

Top-Level Overview for Key Stage 4 Curriculum: Computing

1. Endpoint for the end of Key Stage 4:

- Understand and apply the fundamental principles of computer science, including abstraction, decomposition, logic, algorithms and data representation.
- Analyse problems in computational terms and design, write, test and refine programs using a high-level programming language.
- Apply computational thinking techniques to solve increasingly complex problems.
- Understand how computer systems work, including processors, memory, storage and system software.
- Explain how data is represented digitally using binary, hexadecimal, character sets, images and sound.
- Understand how networks and the internet operate, including network hardware, protocols, addressing and layers.
- Understand cyber security threats and evaluate methods used to protect systems, networks and data.
- Evaluate the ethical, legal, cultural and environmental impacts of computing technologies.
- Apply technical knowledge to unfamiliar scenarios and communicate solutions using accurate technical terminology.
- Develop as responsible, competent, confident and creative users of digital technology.

2. Topic Overview

Year Group	Autumn Term	Spring Term	Summer Term
	Topics:	Topics:	Topics:
10	1. Algorithmic Thinking & Robust Programming 2. Programming Techniques 1 3. Programming Techniques 2 4. Modular Programming	5. Systems Architecture 6. Memory & Storage 7. Data Representation 1 hour per fortnight - Unit A – Extended Programming Project	8. System Software 9. Translators & Facilities of Language 10. Testing & Logic 1 hour per fortnight - Unit A – Extended Programming Project
11	11. Network Topologies, Wired & Wireless Networks 12. Protocols & Layers 13. Searching, Sorting & Databases Note: 1 hour per fortnight to be spent recapping programming concepts and programming practice	14. System Security 15. Ethical, Legal, Cultural & Environmental Concerns 16. Revision & Exam Preparation (paper 1 and paper 2 content) Note: 1 hour per fortnight to be spent recapping programming concepts and programming practice	17. Revision & Exam Preparation (paper 1 and paper 2 content)