

	Autumn		Spring	Summer	
Y7	<p><u>E-Safety</u> NC- create, re-use, revise and re-purpose digital artefacts for a given audience</p>	<p><u>Computer Hardware</u> NC-understand the hardware components that make up computer systems</p>	<p><u>Computer Programming</u> NC - use programming languages to solve a variety of computational problems;</p>	<p><u>Logic</u> NC - understand simple Boolean logic and some of its uses in circuits</p>	<p><u>Cyber Security</u> NC- understand a range of ways to use technology safely, respectfully, responsibly and securely</p>
Curriculum content	<p>Students will learn how to manage their online presence and make good choices about the online presence. They will understand what information they should not share online. They will also be aware of what to do when issues arise. This will be summarized by the creation of an interactive quiz that covers this topic.</p>	<p>Students will then learn to identify a range of input and output devices. Finally, students will learn about the CPU and its role in processing instructions and data, and how RAM is used to store currently used instructions. Also, how secondary storage is used for information retrieval.</p>	<p>Programming Fundamentals. Students will design, develop, test, evaluate a game using the application of Scratch. Visual based programming will be used to develop the programming fundamentals:</p> <ul style="list-style-type: none"> • Sequence • Selection • Iteration <p>They will produce a working computer game that demonstrates the skills outlined and test to ensure that it works as intended.</p>	<p>Following on from the earlier Computer Hardware in Year 7, students will learn how computers work using Circuits and Boolean Logic. They will learn the fundamentals of computer logic. This will then be used understand the Logic gates AND,OR & NOT.</p>	<p>Students will learn about the different threats to organisations and individuals. They will also learn how to keep their digital devices safe from different forms of malware that could affect a computer system in negative way.</p>
Assessment	<p>Students are assessed through marking of red zones (self, peer and/or teacher) and assessments every half term. These will test student's knowledge recall and application of knowledge computer systems and computational thinking. As they progress through the school, they will build on knowledge so students are assessed on previous topics as well as KS2 knowledge & understanding.</p>				
Literacy links	<p>Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate.</p>				

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Y8	<p><u>Computational Thinking</u> NC - understand several key algorithms that reflect computational thinking</p>	<p><u>Networks</u> NC - understand the hardware and how they communicate with one another with other systems</p>	<p><u>Python Programming</u> NC - use a text-based programming language to solve a variety of computational problems</p>
Curriculum content	<p>Students will learn that before computers can solve a problem, the problem and the ways in which it can be resolved must be understood. Decomposition helps by breaking down complex problems into more manageable parts. This will then be used to develop these problem-solving skills using the text-based programming language Small Basic.</p>	<p>Students will learn how a computer network is like a digital web that connects different computers and devices, allowing them to communicate and share information with each other. They will also learn about network topology which refers to the arrangement or structure of devices and connections within a computer network. Each with its own advantages and disadvantages.</p>	<p>Following on from the earlier unit of Computational Thinking students will learn some fundamental programming techniques using the Python programming language and the IDLE Integrated Development Environment. Text-based programming including Variables, I-O Operators and Sequence.</p>
Assessment	<p>Students are assessed through marking of red zones (self, peer and/or teacher) and assessments every half term. These will test student's knowledge recall and application of knowledge to other geographical issues/scenarios/contexts where appropriate. Throughout the year, these assessments will build on knowledge so students are assessed on previous topics as well as KS2 knowledge & understanding.</p>		
Literacy links	<p>Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate.</p>		

	Autumn		Spring		Summer	
Y9	<u>Computer Hardware</u>	<u>Python Programming</u>	<u>Data in a Computer System</u>	<u>Graphical User Interfaces</u>	<u>CyberSecurity</u>	<u>Logic Gates</u>
Curriculum content	<p>Students will build upon the Computer Hardware unit from Year 7. They will develop their knowledge of the physical components that make up a computer system. They will also learn about CPU performance, which is a key factor in how fast and efficiently a computer can process data.</p>	<p>This will build upon Python programming in Year 8. Students will develop their fundamental programming techniques using the Python programming language and the IDLE Integrated Development Environment. Skills that will be delivered include selection and mathematical calculations.</p>	<p>Students will learn how computers use binary to represent characters, images and sound. Characters Binary codes will be explained and the term 'Character Set' will be used . Including the differences between different character sets. Images, pixels and colour depth will be explored. Students will learn how to calculate image size and how compression is used.</p>	<p>Following on from the earlier unit of Python Programming students will learn some fundamental programming techniques using the Python programming language and the IDLE Integrated Development Environment. Text-based programming. They will utilise existing code to develop solution that incorporate graphical user interfaces.</p>	<p>Students in Year 9 will not have covered this topic previously. They will learn about the different threats to organisations and individuals. They will also learn how to keep their digital devices safe from different forms of malware that could affect a computer system in negative way.</p>	<p>Students will build upon previous knowledge of logic gates. These will include AND, OR, NOT and XOR gates, each with its unique logic operation. These gates will be combined to create complex circuits that can perform a wide range of tasks. Results will be recorded in truth tables.</p>
Assessment	<p>Students are assessed through marking of red zones (self, peer and/or teacher) and assessments every half term. These will test student's knowledge recall and application of knowledge computer systems and computational thinking. As they progress through the school, they will build on knowledge so students are assessed on previous topics.</p>					
Literacy links	<p>Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate.</p>					

	Autumn		Spring		Summer	
Y10	<u>Networks and Cyber-security</u>	<u>Modular Programming</u>	<u>Computational Thinking</u>	<u>Data Structures and Manipulation</u>	<u>Computer Hardware</u>	<u>Software and Digital Laws</u>
Curriculum content	Students will that networks and cybersecurity are intricately connected in our increasingly digital world. Network enable communication and data exchange. However, they also present vulnerabilities that can be exploited by malicious code. Student will learn Cybersecurity, which is the practice of protecting these networks from threats.	Following on from the earlier unit of Python Programming students will learn some modular programming techniques of subroutines and functions. They will utilise existing code to develop solution that incorporate modern programming techniques.	Following on from the earlier unit of Computational thinking students will develop the skill of algorithm construction, which is the process of designing a step-by-step set of instructions to solve a specific problem. When we decompose a problem, we're essentially identifying the individual steps required to address each subproblem. These steps, often represented as pseudocode or flowcharts, form the foundation of our algorithm construction.	Students will learn how to convert positive denary whole numbers to binary numbers (up to and including 8 bits) and vice versa. Students will then learn how to add two binary integers together (up to and including 8 bits) and explain overflow errors which may occur. They will also develop skills in binary shift for number multiplication.	Students will build upon the Computer Hardware unit from Year 9. They will develop their knowledge of the physical components that make up a computer system. They will delve deeper into the inner workings of computer systems, which includes(FDE) cycle and the role of registers. The FDE cycle is a fundamental process in a computer's central processing unit (CPU).	Students begin to explore the critical role of digital cybersecurity laws in the ever-evolving landscape of information technology and data protection. These laws are designed to safeguard digital assets, personal information, and the integrity of computer systems in an increasingly interconnected world.
Assessment	Students are assessed through marking of red zones (self, peer and/or teacher) and assessments every half term. These will test student's knowledge recall and application of knowledge computer systems and computational thinking. As they progress through the school, they will build on knowledge so students are assessed on previous topics. Assessments at this stage will draw upon information from the examination board that is being used.					
Literacy links	Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate.					

	Autumn		Spring		Summer
Y11	<u>Binary Logic</u>	<u>Modular Programming Using Exam Board Scenario</u>	<u>Data Storage and Manipulation</u>	<u>Number Representation & Manipulation</u>	<u>Revision & Exam Technique</u>
Curriculum content	Students will build upon previous knowledge of logic gates. These will include AND, OR, NOT and XOR gates, each with its unique logic operation. These gates will be combined to create complex circuits that can perform a wide range of tasks. Results will be recorded in truth tables. Boolean Algebra will also be explained.	Students will further develop their skills in modular programming, which is a structured approach to writing code that involves breaking a program into smaller, manageable modules or functions. They will produce these against a specified specification devised by the exam board. Which will later be assessed by an external examination	Students will build upon a previous topic of data manipulation. With the increasing importance of data in today's digital age, KS4 students studying data storage are equipped with the knowledge and skills to make informed decisions about data management, storage solutions, and the trade-offs involved in selecting the right storage medium for a particular application.	Students will learn how to convert positive denary whole numbers to binary numbers (up to and including 8 bits) and vice versa. Students will then learn how to add two binary integers together (up to and including 8 bits) and explain overflow errors which may occur. They will also develop skills in binary shift for number multiplication. For the first time negative numbers and subtraction will be introduced.	Effective revision and exam technique are vital for success in computer science at the GCSE level. We will imbed a DDI approach to ensure the topics covered at this stage will benefit the students the most. A range of resources from knowledge organizers, revision sheets, low stakes test and exam questions will be used to prepare students
Assessment	Students are assessed through marking of red zones (self, peer and/or teacher) and assessments every half term. These will test student's knowledge recall and application of knowledge computer systems and computational thinking. As they progress through the school, they will build on knowledge so students are assessed on previous topics. Assessments at this stage will draw upon information from the examination board that is being used.				
Literacy links	Students will develop literacy skills through regular practice of command words such as describe, explain, assess and evaluate.				

	Autumn		Spring		Summer	
Y12	<u>Under Computer Hardware & Software</u> <u>Unit 1</u>	<u>Web Design Principles and Design</u> <u>Unit 21</u>	<u>Website Creation</u> <u>Unit 21</u>	<u>Networks, Systems, Employability & Security</u> <u>Unit 1</u>	<u>Exam Technique and Revision</u> <u>Unit 1</u>	<u>Project Management & Games Design</u> <u>Unit 6 and 15</u>
Curriculum content	Students will be taught a sound understanding of IT technologies and practices is essential for IT professionals. Students will concentrate on computer hardware software. Knowledge will apply to organisations to give them a competitive edge in the current technological world.	Organisations are increasingly reliant on their websites to market goods or services and interact with clients and customers. Students will learn about the security risks in website design and how to minimise these threats. This unit will also allow them to incorporate existing interactive elements to produce websites that suitable for the intended audience.	Following on from looking at web design principles. Students will learn about the scope of functionality of websites and the importance of an effective design that meets the needs of the organisation. In this unit you will research, design and produce an interactive, responsive website that is specific to a client's needs, culminating in presenting the concept of the website using the prototype to the client.	Upon completion of the web design unit students will continue with the Unit 1 Understanding the Fundamentals of ICT. They will look at different computer systems used by a range of organisations. This will be combined with use of a range of different networks that can be utilised for a competitive advantage. Finally, students will examine the different skills required for a varied range of IT careers.	Effective revision and exam technique are vital for success in Applied IT. We will adopt a DDI approach to ensure the topics covered at this stage will benefit the students the most. A range of resources, including, revision sheets and exam questions will be used to prepare students.	Effective project management in game design involves defining project objectives, creating detailed timelines, allocating resources, and maintaining clear communication. Students develop an understanding of these topics, which they will then use to design and create a computer game prototype.
Assessment	<p>Students are assessed through marking of red zones (self, peer and/or teacher) and assessments at least every two weeks. These will test student's knowledge recall and application of knowledge IT systems and how they interact with the real world. Throughout the year, these assessments will build on knowledge so students are assessed on previous topics as well as KS4 knowledge & understanding..</p> <p>Unit 1 – will assessed through external examination Unit 21 – Coursework will be marked by teachers and then externally moderated by the exam board</p>					

	Autumn		Spring		Summer
Y13	<u>Project Management & Games Design</u> <u>Unit 6 & 15</u>	<u>Global Information</u> <u>Unit 2</u>	<u>Global Information</u> <u>Unit 2</u>	<u>Project Management & Games Design</u> <u>Unit 6 and 15</u>	<u>Project Management & Games Design</u> <u>Unit 6 and 15</u>
Curriculum content	Students will use the information from the Summer term of year 12 to plan out and design a computer game that will solve a designated need. Progress will be monitored and recorded, to keep the project on track. Documentation will be created to ensure activities can be evaluated and refined.	Unit 2 is a critical component of the qualification that explores the impact of technology on our interconnected world. This unit delves into how information technology and digital communication have transformed our society and the global business landscape. It covers topics such as the global digital divide, the role of information in decision-making, international data regulations and data privacy and security on a global scale.	Effective revision and exam technique are vital for success in Applied IT. We will a DDI approach to ensure the topics covered at this stage will benefit the students the most. A range of resources, including, revision sheets and exam questions will be used to prepare students.	Students will use the information from the Summer term of year 12 and the design work completed earlier in the year to producing a working prototype of a computer game in a suitable piece of software. Progress will continue to be recorded and the game will be tested as the game is developed to ensure it is robust. It will also be checked against game criteria that is recorded in previous work to ensure it meets its stated need.	Clear communication and feedback will be vital to computer game production success. Therefore student will create a range of professional to documentation in order gain feedback as the game progresses against a range of different sources. This is information will be analysed in order to make improvements to their game.
Assessment	<p>Students are assessed through marking of red zones (self, peer and/or teacher) and assessments at least every two weeks. These will test student's knowledge recall and application of knowledge IT systems and how they interact with the real world. Throughout the year, these assessments will build on knowledge so students are assessed on previous topics as well as KS4 knowledge & understanding..</p> <p>Unit 2 – will assessed through external examination Unit 6 and 15 – Coursework will be marked by teachers and then externally moderated by the exam board</p>				