

Computing at Cox Green Curriculum Plan

Key Stage 4 Year 9

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	
Algorithms	Programming	Programming	Programming	1.7 Systems software		
1.1 Systems Architecture	1.2 Memory	1.2 Memory	Programming techniques	1.8 Ethical, legal, cultural a	nd environmental	
	1.3 Storage	1.3 Storage		concerns		
Classroom Theory	Software:	Software:	Software: BYOB.	Students will describe the e	lements of a computer	
	 the difference 	Various, Python		system and the importance	of computers in the	
	between RAM and		Design and create a	modern world. The need fo	r reliability and adherence	
 the purpose of the 	ROM		computer game for a	to professional standards is	covered, as well as ethical,	
CPU	 the purpose of ROM 		given audience.	environmental and legal co	nsiderations when creating	
Von Neumann	in a computer system	Students will understand		computer systems.		
architecture:	 the purpose of RAM 	the purpose and	Use Algorithms to create	Students can define a comp	uter system as consisting	
MAR (Memory	in a computer system	functionality of systems	the game		and often, communications	
Address Register)	 the need for virtual 	software		technology	and often, communications	
MDR (Memory	memory	 operating systems: 	Plan game and different	technology		
Data Register)	flash memory.	⊖ user interface	outcomes	• define the basic elements of a computer system as input, processing, storage and output		
Program Counter		⊖ memory				
Accumulator	Storage	management/multitasking	Recognise the different	• justify the use of particular input and output		
common CPU	the need for secondary	○ peripheral	users and difficulty.	devices in a particular of		
components and	storage	management and drivers	Purpose of solution		somputer system	
their function:	 data capacity and 	🔘 user management	Description of Target	 explain clearly the need 		
ALU (Arithmetic	calculation of data	⊖ file management	audience.	professional standards	in computing	
Logic Unit)	capacity requirements	 utility system software: 	Description of solution			
CU (Control Unit)	 common types of 	O encryption software	Sketch (diagram,			
Cache	storage:	⊖ defragmentation	storyboard, mind map)	• the purpose and functiona	ality of systems software	
 the function of the 	🔘 optical	⊖ data compression	Sources of information.	 operating systems: 	anty of systems software	
CPU as fetch and	\bigcirc magnetic	\bigcirc the role and methods	Discuss how various	• operating systems.		
execute instructions	⊖ solid state	of backup:	features of hardware and	memory management/r	nultitasking	
stored in memory	 suitable storage devices 	n full	software are to be used	peripheral management and drivers		
 how common 	and storage media for a	n incremental.	to create one solution.			
characteristics of	given application, and the		How will the solution	☐ user management ☐ file management		
CPUs affect their	advantages and	Produce algorithms in	make things better e.g.	• utility system software:		

	performance:	disadvantages of these,		pseudocode or flow	improve efficiency	○ encryption software
	clock speed	using characteristics:		diagrams to solve	. ,	\bigcirc defragmentation
	cache size	Capacity		problems		O data compression
	number of cores	\bigcirc speed			Know the effect of the	\bigcirc the role and methods of backup:
•	embedded systems:	\bigcirc portability	•	Use one-dimensional	scope of a variable e.g. a	n full
	purpose of	Odurability		arrays	local variable can't be	n incremental.
	embedded systems	\bigcirc reliability	•	Select and justify test	accessed from outside its	
	examples of	\bigcirc cost.		data for a program,	function.	 how to investigate and discuss Computer Science
	embedded systems			stating the expected	Skills:	technologies while considering:
		. Evelois the second for		outcome of each test	Numeracy, Programming.	⊖ ethical issues
		• Explain the need for			Sequencing, Problem	O legal issues
•	Understand and use	translators to convert			solving	⊖ cultural issues
	sequence, selection	high level code to			_	O environmental issues.
	and iteration in an	machine code				⊖ privacy issues.
	algorithm	Select and justify				 how key stakeholders are affected by technologies
•	Define and use the	appropriate data				 environmental impact of Computer Science
	terms variable and	types for a given				 cultural implications of Computer Science
	constant as used in	program				 open source vs proprietary software
	an imperative	Perform common				 legislation relevant to Computer Science:
	language	operations on				○ The Data Protection Act 1998
	Describe the data	numeric and Boolean				Computer Misuse Act 1990
•	types integer, real,	data				Copyright Designs and Patents Act 1988
	Boolean, character					Creative Commons Licensing
	and string	Understand and				○ Freedom of Information Act 2000.
	-	identify syntax and				
•	Describe syntax	logic errors				Extension work (L8)
	errors and logic	Describe the			Assessment	Know the ethical issues surrounding the application of
	errors which may	common tools and			Students will sit an end-	information technology, an existence of legal
	occur while	facilities available in			of-unit test, consisting of	frameworks governing its use e.g. Data Protection Act,
	developing a	an integrated			questions similar to those	Computer Misuse Copyright etc.
	program	development			that students will face on	A
•	Explain what	environment (IDE):			the GCSE exam paper.	Assessment
	algorithms do (in	editors, error			The test will cover the	Students will sit an end-of-unit test.
	pseudocode or	diagnostics, run-time			topics in this unit and can	These are not live assessment questions. They are
	diagrams) and	environment,			be completed in one	created from scratch for this scheme of work. When
	correct or complete	translators, auto-			lesson.	producing the test the following have been carefully
	them	documentation				taken into account:
					1	נמגבוו וונט מכנטעוונ.

 Explain the difference between high level code and machine code Assessment: Exam board assessment material Students will sit an end- of-unit test worth 40 marks, consisting of questions similar to those that students will face on the GCSE exam paper. The test will cover the topics in this unit and can be completed in one lesson. Evaluation of their work against the criteria. Explanation of the law of copyright. Skills: Graphics editing 	Assessment: Exam board assessment material Skills: Numeracy, Programming. Sequencing, Problem solving SMSC/ British Values: Effects of ICT on society.	SMSC/ British Values: Effects of ICT on society.	SMSC/ British Values: Effects of ICT on society. Investigating moral values and ethical issues. Copyright Laws: DPA Computer Misuse Act. Respect. Explain the effects on society of gaming.	 the range of questions is designed to elicit the understanding of students from 1-9 grade. appropriate command words and language is used across the range of questions (list, describe, state, discuss, explain) questions worth 1, 2, 4, 6 and an extended writing 6 mark question are provided, following the rough proportions of live exam papers. Skills: Problem solving SMSC/ British Values: Effects of ICT on society. Recognise ethical issues surrounding the application of information technology beyond school. Laws behind ICT and Business. Working with others, tolerance.
Vocabulary: Algorithm, flowchart, flow diagram, pseudocode, sequence, selection, iteration, condition,				

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Boolean expression, high			
level programming			
language, assembly			
language, assembler,			
mnemonic, machine			
code, translator,			
interpreter, compiler,			
source code, object code			
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SMSC/ British Values:			
Investigating moral values			
and ethical issues.			
Identify and explain how			
the use of technology can			
impact on society.			
Recognise ethical issues			
-			
surrounding the			
application of information			
technology beyond			
school.			
Enrichment/Extra Curricul	um:		
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• We run additional workshops to develop skills during the Computer Club and link to a number of businesses including the O2 and CISCO Challenge.



Computing at Cox Green Curriculum Plan

Key Stage 4 Year 10

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	
Algorithms	Programming	Programming	Programming	1.7 Systems software		
1.4 Systems Architecture				1.8 Ethical, legal, cultural and environmental concerns		
	1.5 Memory	1.4 Memory	Programming techniques			
	1.6 Storage	1.5 Storage				
Classroom Theory the purpose of the CPU Von Neumann architecture: MAR (Memory Address Register) MDR (Memory Data Register) Program Counter Accumulator common CPU components and their function: ALU (Arithmetic	 1.6 Storage Software: the difference between RAM and ROM the purpose of ROM in a computer system the purpose of RAM in a computer system the need for virtual memory flash memory. Storage the need for secondary storage data capacity and calculation of data 	 1.5 Storage Software: Various, Python Students will understand the purpose and functionality of systems software operating systems: user interface memory management/multitasking peripheral management and drivers user management file management 	Software: BYOB. Design and create a computer game for a given audience. Use Algorithms to create the game Plan game and different outcomes Recognise the different users and difficulty. Purpose of solution Description of Target audience.	Students will describe the e system and the importance modern world. The need for to professional standards is environmental and legal co computer systems. Students can define a comp of hardware, software technology	e of computers in the or reliability and adherence s covered, as well as ethical, insiderations when creating outer system as consisting and often, communications ints of a computer system corage and output cular input and output computer system d for and benefits of	
 Logic Unit) CU (Control Unit) Cache the function of the CPU as fetch and execute instructions stored in memory how common characteristics of CPUs affect their 	capacity requirements • common types of storage:	 utility system software: encryption software defragmentation data compression the role and methods of backup: n full n incremental. 	Description of solution Sketch (diagram, storyboard, mind map) Sources of information. Discuss how various features of hardware and software are to be used to create one solution. How will the solution make things better e.g.	 the purpose and functionality of systems software operating systems: user interface memory management/multitasking peripheral management and drivers user management file management 		

	performance:	disadvantages of these,			improve efficiency	• utility system software:
	•	using characteristics:	•	Produce algorithms in		• utility system software.
	clock speed			pseudocode or flow		0
	cache size			diagrams to solve		O defragmentation
	number of cores	○ speed		problems	Know the effect of the	O data compression
•	embedded systems:	O portability			scope of a variable e.g. a	O the role and methods of backup:
	purpose of	Odurability	•	Use one-dimensional	local variable can't be	n full
	embedded systems	\bigcirc reliability		arrays	accessed from outside its	n incremental.
	examples of	\bigcirc cost.	•	Select and justify test	function.	
	embedded systems			data for a program,	Skills:	 how to investigate and discuss Computer Science
		• Explain the need for		stating the expected	Numeracy, Programming.	technologies while considering:
•	Understand and use	translators to convert		outcome of each test	Sequencing, Problem	O ethical issues
	sequence, selection	high level code to			solving	O legal issues
	and iteration in an	machine code				O cultural issues
	algorithm					O environmental issues.
	-	Select and justify				○ privacy issues.
•	Define and use the	appropriate data				 how key stakeholders are affected by technologies
	terms variable and	types for a given				 environmental impact of Computer Science
	constant as used in	program				 cultural implications of Computer Science
	an imperative	Perform common				 open source vs proprietary software
	language	operations on				 legislation relevant to Computer Science:
	Describe the data	numeric and Boolean				O The Data Protection Act 1998
•	types integer, real,	data				🔿 Computer Misuse Act 1990
	Boolean, character	uata				Copyright Designs and Patents Act 1988
		Understand and				○ Creative Commons Licensing
	and string	identify syntax and				Freedom of Information Act 2000.
•	Describe syntax	logic errors				
	errors and logic	• Describe the				Extension work (L8)
	errors which may	Describe the				Know the ethical issues surrounding the application of
	occur while	common tools and				information technology, an existence of legal
	developing a	facilities available in				frameworks governing its use e.g. Data Protection Act,
	program	an integrated				Computer Misuse Copyright etc.
		development				
•	Explain what	environment (IDE):				Assessment
	algorithms do (in	editors, error			Assessment	
	pseudocode or	diagnostics, run-time				Students will sit an end-of-unit test.
	diagrams) and	environment,			Students will sit an end-	These are not live assessment questions. They are
	correct or complete	translators, auto-			of-unit test, consisting of	created from scratch for this scheme of work. When
	them	documentation			questions similar to those	producing the test the following have been carefully
L			1		1	

 Explain the difference between high level code and machine code Assessment: Exam board assessment material Students will sit an end- of-unit test worth 40 marks, consisting of questions similar to those that students will face on the GCSE exam paper. The test will cover the topics in this unit and can be completed in one lesson. Evaluation of their work against the criteria. Explanation of the law of copyright. Skills: Graphics editing 	Assessment: Exam board assessment material Skills: Numeracy, Programming. Sequencing, Problem solving SMSC/ British Values: Effects of ICT on society.	Assessment Students will have to create a program for a given task. Based on past paper SMSC/ British Values: Effects of ICT on society.	that students will face on the GCSE exam paper. The test will cover the topics in this unit and can be completed in one lesson. SMSC/ British Values: Effects of ICT on society. Investigating moral values and ethical issues. Copyright Laws: DPA Computer Misuse Act. Respect. Explain the effects on society of gaming.	 taken into account: the range of questions is designed to elicit the understanding of students from 1-9 grade. appropriate command words and language is used across the range of questions (list, describe, state, discuss, explain) questions worth 1, 2, 4, 6 and an extended writing 6 mark question are provided, following the rough proportions of live exam papers. Skills: Problem solving SMSC/ British Values: Effects of ICT on society. Recognise ethical issues surrounding the application of information technology beyond school. Laws babind (CT and Buringer)
Vocabulary: Algorithm, flowchart, flow diagram, pseudocode, sequence, selection.				Laws behind ICT and Business. Working with others, tolerance.
sequence, selection, iteration, condition,				

Boolean expression, high			
level programming			
language, assembly			
language, assembler,			
mnemonic, machine			
code, translator,			
interpreter, compiler,			
source code, object code			
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SMSC/ British Values:			
Investigating moral values			
and ethical issues.			
Identify and explain how			
the use of technology can			
impact on society.			
Recognise ethical issues			
surrounding the			
application of information			
technology beyond			
school.			
Enrichment/Extra Curricul	um:		

• We run additional workshops to develop skills during the Computer Club and link to a number of businesses including the O2 and CISCO Challenge.



Computing at Cox Green Curriculum Plan

Key Stage 4 Year 11 GCSE

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Course introduction	3 Ethical, legal, cultural	4 Storage	6 System security	Algorithms	• Producing robust
Unit 1 2017	and environmental	5 Network topologies,	7 Wired and wireless	Programming	programs
2 Systems	concerns	protocols and layers	networks	techniques	
Architecture					
Memory					
System software					
	Storage devices	A range of ICT tools and	Working with information	A range of ICT tools and	Society's use of ICT (3.3)
 the purpose of the 		techniques. (3.2)	to solve problems.	techniques (3.2)	
CPU					
Von Neumann			Communication.		Applications software.
architecture:	Identify the difference	Systems life cycle.		Operating systems and	
MAR (Memory	between RAM and ROM,		Find/ select information.	user interfaces.	
Address Register)	describing their uses in	Analysis, design,	Work accurately and		Advantages and
MDR (Memory	computers and mobile	implementation, testing	proof read, using	Describe a GUI with	disadvantages of using
Data Register)	devices.	and evaluation.	software facilities where	customisation, resolution,	hosted applications
Program Counter	Identify suitable uses of		appropriate	desktop contrast, adjust	compared to locally
Accumulator	storage devices, stating	Describe the distinction	Organise information to	volume, set date and	installed applications.
common CPU	the advantages and	between information and	produce a poster,	time e.g. GUI features	Identify the common
components and	disadvantages of each to	data.	newsletter, web page or	Describe a Menu User	features found in
their function:	people and organisations.	Need for precision in	multimedia presentation.	Interface.	software.
ALU (Arithmetic		framing questions.	Produce information that	Understand how	Identify specific features
Logic Unit)		Refine search conditions.	is relevant and fit for	encoding data in a	of basic graphics
CU (Control Unit)		Ensure the accuracy and	purpose. How data can be	suitable format affects	packages
Cache • the function of the		plausibility of information.	How data can be transferred within and	file size and ease of data	Describe specific features of spreadsheet software,
CPU as fetch and		Data collection methods.		entry and retrieval.	•
execute instructions			between applications.		that enter, develop and organise numerical
stored in memory					information that's fit for
how common					purpose
characteristics of					haihose
				1	

CPUs affect their					
performance:					
clock speed					
cache size					
number of cores					
• embedded systems:					
purpose of					
embedded systems					
examples of					
embedded systems					
Hardware and software					
Know how emerging					
technologies affect the					
way in which people and					
organisations operate					
and work together.			Assessment:		
			Each unit of work is	Assessment:	
Understand how to		Assessment:	marked against KS 3	Each unit of work is	Assessment:
analyse a problem and	Assessment:	Each unit of work is	assessment criteria and	marked against KS 3	Each unit of work is
plan to create a solution	Each unit of work is	marked against KS 3	students are given a level.	assessment criteria and	marked against KS 3
to solve it.	marked against KS 3	assessment criteria and		students are given a level.	assessment criteria and
	assessment criteria and	students are given a level.	Students will be assessed		students are given a level.
Assessment:	students are given a level.		on their submitted	Students will be assessed	
Each unit of work is		Students will be assessed	coursework and students	on their submitted	Students will be assessed
marked against KS 3	Students will be assessed	on their submitted	will also evaluate their	coursework and students	on their submitted
assessment criteria and	on their submitted	coursework and students	work and respond to	will also evaluate their	coursework and students
students are given a level.	coursework and students	will also evaluate their	feedback.	work and respond to	will also evaluate their
	will also evaluate their	work and respond to		feedback.	work and respond to
Students will be assessed	work and respond to	feedback.	Evidence of testing		feedback.
on their submitted	feedback.		against original plans and	Evidence of Report and	
coursework and students		Evidence of how the work	evaluation of work	evaluating others' work.	Final unit portfolio.
will also evaluate their	Evidence of Design and	was created.			
work and respond to	creating the database.	CNACC/ Duitick Vision	CNACC/ Duitick Vision	SMSC/ British Values:	
feedback.	CNACC/ Dritich Values	SMSC/ British Values:	SMSC/British Values:	Recognise ethical issues	CNACC/ Dritich Values
Analysis table	SMSC/ British Values:	Investigating moral	Recognise ethical issues	surrounding the	SMSC/ British Values:
Analysis table	Investigating moral	values and ethical issues.	surrounding the	application of	Effects of ICT on society.

SMSC/ British Values: Investigating moral values and ethical issues. Working in teams.	values and ethical issues. Recognising different user including cultures, religions and societies.	Identify and explain how the use of technology can impact on society.	application of information technology beyond school.	information technology beyond school.	Investigating moral values and ethical issues. Copyright Laws: DPA Computer Misuse Act. Respect. Explain the effects on society of gaming.
Enrichment/Extra Curriculum: We run additional workshops to develop skills during the Computer Club and link to a number of businesses including the O2 and CISCO Challenge.					