



Mission Statement: To provide students with the opportunity to explore the science of life, in all its complexity and diversity. We aim to inspire students to be curious about the world around them and become organised and independent learners.

INTENT KS3: The Biology curriculum for Year 7s and 8 is closely aligned to the DfE Programme of Study for Biology at KS3. The intention is to cover the full KS3 content in Years 7 and 8, allowing the teaching of GCSE content to begin in Year 9. This ensures there is enough teaching time to offer separate science GCSEs. Key areas of development in Year 7 and 8 include developing practical skills, the importance of accurate scientific terminology and developing an understanding of scientific investigative skills.

(S3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	Topic: Cells		Topic: Reproduction	· -	Topic: Plants and ecosystem	S
	Assessment:		Assessment:		Assessment:	
	Microsoft Form multiple choic practical skills	ce test on key content and	Microsoft Form multiple choice practical skills	test on key content and	Microsoft Form multiple choice practical skills End of Year 7 Test as part of S	·
	Subject Content:		Subject Content:		Subject Content:	оненсе дозезоннени.
	animal cells. Introduction to s multicellular organisms are or skeleton, bones, joints and multicellular organisms are or skeleton, bones, joints and multicellular organisms are or skeleton, bones, joints and multicellular organisms. Pupils will develop practical s microscope. They will collaborate working together to prepare a dissection. They will also eval muscle strength.	ganised. Pupils then study the juscles. kills such as using a pratively improve lab skills a slide and carry out a first	Pupils learn about variation and which is not taught at any other pushed further when they study detail compared to KS2. Pupils developing foetus and how it cat Learner Skills: Pupils will develop their ability to variety of graphs. They will also research, and analyse and inter-	KS. Pupils' knowledge will be human reproduction in more will also lean about the an be affected. The present data by drawing a undertake independent	Pupils will build on their KS2 ki food webs so that they unders organisms in the environment. studying bioaccumulation and biodiversity. They will also studied and seed dispersal. Learner Skills: Pupils will use a variety of field pooters and nets to collect dat will plan and carry out a quantidispersal, collect, present, ana	tand the interactions of They will extend this further by the importance of insects and y plant structure, reproduction work apparatus including a from a suitable habitat. They tative investigation into seed
	Rationale:		Rationale:		Rationale:	
	A classic foundation topic that knowledge done at KS2, whe circulatory system, the heart about the way multicellular or develop their understanding cabout the musculoskeletal sy essential practical skills that wascience, including using water well as learning about how so change over time when new or the state of th	ere they learn about the and blood. Pupils now learn ganisms are organised and of the human body by learning stem Pupils begin to develop will support their learning in er-baths and microscopes, as scientific theories develop and	This topic is conveyed in the mi starts to incorporate several the so far in Year 7. This ensures st lessons. This topic also links wi Science and enables pupils to gunderstanding enzymes which it	emes from the topics studied cretch and challenge to the th nutrition taught in Food gain confidence in	This topic builds upon content organisms and how they are c how organisms interact in ecosimpacts on biodiversity. Stude carry out fieldwork and considering organisms. They also devidesigning their own quantitative dispersal.	lassified. Pupils now discover systems, as well as the human nts have the opportunity to er the ethics related to studying relop their investigative skills by





KS3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
8	Topic: Muscles and movement Assessment:	Topic: Getting energy Assessment:	Topic: Health and Disease Assessment:	Topic: Variation for survival Assessment:	Topic: Recap of KS3 Topics Assessment:	Topic: Animal and Plant Behaviour Assessment:
	Microsoft Form multiple choice test on key content and practical skills Subject Content: Y8 pupils in this cohort are on a different pathway to	Microsoft Form multiple choice test on key content and practical skills Subject Content: Pupils will learn about the gas exchange system and how it is affected by exercise	Microsoft Form multiple choice test on key content and practical skills Subject Content: Pupils learn about types of drugs and the effects they have on our body, including	Microsoft Form multiple choice test on key content and practical skills Subject Content: Pupils learn the difference between continuous and discontinuous variation. They	Microsoft Form multiple choice test on key content and practical skills Subject Content: Pupils will use this term to look over all of the topics	Microsoft Form multiple choice test on key content and practical skills Subject Content: Pupils will be assigned small groups to explore and present
	the new Y7 cohort. Pupils begin with a recap of cell components and organisation. Pupils then study the skeleton, bones, joints and muscles as they have not yet covered this topic. Learner Skills: Pupils will carry out a dissection. They will also evaluate models and investigate muscle strength.	and lifestyle. They will then learn the difference between aerobic and anaerobic respiration in living organisms. Pupils will also develop a great understanding on how humans can take advantage of anaerobic respiration in the food industry (wine, bread etc) Learner Skills: Pupils will develop their investigative skills by carrying out practical activities related to respiration. They will be encouraged to apply learned theory to explain	smoking and alcohol. Pupils then learn about pathogens and how they are spread, and how our body defends us against disease. Pupils then learn about the development of vaccines and antibiotics, and carry out research. Learner Skills: The class presentations on diseases provide an opportunity for pupils to showcase their team work and organisation skills. They will improve their research skills and provide a chance to develop their communication skills. They	learn about natural selection and selective breeding, as well as mechanisms of inheritance. Pupils will explore the basics of the structure of DNA and how it was discovered. Learner Skills: Pupils will develop their ability to present data by drawing a variety of graphs. They will learn how to predict genetic outcomes using Punnett squares, including probability. They will make models and develop their evaluation skills	studied at KS3. This will provide an opportunity for pupils to reflect on what they have learnt during KS3 and help prepare them for the end of Year exam paper. Learner Skills: Pupils will learn how to organise their folders. Pupils have the opportunity to identify their strengths and weaknesses and produce a tailored revision time table. Pupils will identify how they revise best and evaluate the different techniques for revising.	their own project about animal or plant behaviour. Learner Skills: Pupils will develop their team work and communication skills. They will also have an opportunity to improve their research skills and start to evaluate the importance of sources. This topic is in line with the school mission of developing pupils that are curious and resilient.
	Rationale:	conclusions. Rationale:	will also develop their extended writing skills. Rationale:	Rationale:	Rationale:	Rationale:
	Pupils recap the way multicellular organisms are organised and develop their understanding of the human body by learning about the musculoskeletal system. A classic	Pupils build upon their knowledge of the way their bodies function from KS2 by learning in greater depth about the gas exchange system and factors that can affect it. Respiration is a key	This topic builds on KS2 content related to the impact of drugs and lifestyle on our bodies. Pupils learn about the negative effects of drugs on individuals and society. Studying disease helps	Inheritance is studied now as pupils have previously looked at KS2 at life cycles and recognise that living things produce offspring of the same kind, but vary. This will build bridges to later topics	Pupils will learn organisation skills and help develop their revision techniques that will serve them well when they enter the GCSE biology course.	This topic on animal and plant behaviour does not come up at all at KS4. This is a great opportunity to explore a topic that students are not familiar with to develop curiosity and creativity.





upon previous knowledge done at KS2, where they learn about the circulatory well to how we take in oxygen. An introduction to respiration in Y8 will help	extend what they have previously learnt in Year 7 about cells, when pupils apply their understanding to white blood cells.	at KS4 where pupils will learn in more detail about DNA & mutations, Darwin's work and speciation.		
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INTENT KS4: The intention is to cover the AQA GCSE Biology specification over the three years. This allows enough teaching time to deliver an ambitious curriculum to the appropriate depth with opportunities to develop key skills such Biological literacy, numeracy, practical and investigative skills. Our students come with a wide variety of background experience from different feeder schools so we begin with the key concepts that underpin Biology. Currently, all students take the Separate Science GCSE pathway.

KS3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
9	Topic 1: Cells and cell divis		Topic 3: Digestion and Enzy		Topic 5: Infection and Respon	nse
	Topic 2: Cell Transport and Exchange		Topic 4: Circulation and Hea	alth		
			Cubiast Contents		Subject Content:	
	Subject Content:		Subject Content:		In Topic 5, pupils will learn about	it different types of nathogens
	In Topic 1, pupils will learn a	bout: microscopes, prokaryotic	In Topic 3, pupils will learn ab	out tissues, organs and body	and the diseases that they caus	
	and eukaryotic cells, relative			digestive system and enzymes	and plant diseases. Pupils learn	
	mitosis, binary fission and as		and factors affecting enzyme		this spread can be prevented, h	
		bout the cell transport including		the circulatory system, including	works, vaccination, antibiotics a	
		e transport. They learn about	the blood, blood vessels, the		Pupils will also explore how dru	
	exchange surfaces in organi	sms and how they are adapted.	heart. Pupils will relate this to non-communicable diseases.	health and the risk factors for	scientists use drug trials to test	tnem.
	Learner Skills:		Hori-communicable diseases.		Learner Skills:	
	Ecarrici Gians.		Learner Skills:		Loan or ording.	
	Improve maths skills by con-	verting units, for example mm			Pupils will develop their use of k	key biological language when
		ut surface area to volume ratio		portance of linking adaptations	describing the immune system,	
		ication. They will calculate area		od, haemoglobin, oxygen and	antigen, antibody, antitoxin, ant	ibiotic, lymphocyte and
		s of inhibition around antiseptic	respiration.	ation of illo division o boost	hybridoma.	
	discs on bacterial lawn plate For literacy, pupils will focus		Pupils will develop their dissection skills during a heart dissection and carry out investigations into enzyme activity.		Pupils will analyse graphs to de related to antibody concentration	
		onsider ethical issues such as	Pupils will also learn about co		related to artibody correctination	5113 III 5100d.
	those related to stem cells.	orioladi di mai loddoo dadii ad	calculations related to blood fi	· · · · · · · · · · · · · · · · · · ·	Required Practicals:	
	Required Practicals:		Required Practicals:		None, however additional pract	
	Deguired Prestical 1, Press			easts for storah sugara and	microbes and modelling double	
	Required Practical 1: Preparing slides and observing cells under the microscope.		Required Practical 4: Food to protein.	ests for starch, sugars and	understanding of this topic and including health and safety.	develop practical skills lurther,
		c technique and investigating		gating the pH on the rate of	including health and safety.	
	bacterial growth.		reaction of amylase.	gaming the private of		
		gating osmosis in potato cells.	,			





Rationale:

Pupils have a good grasp on what cells look like, but will now see what they would look like under an electron microscope. At KS3 pupils have learnt the differences between plant and animal cells, but in this topic, they will explore prokaryotic and eukaryotic cells. Pupils will discover how cells differentiate and divide.

Pupils will also expand on their knowledge of how molecules are transported by diffusion by looking at the roles of osmosis and active transport. They will build on their knowledge of the structure of human lungs by looking at exchange surfaces in other organisms.

Rationale:

Pupils will expand upon their KS3 knowledge of digestion by learning how enzymes work. This will include more detailed knowledge on how the structure of enzymes is related to their function.

Pupils will also develop their understanding of the respiratory system by linking it to the circulatory system. This will support their understanding of respiration and the effect of exercise on the body in Year 10.

Rationale:

Pupils will learn in more depth about how the immune system works and how medicines help fight off invading pathogens. This topic builds on the knowledge of health and disease students acquired in Year 8 and will support learning of plant disease in Topic 6.

GCSE Subject	AO1	AO2	AO3	AO4
AOS	7.16.1	7.62	, 188	, 6

INTENT KS4: In Year 10, pupils have more lessons compared to Year 9, hence more topics are covered each term. This helps to accelerate the progress through the GCSE biology syllabus so that pupils are prepared for a Mock Paper 1 exam at the end of the Year. This is an important opportunity to highlight pupil progress and address individual concerns. KS4 Autumn 1 Autumn 2 Spring 1 Spring 2 Summer 1 Summer 2 Topic 6: Photosynthesis and Plants Topic 8: The Human Nervous System Topic 10: Adaptations and Interdependence 10 Topic 7: Respiration and Metabolism Topic 9: Hormonal communication Topic 11: Human Impacts on the Environment Subject Content: Subject Content: Revision for Mock Paper 1 Exam in May In Topic 6 students will build upon their KS3 knowledge of Pupils will learn about the principles of homeostasis. They will Subject Content: photosynthesis and leaf adaptations. Pupils will then then go onto explore how the nervous system works. Pupils explore how to plan an investigation to show how light go onto learn about reflexes and how to investigate a Pupils learn about ecosystems and the communities of plants intensity affect the rate of reaction. Pupils study plant practical to measure reaction rate. Students study the eye, and animals within them. They learn how organisms are adapted to their environment and the biotic and abiotic factors transport (xylem and phloem) and plant disease and the brain and thermoregulation. In Topic 9, pupils learn about defence. the endocrine system, paying particular attention to the they compete for. Pupils also carry out fieldwork activities such In Topic 9, pupils learn about the need for aerobic and control of blood glucose and blood water potential by the as random sampling with quadrats and using transects. Pupils anaerobic respiration, fermentation in the food industry and then study food webs, predator-prey cycles, the water and pancreas and kidney respectively. Pupils go on to explore the effect of exercise on the body. Pupils also learn about hormonal control of the menstrual cycle, contraception, IVF, carbon cycle and the importance of decay. metabolism and link this back to their Year 9 work on food adrenaline, thyroxine and plant hormones. molecules. Learner Skills: Learner Skills: Learner Skills: Pupils will consider how topics link together in the carbon Pupils will learn to use the correct terminology to explain how cycle, for example photosynthesis, respiration and Pupils will describe and explain patterns in graphs and be the reflex arc works. They will explore the errors and decomposition. They will apply their understanding of enzymes stretched when they explore the mathematical concept of complications of measuring your reaction time using a ruler. and lipid structure for Year 9 to the activity of decomposers. the inverse square law. Pupils will develop their understanding of the key command





Practically, students will reinforce their understanding of the concepts of what is an independent, dependent and control variable.	word: evaluate, when they explore the various contraceptive methods to avoid pregnancy.	Literacy skills are developed in extended response 'evaluate' questions. Mathematically, pupils calculate area and means during fieldwork.
Required Practicals: Required Practical 6: The effect of light intensity on the rate of photosynthesis.	Required Practicals: Required Practical 7: Measuring reaction times with a ruler. Required Practical 8: Investigating the growth of seedlings	Required Practicals: Required Practical 9: Measuring the population size and distribution of a plant in a habitat using a quadrat. Required Practical 10: Investigating decay
Rationale:	Rationale:	Rationale:
Pupils build upon their understanding of photosynthesis from Year 8 and extend this by considering limiting factors. They learn about plant disease and defence, building upon their knowledge of pathogens from Topic 5, which allows them to access this content. Having also studied the lungs and circulatory system, pupils can now use this knowledge to understand how respiration can occur in cells, and link the effects of exercise to these organ systems and processes.	Topic 8 is the first topic in Paper 2 and is generally new material. Topic 9 build upon the idea of control systems in the body with pupils learning about hormonal control and how this differs from nervous control. Pupils build upon their understanding of human reproduction from Year 7 by looking at how sex hormones play a role in the menstrual cycle. Different types of contraception are linked in with PHSE lessons.	The summer term is the ideal time to learn about ecology as pupils can make the most of the natural environment when carrying out fieldwork techniques such as random sampling and transects. During this, they build upon the ecology they studied in Years 7 and 8. The concepts of cycling and decay links together topics learnt earlier in the course and is best taught once these key concepts have been mastered.

In 2023 – 2024, Year 11 will sit separate Science GCSEs. Pupils who struggle significantly with the challenge can opt for foundation tier in Biology as necessary, reducing the content to be learnt as well as avoiding the most demanding material. Trilogy (Combined) Science is a potential alternative pathway, should it be considered appropriate, in discussion with other Science departments.

Pupils will sit a Paper 1 Mock in November. All classes will sit a Paper 2 mock in March. After this, students will revise in class in order to refine exam skills. Decisions about higher tier or foundation tier will not be made until after the March mock. The 2023-2024 Year 11 cohort are in the final year of a previous curriculum with a different design; current Year 9 and Year 10 students will cover Topic 12 (DNA and Inheritance) and Topic 13 (Variation and Evolution) from 2024-2025.

 S4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
11	Topic 17: Organising an eco		Biology Only content for Paper		Revision and exam skills	
	Topic 18: Biodiversity and Ecosystems		Biology Only content for paper 2		Subject Content:	
	Revision for Mock Paper 1 Exam in November Subject Content: In Topic 17, pupils learn about how materials are recycled		Revision for Mock Paper 2 Exam in February Subject Content: Pupils will be given booklets that explore the 'Biology Only'		None	
					Learner Skills:	
	by exploring the water, carbo learn about the factors that w	n and decay cycle. Pupils will	content only. This will include p monoclonal antibodies, the stru	lant diseases and defence;	Exam technique and revision ski	lls.
	topic 18, pupils will learn about how the human population explosion has had a direct impact on ecosystems. This will include water, land and air pollution. Linking in concepts from other subjects, including global warming and		and eye, how plant hormones work and how humans use them, DNA structure and protein synthesis, how the kidneys work in removing waste products, and kidney dialysis and transplants.		Required Practicals:	
					Some required practicals may be pupils recall the detail in practical	
	deforestation.	0	Learner Skills:		in the course.	, , , , , , , , , , , , , , , , , , , ,





Learner Skills: Pupils develop their exam technique by looking at how to answer long structured questions (6 marks) that require pupils to use data or evaluate opinions. This will be assessed when pupils sit their mock examination in November. Required Practical 10 Investigating decay.	The focus is on exam technique by using as many opportunities as possible in showing how to structure answers and how to read the questions carefully to understand what is being asked. Required Practicals: Required Practical 2: Aseptic technique and investigating bacterial growth. Required Practical 8: Investigating the growth of seedlings	
Required Practical 10: Investigating decay Rationale:	Rationale:	Rationale:
The concepts of cycling and decay links together topics learnt earlier in the course and is best taught once these key concepts have been mastered.	In this term, pupils look at complete the course by covering the topics that were not covered in Year 9, 10 or 11 because they were 'Biology Only' content.	The SoW has been structured so that at least 4-5 weeks have been set aside at the end of the course to enable pupils to go through many different exam techniques that will develop their explanations and make them better prepared for their examinations.

A Level				
Subject	AO1 Knowledge	AO2 Application	AO3 Analysis	AO4 Evaluation
AOS				

At KS5 pupils study the OCR Biology A specification. The course content is in the order of the OCR A-level textbook that we use in class. This introduces Biology from cells, moves onto tissues, organs and finally onto ecosystems and habitats. This is a logical order that starts with foundational topics and then builds on the content so that by Year 13, pupils are applying their understanding to more challenging concepts. The topics in the textbook are matched with Class Topic booklets. Pupils are also given an Exam Practice Question booklet for each Topic to practise their exam, writing and literacy skills. The Year 13 course is considerably more conceptually challenging than the Year 12 course. There is also a significant jump in the level of demand in exam questions and the mathematical difficulty of numerical questions.

mather	mathematical difficulty of numerical questions.							
KS5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
12	Module 1: Development or practical skills. To include Planning, Implementing an investigation, analysis of qualitative and quantitative data, analysing graphs and evaluation.		Module 1: Development or practical skills.		Module 1: Development or practical skills.			
			To include Planning, Implementing an investigation, analysis of qualitative and quantitative data, analysing graphs and evaluation.		To include Planning, Implementing an investigation, analysis of qualitative and quantitative data, analysing graphs and evaluation.			
	Module 2: Foundations in Biology		Module 3: Exchange and Transport		Module 4: Biodiversity, evolution and disease			
	Subject Content: cell structure, microscopes, biological molecules, nucleic acids, enzymes, biological molecules and cell division.		Subject Content:		Subject Content:			
			exchange surfaces, transport in	n animals and plants.	Communicable diseases, biodi evolution.	versity, classification and		
	Assessment:		Assessment:					

Biology Department KS Curriculum Overview

Knowledge and understanding is tested using past paper questions.	Knowledge and understanding is tested using past paper questions. Pupils also sit a one-hour examination, assessing understanding of the course so far.	Part of Module 5: Communication, homeostasis and energy Subject Content: Communication and homeostasis, excretion. Assessment:
		Knowledge and understanding is tested using past paper questions. Pupils sit their UCAS exam; a paper that assesses their understanding of the Year 12 content. Pupils will also have their PAG books assessed to see if they are on track. This will highlight to pupils what skills they need to focus on and what practicals to catch up on.

KS5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
13	Module 1: Development or practical skills. To include Planning, Implementing an investigation, analysis of qualitative and quantitative data, analysing graphs and evaluation.		Module 1: Development or practical skills. To include Planning, Implementing an investigation, analysis of qualitative and quantitative data, analysing graphs and evaluation.		A2 Exams Pupils will use the time before their examinations to address problem topics and improve their memory retention of specific facts.	
	animal responses, photosyntl Assessment: Knowledge and understandinguestions.	ood glucose control, plant and hesis and respiration. ng is tested using past paper mock examination that will test	Module 6: Genetics and ecos Subject Content: Cellular control, patterns of inhe genomes, cloning and biotechr populations and sustainability. Assessment: Knowledge and understanding questions. Pupils will sit a mock A2 Biolog pupils' understanding on both also have their PAG books assepassed the Practical Element of	eritance, manipulating nology, ecosystems and is tested using past paper y Exam Papers: These will test AS and A2 content. Pupils will essed to see if they have	They will practise past paper q technique. An additional focus will be on p Biology) which requires pupils topics. Time will also be used on going highlight the importance of the Module 1.	oreparing for Paper 3 (Unified to make synoptic links between g back over practicals to