



# King Harold Academy



## Computer Science Curriculum Overview

**YEAR 10**

	Autumn Term	Spring Term	Summer Term	Rationale
<b>Composites</b>	Computer Systems	Computer Systems, Algorithms	Computational Thinking, Algorithms and Programming	<p>Having been exposed to the foundation of the KS4 specification in year 9, students would be re-introduced to the key components of a CPU in the Autumn Term. They will learn about the architecture of a computer system and will understand how a CPU processes and stores data.</p> <p>The Spring term continues to focus on Component 1 content whereby students continue to learn about concepts relating to computer systems. They will now consider how networks are formed and how the rising use of technology impacts society.</p> <p>The Summer term will be used to re-introduce techniques used in programming, algorithms and computational thinking. At this point students would have covered all concepts required in Component 1 (Paper 1) which would be examined in their final year 10 mock exam. Exam command verbs as per Exam board guidance will be embedded in lessons throughout the school year.</p>
<b>Key Components</b>	Systems Architecture, Memory, Storage, system Security	System Software, Computer Networking, ELCE (Ethical, Legal, Cultural, Environmental) Concerns, Algorithms and Flow Diagrams, Programming Techniques	Algorithms and Computational Logic, Programming Techniques, Programs, Translators and Languages, Data Representation.	
<b>Tier 3 language</b>	CPU, ALU, Control Unit, Cache, von Neumann Architecture, FDE Cycle, Embedded Systems, Volatile, Non-Volatile, Malware, Encryption	Defragmentation, Utility Software, File Management, Layers, Protocols, Topology, Packet Switching, SQL, Digital Divide, Legislation	Iteration, Selection, Search and Sort, Flow Diagrams, Pseudocode, Operators, Logic Gates, Truth Table, AND OR NOT, ASCII, Hexadecimal	
<b>Assessment</b>	End of Term 1 Assessment x 1 Fortnightly Low stakes testing	End of Term 2 Assessment x 1 Fortnightly Low stakes testing	Paper 1 Mock Exam x 1 Fortnightly Low stakes testing	
<b>The best that has been thought and said</b>	Alan Turing, Ada Lovelace, Carl Sassenrath, John von Neumann	Bill Gates	Manuel Blum	

**YEAR 11**

<b>Composites</b>	Computational Thinking, Algorithms and Programming	Computational Thinking, Algorithms and Programming	Revision	<p>In the Autumn term, Students will continue to exercise their skill of problem solving when given computational tasks. The use of algorithms, and flowcharts will be used to solve multiple problems. Students will begin to complete the OCR NEA using principles of a programming design process.</p> <p>The Spring term continues to focus on Component 2 content whereby students continue create a robust program based on the NEA Scenario.</p> <p>The Summer term will be used to re-visit the content most likely to appear in the summer exams. Students will have the opportunity for deliberate practice and memory retrieval of concepts relating to both Component 1 and 2. Interleaving will be used throughout the year.</p>
<b>Key Components</b>	Programme Design Process, Programming Project, Algorithms Computational Logic, Programming Techniques,	Programme Design Process, Programming Project, Algorithms Computational Logic, Programming Techniques,	Preparation for GCSE examinations. Deliberate Practice & Retrieval Practice of key knowledge.	
<b>Tier 3 language</b>	File Handling, Defensive Design, Test Data, Program Maintainability, High/Low Level language, System Development	File Handling, Defensive Design, Test Data, Program Maintainability, High/Low Level language, System Development	Key Exam Command Verbs: Describe, Design, Explain, Give, Convert, Identify, Justify, Solve, State, Tick	
<b>Assessment</b>	Non-Examined Assessment (NEA) OCR Release Paper 1 & 2 Mock Exam x 1	Paper 2 Mock Exam x 1 Fortnightly Low stakes testing	GCSE Exams	
<b>The best that has been thought and said</b>	Elon Musk, Larry Page, Mark Zuckerberg	Tim Berners-Lee,		