



# ST CATHERINE'S COLLEGE

A CHURCH OF ENGLAND ACADEMY

Learning overview for: Computer Science			Year group: Y10	
Term	Key topics / scheme of work	What most pupils will learn (Prior assessment may alter starting point & content)	Key skills used	How will this learning be assessed?
Term 1	Binary Hardware Computational thinking	How to convert binary to denary and hexadecimal Main hardware components and their roles How to think like a PC.	Binary, denary and hexadecimal calculations Developing knowledge of CPU, RAM & ROM Decomposition, abstraction, algorithmic thinking.	Mid-unit and end of term tests using GCCE questions.
Term 2	Secondary Storage  Designing, creating, and refining algorithms	The advantages and disadvantages of different storage devices.  How to use their computational thinking skills from term 1 to solve complex problems.	Evaluating and comparing characteristics.  Interpret, correct, complete, and refine algorithms using pseudocode, flowcharts, and Python. They will develop and use Trace tables to help identify errors.	Mid-unit and end of term tests using GCCE questions.
Term 3	Data representation  Searching algorithms	How text, image and sound are represented as binary.  Standard sorting algorithms: Bubble sort, Merge sort, Insertion sort.	Calculating image sizes, evaluating types of compression.  Understand and use the main steps of Bubble, Merge, and Insertion sorting algorithms.	Mid-unit and end of term tests using GCCE questions.
Term 4	Operating Systems  Sorting algorithms	The purpose and functionality of the operating system and utility software.  Standard searching algorithms: Binary search, Linear search.	Describing the use of the different aspects.  Understand and use the main steps of Binary and Linear searching algorithms.	Mid-unit and end of term tests using GCCE questions.





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Term 5	Networks  Programming fundamentals	Different networks and topologies.  The use of variables, constants, operators, inputs, outputs and assignments.	Comparing and evaluating different networks and the advantages of networking.  Python skills.	Mid-unit and end of term tests using GCCE questions.
Term 6	Network Layers  Programming fundamentals	The purpose of layers and the associated protocol.  The use of the basic programming constructs used to control the flow of a program: Sequence and selection.	Appreciating different layer protocols.  Python skills.	Mid-unit and end of term tests using GCCE questions.

