Sheldon School

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Curriculum Plan

KS3 – Information Technology

Year 8

Golden Threads

Y8 missed a year of IT lessons. The year before, they came from many different primary schools in which number and content of IT lessons varied. The IT topics selected for year 8 aim at levelling up all pupils by equipping them with basic skills needed to use computers confidently and effectively. They are then introduced to basic computer science concepts through programming in Scratch.

Enrichment

KS3 Coding Club

Review and Evaluation

Summer 2026

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 1	**Cyber Security** Link to NC unit "Introduction of cybersecurity" **Understanding of Cyber Security:** Pupils should understand the basic concept of cyber security, which involves protecting computers, networks, programs, and data from unauthorized access, attacks, or damage. **Types of Cyber Threats:** Knowledge of common types of cyber threats such as viruses, malware, phishing, and hacking. Pupils should be able to identify the characteristics of these threats and understand how they can impact computer systems and personal information. **Importance of Password Security:** Understanding the importance of creating strong, secure passwords and the risks associated with weak password practices. Pupils should know how to create and manage strong passwords to protect their online accounts. **Safe Internet Usage Practices:** Awareness of safe browsing practices, including the risks of downloading from unknown sources, the importance of staying on reputable websites, and the dangers of sharing personal information online.	**Critical Thinking and Risk Assessment:** For understanding cyber security and identifying threats, pupils need critical thinking skills to assess the risk associated with different online behaviours and digital communications. This involves evaluating the security implications of their actions on the internet. **Analytical Skills for Identifying Threats:** To recognize various types of cyber threats, pupils must develop strong analytical skills. This includes the ability to differentiate between normal and suspicious digital activities and discern potential threats from benign software or communications. **Digital Literacy for Safe Internet Usage:** Safe internet usage practices require digital literacy skills. Pupils should be able to navigate the internet responsibly, understand the implications of their online actions, and use digital tools and resources wisely and safely. **Awareness and Understanding of Privacy Concerns:** Understanding personal data and privacy involves awareness and a nuanced understanding of digital	**Name**: T1-Y8-CyberSecurity-Assessment3 **Content**: **Knowledge fluency:** demonstrate understanding of cyber security basic key terms meaning **Skills fluency:** questions based on scenarios to assess how pupils apply the knowledge taught **Date**: last lesson of the term	**Misconception:** Cyber Security is Only Concerned with Protecting Against Hackers **Reality**: While protecting against hackers is a significant aspect of cyber security, it encompasses much more. Cyber security also involves safeguarding systems against various types of malware, phishing scams, data breaches, and ensuring the security of personal data. It's not just about external attacks but also about internal vulnerabilities, user awareness, and safe digital practices. **Misconception**: Strong Antivirus Software is Enough for Complete Protection **Reality**: While antivirus software plays a critical role in protecting computers and networks from malware, relying solely on it for complete cyber security is insufficient. Cyber security is a multi-layered approach that includes using strong, unique passwords, regularly updating software, being aware of phishing tactics, and practicing safe browsing habits. It's a combination of technological solutions and informed user behaviour.	Tier 2 vocabulary **Authenticate:** This term refers to the process of verifying the identity of a user or device. In cyber security, authentication is crucial for ensuring that only authorized individuals can access certain information or systems. **Encrypt**: To encrypt data means to convert it into a code to prevent unauthorized access. Encryption is a key concept in cyber security, used to protect sensitive information by making it unreadable without the proper key or password. Tier 3 vocabulary **Phishing**: A type of cyber attack that involves tricking individuals into revealing sensitive information (like passwords and credit card numbers) by pretending to be a trusted entity in digital communication. Recognizing and understanding phishing is essential for cyber security awareness. **Firewall**: A network security device that monitors and controls incoming and outgoing network traffic based on predetermined security rules. A firewall acts as a barrier between a trusted network and an untrusted network, such as the internet.	The cyber security skills unit in Key Stage 3 builds upon foundational IT skills, emphasizing the importance of safeguarding digital information and systems. It introduces pupils to essential concepts like data protection, safe internet practices, and threat recognition in an increasingly interconnected world where cyber threats are evolving and becoming more sophisticated.

Curriculum Plan
KS3 – Information Technology
Year 8

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 1 (continued)	**Understanding of Personal Data and Privacy:** Knowledge of what constitutes personal data, including the significance of protecting personal and sensitive information online, and understanding privacy settings on various platforms and devices. **Basic Preventative Measures:** Familiarity with basic cybersecurity measures such as antivirus software, firewalls, and keeping software up-to-date. Pupils should understand how these measures help protect against cyber threats.	footprints. Pupils need to be knowledgeable about how personal information can be collected and used online and the importance of maintaining privacy settings to protect their data.			and an untrusted network, such as the internet.	

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Curriculum Plan

KS3 – Information Technology

Year 8

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Term 2	**Binary** A deeper understanding of what binary is and its fundamental use as the language of computers. Pupils will learn how to convert unsigned integers from decimal to binary and vice versa, mastering the principles of positional notation. They will also explore how text characters are represented using ASCII (American Standard Code for Information Interchange) in binary. Introduce the basic concepts of how images are represented digitally through pixels and colour depth Introduce how sound is represented through sampling and amplitude.	Develop analytical skills for understanding binary representation, enabling them to decipher how different types of data are encoded. Problem-solving skills will be honed through conversion tasks, requiring a methodical approach to transform data between number bases and formats. Pattern recognition will be cultivated as pupils identify recurring structures in binary sequences and their corresponding data. Abstract thinking will be essential for grasping the digital representation of analogue data like images and sound, understanding the process of converting continuous information into discrete binary values.	**Name**: TT2-Y8-Binary-Assessment Evaluate pupils' knowledge fluency, requiring them to demonstrate understanding of basic key terms related to binary and data representation. It will also assess their skills fluency by having them convert unsigned integers between decimal and binary, and understand how ASCII characters, images, and sound are represented in binary. The assessment is scheduled for the last lesson of the term.	The belief that binary is only for programmers, when in reality, it is the foundational language for all digital data processing. Binary is inherently complex and hard to understand; this unit aims to demystify it by breaking down its principles. Digital data is a perfect representation of analogue information; pupils will learn about the limitations and compromises involved in converting continuous signals into discrete digital forms.	Tier 2 vocabulary **Represent:** referring to how data is shown in binary form **Encode:** the process of converting data into binary **Decode: t**he process of converting binary back into understandable data. Tier 3 vocabulary **Bit:** the smallest unit of digital information (0 or 1) **Byte:** a group of eight bits **Unsigned Integer:** a whole number that is always positive **ASCII:** a character encoding standard **Pixel:** the smallest controllable element of a picture on a screen **Sample:** a discrete measurement of an analogue signal, used in sound representation	This unit on binary in Year 8 builds directly upon the introductory concepts of binary covered in Year 7, deepening pupils' understanding of how computers process and store information. It is crucial as it underpins more advanced topics in computing, such as data science, programming, and digital media creation. This knowledge will provide pupils with a fundamental insight into the digital world around them and prepare them for future studies in computer science.

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Curriculum Plan

KS3 – Information Technology

Year 8

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Term 3	**App Development** Understanding the full app development lifecycle, from initial planning and designing an app based on specific requirements to considering user experience. Pupils will learn about usability flowcharts to map out app navigation and interactivity. They will gain knowledge of how to incorporate various multimedia elements, such as images and sound, into a user interface (UI) to enhance user engagement. A core part of the unit involves designing multi-screen applications within App Lab and understanding how to write event-driven code to make buttons and other UI elements interactive.	Pupils will develop design thinking skills, enabling them to conceptualise and plan an app based on user needs and requirements. Problem-solving skills will be crucial for translating design ideas into functional app features and debugging code. Logical sequencing and algorithmic thinking will be honed as they structure app flow and write code to control interactions. Pupils will develop user-centred design skills, learning to consider the end-user's perspective when creating intuitive and engaging interfaces.	**Name: T3-Y8-AppDev-Assessmen** **Content:** **Knowledge fluency**: requiring them to demonstrate understanding of key terms related to app design and functionality. **Skills fluency:** having them plan, design, and create a multi-screen app in App Lab, incorporating interactive elements, images, and sound, and writing code to ensure button functionality. The assessment is scheduled for the last lesson of the term.	The belief that app development is only for advanced programmers, when in reality, visual programming environments like App Lab make it accessible to beginners. App design is purely about aesthetics; this unit will highlight the importance of functionality, usability, and meeting user requirements. Adding code is the only part of app creation, overlooking the crucial stages of planning, design, and testing	Tier 2 vocabulary **Usability:** referring to how easy and pleasant an app is to use **Interactivity:** the ability of an app to respond to user actions **Prototype:** an early model or draft of an app used for testing. Tier 3 vocabulary **UI (User Interface):** the visual part of an app that users interact with **Event-driven Programming:** a programming paradigm where the flow of the program is determined by events **Flowchart:** a diagram representing the sequence of operations in an app **Screen:** a distinct view or page within a multi-screen application.	This unit on App Development in Year 8 builds upon pupils' foundational understanding of programming concepts from Year 7 and introduces them to the practical application of these concepts in creating interactive software. It is crucial as it fosters creativity, problem-solving, and computational thinking in a tangible way. This knowledge will prepare pupils for more advanced programming, web development, and digital design topics in subsequent years, equipping them with essential skills for creating digital solutions.

Sheldon School

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Curriculum Plan

KS3 – Information Technology

Year 8

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 4	**Web Development** Link to NC unit "Developing for the Web" (Y8 Curriculum) • Describe what HTML is • Modify HTML tags using inline styling to improve the appearance of web pages • Assess the benefits of using CSS to style pages instead of in-line formatting • Use CSS to style static web pages Basic Structure of HTML: Pupils should understand that HTML (Hypertext Markup Language) is the standard markup language used to create web pages. They should be familiar with the basic structure of an HTML document, including tags, elements, and attributes, and understand how these components work together to structure and display content on a web page. Common HTML Tags and Their Purposes: Pupils should be able to identify and use common HTML tags such as <html>, <head>, <title>, <body>, <h1> to <h6> (heading tags), <p> (paragraph), <a> (hyperlinks), <img> (images), and / with (unordered/ordered lists). They should understand the specific purpose of each tag and how they are used to create the content and layout of a web page.	**Attention to Detail and Syntax Accuracy:** HTML requires precision in syntax; a small error can significantly impact the display of a web page. Pupils need a keen eye for detail to write accurate HTML code, including proper tag usage, attribute implementation, and adherence to syntax rules. This meticulous attention to detail ensures that the web pages function and render as intended. **Problem-Solving and Debugging Skills:** The ability to identify and resolve issues in HTML code is key. Pupils must develop problem-solving skills to troubleshoot issues like layout problems, broken links, or incorrect rendering of elements. This also includes understanding how to use browser developer tools to inspect and test HTML code.	**Name**: T3-Y9-WebDev-Assessment3 **Content:** **Knowledge fluency:** demonstrate understanding of web development basic key terms meaning **Skills fluency:** to be demonstrated by selecting and applying appropriate skills for creating webpages, using html tags, saving webpages, viewing webpages in browser **Date**: last lesson of the term	**Misconception:** HTML Alone is Enough for Creating Modern Websites **Reality**: While HTML is crucial for web development as it provides the basic structure and content of web pages, it is not sufficient on its own to create fully functional and modern websites. HTML needs to be combined with CSS for styling and layout, and often JavaScript for interactivity and dynamic content. Today's websites typically require a combination of these technologies for a complete, responsive, and interactive user experience.	Tier 2 vocabulary **Structure**: In the context of HTML and web development, 'structure' refers to the way in which HTML elements are arranged to form the layout and organization of web pages. Understanding the structure is key to effectively organizing content on a webpage. **Sequence**: This refers to the order in which HTML elements are arranged and how they are executed or displayed in a web browser. The sequence is important in HTML to ensure that the webpage content is logical and user-friendly. Tier 3 vocabulary **Tag**: In HTML, a tag is a piece of code that describes the structure of the webpage. Tags are the basic building blocks of HTML and are used to define elements such as headings, paragraphs, links, and other content types. **Element**: In HTML, an element is a fundamental building block used to define the structure and content of web pages. Elements are represented by tags in the HTML code, such as <p> for paragraphs, <a> for hyperlinks, and for divisions or sections.	The HTML web development skills unit in Key Stage 3 builds on basic computer literacy and introduces pupils to the fundamentals of web page creation and structure. This foundational knowledge is crucial as it lays the groundwork for more advanced web technologies, such as CSS for styling and JavaScript for interactivity. Following this unit, pupils are ideally positioned to explore these complementary technologies, enhancing their skill set in web design and development. This progression is vital in the IT curriculum, equipping pupils with essential skills for the increasingly digital-oriented future.

Curriculum Plan

KS3 – Information Technology

Year 8

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 4 (continued)	Creating Hyperlinks and Inserting Images: Pupils should know how to create hyperlinks using the <a> tag and how to insert images into a web page using the <img> tag, including understanding the importance of the href attribute for links and the src attribute for images. They should also be aware of the significance of providing alternative text descriptions with images for accessibility purposes. Introduction to CSS: Pupils should learn the basics of CSS (Cascading Style Sheets), which is used to control and style the appearance of web pages written in HTML. They should understand how CSS can be used to add styles to HTML elements, such as altering text colour, setting fonts, and managing element positioning.				**Attribute**: An attribute in HTML provides additional information about an element, such as setting a link's destination using the 'href' attribute in an anchor tag (<a>). Attributes are used within tags to control the behaviour and appearance of elements.	

Sheldon School

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Curriculum Plan

KS3 – Information Technology

Year 8

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 5	**Web Development - 2** Link to NC unit "Developing for the Web" (Y8 Curriculum) • Describe what HTML is • Modify HTML tags using inline styling to improve the appearance of web pages • Use HTML to structure static web pages • Display images within a web page • reate hyperlinks to allow users to navigate between multiple web pages • Assess the benefits of using CSS to style pages instead of in-line formatting • Describe what CSS is • Use CSS to style static web pages Basic Structure of HTML: Pupils should understand that HTML (Hypertext Markup Language) is the standard markup language used to create web pages. They should be familiar with the basic structure of an HTML document, including tags, elements, and attributes, and understand how these components work together to structure and display content on a web page. Common HTML Tags and Their Purposes: Pupils should be able to identify and use common HTML tags such as <html>, <head>, <title>, <body>, <h1> to <h6> (heading tags), <p> (paragraph), <a> (hyperlinks), <img> (images), and / with (unordered/ordered lists). They should understand the specific purpose of each tag and how they are used to create the content and layout of a web page.	Attention to Detail and Syntax Accuracy: HTML requires precision in syntax; a small error can significantly impact the display of a web page. Pupils need a keen eye for detail to write accurate HTML code, including proper tag usage, attribute implementation, and adherence to syntax rules. This meticulous attention to detail ensures that the web pages function and render as intended. Problem-Solving and Debugging Skills: The ability to identify and resolve issues in HTML code is key. Pupils must develop problem-solving skills to troubleshoot issues like layout problems, broken links, or incorrect rendering of elements. This also includes understanding how to use browser developer tools to inspect and test HTML code.	**Name**: T3-Y9-WebDev-Assessment3 **Content**: **Knowledge fluency:** demonstrate understanding of web development basic key terms meaning **Skills fluency:** to be demonstrated by selecting and applying appropriate skills for creating webpages, using html tags, saving webpages, viewing webpages in browser **Date**: last lesson of the term	**Misconception**: HTML Alone is Enough for Creating Modern Websites **Reality**: While HTML is crucial for web development as it provides the basic structure and content of web pages, it is not sufficient on its own to create fully functional and modern websites. HTML needs to be combined with CSS for styling and layout, and often JavaScript for interactivity and dynamic content. Today's websites typically require a combination of these technologies for a complete, responsive, and interactive user experience. **Misconception**: Learning HTML is Difficult and Requires Advanced Programming Skills **Reality**: HTML is actually one of the most beginner-friendly aspects of web development. It does not require traditional programming skills, such as logic and complex algorithms, that are necessary for other programming languages. HTML is more about understanding and using a markup language to structure content, and many pupils find that they can pick up the basics relatively quickly and start building simple web pages in a short amount of time.	Tier 2 vocabulary **Structure**: In the context of HTML and web development, 'structure' refers to the way in which HTML elements are arranged to form the layout and organization of web pages. Understanding the structure is key to effectively organizing content on a webpage. **Sequence**: This refers to the order in which HTML elements are arranged and how they are executed or displayed in a web browser. The sequence is important in HTML to ensure that the webpage content is logical and user-friendly. Tier 3 vocabulary **Tag**: In HTML, a tag is a piece of code that describes the structure of the webpage. Tags are the basic building blocks of HTML and are used to define elements such as headings, paragraphs, links, and other content types. **Element**: In HTML, an element is a fundamental building block used to define the structure and content of web pages. Elements are represented by tags in the HTML code, such as <p> for paragraphs, <a> for hyperlinks, and for divisions or sections.	The HTML web development skills unit in Key Stage 3 builds on basic computer literacy and introduces pupils to the fundamentals of web page creation and structure. This foundational knowledge is crucial as it lays the groundwork for more advanced web technologies, such as CSS for styling and JavaScript for interactivity. Following this unit, pupils are ideally positioned to explore these complementary technologies, enhancing their skill set in web design and development. This progression is vital in the IT curriculum, equipping pupils with essential skills for the increasingly digital-oriented future.

Curriculum Plan
KS3 – Information Technology
Year 8

	Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Term 5 (contnued)	Creating Hyperlinks and Inserting Images: Pupils should know how to create hyperlinks using the <a> tag and how to insert images into a web page using the <img> tag, including understanding the importance of the href attribute for links and the src attribute for images. They should also be aware of the significance of providing alternative text descriptions with images for accessibility purposes. Introduction to CSS: Pupils should learn the basics of CSS (Cascading Style Sheets), which is used to control and style the appearance of web pages written in HTML. They should understand how CSS can be used to add styles to HTML elements, such as altering text colour, setting fonts, and managing element positioning.				**Attribute**: An attribute in HTML provides additional information about an element, such as setting a link's destination using the 'href' attribute in an anchor tag (<a>). Attributes are used within tags to control the behaviour and appearance of elements.	

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Curriculum Plan

KS3 – Information Technology

Year 8

Term 6

Topics & Substantive Knowledge	Disciplinary Knowledge	Assessment	Misconceptions	Key Vocabulary	Knowledge Tracking
Integrated Project Reinforcing proficiency in word processing (Microsoft Word) for document creation and formatting, and presentation software (PowerPoint) for effective visual communication. Additionally, pupils will gain basic understanding of spreadsheet software (Microsoft Excel), including data entry, basic formulas (e.g., SUM, AVERAGE) and formatting cells They will learn how these different applications can be used together to produce a cohesive and professional output for a unified project.	Project management skills, including planning, organisation, and execution of a multi-faceted task. Pupils will develop critical thinking skills by selecting the most appropriate software tool for different parts of their project and effectively integrating the outputs. Problem-solving will be essential as they troubleshoot issues across different applications and ensure consistency in their project. Pupils will enhance their ability to synthesise information and present it clearly and coherently, demonstrating an understanding of how different data representations contribute to a single message.	**Name**: T6-Y8-IntProj-Assessment Evaluate pupils' ability to fluently apply knowledge and skills across multiple software applications. This will be demonstrated through the completion of a comprehensive project that integrates word processing, presentation, and basic spreadsheet skills based around a single idea. The assessment is scheduled for the last lesson of the term.	The belief that each software application operates in isolation and that skills learned in one do not transfer to another. This project will demonstrate the interoperability and complementary nature of these tools. Only complex data requires spreadsheets; this unit will show how even basic data organisation and calculation can benefit from Excel's capabilities. The idea that a good project relies on just one type of media, highlighting the power of integrating text, visuals, and data.	Tier 2 vocabulary **Integrate**: referring to combining different parts into a whole **Cohesive**: meaning forming a united and consistent whole **Synthesise**: to combine elements to form a coherent whole. Tier 3 vocabulary **Spreadsheet**: a file that stores data in a grid of rows and columns **Cell**: a single box in a spreadsheet grid where data is entered **Formula**: an expression that calculates the value of a cell	This "Integrated Project" unit in Year 8 is crucial as it consolidates and extends the fundamental IT skills acquired in previous terms, particularly in word processing and presentations, while introducing essential spreadsheet capabilities. It provides a practical application for these skills within a single, meaningful context, fostering a deeper understanding of how different digital tools work together. This comprehensive approach prepares pupils for more complex digital tasks in other subjects and future IT studies, as well as equipping them with valuable transferable skills for academic and professional life