

Key Stage 4 Long Term Planning Year 10

Faculty Area: Biology Single Science

Year 10	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Syllabus	AQA Biology		AQA Biology		AQA Biology	
	Collins - Chapter 4		Collins - Chapter 5		Collins - Chapter 6	
	Health Matters		Coordination and Control		Genetics	
Connections to	The effects of recreational drugs (including substance		Reproduction in humans (as an example of a		Heredity as the process by which genetic information is	
prior KS3	misuse) on behaviour, healt	h and life processes.	mammal), including the s	tructure and function of	transmitted from one generation to the next	
learning	the functions of the cell wal	, cell membrane,	the male and female repr	oductive systems,	A simple model of chromosomes, genes and DNA in	
	cytoplasm, nucleus, vacuole	, mitochondria and	menstrual cycle (without	details of hormones),	heredity	
	chloroplasts		gametes, fertilisation, ges	station and birth.	Differences between speci	es
	The similarities and differen	ces between plant and	The effect of maternal life	estyle on the foetus	The variation between indi	ividuals within a species being
	animal cells		through the placenta		continuous or discontinuous, to include measurement	
	The role of diffusion in the movement of materials in		Aerobic and anaerobic re	spiration in living	and graphical representation of variation	
	and between cells 2 the structural adaptations of		organisms, including the I	oreakdown of organic	The variation between species and between individua	
	some unicellular organisms		molecules to enable all th	cules to enable all the other chemical processes of the same species		s some organisms compete
			necessary for life	more successf		an drive natural selection
				bic respiration	Changes in the environment may leave individuals	
					within a species, and some entire species, less well	
					adapted to compete successfully and reproduce, which	
					in turn may lead to extinct	ion
Knowledge	Communicable diseases Cul-	turing microorganisms	Structure and function of	the nervous system.	Genetics	
	Viral, bacterial and fungal di	seases in humans	The brain and Brain		Proteins and mutations	
	Protist diseases		Control of body temperat	ure	Sexual and asexual reprodu	uction.
	Human defence systems		Human endocrine system		Meiosis.	
	Vaccination		Control of blood glucose	concentration	Advantages and disadvanta	ages of sexual and asexual
	Antibiotics		Water and nitrogen balan	ice	reproduction	
	Painkillers		Kidney function and Failu	re	Gregor mendal	



	Discovery and development of drugs	ADH	Sex determination.
	Production and uses of MABs	Hormones in human reproduction	DNA.
	Plant disease	Contraception and the use of hormones to treat	protein synthesis.
	Plant defence responses	infertility.	Genetic inheritance and inherited disorders.
		advantages and disadvantages of fertility treatment,	The understanding of genetics
		Negative feedback. Control and coordination	Genetic engineering Examples of genetic engineering.
		Use of plant hormones.	
Skills	Evaluate risks when growing microbial cultures.	use of appropriate apparatus to make and record a	Use bio-viewers, video clips or images to show
	Interpret graphs	range of measurements accurately including length	chromosomes and meiosis.
	Carry out research and explain application of science	use of appropriate apparatus and techniques for the	Use a Punnett square and a genetic cross diagram to
	and personal and social implications related to	observation and measurement of biological changes	illustrate the inheritance of sex;
	diseases.	and/or processes	evaluate the chance of producing a male or female.
	Plan investigations, make observations and analyse	safe and ethical use of a living organisms (plants or	
	data	animals) to measure physiological functions and	
	Investigate the effect of disinfectants or antibiotics	responses to the environment	
	on bacterial growth	plan and carry out an investigation into the effect of	
		a factor on human reaction time.	
		investigate the effect of light or gravity on the	
		growth of newly germinated seedlings.	
Assessment	End of unit test for Chapter 4 - Health Matters	End of unit test for Chapter 5 - Coordination and	End of unit test for Chapter 6 - Genetics
		Control	
Homework	GCSE past paper exam questions	GCSE past paper exam questions	GCSE past paper exam questions
	Analysis / Evaluation of investigations	Analysis / Evaluation of investigations	Analysis / Evaluation of investigations
	Extended answer questions	Extended answer questions	Extended answer questions
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Literacy Keywords: Aerobic respiration, Anaerobic respiration, Cellular respiration, Inverse square law, Limiting factor, Metabolism, Oxygen debt, Photosynthesis Communicable Culturing microorganisms Viral, bacterial, fungal, Protist diseases Vaccination Antibiotics Painkillers Painkillers MABS MABS MABS MABS MERICA MABS MERICA MABS MERICA MABS MERICA MABS MERICA MABS MERICA MER	Cultural	School and University Network					
Visits, Experiences, Extra-curricular	enrichment	Summer Term-UCLAN Visit (Topic to be confirmed)					
Literacy Literacy Reywords: Aerobic respiration, Anaerobic respiration, Cellular respiration, Inverse proportion, Inverse square law, Limiting factor, Metabolism, Oxygen debt, Photosynthesis Communicable Culturing microorganisms Viral, bacterial, fungal, Protist diseases Vaccination Antibiotics Painkillers MABS Milers Milers Mabs Milers Measure skin temperature in different conditions Measure skin temperature in different conditions Milers Milers Measure skin temperature in different conditions Milers Milers Milers Mabs Mabs Milers Measure skin temperature in different conditions Milers Milers Mabs Milers Measure skin temperature in different conditions Milers Milers Mabs Mabs Mabs Milers Mabs Mabs Mabs Milers Mabs Mabs	including Trips,						
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Interpret data about vaccination rates and reported Analyse data and interpret information about illustrate the inheritance of sex; evaluate the chance of							
	Numeracy	Calculate cross-sectional areas of colonies	Measure skin temperature in different conditions.	Use a Punnett square and a genetic cross diagram to			
cases of diseases, eg whooping cough, MMR. sweating and temperature. producing a male or female		Interpret data about vaccination rates and reported	Analyse data and interpret information about	illustrate the inheritance of sex; evaluate the chance of			
		cases of diseases, eg whooping cough, MMR.	sweating and temperature.	producing a male or female			
Plot cooling curves. Interpret genetic diagrams of Mendel's experiments			Plot cooling curves.	Interpret genetic diagrams of Mendel's experiments			
Measure heart rate and/ or blood pressure			Measure heart rate and/ or blood pressure				
CIAG What workplace skills does biology develop?	CIAG	What workplace skills does biology develop?					



Analysis: Students need analysis in any job which requires you to process information. GPs and vets analyse their knowledge of medicine along with the symptoms they observe in the patient in front of them in order to reach a conclusion about their medical condition.

Curiosity: Engineers must always be searching for new solutions to the technical challenges they face to improve their efficiency and overcome new and seemingly impossible obstacles. Teachers must explore new approaches to adapt to different students' needs and constantly improve their teaching.

Drawing: As well as the obvious – such as illustrators, graphic designers and animators – many other jobs benefit from good drawing skills. Any role which requires students to present their findings or plans through diagrams benefits from good drawing skills.



Key Stage 4 Long Term Planning

Year 11

Curriculum Area: Biology Single Science

Year 11	Autumn 1	Autu	ımn 2	Spring 1	Spring 2	Summer 1
Syllabus	AQA Biology		AQA Biology			
	Collins - Chapter 7		Collins - Chapte	r 8		
	Variation and Evolution		Ecology in Actio	n		
Connections to KS3	How organisms affect, and are affect	ted by, their	How organisms	affect, and are affected by,		
prior learning	environment		their environme	ent, including the accumulation		
	The variation between individuals within a species		of toxic materia	ls.		
	being continuous or discontinuous,	to include	The importance	of maintaining biodiversity		
	measurement and graphical represe	entation of	and the use of g	gene banks to preserve		
	variation		hereditary mate	erial		
	The variation between species and between					
	individuals of the same species means some					
	organisms compete more successfully, which can					
	drive natural selection					
	Changes in the environment may leave individuals					
	within a species, and some entire sp	ecies, less well				
	adapted to compete successfully an	d reproduce,				
	which in turn may lead to extinction	1				
Knowledge	Variation.		Classification			
	Selective breeding.		Communities			
	Darwin and wallace		Biotic factors a	nd Abiotic factors		
	Evolution.		Adaptations			
	Speciation.		Trophic levels a	nd Transferring of biomass		
	Theory of evolution.		How materials a	are cycled		



	Evidence for evolution – Fossils and Resistant	Investigating decay
	bacteria.	Biodiversity
	Extinction.	Waste management
	cloning	Global warming
		Maintaining biodiversity
		Factors affecting food security
		Farming techniques
		Sustainable fisheries
		Role of biotechnology
Skills	Draw a flow diagram to explain the steps involved	use of appropriate apparatus to make and
	in selective breeding.	record a range of measurements accurately
	Interpret evolutionary trees.	including length and area
	Interpret evidence relating to evolutionary theory.	safe and ethical use of a living organism to
		measure physiological responses to the
		environment
		Construct food chains and identify the
		producer and consumers.
		measure the population size of a common
		species in a habitat. Use sampling techniques
		to investigate the effect of a factor on the
		distribution of this species.
		investigate the effect of temperature on the
		rate of decay of fresh milk by measuring pH
		change.
Assessment	End of unit test for Chapter 7	End of unit test for Chapter 8
	Variation and Evolution	Ecology in Action
Homework	GCSE past paper exam questions	GCSE past paper exam questions
	Analysis / Evaluation of investigations	Analysis / Evaluation of investigations



	Extended answer questions	Extended answer questions				
Cultural enrichment						
including Trips, Visits,		School and University Network				
Experiences, Extra-		Post Easter Revision-Lancaster University 6 v	week course			
curricular						
Literacy	Keyword:	Keywords:				
	Abiotic factors, Adaptation, *Anaerobic decay,	*Food security, Global warming, *GM crops,				
	*Apex predator, Biodiversity, *Biogas, Biotic	Interdependence, Mean, Median,				
	factors, Carbon cycle, Community, Competition,	Microorganisms, Mode, Peatlands, Pollution,				
	*Compost, *Decomposers, *Decomposition,	Population, Predators, Prey, *Primary				
	Deforestation, *Distribution, Ecosystem, Efficiency	consumers, Producers, *Pyramid of biomass,				
	of biomass transfer, Extremophiles, Food chain,	Quadrat, *Secondary consumers, *Sustainable,				
		*Sustainable fisheries, *Tertiary consumers,				
		Transect, *Trophic level, Water cycle,				
Numeracy	Analyse variation in a plant species growing in	Measure height and calculate means.				
	different areas continuous and discontinuous	Present and analyse the results				
	variation	Analyse ecological data from quadrats and				
	Interpret data about antibiotic resistance transects.					
	Interpret population curves and explain					
	predator – prey relationships					
	Use quadrats and sensors; record and analyse					
		results.				
		Use a transect to investigate the change in				
		type and number of plant species across a				
		changing habitat, eg a footpath.				
CIAG	What workplace skills does biology develop?					
	Analysis Chydana mad an tritito any tat	CD- and	aluan Alasia lunnuda deservitore	lana with the amount over the second		
	Analysis: Students need analysis in any job which requires you to process information. GPs and vets analyse their knowledge of medicine along with the symptoms they					
	observe in the patient in front of them in order to reach a conclusion about their medical condition.					



Curiosity: Engineers must always be searching for new solutions to the technical challenges they face to improve their efficiency and overcome new and seemingly impossible obstacles. Teachers must explore new approaches to adapt to different students' needs and constantly improve their teaching.

Drawing: As well as the obvious – such as illustrators, graphic designers and animators – many other jobs benefit from good drawing skills. Any role which requires students to present their findings or plans through diagrams benefits from good drawing skills.