

## COMPUTER SCIENCE Y10 CURRICULUM OUTLINE

Term	Topic/Unit of work	Knowledge	Skills	Assessment
Summer Term 2 – Starts of GCSE	System Architecture Memory and Storage  Programming fundamentals	Architecture of the CPU CPU performance Embedded systems Primary storage Secondary storage  Writing structured programs using sub-routines. The use of variables, constants, operators, outputs and assignments The use of first two basic programming constructs; Sequence & Selection	Answer exam questions on the knowledge gained Apply knowledge gained to a practical situation  Develop program code and construct's using data types, outputs, functions and procedures	Past exam questions on System Architecture & Memory & Storage  TIME – Learn how to write structure programs Learn how to use selection Programming challenges
Autumn Term 1	System software  Data representation	Operating systems Utility software  Binary Number bases Twos complement  Writing structured programs using sub-routines. The use of variables, constants, operators, outputs and assignments The use of the first two basic programming constructs; Sequence & Selection	Answer exam questions on the knowledge gained Apply knowledge gained to a practical situation  Develop program code and construct's using data types, outputs, IF/ELIF/ELSE, functions and procedures	Past exam questions on System Architecture, Memory, Storage & System software  TIME – Learn how to use number data types Learn how to use string data types Programming challenges
Autumn Term 2	Data representation	Twos complement Binary-denary conversion Binary-hex conversion Hex-denary conversion Units	Answer exam questions on the knowledge gained Apply knowledge gained to a practical situation	Past exam questions on System Architecture, Memory, Storage, System software & representation of data

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	<p>Bebras Challenge</p> <p>Programming fundamentals</p>	<p>Bebras challenge</p> <p>The use of variables, constants, operators, outputs, assignments, random number generation. The use of three basic programming constructs; Sequence, Selection &amp; Iteration (count controlled loops &amp; condition controlled loops)</p>	<p>Develop problem solving skills in national competition. Use of abstraction, decomposition and computational thinking.</p> <p>Develop program code and construct's using data types, input/outputs, iteration</p>	<p>1 hour to solve a set of problems that relate to computational thinking. Leads to second round where programming ability is tested.</p> <p>TIME – Learn how to use string data types Learn how to use counter-controlled iterations Programming challenges</p>
Spring Term 1	<p>Data representation</p> <p>Computer networks, protocols and layers</p> <p>Programming fundamentals</p>	<p>Character sets Images – bitmaps Sound Compression</p> <p>Types of networks The Internet</p> <p>The use of variables, constants, operators, outputs, assignments, random number generation. The use of three basic programming constructs; Sequence, Selection &amp; Iteration (count controlled loops)</p>	<p>Answer exam questions on the knowledge gained Apply knowledge gained to a practical situation</p> <p>Develop program code and construct's using data types, input/outputs, iteration</p>	<p>Past exam questions on System Architecture, Memory, Storage and representation of data.</p> <p>TIME – Learn how to use counter-controlled iterations Learn how to use condition-controlled iterations Programming challenges</p>



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	Programming fundamentals	<p>The use of variables, constants, operators, outputs, assignments, random number generation.</p> <p>The use of three basic programming constructs; Sequence, Selection &amp; Iteration (count controlled loops &amp; condition controlled loops)</p>	Develop program code and construct's using data types, outputs, iteration	<p>TIME – Learn how to use counter-controlled iterations</p> <p>Learn how to use condition-controlled iterations</p> <p>Programming challenges</p>
Summer Term 2	<p>Review of paper 1 &amp; 2 material</p> <p>Algorithms and computational logic</p> <p>Programming fundamentals</p>	<p>Review System Architecture, Memory, Storage, System software, Computer networks, Networks and cyber security and Issues</p> <p>Abstraction Decomposition Algorithmic thinking How to produce algorithms – Flowcharts &amp; Pseudocode</p> <p>The use of variables, constants, operators, outputs, assignments, random number generation.</p> <p>The use of three basic programming constructs; Sequence, Selection &amp; Iteration (count controlled loops &amp; condition controlled loops)</p>	<p>Answer exam questions on the knowledge gained</p> <p>Apply knowledge gained to a practical situation</p> <p>Develop program code and construct's using data types, input/outputs, iteration</p>	<p>End of year 10 test on all paper 1 topics covered so far.</p> <p>TIME – Learn how to use condition-controlled iterations</p> <p>Learn how to handle user input</p> <p>Programming challenges</p>