COMPUTING: Key Stage 3 Curriculum

Content (Intent)	Links to prior learning	Skills and Assessment	Expected Learning Outcomes
		(Implementation)	(Impact)
Term 1/2	No prior knowledge can be assumed	Skills:	Understand a range of ways to use
Online Safety	as many pupils may never have used	 Using technology safely 	technology safely, respectfully,
 Use of a network 	a networked device to store / access	 Recognising inappropriate 	responsibly, and securely, including
- Online Collaboration –	work or software.	content	protecting their online identity and
Teams / Email		- Repurposing digital	privacy; recognise inappropriate
- Files and folders	Developing from Key stage 2 their	artefacts	content, contact, conduct, and
- SMART	ability to use technology	A	know now to report concerns.
	responsibility.	Assessment:	
		Basic skills test (Beginning and end	
		of topic, same test)	
		End of topic Assessment on Teams,	
		Closed book	
Term 3/4	Developing the range of software	Skills: -	Show an ability to create, digital
Information Communication	packages used, students should	- Developing creative	arteracts for a given audience, with
Technology (ICT)	nave previous experience of using	products	attention to trustworthiness,
- Software	text processors and presentation	- Using a range of different	design, and usability
- Word skills	software.	software components	
- Presentation skills		- Combining the use of	Develop a creative project that
- Graphics skills		different applications and	involves selecting, using, and
		hardware in one product	combining multiple software
			applications and hardware
		Assessment: Development of a belo	peripheral devices.
		auido targotod at sposific audioneo	
		guide targeted at specific addiefice	

Term 5/6	Build upon programming constructs	Skills:	Demonstrate the use of hardware
Microbits – An Introduction to	of sequencing, selection, and	 Text based Programming 	and software components that
Programming	iteration, learnt at Key Stage 2.	 Using hardware 	make up computer systems, and
- Hardware			how they communicate with one
 Different types of 		Assessment: Handbook	another and with other systems.
computers		Observed in lesson	
 Programming constructs 			Lice of a taut based programming
			Use of a text-based programming
			language to control a computer
			system i.e.:- Microbits use
			micropython

Content (Intent)	Links to prior learning	Skills and Assessment	Expected Learning Outcomes
		(Implementation)	(Impact)
Term 1/2 What is a Computer System - Hardware / Software - Peripheral Devices - Data Representation	Develop confidence in using different types of computers from Year 7 Term 6.	 Skills: Data representation Identification of hardware and software Team working Assessment: End of Topic Test on Teams, closed book Observation of group work 	Can identify key component parts of a computer system and be able to explain how they combine to make a computer system Can explain how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits Understands simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers
Term 3/4	Development of text-based	Skills:	Use of a text-based programming
Python - High Level Programming	programming abilities as now being used in an IDE rather than online	 Use of Text based programming 	language to solve a real-world problem.
Languages - Programming Constructs - Integrated Development Environments	environment, year 7 term 6	 Use of computational abstractions to model real world scenarios 	

		Assessment:	
Term 5/6 Spreadsheets - Data vs Information - Formulas - Functions - Data Analysis	Build on use of spreadsheets Year terms 5/6, model are to be used to explore data rather than just inputting	Skills: - Creating digital artefacts for a specific purpose / audience - Developing creative projects that use a range of different software or sources Assessment: Spreadsheet port filo of skills learnt	Can show an ability to be able to create, reuse, revise and repurpose digital artefacts for a given audience Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems

Content (Intent)	Links to prior learning	Skills and Assessment	Expected Learning Outcomes
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Term 1/2	Year 8 terms 3 /4, using python	Skills:	Apply computing theory and
Python – Developing a Game	again this time with much more	- Use of a text-based	programming principles to practical
	independence, students select	programming language	software design and development.
	which programming constructs to		
	use	Assessment:	
		End of Topic Product: - Fully	
		documented review of code	

Term 3/4	Identification of when to Use of	Skills:	Understand that websites can be
Website Development	software for a specific task, Year 8 term 3 students should eb able to realise that the same product can	 Use of a text-based programming language Computational Thinking 	used to promote, educate, or entertain people
	eb created in different ways, develop of a product as a website rather than a spreadsheet	- Assessment: End of Topic Product: - An interactive website	Develop working code using HTML, CSS, and JavaScript
Term 5/6	Deepen knowledge of online safety,	Skills:	Understand the importance of
Computing and the Law	Year 7 terms1/2 – what users can do with data / use of networks and	- Safe, responsible use of technology	keeping safe online
	 website development, Year 9 terms ¾ – when should data be collected and why 	- Reporting concerns -	computing and evaluate its impact on individuals, organizations, and
		Assessment:	global society.
		Presentations	
			Recognise professional
		End of Topic Assessment – Teams	responsibilities and make informed
		quiz including a long answer essay	judgments in computing practice
		style question	based on legal and ethical principles.

COMPUTING: Key Stage 4 Curriculum

Content (Intent)	Links to prior learning	Skills and Assessment	Expected Learning Outcomes
Term 1/2 Paper 1 Memory and storage - Units - Data Storage - Characters - Images - Sound - Compression - Primary Storage	Consolidate learning from Key Stage 3, with particular focus on Computer systems, Year 8 term 1 as the concept of binary is developed further looking at how hex makes it easier for humans to communicate with computer	Skills: - Develop and apply their analytic, problem-solving, design, and computational thinking skills - Complete and read trace tables for programs - Storage and management systems	Show an understanding of why data must be stored in binary format Show an ability to be able to convert between denary, binary, and hexadecimal Show an ability to be able to convert between different units of storage
 Secondary Storage Ethical, legal, cultural, and environmental impacts of digital technology Paper 2 Paper a 		Assessment: End of topics Tests, closed books.	Be able to respond to questions with an extended longer response where quality of communication will be assessed Describe the skills that are involved in computational thinking
Algorithms Computational thinking Designing, creating, and refining algorithms Searching and sorting algorithms 			in computational thinking

Term 3/4Paper 1Computer networks, connections, and protocolsNetwork securityPaper 2Programming languages and Integrated DevelopmentEnvironments-Languages-The Integrated Development Environment (IDE)Programming fundamentals	Reenforce learning from Year 8 term1/2, topologies	Skills: - Storage and management systems - Use of a text-based programming language to - Cybersecurity - Network security - Assessment: Written End of topic Tests, closed book Staged Python Challenges	Show an awareness how networks are used in difference scenarios, including how to protect and use them responsibility, Appropriate use of vocabulary to explain different types of programming languages and the environments in which they are complied Can identify and implement the main programming constructs in a High-Level Programming Language.
Term 5/6 Paper 1 Systems architecture - Architecture of the CPU - CPU Performance - Embedded Systems Paper 2 Programming fundamentals Practice Practical Programming Task	The concept of registers and busses is new to all students	Skills: - Maintenance of hardware - - Components and drivers - Use of text-based programming language Assessment: End of topic test Staged Python Challenges	To be able to demonstrate the ability to develop programming code to solve a problem

	Guided documentation writes up	

Content (Intent)	Links to prior learning	Skills and Assessment	Expected Learning Outcomes
		(Implementation)	(Impact)
Term 1/2	Year 10 term 6: That all computer	Skills:#	Design, implement, and evaluate a
Paper 1	systems need software to make	 Use of operating systems 	computing-based solution to meet a
Systems software	them work	 Maintenance of hardware 	given set of computing
 Operating Systems 		or software	requirements in the context of the
- Utility software	Year 10 term 5/6 Develop coding ability using a High-Level	- Written communication	program's discipline.
Paper 2	programming Language	Assessment:	
Practice Practical Programming Task		End of topic tests	
		Test Plan with outcomes	
Producing robust programs			
 Maintenance of code 			
- Testing			
- Test Data			
Term 3/4		Skills:	Can use a text based high level
Paper 2		 Use of a text-based 	programming language to solve a
Practical Programming Task		programming language	real-world problem.
		- Written communication	
		Assessment:	
		 Full documentation 	
		evidence of a task having	
		been developed,	
		imp[lamented, tested and	
		evaluated	
		 20 minutes in class tests 	

Term 5 Revision of all topics in preparation for external GCSE examinations	Recapping of all topics covered in Key Stage 4, all terms	Skills: - Examination technique - Writing Long answer responses	Application of knowledge to answer specific questions Written communication, answering lone essay style questions
		Assessment: - Past paper questions - 20 minutes in class tests	

Textbook used: Computer Science OCR J277 By PG Online

Useful websites:

Practicing Python coding: <u>Code Marker UK</u>