Curriculum Map – Computer Science Year 9

	1	2	3	4
Y9	**Topic Title:** • Algorithmic thinking • Coding in Python **Big questions:** What is computational thinking? *(3.1 Fundamentals of algorithms)* What does the term 'algorithm' mean? What does the term 'abstraction' mean? What does the term 'decomposition' mean? How can I use flowcharts and *pseudocode to represent algorithms?* *(3.2 Programming)* What is sequential programming and how do we code in Python? - print and inputs - variables and constants - formatting print and input statements How do I use the correct data types & arithmetic operators in my code? What is the difference between selection & iteration? An introduction to if statements and loops.	**Topic Title:** • Data representation (binary) • Coding in Python **Big questions:** How does a computer represent different types of data & instructions? *(3.3 Fundamentals of data representation)* Explain the different number bases – decimal (base 10), binary (base 2), hexadecimal (base 16) Why does a computer use binary? How do you add in binary and perform a binary shift? *(3.2 Programming)* What are the different errors and how do we correct them in Python? What is selection and how do we code this in Python? *(IF, ELSE and ELIF)* -introduction to functions & procedures through Python turtle graphics	**Topic Title:** • Data representation (binary, units of information, character encoding) • Coding in Python **Big questions:** How does a computer represent different types of data & instructions? *(3.3 Fundamentals of data representation)* How do you convert between - number bases? *(in both directions)* How do you add in Binary? What are the different units of information? What is 'character encoding'? (ASCII and Unicode) *(3.2 Programming)* What are the different operators and how do we use them in python? Know how to use relational operators in Python. Using random.	**Topic Title:** • Data representation (images & sound) • Coding in Python **Big questions:** How does a computer work? *(3.3 Fundamentals of data representation)* How does a computer represent images? *(bitmap images, use of colour and binary representation)* How does a computer represent sound? *(Sound digitization – impact on quality, sample rates)* *(3.2 Programming)* What is iteration/repetition and how do we code in Python? *(use of FOR loops, understand the purpose of a counter, use of WHILE loops).* *String handling*

Curriculum Map – Computer Science Year 9

ASSESSMENT	CFU (live marking) in Algorithmic thinking booklet HW Seneca assignment Algorithms CFU (live marking) Coding tasks CFU quizzes itsLearning Assessment Algorithmic thinking	CFU (live marking) coding tasks HW Seneca assignment Data representation Python turtle graphics assessment	CFU itslearning quiz CFU (live marking) coding tasks Assessment Python operators	CFU itslearning quiz CFU (live marking) coding tasks Assessment Data representation