Computing progression map

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	Using computers safely	Using computers safely	Understanding Computers	Understanding Computers	Spreadsheet modelling	Games programming in Scratch
Year 8	Introduction to python	Introduction to python	HTML and website development	HTML and website development	Creating a video	Creating a video
Year 9	Computational thinking and logic	Computational thinking and logic	Graphics	Graphics	AI and machine learning	AI and machine learning

	Year 7	Year 8	Year 9
Digital literacy and online safety (using technology safely, responsibly and effectively)	**Using Computers Safely, Effectively & Responsibly** **What students learn** • The purpose of the school's Acceptable Use Policy and expectations for responsible use of technology. • How to organise and manage files effectively, including appropriate file naming and backups. • The risks associated with social media and online communication, including cyberbullying, strangers, inappropriate content, phishing and identity theft.		**AI & Machine Learning** **What students learn** • The origins, purpose and uses of artificial intelligence and machine learning. • How rules, data and machine learning are used to enable computers to make decisions and solve problems. • The difference between facts, rules and training data in AI systems. • How intelligence can be measured and how the Turing Test is used to evaluate machine intelligence.

	• How passwords, privacy settings and other security measures help protect online identity and personal information. • How email and search engines work, and how they can be used safely and effectively. • The importance of evaluating online information, recognising that content found on the web may be inaccurate or unreliable. • How to keep devices secure and report online safety concerns appropriately. **Key Vocabulary:** • password • phishing • cyberbullying • malware • virus • privacy • digital footprint • report **Knowledge Types**: SK, PK		• The ethical implications of artificial intelligence, including bias, fairness, privacy and automation. • How AI technologies can affect society, employment and everyday life. • How computers analyse data, images and text to identify patterns and make predictions. • How AI systems, such as chatbots and facial recognition tools, are developed, evaluated and improved. **Knowledge Types:** SK, DK **Key Vocabulary:** • model • dataset • training data • prediction • bias • ethics • fairness • automation

Information technology (using digital tools to create, manage and communicate information)	**Spreadsheet Modelling** **What students learn** • How spreadsheets use cells, rows and columns to organise and process data. • How formulas and functions can be used to perform calculations and automate tasks. • The difference between relative and absolute cell referencing and when each should be used. • How spreadsheets can be used to create models and make predictions. • How data can be formatted, sorted and presented effectively within a spreadsheet. • How financial models can be used to calculate costs, revenue and profit. • How data validation and conditional formatting improve the accuracy and usability of spreadsheets. • How charts can be used to represent and communicate data visually. **Knowledge Types**: PK, SK	**Creating a Video** **What students learn** • How video products are planned through project briefs, scripts and storyboards. • How camera angles, shot types and camera movements can be used to create meaning and influence audience response. • The different roles involved in media production and the importance of collaboration during a project. • How digital video is captured, transferred and prepared for editing. • How video editing techniques, including trimming, cutting, transitions and multiple tracks, are used to create a finished product. • How audio, music and visual elements are combined to enhance a media product. • How advertising media is designed to communicate a message and promote a product. • How completed video projects are reviewed, refined and exported for distribution.	**Graphics** **What students learn** • The difference between vector and bitmap graphics and how each type of image is stored. • How pixels, colour depth and resolution affect the quality and file size of digital images. • How vector graphics are created using shapes, fills, outlines and grouping tools. • How layers are used to organise, edit and combine elements within a digital image. • How image editing tools can be used to select, isolate, transform and manipulate images. • How text and visual effects can be used to enhance the design and communication of digital graphics. • How design choices affect the appearance, quality and suitability of digital media products. • How graphics software can be used to create and refine professional digital designs.

	Key Vocabulary: • cell • formula • SUM • AVERAGE • chart • function • data type	**Knowledge Types:** PK **Key Vocabulary:** • storyboard • timeline • clip • shot • Media • transition • trim • export • soundtrack • title screen	**Knowledge Types:** SK, PK **Key Vocabulary:** • pixel • bitmap • resolution • colour depth • binary • RGB • file size • compression
Computer science (understanding how computers work and creating programs)	**Understanding Computers** **What students learn** • The difference between hardware and software and the role each plays in a computer system. • The function of input, output, processing and storage devices within a computer system. • How computer processors execute instructions and how processor speed affects performance.	**Introduction to Python** **What students learn** • How Python is used to create programs through sequence, selection and iteration. • How input, output, variables and assignment are used to store, process and display data. • The purpose of different data types, including strings, integers and floats.	**Computational Thinking & Logic** **What students learn** • How computational thinking uses decomposition, abstraction and algorithms to solve problems. • How Boolean logic is used in computing through the operators AND, OR and NOT. • How logic gates and truth tables represent and process logical decisions within computer systems.

	• How data is represented in binary and measured using units such as bits, bytes, KB, MB and GB. • The difference between main memory and secondary storage, including the strengths and limitations of different storage technologies. • How data is stored on optical media using binary representations. • How communication technologies have developed over time and contributed to modern computing devices. • How modern digital technologies are used in everyday life and continue to evolve. **Knowledge Types**: SK **Key Vocabulary:** • hardware • software • CPU • RAM • ROM • storage	• How algorithms can be represented using pseudocode and implemented in Python. • How comparison operators and conditional statements control program behaviour. • How repetition using loops allows instructions to be executed multiple times. • The different types of programming errors and how they can be identified and corrected. • How search algorithms work and how the efficiency of algorithms can be compared. **Knowledge Types:** SK, PK, DK **Key Vocabulary:** • variable • string • integer • boolean • input • output • syntax • condition • IF statement	• How algorithms can be designed, refined and optimised to achieve efficient solutions. • How repetition can reduce the complexity and length of algorithms and programs. • How data can be represented, organised and communicated using binary systems. • How compression techniques reduce file sizes and support efficient storage and transmission of data. • How abstraction is used to simplify complex systems and focus on relevant information. **Knowledge Types:** DK, SK **Key Vocabulary:** • algorithm • decomposition • abstraction • AND • OR • NOT • logic gate • truth table

	• motherboard ……. **Games Programming in Scratch** **What students learn** • How visual programming languages use blocks to create and control programs. • How algorithms are created and executed through ordered instructions. • How events, sequence, selection and iteration are used to control program behaviour. • How sprites can be positioned, moved and interacted with within a program. • How variables are used to store and change data in a program. • How costumes and other visual elements can be used to enhance a user experience. • How games are designed using characters, levels, rules and increasing challenge. • How programs are tested, debugged and refined to achieve intended outcomes. **Knowledge Types:** DK, PK	• loop • iteration • error …… **HTML & Website Development** **What students learn** • How the World Wide Web enables users to access and share information online. • How HTML is used to structure and create web pages. • How CSS is used to control the appearance and layout of web pages. • The features of effective web design, including layout, navigation, consistency and use of colour. • How websites are planned using wireframes and organised content. • How text, images and hyperlinks are used to communicate information and connect web pages. • Why responsive design is important for different devices and screen sizes. • How web forms collect user input and how submitted data can be processed.	

	Key Vocabulary: • sprite • sequence • variable • algorithm • loop • iteration • event • debug	**Knowledge Types**: PK, SK **Key Vocabulary:** • HTML • tag • element • attribute • heading • paragraph • hyperlink • image tag • list tag • CSS • layout	