

2022-2023 Year 11 Curriculum and Assessment Plan for Computer Science

The curriculum and assessment of pupils at this stage of education has been carefully designed to

Support all students to understand and apply the key principles of computer science. This includes abstraction, decomposition, logic algorithms. Students will be able to analyse problems and use practical skills to solve, such as designing, writing, and debugging programs. They will be able to think creatively, logically, and critically and understand the components that make up systems and how they communicate with each other. Students will also understand the impacts of digital technology to wider society.

Half Term 1:	Subject specific skills being developed:	Half Term 2:	Subject specific skills being developed:	Half Term 3:	Subject specific skills being developed:
All pupils will know:	 develop and 	All pupils will know:	 can evaluate 	All pupils will know:	 can understand
	apply their		and apply		and apply the
Programming Practical Project	analytic,	Programming Practical Project	information	2.5 Programming languages and IDE's	fundamental
2.3 Producing Robust Programs	problem-	2.4 Boolean Logic	technology,	Component 1 Revision	principles and
	solving, design,				concepts of
All pupils will be assessed by:	and	All pupils will be assessed:	including new or	All pupils will be assessed:	computer
	computational		unfamiliar		science,
MCQ	thinking skills	MCQ	technologies,	MCQ	 develop and
	can analyse	End of Unit tests	 develop their 	End of Unit tests	apply their
	problems in		capability,		analytic,
Impact- Why do we teach this?	computational	Impact - Why do we teach this?	creativity and	Impact - Why do we teach this?	problem-solving,
	terms, and			,,	design, and
	have repeated	The students will also learn how to create and read simple	knowledge in	The further help them become stronger developers they will	computational
Students will be able to put into practice the	practical	logic diagrams using the operators AND, OR and NOT. They	computer	expand their knowledge of different IDE's and the tools and	thinking skills
many skills they have developed during their first	experience of	will expand their knowledge of the truth tables for each	science,	facilities included in them. This will give them practical	understand how
year of the course. They will be given multiple	writing	logic gate. They will understand how to create, complete	 can understand 	experience of using a wide range of tools in the	changes in
programming challenges in their lessons for them	computer	and edit logic diagrams and truth tables for given	and apply the	development of software which will build on prior	technology
to solve.	programs in	scenarios.	,	knowledge that they have acquired during their practical	affect safety,
	order to solve		fundamental	project.	including new
They will need to apply computational thinking to	such problems	This will expand on prior knowledge developed from	principles and		ways to protect
the problem posed to them and plan and design	30011 problems	systems architecture and memory and storage expanding	concepts of	Students will then begin to revisit older units that they have	their online
their own algorithms. They will also be expected		students overall understanding of the workings of a	computer	previously studied during this course. This allows for	privacy and
to plan test data and how to make their		computer.	science,	misconceptions to be addressed and will further support	identity, and
programme is robust and ensure maintainability.				students' knowledge of units studied at the start of the	how to identify
		Students will be able to put into practice the many skills		-	and report a
Once they have planned, they will then develop		they have developed during their first year of the course.		COURSE.	
their code using Python Programming language		They will be given multiple programming challenges in their		This time can also be used to work through students'	range of
		lessons for them to solve.		examination skills and further build their confidence and	concerns.
and to ensure they test their code during and					understand
post production.		The sustilling and the sample composite tion of this line to the		understanding of the computer science GCSE	several key
This will an other than the state of a second state of the state of th		They will need to apply computational thinking to the			algorithms that
This will enable the students to gain valuable		problem posed to them and plan and design their own			reflect
experience of software development and will		algorithms. They will also be expected to plan test data and			computational
prepare them for any future employment they		how to make their programme is robust and ensure			thinking
might wish to pursue in development as well as	Reading Skills needed	maintainability.	Reading Skills needed for		Reading Skills needed
giving them valuable experience for any future	for this unit:		this unit:		for this unit:
courses such as the A Level.	Key Vocabulary:	Once they have planned, they will then develop their code	Key Vocabulary:		Key Vocabulary:
	Variable, constant, i/o,	using Python Programming language and to ensure they	Truth tables, Boolean		high level language,
To further their programming skills, they will study	data types, sequence,	test their code during and post production.	operators, Low/high level		translator, assembler,
various defensive design considerations as well	selection, Iteration,		language, IDE, editors,		compiler, interpreter, IDE,
as maintainability. This will allow them to produce	count/condition-	This will enable the students to gain valuable experience of	error diagnostics, run-time		error diagnostics, run-
more robust applications ready for general use.	controlled loop, IDE,	software development and will prepare them for any future	environment, Variable,		time environment,
The students will study the different types of tests	editors, error	employment they might wish to pursue in development as	constant, i/o, data types,		
during development as well as syntax errors and	diagnostics, run-time	well as giving them valuable experience for any future	sequence, selection,		
logic errors. This will allow them to produce and	environment,	courses such as the A Level.	Iteration,		
complete test data and test plans.	Abstraction,		count/condition-		
	decomposition,		controlled loop, IDE,		
	binary/linear search,		editors,		



	bubble/merge/insertion sort, pseudocode, flow chart error diagnostics, run- time environment, Defensive design, maintainability, iterative/final testing, syntax/logic errors, test data Opportunity for cross- curricular skill development • Numeracy – Algorithms, number systems and units of measure in Computer Science, and network protocols.		Opportunity for cross- curricular skill development		Opportunity for cross- curricular skill development
Half Term 4:	Subject specific skills being developed:	Half Term 5:	Subject specific skills being developed:	Half Term 6:	Subject specific skills being developed:
All pupils will know:	 understand how changes 	All pupils will know:	develop and apply their	All pupils will know:	 develop their capability,
Component 1 and Component 2 revision	in technology affect safety,	Component 1 and Component 2 revision	analytic, problem-solving,	Component 1 and Component 2 revision	creativity and knowledge in
All pupils will be assessed:	including new ways to protect their	All pupils will be assessed:	design, and computational thinking skills	All pupils will be assessed:	computer science, digital media and



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MCQ	online privacy	MCQ	 can analyse 	Examinations	information
End of Unit tests	and identity,	End of Unit tests	problems in		technology
	and how to		computational		 develop and
	identify and		terms, and have		apply their
Impact - Why do we teach this?	report a range	Impact - Why do we teach this?	repeated	Impact- Why do we teach this?	analytic,
	of concerns.		practical		problem-solving,
Students will then begin to revisit older units that	 develop and 	Students will then begin to revisit older units that they have	experience of		design, and
they have previously studied during this course.	apply their	previously studied during this course. This allows for	writing computer	Students will then begin to revisit older units that they have	computational
This allows for misconceptions to be addressed	analytic,	misconceptions to be addressed and will further support	programs in order	previously studied during this course. This allows for	thinking skills
and will further support students' knowledge of	problem-	students' knowledge of units studied at the start of the	to solve such	misconceptions to be addressed and will further support	can analyse
units studied at the start of the course.	solving, design,	course.	problems	students' knowledge of units studied at the start of the	problems in
This time are also he weed to work through	and		understand	course.	computational
This time can also be used to work through students' examination skills and further build their	computational thinking skills	This time can also be used to work through students' examination skills and further build their confidence and	simple Boolean	This time can also be used to work through students?	terms, and have
confidence and understanding of the computer	can analyse	understanding of the computer science GCSE	logic [for example, AND,	This time can also be used to work through students' examination skills and further build their confidence and	repeated practical
science GCSE	problems in		OR and NOT] and	understanding of the computer science GCSE	experience of
SCIENCE GC3L	computational		some of its uses in		writing
	terms, and		circuits and		computer
	have repeated		programming;		programs in
	practical		understand how		order to solve
	experience of		numbers can be		such problems
	writing		represented in		
	computer		binary, and be		
	programs in		able to carry out		
	order to solve		simple operations		
	such problems		on binary		
			numbers		
	Reading Skills needed	1	Reading Skills needed for		Reading Skills needed
	for this unit:		this unit:		for this unit:
	Key Vocabulary: open source/proprietary software, Data Protection/Computer Misuse/Freedom of Information/Copyright Designs & Patents Act, Creative Commons Licensing, Variable, constant, i/o, data types, sequence, selection, Iteration, count/condition- controlled loop		Key Vocabulary: Variable, constant, i/o, data types, sequence, selection, Iteration, count/condition- controlled loop, Truth tables, Boolean operators, Low/high level language, IDE, editors, error diagnostics, run-time environment		Key Vocabulary: Low/high level language, translator, assembler, compiler, interpreter, IDE, error diagnostics, run-time environment, Defensive design, maintainability, iterative/final testing, syntax/logic errors, test data
	curricular skill		curricular skill		curricular skill
	development		development		development
			Digital Literacy		Digital Literacy
	Digital Literacy		across all subjects		across all
	across all		– The ability to		subjects – The
	subjects – The		find, evaluate,		ability to find,
	ability to find,		utilize, share and		evaluate, utilize,
	evaluate,		create content		share and
	utilize, share		using Information Technologies and		create content
	and create		Ū.		using Information
	content using Information		the Internet		Technologies
			Numoraov		and the Internet.
	Technologies		 Numeracy – Algorithms, 		
	L	1		1	



portunities for revisiting skills and linking together key piece	Science, and network protocols. • Literacy – The importance of checking content accuracy and proof –reading own content and utilizing the tools provided through IT. The use of appropriate language and formatting in professional documents	Ats will develop the key curiculum skills and knowledge identified. The curiculum design ensures that documents	t each unit forms part of the overall learning journey and there a D students have individual learning profiles that outline
	and the	number systems	 Numeracy –
	Internet	and units of	Algorithms,
	• Numeracy –	measure in	number system
	Algorithms,	Computer	and units of
	number	Science, and	measure in
	systems and	network	Computer
	units of	protocols.	Science, and
	measure in	• Literacy – The	network
	Computer	importance of	protocols. Literacy – The

Career opportunities/ links: Software development / systems engineer / support roles / network architecture / law / cyber-security / cloud-computing