Biology KS5 Curriculum Plan

		Autumn	Spring	Summer
12	Teacher 1	**Ch1 Biological molecules** Carbohydrates, lipids, proteins, food tests, colorimetry, enzymes including induced fit, factors affecting and inhibition ***RP1 Enzyme Action*** **Ch6 Exchange** Surface area to volume ratio, single celled organisms, insects, fish and humans, plants – limiting water loss, digestion and absorption	**Ch5 Cell recognition and the immune system** Defence, phagocytosis, cell mediated immunity, humoral immunity, antibodies, vaccination, ELISA, ***HIV RP6A and B – antibiotic discs and dilution series.*** **Ch7 Mass transport** Haemoglobin, circulatory system, heart structure and cardiac cycle, blood vessels, transport of water in xylem and food in phloem, potometer experiment ***RP5 Dissection (heart or celery)***	**AS / Y13 entrance exams** Revision **Ch19 populations in ecosystems** Definitions, competition, predation, succession, conservation, ecological techniques ***RP12 - ecology***
	Teacher 2	**Ch3 Cell structure** Microscopes, calculations, pro & eukaryotic and viral structure, mitosis, cell cycle, binary fission, viral reproduction, ***RP2 – Cell Division*** **Ch4 Transport across cell membranes** Membrane structure, diffusion, facilitated diffusion, osmosis, active transport, cotransport ***RP3 – Osmosis*** **Ch 2 Nucleic acids** Structure, DNA replication, ATP, water	**Ch8 DNA genes and protein synthesis** Triplet code, chromosomes, RNA structure, transcription, splicing, translation ***RP4 - membranes*** **Ch9 Genetic diversity** Mutations, meiosis – crossing over and independent assortment, genetic diversity, selection. **Ch10 Biodiversity** Taxonomy, courtship, species richness, species diversity, effects of human activity, measuring diversity – DNA, mRNA, proteins, quantitative diversity.	
	9th lesson	Biological drawing, Maths skills, tables and graphs, standard deviation, correlation coefficient,	Chi Squared, T-test, statistics summary, uncertainties, pH calculations, maths skills summary and questions, exam skills.	
13	Teacher 1	**Ch13 Energy and ecosystems** Energy transfer, productivity, cycles, fertilizers and issues. **Ch11 photosynthesis** Light dependent and independent reactions, ***RP7 Chromatography RP8 Dehydrogenase/Chloroplasts*** **Ch12 Respiration** Glycolysis, link reaction Krebs cycle, oxidative phosphorylation, anaerobic respiration RP9 yeast respiration	**Ch20 gene expression** Mutations, stem cells, regulation of transcription and translation, epigenetics, cancer, genome projects **Ch21 Recombinant DNA technology** DNA fragments, vectors, PCR reaction, locating genes, screening and counselling, genetic fingerprinting	Structured revision to include revisiting all ***required practical (AS and A level)***
	Teacher 2	**Ch17 Inherited change** Monohybrid, dihybrid, multiple alleles, codominance, sex linkage, autosomal linkage epistasis, using chi squared in genetics. **Ch18 populations and evolution** Hardy Weinberg, natural selection, evolution, speciation **Ch15 Nervous coordination and muscles** Neurone structure, resting and action potential, speed of impulse, synapses, muscle structure and function	**Ch14 Response to stimuli** Taxes, kinesis and tropisms, plant growth factors, reflex arc, receptors, generator potential, heart rate ***RP10 Choice Chamber*** **Ch16 Homeostasis** Feedback mechanisms and principles, blood glucose, diabetes, blood water potential, nephron structure and osmoregulation, ADH ***RP11 Blood Glucose***	 ***Link t0 programme of study***
	5th lesson	AS maths audit and skills, exam structure including assessment objectives, data analysis, investigative design, statistics review, synoptic skills, essay planning and writing skills	Essay writing, exam strategies, stats review, A level maths skills, structured revision	