

Triple Science: Biology

Key Stage 4: Year 10

Term 1	Overall Curriculum Goals - developing the following Big Ideas: <ul style="list-style-type: none"> • Cells carry out life processes • Bodies work as systems • Organisms interact in communities • Ecosystems cycle matter and energy • Characteristics are inherited • Species show variation 						
	Half Term 1			Half Term 2			
	Enzymes and nutrition Enzyme action and activity <u>Core practical – pH and enzymes (variables, conclusion)</u> Assessment CB1b Close the Gap	<input type="checkbox"/> Cells and Control CB2 <input type="checkbox"/> Mitosis <input type="checkbox"/> Percentile Growth Charts <input type="checkbox"/> Stem Cells	<input type="checkbox"/> The Brain and Spinal Cord <input type="checkbox"/> Nervous System <input type="checkbox"/> Synapses and reflexes	<u>Suggested practical – reaction times (variables, conclusion)</u> <input type="checkbox"/> The Eye Assessment CB2 Close the Gap	<input type="checkbox"/> Genetics CB3 <input type="checkbox"/> Meiosis <input type="checkbox"/> Asexual and sexual reproduction	<input type="checkbox"/> DNA <input type="checkbox"/> <u>Suggested practical -DNA Extraction (Method, safety)</u> Mendel	<input type="checkbox"/> Alleles <input type="checkbox"/> Inheritance <input type="checkbox"/> Genetic diagrams
	Key Vocabulary/Concepts/ideas						
	Half Term 1 enzyme, active site, substrate, denatured, mitosis, interphase, prophase, metaphase, anaphase, telophase, cytokinesis, stem cells, differentiation, synapse, neurones, reflex arc, sensory, relay, motor, myelin sheath, axon, dendron, convex, concave, hypothalamus, PET scan, CT scan			Half Term 2 gametes, meiosis, genome, gene, chromosome, DNA, complementary, bases, hydrogen bonds, alleles, homozygous, heterozygous, dominant, recessive, genotype, phenotype, Punnett squares, inheritance, mutation, variation, continuous, discontinuous,			
Term 2	Half Term 3			Half Term 4			
	<input type="checkbox"/> Sex-linked Genetic Disorders <input type="checkbox"/> Inheritance of Blood Groups • Protein Synthesis	Variation Human Genome Project Assessment CB3 Close the Gap	Natural Selections and Genetic Modification CB4 • Classification • Natural Selection	<input type="checkbox"/> Evidence for Evolution <input type="checkbox"/> Fossil Evidence <input type="checkbox"/> Selective Breeding	<input type="checkbox"/> Tissue Culture <input type="checkbox"/> Genetic Engineering <input type="checkbox"/> Genes in agriculture and medicine	Assessment CB4 Close the Gap	
	Key Vocabulary/Concepts/ideas						
	Half Term 3 alleles, homozygous, heterozygous, dominant, recessive, genotype, phenotype, Punnett squares, inheritance, mutation, variation, continuous, discontinuous, transcription, translation			Half Term 4 evolution, fossils, binomial system, species, classification, <i>Ardipithecus ramidus</i> , <i>Australopithecus afarensis</i> , natural selection, competition, kingdom, genus, domain, eukaryote, archaea, bacteria, artificial selection, selective breeding, genetic engineering, recombinant DNA, restriction enzyme, plasmid, ligase, vector, sticky ends			

	WC 15/04 & 22/04	WC 29/04 & 06/05	WC 13/05 & 20/05	WC 03/06 & 10/06	WC 17/06 & 24/06	WC 01/07 & 08/07	WC 15/07	
Term 3	Health, disease and the development of medicines CB5 • Health and disease • Non-communicable disease • Measures of obesity	<input type="checkbox"/> Cardiovascular Disease <input type="checkbox"/> Viruses and STIs <input type="checkbox"/> Physical and chemical barriers	• The immune system • Immunisation • Monoclonal Antibodies	• Antibiotics and drug development Investigating Antibiotics and Antiseptics	Core practical – aseptic technique and inhibition zones <input type="checkbox"/> Plant Diseases Assessment CB5 Close the Gap	Review Paper 1		
	Key Vocabulary/Concepts/ideas							
	Half Term 5 health, pathogen, communicable, non-communicable, deficiency, cholera, tuberculosis, chalaria dieback, malaria, HIV, AIDS, bacteria, fungi, virus, protist, pathogen, cardiovascular disease, heart attack, body mass index, waist:hip ratio, artery, stroke, antihypertensives, anticoagulants, stent, lymphocyte, antibody, antigen, vaccination, barriers				Half Term 6 inhibition zone, bacteria, trial, double-blind, placebo, aseptic, antibiotic			
CEIAG								
Cultural capital sheets, careers displays, visits, speakers								

Key Stage 4: Year 11

Term 1	Half Term 1						Half Term 2			
	Exchange and transport in animals CB8	<ul style="list-style-type: none"> The heart <u>Suggested practical – heart dissection (risk assessment)</u> Cellular respiration 	<ul style="list-style-type: none"> <u>Core practical – respiration rates (method, variables, conclusion)</u> <p>Assessment CB8 Close the Gap</p> <p>Animal coordination, control and homeostasis CB7</p> <ul style="list-style-type: none"> Hormones 	<ul style="list-style-type: none"> Hormonal control of metabolic rate Hormones and the menstrual cycle Controlling fertility 	<ul style="list-style-type: none"> Control of blood glucose Type 2 diabetes <u>Suggested practical – testing for glucose (method, conclusion)</u> 	Thermoregulation Osmoregulation and the kidneys	Assessment CB7 Close the Gap			
	Half Term 1 gas exchange, respiration, aerobic, anaerobic, alveoli, plasma, platelets, lymphocytes, erythrocytes, haemoglobin, antibodies, atria, ventricle, artery, capillary, vein, cardiac output, stroke volume			Half Term 2 hormones, endocrine, pituitary, thyroid, adrenal, pacers, testes, ovaries, metabolic rate, thyroxine, adrenaline, menstrual cycle, FSH, oestrogen, LH, progesterone, ovulation, menstruation, diabetes, insulin, pancreas, glucose, glycogen, glucagon, homeostasis						
	Half Term 3						Half Term 4			
Plant structures and their functions CB6	<ul style="list-style-type: none"> Absorbing water and mineral ions Transpiration and translocation Plant hormones <p>Assessment CB6 Close the Gap</p>	<p>Ecosystems and material cycles CB9</p> <ul style="list-style-type: none"> Ecosystems Abiotic factors and communities <u>Core practical – Quadrats and transects (method, calculations)</u> 	<ul style="list-style-type: none"> Biotic factors and communities Parasitism and mutualism Biodiversity and humans Preserving biodiversity 	<ul style="list-style-type: none"> Water cycle Carbon cycle Nitrogen cycle Indicator Species 	Decomposition	Assessment CB9 Close the Gap				
Half Term 3 photosynthesis, glucose, biomass, producer, chloroplast, endothermic, stomata, guard cell, limiting factors, inverse square law, root hair cell, diffusion, osmosis, active transport, xylem, phloem, transpiration, translocation			Half Term 4 ecosystem, community, population, habitat, interdependent, abundance, quadrat, belt transect, biotic, abiotic, competition, predation, mutualism, parasitism, eutrophication, indigenous, non-indigenous, biodiversity, conservation, water cycle, desalination, potable, carbon cycle, nitrogen cycle, crop rotation							

	Half Term 5	Half Term 6
Term 3		