



A-Level COMPUTER SCIENCE Plans for Year 12 Curriculum

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	<u>The characteristics of contemporary processors, input, output and storage devices</u> To introduce the concept of a computer system and its component parts and understand the link between hardware and software. <u>Software and software development</u> To develop programming skills in Python, Little Man Computer (LMC), HTML, CSS, JavaScript and SQL to be able to identify sequence, selection and iteration in code. To simulate the operations of a processor and assembly language, create interactive web pages of a uniformed style, and query a database over the duration of the course.		<u>Exchanging data</u> To understand how data can be stored in databases and transmitted over computer networks. To be able to explain the process of data compression and the use of protocols. <u>Data types, data structures and algorithms to solve problems and standard algorithms</u> To understand how data is represented within a computer and how binary can be interpreted as numbers, text, sound and images. To be able to convert binary to hexadecimal and understand why this can be used as shorthand. To develop and review algorithms to complete standard tasks.	<u>Network topologies and layers</u> To understand how data packets are transmitted between electronic devices and how they are encoded to enable their delivery.	<u>Progression exams</u> Component 01 and Component 02 style examinations.	<u>Elements of computational thinking</u> To understand the principles and elements of computational thinking, and to be able to identify abstraction, decomposition, logic and procedures to solve problems. <u>Programming Project</u> To research and develop a programming project based on the analysis of a student lead project.
Assessed through	Programming exercises, home learning tasks based on examination questions and end of unit tests.	Programming exercises, home learning tasks based on examination questions and end of unit tests.	Programming exercises, home learning tasks based on examination questions and end of unit tests.	Programming exercises, home learning tasks based on examination questions and end of unit tests.	Formal progression examinations.	Research and identify suitable project ideas.



A-Level COMPUTER SCIENCE Plans for Year 13 Curriculum

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 13	<u>Databases</u> To develop and make the connection between database theory and their use as potential solutions to the Programming Project. <u>Algorithms</u> <u>Programming Project</u> The students will develop a computing problem to work through according to the guidance in the specification based on the analysis, design, development, testing and evaluation of their solution.	<u>Legal, moral, cultural and ethical issues</u> To explore the wider implications of the use of computers in the modern world and identifying the opportunities and risks it brings. This would include artificial intelligence, environmental effects, censorship, personal data, and piracy. To understand and be able to apply relevant computer legislation to situations and explain how the principles of the law might be broken.		<u>Revision</u> To review and revise the entire examination specification.	<u>Examinations</u>	
<i>Assessed through</i>	<i>Completion of project work and home learning tasks.</i>	<i>Home learning tasks based on examination questions and revision tasks.</i>	<i>Formal Component 01 and Component 02 examination papers</i>	<i>Home learning tasks based on examination questions and classroom timed unit tests.</i>		