Year 10 ~ Curriculum Map for Computer Science

	What are the intended aims for this year's curriculum?											
	Term 1		**Term 2**		**Term 3**		**Term 4**		**Term 5**	**Term 6**		
	Topic(s): The Bigger Picture	Aim of A&R	Topic(s): Computers	Aim of A&R	Topic(s): Programming (Python)	Aim of A&R	Topic(s): Programming (Python)	Aim of A&R	Topic(s): Programming (Python)	Topic(s): Problem Solving	Aim of EoY exam	
'Big idea(s)' / fundamental concepts	Computing & the environment, privacy, professionalism, legal impact topics.	To see how well pupils understood the topic and if they are able to answer the exam style questions correctly.	Hardware, software, logic, machines and computational modelling.	To see how well pupils understood the topic, and topic from term 1, and if they are able to answer the exam style questions correctly.	Python programming, data types & operations, sequence & selection, iteration, arrays, subprograms, local and global variables, errors & testing, user input and validation, read from and writing to a text file.	To see how well pupils understood the topic from term 1 & 2, and if they are able to answer the exam style questions correctly.	Python programming, data types & operations, sequence & selection, iteration, arrays, subprograms, local and global variables, errors & testing, user input and validation, read from and writing to a text file.	To see how well pupils understood the topic from term 1, 2 & 3, and if they are able to answer the exam style questions correctly.	Python programming, data types & operations, sequence & selection, iteration, arrays, subprograms, local and global variables, errors & testing, user input and validation, read from and writing to a text file.	Algorithms, developing algorithms using pseudo code, interpreting and correcting algorithms, searching algorithms, sorting algorithms, choosing and evaluating, algorithms, decomposition and abstraction.	To ensure pupils still know topics taught throughout the whole year, understand all topics fully and enables us to identify any possible misconceptions and know what to clear up. All content from this course is for two written exams.	
Knowledge to be learnt	Understanding the impact technology has within the environment, different countries. Privacy issues, legislation in place and how technology can impact that. Manufacture, raw material extraction, production, usage, disposal, climate change, early warning, conservation, energy. Personal data, big data, surveillance, cyber security, location-based services, privacy-enhancing tools, digital inclusion. Professionalism, intellectual property, licensing, open source and proprietary software.		Machines and computational modelling, hardware, software, von Neumann model, stored programs, RAM, ROM, computer systems, cache memory, fetch-decode-execute, primary/secondary storage, magnetic/optical/electrical storage. Cloud storage, embedded systems. Logic, truth tables, logic statements, operating systems, utility software, basic tools, file management, security tools, computer models, simulation and modelling. Programming languages, low/high level languages, compilers and interpreters.		Developing code, algorithms and programs, pseudo code, python code, data types, variable initialisation, command sequence, selection and iteration, selection, type coercion, loops, code readability, string indexing, string traversal, concatenation, type conversion, length, slicing, string formatting, arrays, searching and sorting, data structure, iterating a two-dimensional array, looping through a two-dimensional array, records, input/output, range check, validating user input, length check, presence check, look-up check, menus, testing validation rules (normal/boundary/erroneous), working with text files, reading data from a tet file, writing data to a text file, subprograms, local and global variables, built-in functions, texting and evaluation, logic errors, trace tables, syntax errors, runtime errors, error summary. Using an integrated development environment (IDE), the test plan, evaluating programs,		Developing code, algorithms and programs, pseudo code, python code, data types, variable initialisation, command sequence, selection and iteration, selection, type coercion, loops, code readability, string indexing, string traversal, concatenation, type conversion, length, slicing, string formatting, arrays, searching and sorting, data structure, iterating a two-dimensional array, looping through a two-dimensional array, records, input/output, range check, validating user input, length check, presence check, look-up check, menus, testing validation rules (normal/boundary/erroneous), working with text files, reading data from a tet file, writing data to a text file, subprograms, local and global variables, built-in functions, texting and evaluation, logic errors, trace tables, syntax errors, runtime errors, error summary. Using an integrated development environment (IDE), the test plan, evaluating programs,	Developing code, algorithms and programs, pseudo code, python code, data types, variable initialisation, command sequence, selection and iteration, selection, type coercion, loops, code readability, string indexing, string traversal, concatenation, type conversion, length, slicing, string formatting, arrays, searching and sorting, data structure, iterating a two-dimensional array, looping through a two-dimensional array, records, input/output, range check, validating user input, length check, presence check, look-up check, menus, testing validation rules (normal/boundary/erroneous), working with text files, reading data from a tet file, writing data to a text file, subprograms, local and global variables, built-in functions, texting and evaluation, logic errors, trace tables, syntax errors, runtime errors, error summary. Using an integrated development environment (IDE), the test plan, evaluating programs,	Understanding how algorithms work, purpose of an algorithm, relating them to programming and pseudo code, flowcharts, variables and constants. Arithmetic operators. Statements. Relational operators. Iteration. Repeats, while, loops. Logical operators. Identifying errors. Sorting and searching. Arrays, bubble sort, merge sort. Linear search, searching algorithms, binary search. Efficiency of searching algorithms. Problem solving, decomposition, abstraction. Exam style questions.		
Key vocabulary	Pages 207-225 of textbook		Pages 140-170 of textbook		Pages 46-90 of textbook		Pages 46-90 of textbook		Pages 46-90 of textbook	Pages 2-44 of textbook		
The role of reading and comprehension	*Read the textbook, independent research, answering exam style questions.*		*Read the textbook, independent research, answering exam style questions.*		*Read the textbook, independent research, answering exam style questions.*		*Read the textbook, independent research, answering exam style questions.*		*Read the textbook, independent research, answering exam style questions.*	*Read the textbook, independent research, answering exam style questions.*		
The role of independent extended writing	*Answering exam style questions.*		*Answering exam style questions.*		*Answering exam style questions.*		*Answering exam style questions.*		*Answering exam style questions.*	*Answering exam style questions.*		
The role of maths/ numeracy	*N/A*		Algorithms, Binary.		Algorithms, Binary, Subtracting, Adding, Multiplication, Hexadecimal, Denary, Decimal, Integer, Boolean, Character, Real, Percentages, Data, Variable, Constant, String, Index, Function, Bubble Sort, Merge Sort, 2D Arrays, Arrays, Loops, Record, Field, 1D Arrays, Local & Global Variables, Parameters,		Algorithms, Binary, Subtracting, Adding, Multiplication, Hexadecimal, Denary, Decimal, Integer, Boolean, Character, Real, Percentages, Data, Variable, Constant, String, Index, Function, Bubble Sort, Merge Sort, 2D Arrays, Arrays, Loops, Record, Field, 1D Arrays, Local & Global Variables, Parameters, Calculation, Area, Logic, Syntax, Error, Number Systems, Digits,		Algorithms, Binary, Subtracting, Adding, Multiplication, Hexadecimal, Denary, Decimal, Integer, Boolean, Character, Real, Percentages, Data, Variable, Constant, String, Index, Function, Bubble Sort, Merge Sort, 2D Arrays, Arrays, Loops, Record, Field, 1D Arrays, Local & Global Variables, Parameters, Calculation, Area,	Algorithms, Binary, Subtracting, Adding, Multiplication, Hexadecimal, Denary, Decimal, Integer, Boolean, Character, Real, Percentages, Data, Variable, Constant, String, Index, Function, Bubble Sort, Merge Sort, 2D Arrays, Arrays, Loops, Record, Field, 1D Arrays, Local & Global Variables, Parameters, Calculation, Area, Logic, Syntax, Error, Number		

					Calculation, Area, Logic, Syntax, Error, Number Systems, Digits, Digital, Analogue, Place Values, Arithmetic, Signed & Unsigned Numbers, Magnitude, Bits (Most Significant & Least Significant), Converting, ASCII, File Sizes, Pixel, Waves, Sampling, Amplitude, Bits, Compression, Data Storage, Bytes, Kilo, Mega, Giga, Tera, Prefix, Lossy, Lossless, Databases, Programming, Value, Constant, Number, Brute Force, Divide, Linear, Median, Decomposition.		Digital, Analogue, Place Values, Arithmetic, Signed & Unsigned Numbers, Magnitude, Bits (Most Significant & Least Significant), Converting, ASCII, File Sizes, Pixel, Waves, Sampling, Amplitude, Bits, Compression, Data Storage, Bytes, Kilo, Mega, Giga, Tera, Prefix, Lossy, Lossless, Databases, Programming, Value, Constant, Number, Brute Force, Divide, Linear, Median, Decomposition.		Logic, Syntax, Error, Number Systems, Digits, Digital, Analogue, Place Values, Arithmetic, Signed & Unsigned Numbers, Magnitude, Bits (Most Significant & Least Significant), Converting, ASCII, File Sizes, Pixel, Waves, Sampling, Amplitude, Bits, Compression, Data Storage, Bytes, Kilo, Mega, Giga, Tera, Prefix, Lossy, Lossless, Databases, Programming, Value, Constant, Number, Brute Force, Divide, Linear, Median, Decomposition.	Systems, Digits, Digital, Analogue, Place Values, Arithmetic, Signed & Unsigned Numbers, Magnitude, Bits (Most Significant & Least Significant), Converting, ASCII, File Sizes, Pixel, Waves, Sampling, Amplitude, Bits, Compression, Data Storage, Bytes, Kilo, Mega, Giga, Tera, Prefix, Lossy, Lossless, Databases, Programming, Value, Constant, Number, Brute Force, Divide, Linear, Median, Decomposition.	
Links to careers/ aspirations	*Project Management, programming, building computers, ethics, teacher.*		*Project Management, programming, building computers, ethics, teacher.*		Programming, project management, software developers, teacher.		Programming, project management, software developers, teacher.		Programming, project management, software developers, teacher.	Programming, project management, software developers, teacher.	
Core skills *A skill is a performance built on what a person knows*	Legislation, project management.		Legislation, project management.		Programming		Programming		Programming	Links to programming	
Dept. enrichment activities	Afterschool revision session. Computing Trips run throughout the year.		Afterschool revision session. Computing Trips run throughout the year.		Afterschool revision session. Computing Trips run throughout the year.		Afterschool revision session. Computing Trips run throughout the year.		Afterschool revision session. Computing Trips run throughout the year.	Afterschool revision session. Computing Trips run throughout the year.	
Home learning opportunities	Homework, extension tasks, revision guides, revision workbooks.		Homework, extension tasks, revision guides, revision workbooks.		Homework, extension tasks, revision guides, revision workbooks.		Homework, extension tasks, revision guides, revision workbooks.		Homework, extension tasks, revision guides, revision workbooks.	Homework, extension tasks, revision guides, revision workbooks.	