

Year 13 Biology Sequence

	Content	Reference	Essential Knowledge		Assessment	Rationale
	Taught					
In year						
opportu	unity to learn new know					
essentia	al knowledge for the se	cond year of	the key stage 5 curriculum and challer	nges students	to apply this knowledge in	
many n	ew situations					
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HT1	Energy Transfer in and	3.5.2	Glycolysis.	Formative A	ssessment:	
	between organisms.	3.5.3	Link Reaction and Krebs Cycle.	Daily, Week	ly and Monthly Reviews	The energy transfer in and
	This unit continues		Oxidative phosphorylation.	focussing on	reviewing material on	between organisms unit –
	from YR12 and		Anaerobic Respiration.	Essential Kno	owledge.	respiration. This unit further
	interlinks the process	of	Food chains and energy transfer.			explores the transfer of energy
	photosynthesis with		Nutrient cycles.	Use of TLaC	techniques in lessons to	between organisms and energy
	respiration. Respiration	on	Fertilisers and environmental	check pupil	understanding of essential	flow within cycles. Prior learning
	is covered in detail and	b	issues.	knowledge o	during each lesson.	at KS4 on the topic of respiration
	how energy is cycled					and cycles within ecosystems s
	within this process.		Essential knowledge reading for	Pupils are ch	nallenged with application	supports and underpins learning
	Energy cycles within		consolidation:	questions th	at 'bring the essential	in this unit. Biological molecules
	ecosystems are also		AQA 5-Energy-Transfers-In-and-	knowledge o	of the topic together.'	studied in HT1 also supports
	studied and		Between-Organisms Summary			learning of this unit. This unit
	environmental issues		<u>Notes</u>	End of topic	Summative Assessments:	further supports continued
			(physicsandmathstutor.com)			learning in the course linking

concerning cycling of			A range topic assessments followed by a	respiration to muscle contraction
nutrients discussed.			final end of unit exam.	and nervous coordination.
			Assessments are based upon the	
			application of the essential knowledge	
			that links ideas together throughout	The organisms respond to
			each topic.	changes in their environments
				This unit allows study in depth of
				nervous coordination and
				muscles within biological
		Neurones and nervous		organisms. Prior learning of the
	3.6.2	coordination.		nervous system at KS4 and in HT6
Organisms respond to	3.6.3	Nerve impulses.	Formative Assessment:	YR12 with the reflex arc in more
changes in their		Speed and action of nerve	Daily, Weekly and Monthly Reviews	depth underpins the study of this
environments.		impulses.	focussing on reviewing material on	unit. This unit supports further
This unit looks at		Synaptic transmission.	Essential Knowledge.	learning of homeostasis in Yr13
biological organisms		Structure and contraction of		HT2 when studying the
and their responses to		skeletal muscle.	Use of ILaC techniques in lessons to	interaction of the nervous and
stimuli within their			check pupil understanding of essential	endocrine systems to bring about
environments. This		Essential knowledge reading for	knowledge during each lesson.	homeostasis.
part of the unit		consolidation:	Durile and shallower doubt any lighting	
continued from YR12		AQA 6-Responding-to-Changes-	Pupils are challenged with application	
HT6 focuses upon the		In-the-Environment Summary	questions that bring the essential	The stress stress is a latter of
nervous system,		Notes	knowledge of the topic together.	The unit genetics, populations,
nervous coordination		(physicsandmathstutor.com)	End of tonic Summative Accessments:	evolution and ecosystems is
and muscles.			A range tonic assessments followed by a	the following units Inheritance
			final end of unit exam	and variation, evolution
			Assessments are based upon the	nonulations and ecosystems. The
			application of the essential knowledge	study of biological molecules in
			that links ideas together throughout	YR12 HT2 of DNA and nucleic
			each topic.	acids and of DNA genes and
			, -	protein synthesis, genetic

					diversity in YR12 HT4 and HT5
					also supports learning in this unit.
					This unit further explores genetic
HT2	Genetics, populations,	3.7.1	Monohybrid/dihybrid	Formative Assessment:	inheritance and factors that
	evolution and		inheritance.	Daily, Weekly and Monthly Reviews	affect how alleles are inherited
	ecosystems.		Probability.	focussing on reviewing material on	from parents. This unit further
	This unit focuses upon		Codominance.	Essential Knowledge.	supports learning in the course of
	the inheritance of		Sex linkage.		the study of the control of gene
	characteristics and the		Autosomal linkage.	Use of TLaC techniques in lessons to	expression.
	role of genetics in		Epistasis.	check pupil understanding of essential	
	inheritance.		Chi-squared test.	knowledge during each lesson.	The control of gene expression
	Monohybrid and				unit looks more closely and in
	dihybrid inheritance are		Essential knowledge reading for	Pupils are challenged with application	much more depth at the control
	studied along with the		consolidation:	questions that 'bring the essential	and regulation of transcription
	effects of codominance,		AQA 7-Genetics-Populations-	knowledge of the topic together.'	and translation. The use of
	sex linkage, autosomal		Evolution-and-Ecosystems		recombinant DNA technology for
	linkage and epistasis.		Summary Notes	End of topic Summative Assessments:	cloning process and for
			(physicsandmathstutor.com)	A range of topic assessments followed	diagnosing and treating genetic
				by a final end of unit exam.	diseases is a key feature. Prior
					learning supporting this topic wa
				Assessments are based upon the	sstudied in the genetic
				application of the essential knowledge	information, variation and
				that links ideas together throughout	relationships between organisms
				each topic.	unit through the study of DNA,
					mutations and protein synthesis
					in YR12.
	Organisms respond to	3.6.4	Feedback mechanisms.	Formative Assessment:	
	changes in their		Blood glucose control.	Daily, Weekly and Monthly Reviews	
	environments.		Diabetes.	focussing on reviewing material on	
	This unit looks at		Osmoregulation and hormonal	Essential Knowledge.	
	biological organisms		control.		

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	and their responses to		Use of TLaC techniques in lessons to	
	stimuli within their	Essential knowledge reading for	check pupil understanding of essential	
	environments. In this	consolidation:	knowledge during each lesson.	
	section of the unit the	AQA 6-Responding-to-Changes-		
	topic of homeostasis is	in-the-Environment Summary	Pupils are challenged with application	
	further explored at	Notes	questions that 'bring the essential	
	depth. The control of	(physicsandmathstutor.com)	knowledge of the topic together.'	
	blood glucose and			
	osmoregulation is a key		End of topic Summative Assessments:	
	feature of this unit		A range of topic assessments followed	
			hy a final end of unit exam	
			sy a marcha or and chan.	
			Assessments are based upon the	
			application of the essential knowledge	
			that links ideas together throughout	
			asch topic	
			each topic.	
			Cumulative assessment 2 – summative	
			test	
			A cumulative and summative test taken	
			in class and covers all topics studied up	
			to this point.	
			Mock Exam.	
			A Level Papers 1 and Paper 2	
			Questions are a mix of recall and	
			application questions to assess pupils	
			understanding of essential knowledge	
			up to this point.	

HT3	Genetics, populations,	3.7.2	Natural Selection.	Formative Assessment:	
	evolution and	3.7.3	Variation.	Daily, Weekly and Monthly Reviews	
	ecosystems.	3.7.4	Forms of selection.	focussing on reviewing material on	
	This unit focuses upon		Isolation and speciation.	Essential Knowledge.	
	the inheritance of		Populations in ecosystems.		
	characteristics and the		Competition/predation.	Use of TLaC techniques in lessons to	
	role of genetics in		Investigating populations.	check pupil understanding of essential	
	inheritance. Variation		Succession.	knowledge during each lesson.	
	between organisms is		Conservation.		
	further explored		Investigation into the effect of a	Pupils are challenged with application	
	alongside Natural		named environmental factor on	questions that 'bring the essential	
	Selection and forms of		the distribution of a given species	knowledge of the topic together.'	
	selection and their				
	impact on Evolution.		Essential knowledge reading for	End of topic Summative Assessments:	
	Populations in		consolidation:	A range of topic assessments followed	
	ecosystems are also		AQA 7-Genetics-Populations-	by a final end of unit exam.	
	studied focusing upon		Evolution-and-Ecosystems	Assessments are based upon the	
	competition, succession		Summary Notes	application of the essential knowledge	
	and conservation.		(physicsandmathstutor.com)	that links ideas together throughout	
	Practical application of			each topic.	
	learning through the				
	completion of RP12 -				
	Investigation into the				
	effect of a named				
	environmental factor				
	on the distribution of a				
	given species				
	The control of gene	3.8.1	Gene mutations.	Formative Assessment:	
	expression.	3.8.2	Stem cell totipotency.	Daily, Weekly and Monthly Reviews	
	This unit focuses upon	3.8.3	Regulating protein synthesis.	tocussing on reviewing material on	
	the factors that affect	3.8.4	Epigenic control.	Essential Knowledge.	

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	the expression of genes	Cancer.		
	and how the translation	Genome projects.	Use of TLaC techniques in lessons to	
	process is affected.	Recombinant DNA technology.	check pupil understanding of essential	
	Students also focus	In vitro/vivo cloning.	knowledge during each lesson.	
	upon how the	Genetic screening and		
	expression of genes can	counselling.	Pupils are challenged with application	
	be controlled and the	Genetic fingerprinting.	questions that 'bring the essential	
	impact of this and the		knowledge of the topic together.'	
	use of DNA technology	Essential knowledge reading for		
		consolidation:	End of topic Summative Assessments:	
		AQA 8-Control-of-Gene-	A range of topic assessments followed	
		Expression Summary Notes	by a final end of unit exam.	
		(physicsandmathstutor.com)	Assessments are based upon the	
			application of the essential knowledge	
			that links ideas together throughout	
			each topic.	
			Cumulative assessment 2 – summative	
			test	
			A cumulative and summative test taken	
			in class and covers all topics studied up	
			to this point.	
			Mock Exam.	
			1 AQA A Level Paper 2.	
			Questions are a mix of recall and	
			application questions to assess pupils	
			understanding of essential knowledge	
			up to this point.	
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	Identification of	All	Using question level analysis and	Assessment is taken in class and covers	
	strengths and		data driven instruction, staff and	all topics.	
HT4	weaknesses of the		pupils identify weaknesses in	Questions are a mix of recall and	
HT5	curriculum to plan re-		disciplinary knowledge (science	application questions to assess pupils	
	teach and fill gaps.		skills) and substantive knowledge	understanding of essential knowledge	
			(topic content) and deliver re-	covering the whole key stage 5 physics	
			teaching to improve overall	curriculum.	
			essential knowledge of the KS5		
			physics curriculum.		