

Year 12 Biology	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	<p>Biological Molecules</p> <ul style="list-style-type: none"> Carbohydrates Lipids Proteins Chemical Tests Enzymes <p>Cells</p> <ul style="list-style-type: none"> Eukaryotic Cells Prokaryotic Cells Microscopes Cell fractionation Cell cycle Cancer 	<p>Biological Molecules</p> <ul style="list-style-type: none"> DNA and RNA ATP Water and Ions <p>Cells</p> <ul style="list-style-type: none"> Membranes Transport Mechanisms <p>Immunity</p> <ul style="list-style-type: none"> Phagocytosis Cell mediated response Humoral response Vaccination ethics HIV Monoclonal antibodies 	<p>Gas Exchange and Mass Transport</p> <ul style="list-style-type: none"> Digestive system Gas Exchange – Fish Gas exchange – Insects Gas exchange – Humans Circulatory system <p>Genetics, Protein synthesis and variation</p> <ul style="list-style-type: none"> Genes Transcription Translation Meiosis Natural Selection 	<p>Gas Exchange and Mass Transport</p> <ul style="list-style-type: none"> Haemoglobin Bohr effect Blood vessels Tissue Fluid Gas exchange – plants Transpiration Potometer use Translocation <p>Taxonomy and Diversity</p> <ul style="list-style-type: none"> Taxonomy Courtship behaviour Diversity Investigating Diversity 	<p>Consolidation of knowledge</p> <p>Biological Essay writing</p>	<p>Photosynthesis</p> <ul style="list-style-type: none"> Light dependent reactions Light independent reactions <p>Nervous system</p> <ul style="list-style-type: none"> Pacinian Corpuscle Rods and Cones Cardiac control Chemo and Baroreceptors Resting potential Action potential Speed of conduction
Numeracy in Biology	<ul style="list-style-type: none"> Unit manipulation Decimal and standard form Significant figures Rate calculations Magnification calculations Algebraic manipulation Percentage change Mitotic Index 	<ul style="list-style-type: none"> Concentration calculations Uncertainty Graphs Determining intercept values Rate calculations from graph tangents Algebraic manipulation Frequency of bases 	<ul style="list-style-type: none"> Chromosome combination calculations Logarithmic scales Graphs Dilution series calculations 	<ul style="list-style-type: none"> Surface area: volume Geometry Pulmonary Ventilation Rate Cardiac output Algebraic manipulation Diversity Index calculation Standard deviation and Range Principles of sampling Graphs 	<ul style="list-style-type: none"> Numeracy skills consolidation Unit manipulation Decimal and standard form Significant figures Algebraic manipulation Logarithmic scales Graphs Uncertainty Geometry 	<ul style="list-style-type: none"> Speed of conduction Graphs
Practical Skills	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions Microscope use Biological drawing Stain and qualitative reagent use 	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions Colorimeter use 	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions Dissection Aseptic Techniques Biological drawing 	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions 	<ul style="list-style-type: none"> Graph plotting and interpretation Drawing conclusions 	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions Chromatography
Required Practicals	RP1: Enzyme Controlled Reactions RP2: Mitotic Index	RP3: Osmosis RP4: Membrane Permeability	RP5: Dissection RP6: Microbial Growth	-	-	RP7: Chromatography RP8: Dehydrogenase action
Independent Learning Link	Biological Molecules Cells	Immunity	Gas Exchange and Mass Transport	Genetics, Protein synthesis and variation Taxonomy and Diversity	-	Photosynthesis Nervous system

Year 13 Biology	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Knowledge	<p>Photosynthesis</p> <ul style="list-style-type: none"> Recap of Photosynthesis <p>Respiration</p> <ul style="list-style-type: none"> Glycolysis Krebs, Link reactions Oxidative phosphorylation <p>Nervous system</p> <ul style="list-style-type: none"> Recap of Nervous system transmission Synapse Drug and poison synapse manipulation Inhibitory synapses NMJ Muscles 	<p>Energy and Ecosystems</p> <ul style="list-style-type: none"> Energy transfer GPP and NPP Farming efficiency Phosphorous cycle Nitrogen cycle <p>Homeostasis</p> <ul style="list-style-type: none"> Pancreas – control of blood glucose Diabetes Ethics of organ donation Kidney Ultrafiltration Selective reabsorption Osmoregulation <p>Response</p> <ul style="list-style-type: none"> Taxis and Kinesis Plant responses 	<p>Inheritance and variation</p> <ul style="list-style-type: none"> Monohybrid Codominance Sex linkage Dihybrid Epistasis Autosomal linkage Hardy Weinberg Natural selection Speciation Genetic drift <p>Gene Expression</p> <ul style="list-style-type: none"> Mutations Stem Cells Ethics of Stem Cell research Transcription factors Epigenetics Cancer Small interfering RNA 	<p>Populations in ecosystems</p> <ul style="list-style-type: none"> Biotic and Abiotic factors Competition Predator Prey cycles Sampling techniques Succession Conservation Ethics of conservation <p>Gene Technology</p> <ul style="list-style-type: none"> In-vivo engineering In-vitro engineering- PCR Ethics of GM Crops Ethics of Gene Therapy DNA probes Genetic fingerprinting <p>Biological Essay writing</p>	<p>Consolidation of knowledge</p> <p>Biological Essay writing</p>	-
Numeracy in Biology	<ul style="list-style-type: none"> Rate calculations Algebraic manipulation 	<ul style="list-style-type: none"> Concentration calculations Graphs Algebraic manipulation Rate calculations Chi-squared statistical test 	<ul style="list-style-type: none"> Probability Graphs Algebraic manipulation 	<ul style="list-style-type: none"> Mark-release-recapture Chi-squared statistical test Student T Test statistical test Spearman's Rank statistical test Graphs Logarithmic scales 	<ul style="list-style-type: none"> Numeracy skills consolidation 	-
Practical Skills	<ul style="list-style-type: none"> Identifying and controlling variables Safe experimental design Graph plotting and interpretation Drawing conclusions 	<ul style="list-style-type: none"> Safe experimental design Graph plotting and interpretation Drawing conclusions Dissection Biological drawing 	<ul style="list-style-type: none"> Ethical use of animals Drawing conclusions 	<ul style="list-style-type: none"> Identifying and controlling variables Graph plotting and interpretation Drawing conclusions 	<ul style="list-style-type: none"> Practical skills consolidation 	-
Required Practicals	RP9: Yeast Respiration	RP10: Kinesis RP11: Glucose Control	-	RP12: Species Distribution	-	-
Independent Learning Link	Respiration Nervous system	Homeostasis Energy and Ecosystems	Inheritance Gene Expression	Gene Technology Populations in ecosystems	-	-