Bilton School Planning for Progress over Time
Programme of Study 2024/25

IMPLEMENTATION

	Term 1								Term 2							Term 3								Term 4								Term 5				Term 6						
KS3	02/09/2024	09/09/2024	16/09/2024	23/09/2024	30/09/2024	07/10/2024	14/10/2024	21/10/2024	**HOLIDAY: 1 WEEK**	04/11/2024	11/11/2024	18/11/2024	25/11/2024	02/12/2024	09/12/2024	16/12/2024	**HOLIDAY: 2 WEEKS**	03/01/2025	06/01/2025	13/01/2025	20/01/2025	27/01/2025	03/02/2025	10/02/2025	**HOLIDAY: 1 WEEK**	24/02/2025	03/03/2025	10/03/2025	17/03/2025	24/03/2025	31/03/2025	07/04/2025	**HOLIDAY: 2 WEEKS**	28/04/2025	05/05/2025	12/05/2025	19/05/2025	**HOLIDAY: 1 WEEK**	02/06/2025	09/06/2025	16/06/2025	23/06/2025	30/06/2025	07/07/2025	14/07/2025
Year 13 Biology LXR (2hr/wk) ZCM (2hr/wk)	No lessons	5.A.2. Introduction to photosynthesis and Photosynthetic pigments 5.B.1 Energy transfer in ecosystems, 5.b.2 Farming	RP7&RP10 prep, 5.B.4 5.B.3 Nutrient cycles	RP 7 Chromatography Fertilisers and eutrophication, Topic 5B ETT	5.A.1 Structure of chloroplasts, 5.A.2 LDR Topic 6A recap	5.A.3.LIR, 5.A.4 factors affecting photosynthesis 6.B.1 Neurones, 6.B.2 Synaptic transmission	RP 1- Choice chambers 6.B.3 Muscle structure, 6.B.4 Muscle contraction	5.A.6 Aerobic and anaerobic respiration 5.A.7 Aerobic respiration, 6.C.1 Homeostasis basics, 6.C.2 Control of blood glucose		RP 9 Yeast, 6.C.3 Diabetes, 6.C.4 Kidneys	RP8 DCPIP 6.C.5 Controlling blood water potential, PPE Prep	PPE 1	PPE 1	PPE1 Reteach/review	RP Glucose in urine 7.A.1 Genetic terminology, 7.A.2 monohybrid crosses,	RP Membrane permeability .A.3 Multiple allele and dihybrid crosses, 7.A.4 Linkage		7.C.1 Ecosystems, 7.C..2 Variation in population size,.7A.5 Epistasis7.A.5 Chi-squared test	7.C.3 Investigating populations 7.C.4 Succession, 77B.1 Hardy-Weinberg Principle,.B.2 Variation and selection	7.C.5 Conservation 7.C.6 Conservation evidence and data77.B.3 Speciation and genetic drift6 RP Quadrats	Topic 5.A and 7.C ETT, 8.A.1 Mutations, Topic 6C and 7AETT, .8.B.1 Genome projects,	8.A.2 Mutagenic agents,8.A.3 Cancer, 8.b.2 Making DNA fragments 8.B.3 Amplifying DNA fragments.	8.A.5 Stem cells, 8.A.6 Stem cells in medicine, 8.A.4 Interpreting data on cancer,8.b.5 Gene therapy, 8.B.4 Recombinant DNA Technology,	8.A.8 Regulation of transcription and translation 8.A.9 Epigenetic control 8.a.9 Evaluating data on phenotypes, 8.b.6 probes and medical diagnosis 8.B.7 Genetic fingerprinting		PPE 2	PPE 2	PPE2 Reteach/.review	Essay practice, Biological molecules and cell structure revision	Essay practice, Immunity, transport and exchange systems	DNA, RNA, Protein synthesis and diversity, energy transfer, nutrient cycles and stimuli and responses	Photosynthesis and respiration and Populations in ecosystems revision, Nerves and homeostasis		mutation and gene expression and genome projects and gene technologies, Genetics and populations	5th June Paper 1	13th June Paper 2	18th June Paper 3							
Progress and assessment	End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.								PPEs Follow on questions to test previous knowledge through the Unit.							End of topic test (ETT) Follow on questions to test previous knowledge through the Unit.								PPEs Follow on questions to test previous knowledge through the Unit.								Terminal examinations									
Required Practical (RP)	**RP 7 Use of chromatography to investigate the pigments isolated from leaves of different coloured plants** **RP 10 Investigation into the effect of an environmental variable on the movement of an animal using choice chambers or a maze**								**RP8 Investigation into the effect of a named factor on the rate of dehydrogenase activity in extracts of chloroplast** **RP 9 Investigation into the effect of a named variable on the rate of respiration of cultures of single-celled organisms (Yeast)** **RP 11 Production of a dilution series of a glucose solution and use of colorimetric techniques to produce a calibration curve with which to identify the concentration of glucose in an unknown 'urine' sample** **RP4 The effect of alcohol concentration on the leakage of pigment from beetroot cells**							**RP 12 Investigation into the effect of a named environmental factor on the distribution of a given species (u9sing quadrats)**																									
Homework *(ensure that this is NOT stand alone, but clearly advances or embeds knowledge and understanding)*	Uplearn								Uplearn							Uplearn								Uplearn								Uplearn										

Key Vocabulary/literacy opportunities	Topic 5 keywords Consumers, Denitrification, Denitrifying bacteria, Ecosystem, Efficiency of energy transfer, Electron acceptor, Electron transfer chain, Eutrophication, FAD, Food chain, Food web, Glycerate 3-phosphate (GP), Glycolysis, Gross primary production (GPP) Herbivores, Krebs cycle, Leaching, Light-dependent reaction, Light-independent reaction, Limiting factor, Link reaction, Mycorrhizae, NAD, NADP, Natural fertilisers, Net primary productivity (NPP), Net production of consumers Nitrification, Nitrifying bacteria, Nitrogen cycle, Nitrogen fixation, Nitrogen-fixing bacteria, Oxidation, Oxidative phosphorylation, Phosphorus cycle, Photoionisation, Photolysis, Photosynthesis, Primary productivity, Producers, Pyruvate, Reduction, Ribulose bisphosphate (RuBP), Rubisco, Saprobionts, Secondary productivity, Substrate-level phosphorylation, Triose phosphate (TP), Trophic level Topic 6 keywords Acetylcholine, Actin, Actinomyosin bridge, Action potential, Adenylate cyclase, Adrenaline, Afferent arteriole, All-or-nothing, Anisotropic (A) bands, Antagonistic muscles, Antidiuretic hormone (ADH), Ascending limb, Atrioventricular node (AVN), Atrioventricular septum, Autonomic nervous system, Auxins, Axon, Bundle of His, Cell body, Central nervous system (CNS), Chemoreceptor, Cholinergic synapse, Collecting duct, Cone cells, Control mechanism, Coordinator, Cyclic AMP (cAMP), Dendrites, Dendrons, Depolarisation, Descending limb, Diabetes, Distal convoluted tubule, Effector, Efferent arteriole, Excitatory synapse, Fast-twitch muscle fibres, Feedback mechanism, Fovea, Generator potential, Glomerular filtrate, Glomerulus, Glucagon, Gluconeogenesis, Glycogenesis, Glycogenolysis, Gravitropism, Homeostasis, Hormones, Hyperpolarisation, Hypothalamus, H-zone, Indoleacetic acid (IAA), Inhibitory synapse, Intermediate neurone, Iodopsin, Islets of Langerhans, Isotropic (I) bands, Kinesis, Loop of Henle, Medulla oblongata, Motor neurone, Myelin sheath, Myofibrils, Myogenic, Myosin, Myosin binding site, Negative feedback, Negative tropism, Nephron, Nerve impulse, Neuromuscular junction, Neurones, Neurotransmitters, Nodes of Ranvier, Optic nerve, Optimum point, Osmoreceptors, Osmoregulation, Pacinian corpuscle, Parasympathetic nervous system, Peripheral nervous system (PNS), Phosphocreatine, Phototropism, Plant growth factors, Polarisation, Positive feedback, Positive tropism, Posterior pituitary gland, Postsynaptic neurone, Pressure receptors, Presynaptic neurone, Protein kinase, Proximal convoluted tubule, Purkyne tissue, Receptor, Reflex, Reflex arc, Refractory period, Renal (Bowman's) capsule, Repolarisation, Response, Resting potential, Retin, Rhodopsin, Rod cells, Saltatory conduction, Sarcomere, Sarcoplasm, Schwann cells, Second messenger model, Sensory neurone, Sinoatrial node (SAN), Skeletal muscle, Sliding filament theory, Slow-twitch muscle fibres, Sodium-potassium pump, Spatial summation, Stimulus, Stretch-mediated sodium channel, Summation, Sympathetic nervous system, Synaptic cleft, Synaptic vesicles, Target cells, Taxis, Temporal summation, Threshold value, Transducer cells, Tropism, Tropomyosin, Unidirectionality, Visual acuity, Z-line.		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Topic 7 keywords Abiotic factors, Adaptation, Allele, Allele frequency, Allopatric speciation, Autosomal linkage, Autosome, Belt transect, Biodiversity, Biotic factors, Carrying capacity, Chi-squared test, Climax community, Codominant, Community, Conservation, Dihybrid		Topic 7 keywords Abiotic factors, Adaptation, Allele, Allele frequency, Allopatric speciation, Autosomal linkage, Autosome, Belt transect, Biodiversity, Biotic factors, Carrying capacity, Chi-squared test, Climax community, Codominant, Community, Conservation, Dihybrid inheritance, Diploid, Directional selection, Disruptive selection, Dominant, Ecosystem, Epistasis, Evolution, Gene, Gene pool, Genetic drift, Genetic variation, Genotype, Habitat, Hardy-Weinberg principle, Heterozygous, Homozygous, Interspecific competition, Intraspecific competition, Locus, Mark-release-recapture, Monohybrid inheritance, Multiple alleles, Natural selection, Niche, Phenotype, Pioneer species, Population, Predator, Prey, Quadrat, Random sampling, Recessive, Selection pressures, Sex-linkage, Speciation, Species, Stabilising selection, Succession, Sustainable, Sympatric speciation, Systematic sampling, Variation Topic 8 keywords Acetylation, Addition, Benign, Cancer, Cellular proteome, Complementary DNA (cDNA), Complete proteome, Deletion, Differentiation, DNA hybridisation, DNA ligase, DNA polymerase, DNA probe, DNA sequencing, Duplication, Epigenetics, Frameshift mutation, Gel electrophoresis, Gene machine, Gene mutation, Gene therapy, Genetically modified organism (GMO), Genetic counselling, Genetic fingerprinting, Genetic screening, Genome, Hypermethylation, Hypomethylation, Induced pluripotent stem (iPS) cells, Inversion, In vitro, In vivo, Malignant, Marker genes, Metastasis, Methylation, Multipotent cells, Mutagenic agent, Mutation, Mutation rate, Non-coding DNA, Oestrogen, Oncogenes, Personalised medicine, Pluripotent cells, Polymerase Chain Reaction (PCR), Primers, Promoter, Proto-oncogenes, Recognition sequences, Recombinant DNA, Recombinant DNA technology, Restriction endonucleases, Reverse transcriptase, Risk factor, RNA interference (RNAi), Silent mutation, Stem cells, Sticky ends, Substitution, Terminator, Thermocycler, Totipotent cells, Transformation, Tumour, Tumour suppressor genes, Transcriptional factors, Transgenic organism, Translocation of bases, Unipotent cells, Variable number tandem repeats (VNTRs), Vector, Whole-genome shotgun (WGS) sequencing					

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Connected knowledge	KS3 – Cells Exercise investigation Photosynthesis and respiration KS4 – Cell structure Carbon cycle Photosynthesis Respiration		KS3 – Genetics and variation KS4 – Homeostasis Genetics Genetic crosses		KS3 – Ecosystems KS4 – Investigating ecosystems Genetics						
Spiritual, Moral, Social and cultural.	Ethics of using choice chambers				Stem cell and epigenetics viewpoint						
British Values	Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.		Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.		Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.		Respect and tolerance, collaboration during experiments and group work. Following the laboratory rules when conducting practical work.				
Cultural Captial	Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.		Science - Careers display on W side corridor.