



Subject	Year	Term
Computer Science	10	1
Topic		
System architecture, data representation, programming		
Content (Intent)		
Prior Learning (Topic)	Key Stage 3 National Curriculum	
Programming, Python, sequence, selection, iteration, operators, data structures, functions.		
Von Neumann architecture: Students should be able to take a series of simple low level instructions and understand how the processor uses the various general purpose registers to do calculations during the fetch decode and execute cycle. They will be able to understand what general purpose register is responsible for holding data, which decodes data, which points to different memory addresses while the ALU and the accumulator do the calculation.		
How RAM and ROM interact with CPU and what they contain during operation of the CPU		
The need for secondary storage. Understand how secondary storage is used and which secondary storage media is appropriate for a given set of circumstances		
Bits, bytes and nibbles. Students will be able to understand fundamental role of binary in how computers work. They will know how binary controls sound and image quality, how the processor uses bits and bytes to do calculations, how the communication media uses electrical signals, as binary, to transmit data.		
Future Learning (Topic)	Networks, programming	
What Knowledge and Skills will be taught (Implementation)		How will your understanding be assessed & recorded (Impact)
How to use Python to solve problems using a range of operators, data structures and calling functions.		A test in class based on past questions and on those provided by the exam board which are part of the end of unit test package. Students will be given a grade based on published grade boundary data. Suggestions on how to improve answers to the next grade boundary will be provided. There will be some interim on-line testing based on multiple choice questions in Teams and Google forms
Von Neuman architecture. How the fetch decode execute cycle is accomplished. How RAM and ROM interacts with the CPU, The reason for, and effects of, secondary storage media. Knowledge of their capacity, read and write times, expensiveness, size and robustness.		
Python.		A series of exercises where students change binary to hexadecimal and back, convert sound waves and images to digital for transmission, compression of data. Google Forms will give access to AO1, and a series of question and answers will give AO2 and AO3
Manipulation of binary and the use of binary in character sets, audio, images. How to add up binary, convert to hexadecimal and decimal		
How can parents help at home?		
Parents can read the content list and test knowledge on the specific items. Having quick access to facts can be a very useful tool when tackling questions that have AO1 (knowledge and understanding) and AO2 (applying knowledge and understanding)		
Helpful further reading/discussion (including Reading and Vocabulary Lists)		
Reading	Vocabulary Lists	
CGP Computer science revision book	MAR (Memory Address Register)	Program Counter (PC)
GCSE pod	MDR (Memory Data Register)	Accumulator
Google quizzes	CD, DVD, BLUERAY	RAM and ROM
PG-online powerpoints	R-W	Capacity
	R	Megabyte
	ROM	Gigabyte
		Terabyte