

Mission Statement: To help our students develop the logical, analytical and problem-solving skills that will enable them to thrive in a society that is ever more integrated with technology. Our students need to be digitally literate and resilient; this is achieved by teaching them the fundamental principles and concepts of Computing and encouraging them to apply this understanding.

Through practical experience of writing computer programs, our students will learn to think creatively, innovatively, analytically, logically and critically to evaluate their solutions in an iterative manner.

KS3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	<p>Topic: Collaborating online Respectfully.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>What makes a safe and secure password, How to use the school network, How to construct an effective email and send it to the correct recipients, How to communicate with peers online, Understand what Cyberbullying is and its effects, online safety.</p> <p>Subject Skills:</p> <p>Use of Microsoft Office suite, Researching information from the World Wide Web, E-safety awareness, presenting to an audience.</p>	<p>Topic: Networking</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>What a computer network is, How data is transmitted, Define the terms "Protocol", "Bandwidth", "Packets", "Addressing", Recognise necessary hardware, Define and understand what the internet is, explain how data travels between computers, Understand what the World Wide Web is</p> <p>Subject Skills:</p> <p>Reasoning, researching.</p>	<p>Topic: Gaining support for a cause</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Familiarity with using Microsoft Office Suite, develop understanding of creative commons licence and how to use resources found online crediting the source.</p> <p>Subject Skills:</p> <p>Word processing, PowerPoint, Creativity, Persuasive writing</p>	<p>Topic: Programming 1</p> <p>Assessment: Continuous assessment of classwork.</p> <p>Knowledge:</p> <p>Understanding the stages of programming (decomposition, pattern recognition, pattern abstraction, design)</p> <p>Subject Skills:</p> <p>Use of block-based programming (Scratch) to develop working programs, debugging programs to identify faults.</p>	<p>Topic: Programming 2</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Further development of skills introduced in Spring 2 unit.</p> <p>Subject Skills:</p> <p>As in Spring 2, additionally use of lists and subroutines.</p>	<p>Topic: Spreadsheet</p> <p>Assessment: Continuous assessment of classwork tasks.</p> <p>Knowledge:</p> <p>Developing familiarity with Microsoft Excel, specifically some of the available functions to automate simple processes for data management.</p> <p>Subject Skills:</p> <p>Being able to use Excel to find the sum of a set of data, averages</p> <p>Extension: To use selection to generate different outputs based on variable inputs.</p>
	<p>Rationale:</p> <p>Introducing students to the school system and recapping the basics of keeping their accounts safe and secure should be addressed first to identify gaps. Checking ability to send emails allows students to</p>	<p>Rationale:</p> <p>Students learn about the history and evolution of the internet and develop an understanding of how it works.</p>	<p>Rationale:</p> <p>Pupils should know how to use Microsoft office suite (or equivalent) in the wider world and also other mediums for communication. This builds on Unit 1 further and extends to include how to use online resources appropriately.</p>	<p>Rationale:</p> <p>To help pupils to develop key skills in programming without the complication of learning an entirely new programming language.</p>	<p>Rationale:</p> <p>To help pupils to develop key skills in programming without the complication of learning an entirely new programming language.</p>	<p>Rationale:</p> <p>To help pupils to develop methods of processing data to gain useful information from it.</p>

	communicate effectively with peers and staff. Basics of online safety are checked as this should be familiar from their prior learning at Primary					
--	--	--	--	--	--	--

KS3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
8	<p>Topic: Developing for the web</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Understanding of HTML and its use in the creation of web pages. How web search engines work and how web designers can use this to increase traffic to their websites. Discuss issues of safety and security related to networking technologies</p> <p>Subject Skills:</p> <p>Use inline styling with HTML. Use CSS to format webpages and understand the benefits of doing so. Efficient use of search engines.</p>	<p>Topic: Representations - from clay to silicon</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>How written language is used to communicate and how this works in a digital environment.</p> <p>Subject Skills:</p> <p>To convert between Binary and Decimal/Denary</p>	<p>Topic: Mobile app development</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>The four elements of programming (decomposition, pattern recognition, abstraction, design). Block based programming.</p> <p>Subject Skills:</p> <p>Further development of block-based programming to support computational thinking. Debugging code to fix errors that occur. Resilience.</p>	<p>Topic: Design vector Graphics</p> <p>Assessment:</p> <p>Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Ability to use graphic design program (Inkscape) to manipulate images and to create graphics.</p> <p>Subject Skills:</p> <p>Drawing basic shapes and editing their properties, Manipulation of individual objects, Converting objects to paths.</p>	<p>Topic: Computing systems</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Understanding the input-process-output model, Describe how the hardware components of a computer work together, develop understanding of logic and its applications in A.I., Discuss the implications of A.I. developments.</p> <p>Subject Skills:</p> <p>Reasoning</p>	<p>Topic: Intro to Python Programming.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Python programming language, Computational thinking.</p> <p>Subject Skills:</p> <p>The four elements of computational thinking (decomposition, pattern recognition, abstraction, design)</p>
	<p>Rationale:</p> <p>To introduce pupils to and develop their understanding of how the World Wide Web is coded in order to enable them to make more efficient use of online resources.</p>	<p>Rationale:</p> <p>To link written language development with the development of digital mediums</p>	<p>Rationale:</p> <p>The process of programming requires the development of resilience when problems are encountered. This is supported by giving students an end goal that is relevant to their experience of technology to increase</p>	<p>Rationale:</p> <p>Introduce pupils to how computers are used in graphic design.</p>	<p>Rationale:</p> <p>Allow pupils to develop a basic understanding of how their computers work and how this shapes the development of Artificial Intelligence and its moral implications.</p>	<p>Rationale:</p> <p>To give pupils an introduction and grounding in Python which will be the programming language developed further at GCSE.</p>

			motivation to solve problems.			
--	--	--	-------------------------------	--	--	--

KS3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
9	<p>Topic: Intro to Python Programming.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Python programming language, Computational thinking.</p> <p>Subject Skills:</p> <p>The four elements of computational thinking (decomposition, pattern recognition, abstraction, design)</p> <p>Rationale:</p> <p>Repeating this unit at the start of year 9 allows for consolidation of prior learning and also allows students new to the school to learn the basics of Python programming.</p>	<p>Topic: Programming with sequences of data.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Python programming language, computational thinking</p> <p>Subject Skills:</p> <p>The four elements of computational thinking, use of loops to allow programs to iterate steps in the completion of a task.</p> <p>Rationale:</p> <p>This unit further develops pupils understanding and familiarity with Python as a programming language.</p>	<p>Topic: Media Animations</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Use of Blender open-source Software to create and edit 3D objects and begin to animate 3D computer generated graphics</p> <p>Subject Skills:</p> <p>Perseverance, decomposition of complex objects into simpler 3D shapes.</p> <p>Rationale:</p> <p>To introduce pupils to applications of Computer Science in the real world.</p>	<p>Topic: Representations – going audiovisual.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Use of software for the editing of video and audio files, factors which affect sound quality and conversion from analogue to digital.</p> <p>Rationale:</p> <p>To introduce pupils to applications of Computer Science in the real world.</p>	<p>Topic: Cybersecurity</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Data protection Act and its purpose, Threats to computer users, how our devices are protected from threats and how this constantly evolves.</p> <p>Subject Skills:</p> <p>Research skills, Analysing the impact of technology</p> <p>Rationale:</p> <p>Pupils develop an understanding of how computer systems are protected and the flaws that are exploited to gain access to sensitive information stored digitally.</p>	<p>Topic: Physical computer programming.</p> <p>Assessment: Short multiple-choice quiz at end of unit</p> <p>Knowledge:</p> <p>Basics of computational thinking, the components of a computer.</p> <p>Subject Skills:</p> <p>Development of a physical computing artefact to achieve a specific goal.</p> <p>Rationale:</p> <p>To allow pupils to develop an understanding of how the design process for digital devices takes place.</p>