

Computer Science Key Stage 4: The Birchwood Way

The Curriculum Journey

Year	HT1	HT2	HT3	HT4	HT5	HT6
10 Paper 1 & Python Coding	<p>Data Representation</p> <p>Learning question: Can I understand how data is represented in a computer system?</p> <p>Key knowledge: Theory: <i>Units, Data storage, Characters, images, sound, compressions</i></p> <p>Coding: <i>Introduction to Python</i></p>	<p>Computer Hardware</p> <p>Learning question: Can I understand the architecture and performance characteristics of a CPU?</p> <p>Key knowledge: Theory: <i>CPU Architecture, CPU Performance, Embedded Systems</i></p> <p>Coding: <i>Variables inputs and outputs</i></p>	<p>Networks & Security</p> <p>Learning question: Can I understand how networks work and why they are important?</p> <p>Key knowledge: Theory: <i>Networks and Topologies, Wired and Wireless Networks, protocols, layers</i></p> <p>Coding: <i>Calculations</i></p>	<p>Networks & Security</p> <p>Learning question: Can I understand the risks and vulnerabilities of networks?</p> <p>Key knowledge: Theory: <i>Threats to computer Systems and networks, identifying and preventing vulnerabilities.</i></p> <p>Coding: <i>Selection and Iteration</i></p>	<p>Systems Software</p> <p>Learning question: Can I understand how operating systems enable computer systems to be useful to humans?</p> <p>Key knowledge: Theory: <i>Operating Systems, Utility Software</i></p> <p>Coding: <i>Subroutines and Functions</i></p>	<p>Ethics & Society</p> <p>Learning question: Can I understand the Ethical, Legal, cultural and environmental considerations in computer science?</p> <p>Key knowledge: Theory: <i>Ethical, Legal, cultural and environmental impact</i></p> <p>Coding: <i>String handling, Reading and Writing to Files</i></p>
Building and revisiting	Revisits and builds on data representation unit in KS3	New concepts	Revisits and builds on Networks unit and Cyber Security units in KS3	Revisits and builds on Networks unit and Cyber Security units in KS3	New concepts	New concepts
Assessment	RAP: End of topic Test, Over shoulder marking, Python Learning Log reviews	RAP: End of topic Test, Over shoulder marking, Python Learning Log reviews	RAP: End of topic Test, Over shoulder marking, Python Learning Log reviews	RAP: End of topic Test, Over shoulder marking, Python Learning Log reviews	RAP: End of topic Test, Over shoulder marking, Python Learning Log reviews	RAP: End of Year KAST cumulative knowledge for Paper 1, End of topic Test, Over shoulder marking, Python Learning Log reviews
11 Paper 2	<p>Algorithms</p> <p>Learning question: Can I understand key algorithms in computing?</p> <p>Key knowledge: <i>Computational thinking, Designing, creating</i></p>	<p>Programming</p> <p>Learning question: Can I understand the fundamentals of programming?</p> <p>Key knowledge: <i>Programming Constructs and Boolean, Data</i></p>	<p>Boolean Logic</p> <p>Learning question: Can I understand computational Logic?</p> <p>Key knowledge: <i>Boolean Logic</i></p>	<p>Producing Robust Systems</p> <p>Learning question: Can I understand how to produce systems that are robust and resilient?</p> <p>Key knowledge: <i>Defensive design, Testing</i></p>	<p>Programming Languages & Revision</p> <p>Learning question: Can I understand programming languages and Integrated Development Environments (IDE)?</p> <p>Key knowledge: <i>Languages, Translators, the IDE</i></p>	Course complete

	<i>and refining algorithms, Searching and Sorting Algorithms</i>	<i>types, String manipulation, file handling, databases and SQL</i>				
Building and revisiting	Revisits and builds on Flowol units in KS3	Revisits and builds on Programming units in KS3 and coding from Year 10	New concepts but builds on Boolean used in coding in Year 10	New concepts but revisits code from Year 10	New concepts but revisits IDEs used across KS3 and KS4	
Assessment	RAP: Mock Exam Paper 1, End of topic Test, Over shoulder marking,	RAP: End of topic Test, Over shoulder marking,	RAP: End of topic Test, Over shoulder marking,	RAP: End of topic Test, Over shoulder marking,	RAP: End of topic Test, Over shoulder marking,	