Year 8 Computing Curriculum Overview

Year 8 Overview	The Year 8 Computing curriculum builds upon the foundational knowledge developed in Year 7, extending students' understanding of digital technology, coding, and creative media. The year begins with an **advanced exploration of e-safety**, focusing on how students' digital choices affect their identity, privacy, and wellbeing in the modern online world. Students critically evaluate how data is collected, shared, and used, developing awareness of responsible digital citizenship. They then transition into **text-based programming** through Python and Rapid Router, where they build logical problem-solving and debugging skills. Students gain an understanding of how code operates behind visual programs and begin creating their own interactive applications. The **Binary, Bits and Bytes** unit deepens their understanding of how data is represented and processed by computers, strengthening their theoretical knowledge of computing systems. Creativity is developed through the **Graphic Design World Cup project**, where students use Photopea and Photoshop to apply professional design principles to real-world briefs. This encourages independence, originality, and technical confidence. The final two units introduce students to **physical computing** using the BBC Micro:bit, where they design, test, and code interactive digital devices. Students first explore block-based programming before progressing to **Python-controlled Micro:bit projects**, linking coding to real-world systems and automation. Across the year, students refine key computational thinking skills — **decomposition, abstraction, logic, and evaluation** — while also enhancing digital literacy, problem-solving, and creativity. By the end of Year 8, learners have a strong understanding of both **how digital systems work and how to design, code, and create with technology** in responsible and innovative ways.

Last updated: 20/11/2025

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Week Number	Themes/ Topics	Key Knowledge & Skills	Digital Literacy Homework Themes	Key Assessments
1- 7 Autumn 1	Unit 1 – E-Safety: My Digital World	**Brief Overview** → - Explore how technology shapes personal identity and digital wellbeing. - Understand the permanence of digital footprints and online actions. - Learn how personal data is collected, shared, and used online. - Recognise manipulation through targeted ads and misinformation. - Discuss the impact of social media and screen time on wellbeing. - Understand respectful online communication and collaboration. - Learn how to report and respond to unsafe or unethical online behaviour. - Evaluate the credibility and bias of digital information. - Explore strategies to manage digital balance and privacy. - Develop responsible digital citizenship.	**Respectful Communication** → Responsible use of social media and digital platforms. - Managing privacy settings and data sharing. - Critical evaluation of online content and information. → **1.** Revise and define key e-safety terms (digital footprint, privacy, algorithm). **2.** Mid-point quiz: identify risks and safe actions in digital scenarios. **3.** Create flashcards on digital wellbeing and online safety practices.	Peer & Self Evaluation of **Project Work** - Scenario-based e-safety task and discussion. - Digital footprint analysis activity. - End-of-unit online safety test and reflection.

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8-13 Autumn 2	→ **Unit 2 – Introduction to Python & Rapid Router (Intermediate)**	**Brief Overview** → - Transition from block-based to text-based programming using Python. - Learn to use variables, selection, loops, and input/output functions. - Understand syntax, structure, and indentation rules. - Apply logic and problem-solving to create working programs. - Use Rapid Router to reinforce programming flow and debugging. - Write programs that take user input and produce meaningful output. - Identify and correct errors using testing and debugging strategies. - Understand the use of data types and operators in Python. - Apply computational thinking to real-world problems. - Build independence in text-based programming.	Safe and effective use of online IDEs (e.g., Replit). - Understanding ethical coding and digital ownership. - Managing digital projects and saving work securely. 1. Revise Python key terms (variable, loop, input/output). 2. Mid-point Rapid Router challenge task. 3. Create flashcards for Python syntax and functions.	Project Peer & Self-Evaluation - Practical Python coding challenges. - Debugging assessment using student code. - End-of-unit programming test.

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14-18 Spring 1	→ Unit 3 – Binary, Bits and Bytes	Brief Overview → - Understand how computers represent data using binary. - Convert between binary and denary numbers. - Learn how bits and bytes measure data size and storage capacity. - Explore how text, images, and sound are represented digitally. - Understand ASCII and Unicode encoding systems. - Learn about compression and its effects on file size and quality. - Apply binary concepts through hands-on activities and puzzles. - Explore how binary underpins all computer processes. - Develop precision and logical thinking when working with binary data. - Recognise binary's significance in digital communication.	- Awareness of how data is stored and shared safely. - Understanding file sizes and digital storage management. - Respecting data integrity and accuracy in computing. 1. Revise key binary terminology (bit, byte, ASCII). 2. Mid-point conversion task: binary to denary. 3. Create flashcards for binary, data units, and encoding. →	Multiple Choice Summative Assessment - Binary conversion and data representation worksheet. - ASCII and compression tasks. - End-of-unit binary knowledge test.

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19-24 Spring 2	→ Unit 4 – Graphic Design: World Cup Project (Photopea & Photoshop)	Brief Overview → - Learn how to use digital editing tools in Photopea and Photoshop. - Apply design principles such as colour theory, balance, and composition. - Develop technical skills in layering, masking, cropping, and blending. - Create a themed digital product (e.g., poster, logo, or advertisement). - Plan, design, and execute a creative digital project. - Explore typography and image manipulation techniques. - Understand copyright and ethical image use. - Evaluate personal and peer designs against success criteria. - Reflect on creative decisions and technical improvements. - Produce a professional-quality design outcome.	- Safe and ethical use of digital media and imagery. - Awareness of copyright, licensing, and fair use. - Communicating visually in a digital environment. 1. Revise design vocabulary (contrast, composition, typography). 2. Mid-point practical task: draft a digital poster layout. 3. Create flashcards for Photopea/Photoshop tools and techniques.	Multiple Choice Summative Assessment - Practical design task: World Cup promotional graphic. - Peer evaluation of creative work. - End-of-unit assessment on design principles and image editing.

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25-30 Summer 1	→ Unit 5 – Micro:bit Programming Basics	Brief Overview → - Introduce the BBC Micro:bit and its hardware components. - Understand inputs, outputs, and events in physical computing. - Use the MakeCode editor to create block-based programs. - Design and build simple projects (e.g., dice, step counter, message scroller). - Understand how software interacts with hardware. - Apply programming logic to control sensors and LEDs. - Develop problem-solving through testing and debugging. - Explore real-world uses of embedded systems. - Work collaboratively on creative digital projects. - Build confidence in coding physical devices.	- Responsible use of hardware and embedded devices. - Safe handling and setup of Micro:bits. - Understanding the role of physical computing in modern technology. 1. Revise Micro:bit terms (input, output, sensor). 2. Mid-point build: create a simple interactive Micro:bit program. 3. Create flashcards for MakeCode blocks and components.	Multiple Choice Summative Assessment - Practical Micro:bit project task. - Observation of design and functionality. - End-of-unit project presentation and reflection.

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Week Number	Themes/ Topics	Key Knowledge & Skills	Digital Literacy Homework Themes	Key Assessments
31-38 Summer 2	→ Unit 6 – Micro:bit Programming Using Python	Brief Overview → - Transition from block-based to text-based programming for hardware control. - Use Python to program sensors, LEDs, and buttons on the Micro:bit. - Apply variables, loops, and selection in a physical context. - Develop complex interactive projects such as games or timers. - Debug and refine code for reliability and performance. - Understand the link between software, hardware, and real-world automation. - Explore the concept of the Internet of Things (IoT). - Develop independence in coding and testing hardware-based solutions. - Build resilience through iterative problem-solving. - Showcase creativity through original project designs.	- Safe handling of physical devices and data communication. - Understanding automation and IoT ethics. - Awareness of how technology interacts with the physical world. 1. Revise Python hardware commands and terms (import, loop, pin). 2. Mid-point task: create a Micro:bit Python project. 3. Create flashcards summarising key Python for Micro:bit functions. →	Multiple Choice Summative Assessment - Practical hardware project coded in Python. - Debugging and peer review session. - End-of-unit assessment and demonstration of programmed device.