	x
Awareness of some of the social and economic implications of science		x	x	x	x	x
IMPACT	Assessment: Paper 1 assessment. Magnification and Transport MP. Maths skills 1 Progression to KS5: 2.2 Basic components of living things. 2.5 Plasma membranes. Scientific enquiry.	Assessment: B1 multiple choice quiz. Breathing and circulatory system MP. Maths skills 2 Progression to KS5: 2.6 Cell division 2.4 Enzymes 3.7 Exchange surfaces and breathing 3.8Transport in animals Scientific enquiry.	Assessment: Paper 1 assessment. B2 multiple choice quiz. Maths skills 3 Progression to KS5: 3.9 Transport in plants 4.12 Communicable diseases Scientific enquiry.	Assessment: B3 multiple choice quiz. Drug trials MP. Maths skills 4 Progression to KS5: 4.12 Communicable diseases 5.17 Energy for biological processes Scientific enquiry.	Assessment: B4 multiple choice quiz. Photosynthesis required practical MP. Maths skills 5 Progression to KS5: 5.17 Energy for biological processes 5.18 Respiration 5.13 Neuronal communication Scientific enquiry.	Assessment: Trial exam – Paper 1 B5 multiple choice quiz. Progression to KS5: 5.13 Neuronal communication 5.14 Hormonal communication 5.15 Homeostasis Scientific enquiry.

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.