Westgate CP School and Nursery Progression of Skills: Computing

The document below has been designed to show how we will cover all of the relevant Computing knowledge and skills across our school. The context in which these are taught is left to the discretion of teachers, where possible trying to match the content to class work.

EYFS - We have selected the Early Learning Goals that link most closely to the Computing National Curriculum
Understanding the World (Technology)
- Completes a simple program on a computer.   - Uses ICT hardware to interact with age-appropriate computer software.   - Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

KS1 National Curriculum Expectations	KS2 National Curriculum Expectations
Pupils should be taught about: • understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • create and debug simple programs • use logical reasoning to predict the behaviour of simple programs • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school • 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	**Pupils should be taught about:** • 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 • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • 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 • 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 • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Yr Gp	Computer Science (Programming)	Computer Science (Theory)	Information Technology	Digital Literacy
R	- Begin to understand that an algorithm is a sequence of instructions which can be programmed on a digital device - Control real robots to move along routes using simple commands (e.g. forward, right/left turn) - Begin to use code in computer programs to make objects move	- Recognise that a range of technology is used in places such as homes and schools - Identify the main parts of a computer	- Learn how to type letters on a keyboard - Explore painting tools to make digital art - Use a simple program on a computer - Use ICT hardware to interact with age appropriate computer software - Use simple editing tools	- Navigate around a website with guidance - Know where to go for help or support when using ICT
1	- Follow simple algorithms to create a picture - Enter LOGO commands to draw a square. - Write a sequence of simple commands to make objects move - With support debug programs so they run correctly	- Name technology uses beyond school - Name the main parts of a computer	- Learn how to type words correctly using a keyboard - Make simple word-processing documents and change the appearance of text - Use and combine a variety of painting tools to create a picture - Create a multimedia story using text, pictures and sound - Enter data to create a pictogram	- Know how to use a web browser to navigate a website for internet research - Identify what personal information is and who they can trust this special information with - Understand the importance of asking for help from an adult when using ICT
2	- Write and share simple algorithms for others to follow - Enter LOGO commands to draw simple shapes - Write a sequence of commands in which objects animate around a scene based on different events at the start and when clicked on - Debug programs with some support	- Identify and describe common uses of technology beyond school - Name common input and output devices	- Make simple documents combining images with text - Change the appearance of text using tools (e.g. font, colour, size, bold and underline) to enhance the presentation - Use and combine a variety of brush styles and painting tools to create pictures - Create a simple on-screen presentation using text and images - Use tools for editing images - Contribute to a class blog - Enter data to create a graph and interpret the information	- Know how to use a web browser to navigate websites effectively - Know the SMART rules for staying safe online - Learn how to safely communicate by using appropriate behaviour online - Know where to go for help and support for concerns about content or contact when using ICT

Yr Gp	Computer Science (Programming)	Computer Science (Theory)	Information Technology	Digital Literacy
3	• Use logical reasoning to create simple algorithms explaining the sequence commands should run in. • Enter and repeat LOGO commands to program an on-screen turtle so it draws shapes and pictures. • Program a sequence of actions using timings to create simple animation • Write code that includes sequence and repetition. • Debug simple programs so they run correctly.	• Identify uses of technology beyond school and discuss reasons why they are helpful • Understand how a computer stores data	• Type text into different programs and change its style by applying a range of effects • Create documents and posters by combining text boxes with inserted images • Create an on-screen multimedia story combining text, images and sound • Enter data into a spreadsheet and present findings • Create a multimedia on-screen presentation, adding text and images and transition effects • Use and combine a variety of brush styles and painting tools for painting and editing images. • Use email communication tool effectively • Use a database to find and sort information	• Know the importance of conduct and content (showing respect) when using familiar communication tools online • Explain the features of a strong password • Understand the importance of following the SMART rules for keeping safe online • Begin to use the online permission search tool for inserting images and begin to understand why this needs to be used
4	• Use logical reasoning to predict the outcome of commands • Build procedures in LOGO so the turtle creates shapes and patterns • Program and Create games that include sequence and variables (Score Counter) • Test, debug and improve programs	• Understand the main hardware components of a computer system, including the functions of different input and output devices • Learn how the internet works, including how it is structured and how data travels along it.	• Type and design a variety of documents, posters and leaflets using tools • Create a multimedia on-screen presentation, adding animation and transition to enhance it • Enter and format data into a spreadsheet • Use on screen simulation systems to create circuits • Use and combine a variety of painting tools effectively to create pictures	• Decide whether a web page is relevant for a given purpose or question, when researching information • Be aware of copyright issues and use the online permission search tool effectively when inserting images • Understand that online activities (social media, some games and apps) have age restrictions due to content which is not appropriate for children under a specific age

			• Use a variety of picture tools to edit images	• Recognise unacceptable behaviour and identify a range of ways to report concerns
Yr Gp	**Computer Science (Programming)**	**Computer Science (Theory)**	**Information Technology**	**Digital Literacy**
5/6 Year A	• Use logical reasoning to create flowcharts within an on-screen simulation system (Flowol) and explain the sequence commands should run in • (Year 5) Design and write programs that include sound, variables. (e.g. for a score counter) and change object properties (e.g. the direction, size, speed) • (Year 6) Design and write programs that include sound, sequence, repetition, selection and that use variables. • Test, debug and improve programs independently	• Find out about the history of computing	• Type and design a variety of documents, applying a range of effects to enhance the presentation using software tools • Create an on-screen presentation with slide transitions, animation effects, hyperlinks and action buttons • Use spreadsheets to enter data and solve specific calculation problems • Create pictures using a variety of brushes and drawing tools. • (Year 5) Create a multimedia video using text, picture and sound and use effects to enhance it • (Year 6) Effectively use copy/paste and snip to edit and enhance a photo using picture tools • Design and create digital content (e.g. own blogs)	• Know that some information shared online is accidently or intentionally wrong, misleading or exaggerated and understand how to cross-reference search results to help validate information • Discuss online hazards (e.g. Viruses, Malware and Phishing) and how to respond to them safely • Understand the importance of online consent and why respecting another person's privacy is important both online and offline
5/6 Year B	• Use logical reasoning within a simulation program and explain how choices affect outcomes • (Year 5) Design and write programs that include sound, variables. (e.g. for a score counter) selection and change object properties (e.g. the direction, size, speed) • (Year 6) Design and write programs that include sound, sequence, repetition, selection and that use variables. • Test, debug and improve programs independently	• Understand how search engines operate, including how they rank, select and target results	• Type and design a variety of documents, applying a range of effects to enhance the presentation using software tools • Create an interactive animation using effects and motion paths • Create pictures using a variety of tools and effects • (Year 5) Create a multimedia video using text, picture and sound and use effects to enhance it • Design a 3D model to fit certain criteria	• Discuss reasons for and against sharing material publicly online • Understand the term 'digital footprint' and describe strategies for reducing it • Demonstrate how to affect positive change in online groups when bullying behaviours arise

		- Use a database to enter, sort and interpret information (Year 6) Effectively use copy/paste and snip to edit and enhance a photo using picture tools	