KS5 Curriculum Overview: A-Level Computer Science

	Autumn Term	Spring Term	Summer Term
Year 12	Curriculum and Skills: **Data representation:** Includes number systems, binary, hexadecimal, images, sound, encryption and decryption, data compression, before moving onto Boolean algebra **Programming:** Review GCSE programming concepts (functions, reading and writing to files) then move onto graphical user interfaces, visualisation and modular programming	Curriculum and Skills: **Algorithms:** Explores a range of algorithms, code tracing, Big 0 notation, abstract data types, computational thinking, abstraction and finite state machines **Programming:** Covers networking and SQL server-side scripting and assembly language, HTML, CSS and JavaScript client-side processing	Curriculum and Skills: **Hardware and software:** Includes processor architecture, communication and networking **Computing and society:** Legislation and ethical issues and learn how to write extended prose **Programming:** Mini coding projects, preparation of pre-release material for summer mock, writing a prototype for computing project
	Assessment: Baseline programming assessment and an end of unit assessment before October half term. Regular programming and other homework assessments.	**Assessment:** January Mock exams for paper 1 (on screen in lesson) and paper 2, end of spring term assessment on algorithms. Regular programming and other homework assessments	**Assessment:** Summer Mock exams for paper 1 (on screen in lesson) and paper 2. Regular programming and other homework assessments, computing project proposal with prototype code
Year 13	Curriculum and Skills: **Models of computation:** Turing machines, regular expressions and reverse polish notation **Data:** floating point numbers, databases and big data **Programming:** Covers other paradigms including object-oriented programming and functional programming. Continue working on computing project	Curriculum and Skills: **Internet:** Security, IP addresses, internet architecture, TCP/IP and JSON and XML, client-server model **Programming:** Stack frames, code tracing, completing the computing project including the testing. Preparation of preliminary material for AQA Paper 1	Curriculum and Skills: **Theory:** Revision and review of skills (e.g. code tracing, answering extended response questions) and knowledge required for both papers, exam question practice **Programming:** Preparation of preliminary material for AQA Paper 1, modifying and practicing the pre-release code to gain familiarity
	Assessment: Summative October half term and End of term assessment. Submission of draft of analysis, design and implementation sections of the computing project. Regular programming and other homework assessments.	**Assessment:** March mock exam for paper 1 (in lesson on screen) and 2, submission of completed computing project at end of term. Regular programming and other homework assessments.	**Assessment:** Summer Exams Paper 1 (on screen) and Paper 2. Regular programming and other homework assessments.