COMPUTER SCIENCE: Key Stage 4 Curriculum

Year 10

Content (Intent)	Links to prior learning	Skills and Assessment (Implementation)	Expected Learning Outcomes (Impact)
Term 1/2 **Paper 1** Memory and storage - Units - Data Storage - Characters - Images - Sound - Compression - Primary Storage - Secondary Storage **Paper 2** Boolean Logic Algorithms - Computational thinking - Designing, creating, and refining algorithms - Searching and sorting algorithms	Consolidate learning from Key Stage 3, with particular focus on Computer systems, Year 8 term 1 as the concept of binary is developed further looking at how hex makes it easier for humans to communicate with computers	Skills: - Develop and apply their analytic, problem-solving, design, and computational thinking skills - Complete and read trace tables for programs - Storage and management systems Assessment: End of topics Tests, closed books.	Show an understanding of why data must be stored in binary format Show an ability to be able to convert between denary, binary, and hexadecimal Show an ability to be able to convert between different units of storage Be able to respond to questions with an extended longer response where quality of communication will be assessed Describe the skills that are involved in computational thinking

Term 3/4 **Paper 1** Systems architecture - Architecture of the CPU - CPU Performance - Embedded Systems **Paper 2** Programming languages and Integrated Development Environments - Languages - The Integrated Development Environment (IDE) Programming fundamentals	The concept of registers and busses is new to all students	Skills: - Storage and management systems - Maintenance of hardware - Use of a text-based programming language to - Cybersecurity - Network security - Assessment: Written End of topic Tests, closed book Staged Python Challenges	Show an awareness how networks are used in difference scenarios, including how to protect and use them responsibility, Appropriate use of vocabulary to explain different types of programming languages and the environments in which they are complied Can identify and implement the main programming constructs in a High-Level Programming Language.
Term 5/6 **Paper 1** Computer networks, connections, and protocols Network security **Paper 2** Programming fundamentals Practice Practical Programming Task	Reenforce learning from Year 8 term 1/2, topologies. Keywords and vocabulary used throughout KS3 to help pupils with identification of programming constructs used in Python at GCSE.	Skills: - Maintenance of hardware - - Components and drivers - Use of text-based programming language Assessment: End of topic tests Staged Python Challenges Guided documentation writes up	To be able to demonstrate the ability to develop programming code to solve a problem

Resources and/or activities to support learning

Textbook: Computer Science OCR J277 By PG Online (provided to students at star of Year 10)

You Tube – Craig 'n' Dave videos for OCR GCSE J277

You Tube – Crash Course Computer Science videos

Useful programming websites:

Practicing Python coding: Code Marker UK

Online tutorials for Python: Python Tutorial (w3schools.com)