KS3 Computer Science

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	**Unit 7.1 Computer Systems**	**Unit 7.2 Data Gathering**	**Unit 7.3 Computer Control with Flowol**	**Unit 7.4 Digital Graphics**	**Unit 7.5 Scratch Programming**	**Unit 7.6 Introduction to Python Programming**
Unit overview	The unit covers computer hardware, software and factors that affect the performance of a computer.	The unit covers the uses of data, both primary and secondary and how spreadsheets could be used to present and analyse data.	The unit covers computer controlled systems, sensors, algorithms and flowcharts to control devices using Flowol.	This unit introduces students to both bitmap and vector graphics and requires pupils to make graphics from scratch using Adobe Illustrator	This unit introduces students to basic programming (using programming blocks) to solve problems. They will learn uses of inputs, outputs, variables and programming constructs.	This unit introduces students to text based programming using Python: data types, operators, comparison operators, strings and variables.
Year 8	**Unit 8.1 Networks & Security**	**Unit 8.2 Data Representation**	**Unit 8.3 Algorithms**	**Unit 8.4** **Multimedia App**	**Unit 8.5** **Databases and SQL**	**Unit 8.6 Python+ with Turtle**
Unit overview	The unit covers the purpose and features of computer networks. It will include network hardware and types of networks.	This unit covers how data is represented and processed by computers, they will learn about binary number system and their conversion to denary.	This unit introduces students to reading, writing, and amending algorithms.	This unit gives students the opportunity to understand the purpose and audience of mobile apps and give them the opportunity to develop a prototype for an app of their choice.	In this units students will learn how to interrogate a database and create a database from scratch. They will also use SQL to search a database.	This unit gives students the opportunity to learn various programming constructs and use Turtle to carry out specific instructions.
Year 9	**9.1 Advanced Data Representation**		**Unit 9.2 Algorithms & Programming**		**Unit 9.3 Web Design**	
Unit overview	This covers how images and sounds are represented by computer systems.		Students use their Python programming skills to plan algorithms and use them to solve problems using a combination of programming constructs. They use a combination or flowcharts and pseudocodes to plan and solve problems using efficient methods.		This unit gives students an understanding of audience and purpose of websites. They will use HTML to create websites and evaluate the work.	

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	1.1 Systems architecture 1.2 Memory and storage	GCSE Python Programming	1.3 Computer networks, connections and protocols	2.1 Algorithms	1.4 Network security NEA	2.2 Programming fundamentals NEA
Year 10 Topic Overview	• Computer architecture, function of the CPU and components of the CPU. • Embedded systems • Types of memory and their uses • Types of storage devices and their uses.	• Programming techniques • Programming constructs •	• Types of networks • factors that affect the performance of networks • Network hardware and their uses • The internet and virtual networks • Network topologies, protocols and layers. •	• Algorithms /pseudocodes to solve problems and using trace tables to run and debug codes.	• Forms of attacks and network threats. • Identifying and preventing vulnerabilities •	• Students will focus on the development, testing and evaluation of the programming project outlined by the exam board.
Year 11 Topic Overview	2.3 Producing robust programs 2.4 Boolean logic 2.5 Programming languages and Integrated Development Environments • NEA	• 1.5 Systems software	• GCSE Data Representation and Logic	• 1.6 Ethical, legal, cultural and environmental impacts of digital technology	• 01 Computer Systems Revision	• 02 Computational thinking, algorithms and programming Revision
Topic Overview	• Mock exam revision • Testing and File handling • Data types, arithmetic and Boolean operators. • Students will focus on the development, testing and evaluation of the programming project outlined by the exam board.	• Purpose and functions of systems software • OS and utility systems software • Computational thinking, algorithms and robust programming	• Why data is represented in computer systems in binary form • Simple logic diagrams using the operations AND, OR and NOT • Truth tables • Combining Boolean operators using AND, OR and NOT to two levels • Applying logical operators in appropriate truth tables to solve problems	• How key stakeholders are affected by technologies • Environmental impact of Computer Science • Cultural implications of Computer Science • Open source vs proprietary software • Legislation relevant to Computer Science	• Revision of all Component 1 Topics and exam practice.	• Revision of all Component 2 Topics and exam practice.