

Computing Progression Map

At Christ Church, Computing equips children to understand, use and shape the digital world with confidence, creativity and responsibility. Through a carefully sequenced curriculum, pupils begin in Reception with playful computational thinking, problem-solving and purposeful use of technology before developing increasingly secure knowledge of digital systems, programming, media, data, networks, artificial intelligence and digital citizenship through to Year 6.

Our Computing curriculum is designed around ideas that are revisited and deepened over time. In Reception, Barefoot Computing develops logic, pattern, abstraction, algorithms and decomposition through practical play, talk and exploration. From Year 1 onwards, Digital Sparks builds these foundations through Digital Foundations, Computer Systems and Networks, Digital Citizenship, Programming and Physical Computing, Creating Media, Data and Information, and Artificial Intelligence.

Computing at Christ Church also supports our school vision: "Together, we flourish." Children are encouraged to be curious about how technology works, perseverant when testing and debugging, respectful and kind in digital spaces, hopeful and confident when tackling new challenges, and aware of the importance of collaboration and community in the connected world.

Our Four Key Computing Schemas

To help pupils make meaningful connections across year groups and computing contexts, our Computing curriculum is organised around four key schemas. These act as threads through the curriculum; the original Digital Sparks areas remain visible underneath each schema so that staff can see clearly how the progression map connects to the taught units.

	'Explore & Connect' (<i>Digital Foundations • Computer Systems & Networks</i>) Children build fluency with devices, operating systems, files, icons, keyboards and mice, while learning how computers, networks, the Internet and the World Wide Web connect people, devices and information.
	'Think, Code & Control' (<i>Programming • Physical Computing • Artificial Intelligence</i>) Children develop computational thinking through algorithms, sequence, repetition, selection, variables and debugging. They apply these ideas in software and physical devices and learn how AI systems use patterns and data.
	'Create & Communicate' (<i>Creating Media • Data & Information</i>) Children use digital tools to create, edit and combine text, images, animation, audio and video. They also collect, organise, represent, analyse and communicate data so that it becomes useful information.
	'Safe & Smart' (<i>Digital Citizenship</i>) Children learn to participate in digital life safely, responsibly and critically: protecting personal information, managing digital footprints and wellbeing, behaving respectfully, responding to risks and judging online content carefully.

Working Like Computer Scientists

Alongside these four schemas, pupils develop the disciplinary and procedural knowledge needed to think and work like computer scientists. They decompose problems, spot patterns, identify what is important, design algorithms, predict outcomes, test and debug, collect and analyse data, select appropriate digital tools, evaluate solutions and explain their reasoning. They learn that computing involves careful thinking as well as using devices.

As children progress through Christ Church, they become increasingly independent in choosing tools, creating programs and digital content, understanding systems and networks, and making informed decisions online. By the end of Year 6, our aim is for pupils to leave Christ Church able to solve problems computationally, use technology fluently, create with purpose, understand key digital systems and engage with data, AI and online information critically and responsibly.

Whole-School Computing Structure

Year Group	AUTUMN 1 & 2	SPRING 1 & 2	SUMMER 1 & 2
Reception	1. Busy Bodies 2. Super Space	1. Springtime 2. Boats Ahoy	1. Summer Fun 2. People Who Help Us
Year 1	1. Digital Foundations 1 2. Computer Systems & Networks 1	1. Digital Citizenship 1 2. Programming 1	1. Creating Media 1 2. Data & Information 1
Year 2	1. Digital Foundations 2 2. Computer Systems & Networks 2	1. Digital Citizenship 2 2. Physical Computing 1	1. Creating Media 2 2. Artificial Intelligence 1
Year 3	1. Digital Foundations 3 2. Computer Systems & Networks 3	1. Digital Citizenship 3 2. Programming 3	1. Creating Media 3 2. Data & Information 2
Year 4	1. Digital Foundations 4 2. Computer Systems & Networks 4	1. Digital Citizenship 4 2. Creating Media 4	1. Physical Computing 2 2. Artificial Intelligence 2
Year 5	1. Digital Foundations 5 2. Computer Systems & Networks 5	1. Digital Citizenship 5 2. Programming 4	1. Creating Media 5 2. Data & Information 3
Year 6	1. Digital Foundations 6 2. Computer Systems & Networks 6	1. Digital Citizenship 6 2. Physical Computing 3	1. Artificial Intelligence 3 2. Creating Media 6



Progression in Computing - Explore & Connect



- I know that I can recognise and talk about familiar technology in my environment and how it can help people.
- I know that I can explore simple digital devices and controls as part of play and adult-guided learning.
- I know that I can use technology to capture or revisit experiences, for example through photographs, sound or simple digital activities.
- I know that I can make simple choices about which tool or device could help with a task and explain what I did.



- I know that technology is all around us and can identify digital devices and common uses of information technology.
- I know that I can use a mouse or trackpad and keyboard to navigate and enter information with growing control.
- I know that I can recognise basic parts of an operating system and common icons, and create, save, open and close files.
- I know that I can explain ways information technology helps people, how it has changed and how it might develop in the future.



- I know that I can name key parts of desktop and laptop computers, including common peripherals and icons.
- I know that I can navigate digital devices more independently and use mouse, keyboard and file tools to complete simple tasks.
- I know that the Internet connects devices and people and can explain some ways it supports communication.
- I know that I can use a web browser, simple keywords and web addresses to find and navigate to relevant web pages.



- I know that I can explain the input-process-output model and identify the functions of different input and output devices.
- I know why computing components need to connect and can describe wired and wireless connections.
- I know that I can use an operating system to locate files and programs, recognise common icons and use two hands on a keyboard.
- I know that I can explain the difference between the Internet and the World Wide Web and how networks let us access and share content.



- I know that I can explain how input, process and output work together and how devices are interconnected within digital systems.
- I know that I can confidently access, save, modify and delete files and use a wider range of icons, keyboard and formatting tools.
- I know that I can explain how communication technology and networks, including the Internet, help us work, learn and collaborate.
- I know that I can use an online cloud service to view, edit and share work as part of a collaborative task.



- I know that I can explain how technology has evolved and consider how changes in technology affect people and society.
- I know that I can organise files in folders, use operating-system search, keyboard shortcuts, common icons, advanced formatting and hyperlinks.
- I know that I can explain why networks are needed, how they communicate and how devices can be identified using network addresses.
- I know that I can recognise network topologies and common threats and explain ways technology can help protect networks.



- I know that I can explain the evolving nature of technology and consider how future developments may affect our lives.
- I know that I can independently organise and retrieve files and use shortcuts, icons, formatting, hyperlinks and networked systems efficiently.
- I know how search engines crawl, index and rank web pages and how search-engine optimisation can influence results.
- I know that I can assess online information critically by considering relevance, reliability, evidence and the way search results are presented.



Progression in Computing - Think, Code & Control



- I know that I can follow and create simple ordered instructions in everyday play and understand that the order matters.
- I know that I can break a task or problem into smaller steps and decide what needs to happen first, next and last.
- I know that I can predict what might happen, test an idea, notice when something has gone wrong and try a change.
- I know that I can spot patterns and simple rules and use logical reasoning when building, moving, sorting or solving problems.



- I know that an algorithm is a sequence of instructions and can follow and create simple algorithms.
- I know that I can represent instructions using words, symbols or actions and put them into the correct sequence.
- I know that I can use repetition in an algorithm and predict what repeated instructions will do.
- I know that I can find and fix errors through debugging and evaluate whether an algorithm achieves its purpose.



- I know that I can program a Bee-Bot or similar programmable toy using directional commands in a clear sequence.
- I know that I can use repetition, predict a route, test an algorithm and debug it to improve a programmed journey.
- I know that machines are created by humans to help with tasks and that machines and technologies change over time.
- I know that AI is trained to spot patterns in data and does not think, feel or imagine in the same way as a human.



- I know that I can navigate Scratch and use block-based coding to create simple programs for a purpose.
- I know that I can create programs that use sequence and repetition to control movement, appearance and actions.
- I know that I can use selection and conditions so that a program responds differently when particular things happen.
- I know that I can design algorithms, predict outcomes, test programs, debug errors and evaluate how well my solution works.



- I know that I can explain physical computing and use MakeCode to create programs for a micro:bit using inputs, outputs and triggers.
- I know that I can create block-based programs using sequence, repetition and selection, then predict, test and debug them.
- I know that AI models are trained using data and use pattern recognition to make decisions or generate content.
- I know that I can explain how incomplete or unfair training data can cause AI bias and why fairness and data privacy matter.



- I know that I can create purposeful Scratch programs using sequence, repetition and selection with increasing independence.
- I know that I can use variables to store and change data, for example scores, values and timers.
- I know that I can use inputs, sensing, operators and interactivity to design a more complex program such as an interactive quiz.
- I know that I can predict, run, test, debug and refine code systematically so that a program meets its design purpose.



- I know that I can create purposeful physical-computing programs using sequence, repetition, selection and variables.
- I know that I can use micro:bit inputs and sensors to collect data, test programs and debug them systematically.
- I know that I can explain the capabilities and limitations of AI systems and evaluate benefits and challenges of automation and emerging AI.
- I know that I can consider bias, misinformation, transparency and human agency when evaluating or designing responsible AI systems.



Progression in Computing - Create & Communicate



- I know that I can collect, compare, group and organise objects or information by a simple property and talk about patterns I notice.
- I know that I can represent simple information using pictures, marks, pictograms, maps, models or ordered sequences.
- I know that I can use digital devices with support to take photographs, record ideas or create simple digital content.
- I know that I can create, review and improve a model, map or design and explain my choices to other people.



- I know that I can use simple drawing and painting tools to create, edit and combine digital images.
- I know that I can save, retrieve and print digital work and understand that work I create belongs to me.
- I know that I can collect and organise data using simple methods such as tally charts, pictograms and block diagrams.
- I know that I can read simple data representations, notice patterns and use them to answer questions and draw conclusions.



- I know that I can create, edit and format digital text using a word-processing program.
- I know that I can present digital text in different ways and make choices about style and organisation for a purpose.
- I know that I can find, save, insert, move and resize images so that they support the meaning of a document.
- I know that I can save and retrieve documents and understand that images and other online content may belong to someone else.



- I know that I can use presentation software and formatting tools purposefully to combine text and images.
- I know that I can use transitions and animations appropriately and edit and proofread digital content for clarity and accuracy.
- I know that I can collect, organise and represent data using tables, bar charts, time graphs and spreadsheets.
- I know that I can analyse data, draw conclusions and consider whether data is reliable, fair and being handled responsibly.



- I know that animation is made from frames and can create and edit a short stop-motion animation.
- I know that I can use digital tools and cameras to create or modify images and to record audio and video.
- I know that I can combine animation with text, images and sound to make a more effective digital artefact.
- I know that I can storyboard, test, evaluate and refine digital media so that it communicates clearly for a chosen purpose or audience.



- I know that I can plan, record, edit and produce structured audio, such as a podcast, for a clear purpose and audience.
- I know that I can use audio-editing tools and effects and organise, export and download digital files responsibly.
- I know that I can distinguish different types and sources of data and collect and represent data using digital systems and spreadsheets.
- I know that I can sort, filter, analyse and evaluate data and use it to solve problems, answer enquiries and make decisions.



- I know that I can use advanced formatting and layout techniques to create effective digital content for different audiences and purposes.
- I know that I can combine text, images, hyperlinks, animations, audio and video to create an engaging interactive presentation.
- I know that I can plan, record and edit video and audio, using camera angles, lighting and purposeful design choices.
- I know that I can organise work in folders and subfolders, export and download content, and evaluate and refine a polished digital artefact.



Progression in Computing - Safe & Smart

Reception

- I know that I can use digital devices as part of adult-guided play and learning and follow simple agreed routines.
- I know that I can take turns and work collaboratively when sharing technology and other resources.
- I know that I can explain what I have made, recorded or tried and listen respectfully to other people's ideas.
- I know that I can ask an adult for help when I am unsure what to do with a device or digital activity.

Year 1

- I know that different technologies can be used to go online and can recognise examples of personal information.
- I know that personal information should be kept private and that passwords help protect information, accounts and devices.
- I know that I can choose safe ways to learn and explore online and know when to ask a trusted adult for help.
- I know that I can behave kindly and respectfully online and know to tell a trusted adult if something makes me worried or uncomfortable.

Year 2

- I know that the same expectations for kindness, respect and honesty apply online and offline.
- I know that I can recognise online bullying, understand its effects and use safe strategies to seek help and support.
- I know that devices, websites and apps collect information about activity and create a digital footprint.
- I know that I can make positive choices about what I do and share online and understand that online information can be copied by others.

Year 3

- I know that online behaviour can have real-world consequences and can affect other people's feelings.
- I know that I can recognise cyberbullying and use strategies such as block, report, save evidence and tell a trusted adult.
- I know that comments, pictures and videos posted online create a digital footprint that others may see.
- I know that I can make careful choices about trust, privacy and personal information and use checks when viewing online content.

Year 4

- I know that people, profiles and content online may not always be trustworthy and can recognise scams or impersonation.
- I know that I can use strategies to protect personal information and block or report suspicious profiles or contact.
- I know that age ratings and persuasive game design and can make informed choices about games and screen time.
- I know that I can recognise positive and negative online behaviours and explain the possible consequences of each.

Year 5

- I know that I can explain how digital footprints and online reputation can influence how others judge us and affect future opportunities.
- I know that I can build a positive online presence, manage privacy and passwords and use strategies to handle peer pressure.
- I know that I can recognise healthy and unhealthy online habits and make informed choices about screen time, notifications and wellbeing.
- I know that I can communicate and collaborate effectively and respectfully in online communities and shared digital spaces.

Year 6

- I know that I can recognise misinformation, disinformation and misleading content and judge trustworthiness using evidence and source checks.
- I know that that online information can be used by others and can recognise risks such as identity theft, fraud and targeted approaches.
- I know that I can identify cybersecurity risks and use strategies to protect accounts, devices and personal data.
- I know that I can make informed decisions about online risks, sharing and digital influence and know how and where to report concerns.