

Computing - Curriculum Overview - CYCLE B

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Early Years	The focus at this age is built on six core areas: <u>Computational Thinking</u>: Learning to solve problems through algorithms, sequencing (following instructions), and debugging. <u>Floor Robots</u>: Tinkering with programmable toys like Bee-Bots or Blue-Bots to learn basic directional programming. <u>Digital Media</u>: Using devices like tablets and cameras to take photos, draw, or explore digital storybooks. <u>Early E-Safety</u>: Introducing basic principles of being safe online and managing screen time. <u>Hardware Awareness</u>: Identifying the main parts of a computer and exploring how everyday technology works. <u>Fine Motor Skills</u>: Developing hand-eye coordination through navigation, tapping, and simple drag-and-drop tasks on touchscreens. Mathematics, literacy, understanding the world.					
NC KS1	Pupils should be taught: - <i>Recognise common uses of information technology beyond school.</i> - <i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i> - <i>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</i> - <i>Create and debug simple programs.</i> - <i>Use logical reasoning to predict the behaviour of simple programs.</i> - <i>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</i>					
1/2	<u>Information technology in the world beyond school</u> <i>Recognise common uses of information technology beyond school.</i> <i>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</i>	<u>Using IT to organise and present data</u> <i>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i> Pupils should be taught to: • Enter data into a digital tool (e.g. pictogram software, branching database, spreadsheet, survey app). • Organise data into categories. • Collect simple data.		<u>Building sequences in programs</u> <i>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</i> <i>Create and debug simple programs.</i> <i>Use logical reasoning to predict the behaviour of simple programs.</i> Pupils should be taught to:		

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	Pupils should be taught to identify and discuss how technology is used in everyday life outside the classroom, for example: • At home (smart TVs, tablets, gaming devices) • In shops (self-service checkouts, barcode scanners) • In banks (cash machines/ATMs) • In hospitals and doctors' surgeries • In transport (ticket machines, traffic lights, sat navs) • For communication (phones, video calls, email)	• Present data in charts, tables, or pictograms. • Find information from data they have stored. • Answer simple questions using the data.	• Understand that programs follow instructions one step at a time. • Put instructions into the correct order (sequence). • Create simple programs with a sequence of commands. • Predict what a sequence of commands will do. • Find and fix errors in a sequence.
NC KS2	Pupils should be taught: - <i>Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.</i> - <i>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</i> - <i>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</i> - <i>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</i> - <i>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</i> - <i>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</i> - <i>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</i> - <i>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</i>		

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3/4	<u>The internet</u> Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. Pupils should be taught to: -Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. - Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	<u>Audio production</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Record sounds and speech using digital devices. -Edit audio recordings. -Combine multiple audio clips. -Add effects where appropriate. -Create a final audio product for a specific purpose and audience (e.g. podcast, interview, story narration).	<u>Repetition in programs</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Pupils should be taught to: -Understand that repetition (loops) can make programs shorter and more efficient. -Use repeat commands in programs. -Identify repeated patterns in algorithms. -Create programs that use repetition to achieve a goal. -Debug programs that contain repetition.	<u>Data logging</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Use digital devices or sensors to collect data. -Record data automatically over time. -View data in tables and graphs. -Identify patterns and trends in data. -Compare data collected in different ways. -Use data to answer questions.	<u>Photo editing</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Capture and import digital images. -Use photo-editing software to improve and alter images. -Crop, rotate and resize photographs. -Apply effects and filters appropriately. -Combine images and text for a purpose. -Evaluate how editing changes the impact of an image.	<u>Using repetition in programming to create a game</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Pupils should be taught to: -Use repetition (loops) to control actions within a game. -Recognise when repeated instructions can be replaced with a loop. -Design and create a simple game with repeated actions. -Use sequence and repetition together to achieve a goal. -Test and debug their game.
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			-Predict the outcome of repeated instructions.			-Predict how repetition affects the behaviour of a program.
5/6	<u>Communication and the internet</u> Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Pupils should be taught to: -Understand how the internet enables communication around the world. -Explore different forms of online communication (e.g.	<u>Web page creation</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Plan the structure and content of a web page. -Create web pages for a specific audience and purpose. -Add and format text, images and other media. -Consider navigation and layout.	<u>Using variables in programming to develop a game</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Pupils should be taught to: -Understand that variables store information that can change. -Create and use variables within a game. -Use variables to keep score, count lives, track	<u>Introduction to spreadsheets</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Understand the structure of a spreadsheet (rows, columns and cells). -Enter and organise data in a spreadsheet. -Use simple formulae to perform calculations.	<u>3D modelling</u> Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Pupils should be taught to: -Use 3D modelling software to create digital objects. -Manipulate and combine 3D shapes. -Understand how 3D models differ from 2D images. -Design a 3D model for a specific purpose.	<u>Sensing movement with physical computing</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. Pupils should be taught to: -Understand how sensors can detect movement or changes in the environment. -Use physical computing devices (e.g. micro:bit, Crumble, Raspberry Pi) with movement sensors. -Create programs that respond to sensor inputs. -Use selection and variables to control

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	email, messaging, video calls). -Understand how information is transmitted across networks. -Recognise the benefits and risks of online communication. -Communicate safely, respectfully and responsibly online. -Know how to report concerns or inappropriate content.	-Evaluate the effectiveness of a website design. -Understand that websites are accessed through the World Wide Web.	time or record progress. -Combine variables with sequence, selection and repetition. -Test and debug programs that use variables. -Evaluate how variables improve the functionality of a game.	-Use spreadsheets to answer questions and solve problems. -Create charts and graphs from data. -Analyse and interpret information presented in a spreadsheet.	-Modify and refine a model based on evaluation. -Consider how digital models are used in the wider world.	outcomes based on movement. -Test and debug physical computing systems. -Design solutions that use sensing and physical outputs.
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