



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Year 12 Teacher 1 ERY 12A (6) 12B (6)</p>	<p>Unit: Biological molecules</p> <p>Wk 1: Introduction to biological molecules, carbohydrates and monosaccharides</p> <p>Wk 2: Disaccharides and polysaccharides. Condensation and hydrolysis, formation of glycosidic bonds, Practical - test for reducing and non-reducing sugars</p> <p>Wk 3: Starch, glycogen and cellulose structure and function. Practical – test for starch. Review of carbohydrates.</p> <p>Wk 4: Carbohydrates test. Introduction to lipids. Roles of lipids. Triglycerides and phospholipids. Formation of ester bonds. Practical – emulsion test for lipids</p> <p>Wk 5: Lipids test. Introduction to proteins. Structure of an amino acid, formation of peptide bonds. Primary, secondary, tertiary, quaternary structure of proteins. Practical – test for proteins.</p> <p>Wk 6: Introduction to enzymes – activation energy, enzyme structure,</p>	<p>Unit: Nucleic acids and exchange</p> <p>Wk 1: structure of RNA and DNA, DNA replication</p> <p>Wk 2: Energy and ATP, water and its functions – practical investigating properties of water</p> <p>Wk 3: Biological molecules review and assessment.</p> <p>Wk 4: Exchange between organisms and their environment, gas exchange in single-celled organisms and insects</p> <p>Wk 5: Gas exchange in fish. Required practical 5 – Option 1 Fish head dissection</p> <p>Wk 6: Gas exchange in the leaf of a plant. Limiting water loss</p>	<p>Unit: Exchange and Mass transport</p> <p>Wk 1: Trial exams.</p> <p>Wk 2: the mechanism of breathing, gas exchange in the lungs. Application questions – Correlations and causal relationships, risk factors for lung disease</p> <p>Wk 3: Enzymes and digestion, absorption of the products of digestion</p> <p>Wk 4: Review Chapter 6 - Exchange. Exchange test</p> <p>Wk 5: Haemoglobin, transport of oxygen by haemoglobin (oxygen dissociation curves)</p> <p>Wk 6: Circulatory system of a mammal, the structure of the heart – Required</p>	<p>Unit: Mass transport</p> <p>Wk 1: The cardiac cycle</p> <p>Wk 2: blood vessels and their function, tissue fluid formation</p> <p>Wk 3: transport of water in the xylem. Practical - potometer</p> <p>Wk 4: Transport of organic substances in the phloem</p> <p>Wk 5: Investigating transport in plants.</p> <p>Wk 6: Mass Transport Review and assessment</p>	<p>Unit: Populations and ecosystems</p> <p>Wk 1: Review Bio mols, exchange and mass transport</p> <p>Wk 2: Assessment – Bio Mols, Exchange, Mass Transport</p> <p>Wk 3: Populations in ecosystems, variation in population size, human populations</p> <p>Wk 4: Competition, predation</p> <p>Wk 5: Investigating populations. Mark-release-recapture modelling with Skittles.</p> <p>Wk 6: Investigating populations – work in preparation for field trip and Required Practical 12</p>	<p>Unit: Populations and ecosystems</p> <p>Wk 1: Succession</p> <p>Wk 2: Conservation of habitats</p> <p>Wk 3: Review Chapter 19 – Populations in ecosystems</p> <p>Wk 4: Field Trip to Blencathra</p> <p>Wk 5: Hand in Required practical 12 from Field Trip. Year 12 review/catch up</p> <p>Wk 6: Year 12 review/catch up</p>

	<p>induce fit model of enzyme action.</p> <p>Wk 7: factors affecting enzyme action Required practical 1 – investigation into the effect of a named variable on the rate of an enzyme controlled reaction.</p>	<p>Wk 7: structure of the human gas exchange system – Required practical 5 – Option 2 Lung dissection</p>	<p>Practical 5 – Option 3 Heart dissection</p>			
Final Assessment:		<p>Biological molecules test</p>	<p>Trial exam</p>	<p>Mass Transport test</p>	<p>Biological molecules, exchange and mass transport test</p>	<p>Populations in Ecosystems test</p>

	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12 Teacher 2 HMY 12A (4) 12B (4)	Unit: Cell Structure	Unit: Cell Cycle and Mitosis, Cell transport	Unit: Cell recognition and the immune system	Unit: DNA, genes and protein synthesis	Unit: Genetic diversity	Unit: Biodiversity
	Wk 1: Introduction to eukaryotic cell structure	Wk 1: Mitosis required practical	Wk 1: Trial exams.	Wk 1: Immunology test	Wk 1: Mutations, meiosis and genetic variation	Wk 1: Diversity within a community
	Wk 2: Specialised cells and prokaryotic cells	Wk 2: Cell division in bacteria and viruses	Wk 2: Defence mechanisms and phagocytes	Wk 2: Genes and the genetic code	Wk 2: Genetic diversity and adaptation	Wk 2: Species diversity and investigating diversity
	Wk 3: Viruses and microscopes	Wk 3: Cell cycle and mitosis test	Wk 3: Lymphocytes and cell mediated immunity	Wk 3: DNA and chromosomes and RNA	Wk 3: Types of selection	Wk 3: Biodiversity test
	Wk 4: Microscope required practical	Wk 4: Cell membranes	Wk 4: B lymphocytes and humoral immunity	Wk 4: Transcription and splicing	Wk 4: Genetic diversity and adaptation test	Wk 4: Field Trip to Blencathra
	Wk 5: Cell fractionation	Wk 5: Diffusion and osmosis	Wk 5: Antibodies and vaccinations	Wk 5: Translation	Wk 5: Biodiversity and courtship	Wk 5: Hand in Required practical 12 from Field Trip. Year 12 review/catch up
	Wk 6: Cell structure test	Wk 6: Active transport	Wk 6: HIV and AIDS	Wk 6: Genetic information and variation test	Wk 6: Taxonomy and phylogeny	Wk 6: Year 12 review/catch up
	Wk7: Mitosis overview	Wk 7: Co-transport				
Final Assessment:	Cell structure test	Cell cycle and mitosis test	Trial exam	Immunology test	Genetic diversity and adaptation test	Biodiversity test

Curriculum Area: Biology



	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 13 Teacher 1 ERY 13A (5) 13B (4)	Unit: Photosynthesis	Unit: Respiration	Unit: Response to stimuli, Nervous coordination	Unit: Nervous coordination, homeostasis	Unit: Revision	Unit: Examinations
	Wk 1: Overview of photosynthesis, structure of leaf, structure and role of chloroplasts	Wk 1: Glycolysis, Link Reaction and Krebs cycle	Wk 1: Plant growth factors, role of auxins;. Application questions discovering the role of IAA	Wk 1: structure and function of synapse, transmission across synapse	Wk 1: role of nephron and hormones in osmoregulation.	Wk 1: Examinations
	Wk 2: Required practical 7 – chromatography	Wk 2: Oxidative phosphorylation	Wk 2: A reflex arc, receptors	Wk 2: structure of skeletal muscle, contraction of skeletal muscle	Wk 2: Review chapter 16 and assessment	Wk 2: Examinations
	Wk 3: The light-dependent reaction	Wk 3: Trial Exam	Wk 3: Control of heart rate, Review chapter 14	Wk 3: Review – Nervous coordination and Assessment	Wk 3: Revision	Wk 3: Examinations
	Wk 4: The light-independent reaction. Required practical 8 – Dehydrogenase	Wk 4: Required practical 9 – Respiration in single-celled organisms	Wk 4: Response to stimuli test	Wk 4: Principles of homeostasis, feedback mechanisms	Wk 4: Examinations	Wk 4: Examinations
	Wk 5: Review Photosynthesis	Wk 5: Anaerobic respiration, Respiration Review	Wk 5: Neurones, nerve impulse	Wk 5: Hormones and blood glucose, diabetes	Wk 5: Examinations	Wk 5: Examinations
	Wk 6: Assessment— Photosynthesis Wk 7: Respiration, Glycolysis	Wk 6: Respiration test Wk 7: Survival and response, taxes, kineses, tropisms. Required practical 10 – choice chambers	Wk 6: action potentials, speed of nerve impulse	Wk 6: Kidney and nephron structure. Required practical 11 – Identifying con ^c pf glucose in unknow sample	Wk 6: Examinations	Wk 6: Examinations
Final Assessment:	Photosynthesis test	Trial exam	Respiration test	Nervous coordination		

	Autumn1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 13 Teacher 2 HMY 13A (4) 13B (5)	Unit: Inherited Change	Unit: Populations and evolution	Unit: Energy and ecosystems	Unit: gene expression and recombinant DNA technology	Unit: Revision	Unit: Examinations
	Wk 1: studying and monohybrid inheritance	Wk 1: population genetics	Wk 1: nutrient cycles – nitrogen, phosphorus	Wk 1: Epigenetics part 1 and 2	Wk 1: Revision	Wk 1: Examinations
	Wk 2: probability and genetic crosses; dihybrid inheritance	Wk 2: variation in phenotypes and natural selection	Wk 2: Use of artificial fertilisers. Environmental issues concerning use of nitrogen-containing fertilisers	Wk 2: Gene expression and cancer and genome projects	Wk 2: Revision	Wk 2: Examinations
	Wk 3: co-dominance and multiple inheritance	Wk 3: Trial exam	Wk 3: Energy and ecosystems test	Wk 3: Producing DNA fragments	Wk 3: Revision	Wk 3: Examinations
	Wk 4: sex linkage and autosomal linkage	Wk 4: effects of selection and isolation and speciation.	Wk 4: gene expression and mutation	Wk 4: in vivo and vitro cloning	Wk 4: Examinations	Wk 4: Examinations
	Wk 5: epistasis	Wk 5: Populations and evolution test	Wk 5: stem cells and totipotency	Wk 5: genetic screening and fingerprinting	Wk 5: Examinations	Wk 5: Examinations
	Wk 6: chi-squared test Wk 7: Inherited change test	Wk 6: Food chains and energy transfer Wk 7: energy transfer and productivity. Productivity and farming practices	Wk 6: regulation of transcription and translation	Wk 6: gene expression and recombinant DNA technology test	Wk 6: Examinations	Wk 6: Examinations
Final Assessment:	Inherited change test	Trail exam	Energy and ecosystems test	gene expression and recombinant DNA technology test		

