

Year 11 – GCSE COMPUTER SCIENCE Programme of Study

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Enquiry Question	Networking and Cyber Security	Legal, Environmental and Ethical issues	Cyber Security		Revision	
Key Content	<ul style="list-style-type: none"> • Network security • IP Addressing and routing • Revision for the mock exams 	<ul style="list-style-type: none"> • Legal, including data protection, computer misuse and copyright. • Environmental, including construction, waste, processing, transport, energy, use of precious resources • Ethical, including the digital divide, Machine Learning/Artificial Intelligence, responsibility, visibility vs. privacy, big data 	<ul style="list-style-type: none"> • Forms of attack • Types of threats • Penetration Testing • Types of malware • User permissions, security, passwords • Biometrics, • CAPTCHA, email security 			
Milestone Assessment	The networking test	The Year 11 Mock exams	LEE and Cyber Security tests	Typically two more mock papers		

In addition to the content for Paper 2: Computing Concepts, significant time is given to coding, which forms the bulk of Paper 1: Computational Thinking and Programming Skills. For GCSE, pupils switch from C# and JavaScript to Python 3, and study the following coding structures and features in order to solve real-world problems.

Data Types	Using char, strings, ints, floats and Booleans
Maths operators	Using common arithmetic operators as well as modulo (remainder), understanding BIDMAS
Variables, constants and scope	The notion that a variable is a named location of data of a specific type in the computer's memory, that a constant can't change once set, and that scope determines where variables can be used and altered.
Using and manipulating strings	A string as an array (or list) of characters; methods that apply to strings, using strings in comparisons
Selection	Using if/else blocks to change the flow of execution of a program. (Conditional execution.)
Loops	Using count-controlled and condition-controlled loops; for loops as iterators over collections; for loops over ranges as iterators over number series
Arrays and lists	Storing multiple values within one reference. Manipulating elements. Accessing ranges of elements.
Records	Structures that hold values (of different types) for a given thing
Subroutines	The idea of reusing a block of code as a function or method, or as a procedure. The notion of returning a value from a function. Function signatures.
Libraries	The use of function libraries to add features to code, including, for example, date and time, random numbers, reading and writing to files.