



Curriculum Expectations:

Level Expected at the End of EYFS

- **Understanding the World (Past and Present):** Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class.
- **Personal, Social and Emotional Development (Self-Regulation):** Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.
- **Physical Development (Gross Motor Skills):** Negotiate space and obstacles safely, with consideration from themselves and others.
- **Expressive Arts and Design (Creating with Materials):** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture form and function; Share their creations, explaining the process they have used; Make use of props and materials when role playing characters in narratives and stories.

In EYFS, children begin to develop the foundations of computing through exploration of digital technologies, programmable toys, digital creativity and online safety. Carefully planned experiences introduce children to basic computing concepts and prepare them for the Key Stage 1 curriculum through purposeful play and exploration.

Key Stage 1 National Curriculum Expectations

Pupils should be taught to:

- 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.

Key Stage 2 National Curriculum Expectations

Pupils should be taught to:

- 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.

At Archbishop Cranmer, our progression document maps the National Curriculum through the three strands of Information Technology, Computer Science and Digital Literacy. Knowledge and skills are carefully sequenced from EYFS to Year 6, ensuring pupils revisit and build upon previous learning through a progressive spiral curriculum. Knowledge and skills are revisited regularly, enabling children to strengthen prior learning whilst developing increasing independence, confidence and technical expertise. Progression is also carefully planned through recurring computing themes, enabling pupils to revisit and extend their knowledge across a range of digital technologies.

Intent

At Archbishop Cranmer CE Primary Academy, we recognise that technology is an integral part of children's lives and will continue to shape their futures. Through our vision of '*life in all its fullness*' (John 10:10), we aim to equip every child with the knowledge, skills and confidence to participate safely, responsibly and creatively in an increasingly digital world. Our Computing curriculum develops pupils across the three interconnected strands of Computer Science, Information Technology and Digital Literacy, ensuring they become confident users, creators and evaluators of technology. We want children to understand not only how digital systems work, but also how technology can be used creatively to communicate ideas, solve problems, collaborate effectively and make a positive difference.

Using the iLearn2 curriculum as the foundation for our planning, learning is carefully sequenced to build progressively from EYFS to Year 6. Pupils revisit and extend key knowledge and skills through a spiral curriculum, developing increasing independence and confidence as they move through school. Alongside technical understanding, children explore emerging technologies including Artificial Intelligence, Machine Learning and Virtual Reality, preparing them for the opportunities and challenges of the modern world.

Online safety is woven throughout the curriculum and explicitly taught through Be Internet Legends, iLearn2 E-Safety, Safer Internet Day and our wider safeguarding curriculum. Children learn how to keep themselves safe online, manage digital relationships, evaluate online information critically and understand the importance of digital wellbeing, ensuring they become responsible digital citizens.

Implementation

Computing is taught through the carefully sequenced iLearn2 curriculum, which provides progressive learning experiences across the three strands of the National Curriculum: Computer Science, Information Technology and Digital Literacy. Learning is organised into purposeful units that develop pupils' understanding through practical application, creativity and problem-solving. Children learn to create digital content, write and debug programs, manipulate data, communicate effectively using technology and understand how computers, networks and digital systems operate.

Our curriculum develops three complementary types of knowledge:

- **Substantive knowledge** – understanding key computing concepts including algorithms, programming, computer networks, data, digital systems and online safety.
- **Disciplinary knowledge** – thinking and working as computer scientists by debugging, decomposing problems, recognising patterns, evaluating digital content and applying computational thinking.
- **Procedural knowledge** – confidently using a wide range of software, programming environments and digital devices to create, communicate, present and solve problems.

Children regularly revisit previously taught knowledge through a spiral curriculum, enabling them to strengthen long-term understanding and make meaningful links between different aspects of computing. Learning extends beyond discrete Computing lessons, with digital technologies used purposefully across the wider curriculum to enhance creativity, communication, research and presentation.

Online safety is embedded throughout the curriculum rather than taught as a standalone topic. Through Be Internet Legends, iLearn2 E-Safety, Safer Internet Day and our wider safeguarding curriculum, pupils develop the knowledge and judgement needed to navigate the online world safely, respectfully and responsibly.

Adaptive teaching ensures that all pupils can access ambitious computing learning through carefully scaffolded support, practical modelling, collaborative learning and appropriate challenge.

Impact

Our Computing curriculum develops confident, responsible and creative digital citizens who understand how technology shapes the world around them.

By the time pupils leave Archbishop Cranmer, they will:

- confidently use a wide range of digital technologies

- understand how computer systems, networks and programs work
- apply computational thinking to solve problems
- create digital content for a range of purposes and audiences
- evaluate online information critically and responsibly
- understand how to stay safe online and contribute positively to digital communities
- appreciate both the opportunities and responsibilities that technology brings
- leave primary school well prepared for the next stage of their education and life in an increasingly digital society.

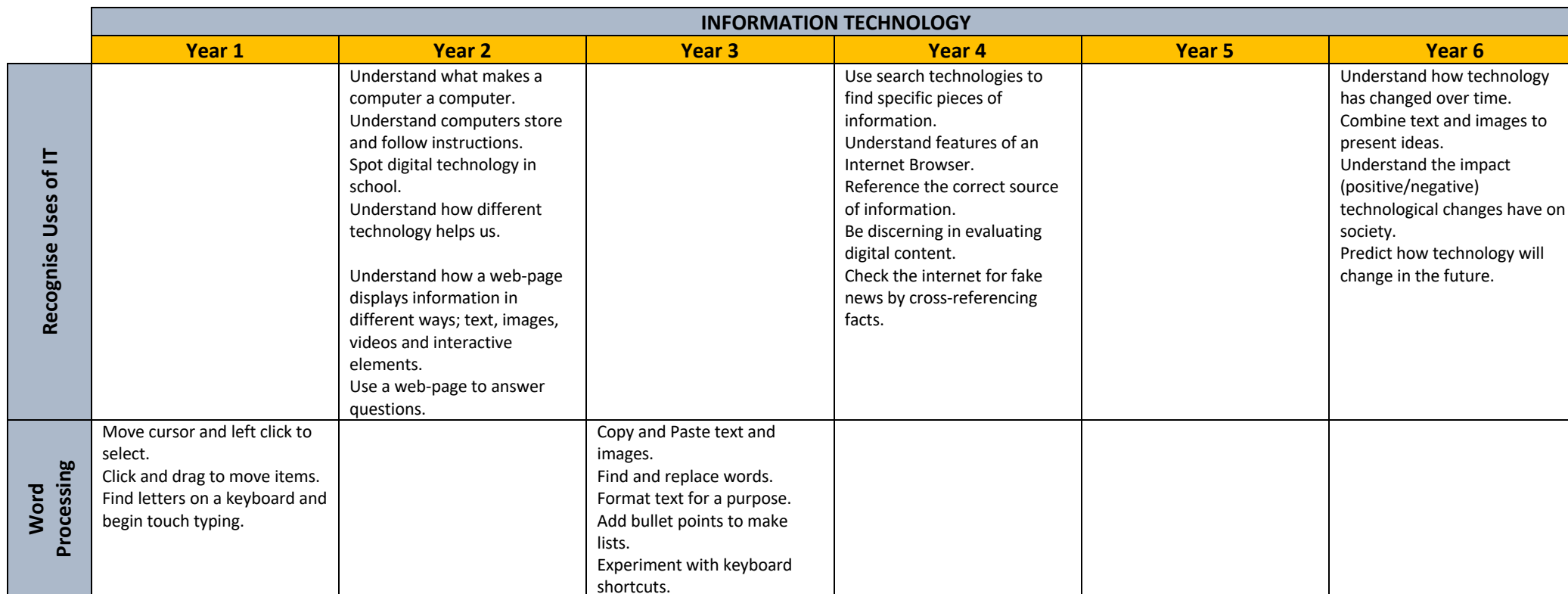
Children's progress is continually assessed through observation, discussion, questioning and the evaluation of their digital outcomes. Teachers use retrieval practice alongside practical application to check that pupils know more, remember more and can apply their learning with increasing confidence. Knowledge Catchers and Assessment Quizzes provide opportunities to assess pupils' understanding at key points, enabling teachers to identify misconceptions, celebrate success and adapt future learning to ensure all pupils make strong progress.



Archbishop Cranmer C of E Primary Academy Computing Curriculum



	Autumn	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Foundation	Computer Discovery	Handling Data	E-Safety	Digital Photos	Early Digital Music	Early Programming
Year 1	- Mouse and Keyboard Skills - E-Safety – Self-Image and Identity	- Digital Art Design - E-Safety – Online Relationships	- Text and Images - E-safety – Online Reputation	- Comic Creation - Music Creation - E-Safety – Managing Online Information	- Introduce Programming - E-Safety – Privacy and Security	E-Safety (IL2)
Year 2	- Recognised uses of IT - Introduction to Animation - E-safety – Self-Image and Identity	- Digital Art - E-Safety – Online Relationships	- Introduce Data Handling - E-Safety (IL2)	- EBook Creation - Internet Research - E-Safety – Managing Online Information	- Develop Programming - E-Safety – Privacy and Security	- Programming with Scratch Jr - E-Safety – Copyright and Ownership
Year 3	3D Design - Document Editing and Creation - E-Safety (BIL – Lesson 1 Online Reputation)	- Digital Art - E-Safety (BIL – Lesson 2 Passwords & Behaviour)	- Infographics - Branching Database - E-Safety (Safer Internet Day)	- Comic Creation - Storyboards - E-Safety (IL2)	- Music Creation - E-Safety (BIL – Lesson 5 Being Brave Online)	- Programming in Scratch - E-Safety (BIL – Digital Wellbeing 7-9 Lesson 1)
Year 4	- Animation - E-Safety (BIL – Lesson 3 Opinions and Differences)	3D Design - E-Safety (BIL – Lesson 4 – Making Good Decisions Online)	- Data Handling - Internet Research - E-Safety (Safer Internet Day)	- E-Book Creation - Graphic Design - E-Safety (BIL – Lesson 6 Speak Up & Report It)	- Video Editing - Inside a Computer - E-Safety (IL2)	- Programming in Scratch - E-Safety (BIL – Digital Wellbeing 7-9 Lesson 2)
Year 5	- Computer Networks and the Internet - App Design - E-Safety (BIL – Lesson 7 Positive Digital Footprints)	- Text-based Programming - Physical Devices - E-safety (IL2)	- Data Handling - Operating Systems - E-Safety (Safer Internet Day)	- E-Book Creation - Music Creation - E-safety (BIL – Lesson 8 Spotting Fake Information Online)	- Programming with Sphero - E-Safety (BIL – Lesson 11 Refusing & Reporting)	- Programming in Scratch - E-Safety (BIL – Digital Wellbeing 9-11 Lesson 1)
Year 6	- Web Design - E-Safety (BIL – Lesson 9 Sharing, Settings & Passwords)	- Graphic Design - Photo & Image Editing - Computers: Past Present and Future - E-Safety (BIL – Lesson 10 Relationships & Being Kind)	- Virtual Reality - E-Safety (Safer Internet Day)	- Machine Learning and AI - HTML - Data Detectives - E-Safety (BIL – Lesson 12 Handling & Reporting Mean Behaviour)	- Python Programming Language - Binary Code - E-Safety (IL2)	- Programming in Scratch - E-Safety (BIL – Digital Wellbeing 9-11 Lesson 2)



Presentations, web design and eBook Creation	Add, move and resize images then add text and adjust size and placement. Add, resize and place images on a page then add and position text to label and describe images. Use word banks to write sentences about images. Add, resize and organise colour or picture backgrounds. Add, resize, organise characters/ objects to different panels. Add narration using text and direct speech using speech bubbles.	Add a book cover with title, author, colour and image. Add multiple pages based on a theme. Add text on different pages. Add images on different pages to match the theme/text. Add voice recordings to match the text and theme.	Understand what an infographic is and why we use them. Search for and add suitable graphic elements. Add and format suitable titles and text. Add, resize and organise colour or picture backgrounds. Add, resize, organise characters/object to different panels. Add narration using text and direct speech using speech bubbles.	Add page colour and style then position and format text. Add and position images from camera/internet. Add audio, including hiding it behind an object. Add hyperlinks to text and images. Add and format shapes. Use hyperlinks for navigation.	
Digital Art and Photography	Change the colour and pattern of elements. Position and rotate objects on a design. Position objects in relation to each other. Resize, rotate, flip and arrange objects behind/ in front of each other. Change colour of individual pixels to accurately re-create a basic artwork. Make changes where required. Change the colour of individual pixels to accurately re-create detailed artwork.	Use lines and fill tools to make interesting patterns. Add a variety of shapes (outlines and fill) and label them with text. Re-create graphics using pixels with different colours.	Use various lines and fill tools plus copy/paste and rotation to create pattern effects. Use shapes, fill, copy/paste, zoom and flip to create reflective symmetry effects. Use stamps, copy/paste, layers and multiple frames to create animated GIF computer graphics.	Understand 3D spatial awareness. Add 3D shapes, resize, adjust height, duplicate and use the different perspective. Re-create different types of buildings using 3D shapes. Create roads/paths by adjusting the height of 3D shapes. Add windows and door shapes.	Add, adjust and fill shapes. Group shapes to improve accuracy and speed. Add and customise gradient effects. Adjust transparency/ opacity for a purpose. Use a colour picker correctly. Accurately rotate shapes. Take and crop a screenshot and understand ratios. Adjust the colours, brightness, contrast and filters. Add drawing and text layers. Import new images as layers and resize/add effects. Save finished image to use in other projects.

Sound	Create a rhythm using a pattern of beats. Create digital sounds using patterns and shapes. Create a simple melody using patterns and adjust tempo.		Create ascending and descending scales. Add chords evenly across the scales. Add arpeggios and melodies. Add a steady and even rhythm. Use sampled sounds to create an effective mix. Build beats, melody (tones) and effects.		Layer tracks using sounds and effects. Create effective instrument tracks. Edit tracks and effectively adjust volume and add effects. Build a song using Live Loops.	
Animation		Add a background and objects to a frame. Copy/clone a frame and move objects to create an animation. Create screen-recording animation. Create stop-motion animation with photos.		Create a stop-motion video by duplicating slides (frames). Create animation using transition effects (motion paths, pulse etc). Animate individual elements of objects. Create animated GIF files by animating pixels.		
Data Handling		Understand what data is and collect it as a tally. Label a pictogram and add data to each column. Edit a table with correct titles and numbers. Create a bar chart/pie chart/line chart suitable for the data. Interpret a pictogram/ bar chart/ line chart.	Add and label objects within a branching database. Ask questions to sort (classify) objects.	Find and present data as a table and suitable chart. Give chart a suitable title and label axis correctly. Select and use non-adjacent cells and resize multiple cell widths.	Select and use non adjacent cells plus resize multiple cell widths and copy/paste cells. Use formulae to find totals, averages and maximum/minimum numbers. Select the correct chart type to present data. Answer 'what if?...' questions. Search a database to find specific information.	
Video Creation				Add clips then order and resize them. Add titles to clips and change themes. Add voiceovers and music. Add filters to clips. Export a project.		

COMPUTER SCIENCE						
Computational thinking	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Understand sequence and algorithms. Sequence instructions (commands) to achieve an objective. Predict, write, execute and debug a simple program.	Understand and use 3D space on a grid. Re-create or design familiar 3D models using cubes, such as tables and chairs. Use chisel tool to improve and adapt models. Colour individual blocks or whole models.		Understand that computers use physical inputs and outputs and give examples. Program physical inputs and outputs (e.g program LED lights). Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.	Understand why computers/electronics use binary. To convert binary code to denary numbers (decimal numbers) and visa versa. Understand what virtual reality is and how it can be used to help people. Add, move and resize objects in a virtual reality environment. Animate objects for realism. Use code blocks to add movement (with grouping) and interactions (conditions). Create multiple scenes of VR environments. Understand how computers use information to learn by solving new problems and following new instructions. Understand and use examples of machine learning. Understand how artificial intelligence is used to perform tasks often only performed by humans. Discuss and show awareness of potential dangers of AI.

Coding and Programming	Understand sequence and algorithms. Sequence instructions (commands) to achieve an objective. Use distances in commands. Predict, write, execute and debug a simple program.	Create and debug simple programs by selecting code blocks, placing them in the correct sequence and executing a program. Use logical reasoning to predict the behaviour of simple programs. Simplify a program by using a loop.	Design, write and debug programs that accomplish specific goals. (Including outputs) Use repetition in programs. Work with various form of inputs; keyboard, mouse and touch screen. Write programs to simulate physical systems. Create a 3D place using various design tools. Write a program to control using keyboard inputs. Write a program with conditions. Write a program with variables	Use sequence, selection, and repetition in programs. Work with variables and various forms of input and output. Debug programs that accomplish goals. Work with variables and conditions.	Program list variables that chooses randomly. Program inputs, conditions and sensing for interaction, data variables for scoring and a game timer. Program Inputs, outputs, loops, conditions, sensing and variables. Change the variables of text-based commands. Write text-based commands accurately. Write text-based commands to program digital art. Write text commands/functions to program keyboard inputs in a game. Understanding Bluetooth Technology as Input Device Write programs for the Sphero using movement and repetition (loops). Write a program to trace a maze/route with Sphero and De-bug. Write a program with outputs. Write a program with random variables	Program inputs, conditions, random variables for unpredictability, game timer. Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring. Use inputs, conditions, loops, sensing, costume changes and broadcasts. Work with multiple sprites to send broadcast messages between them. Use the PRINT command for text. Program a simple calculator in Python. Program loops to repeat text. Program interactive inputs. Add and align text and change colour. Program background colour. Add and align images. Add an iframe (such as a Google Map) and adjust the height and width.
Computer Networks					Understand Computer Networks, Internet and Cloud Computing and how they help us. What is email and how can we use it safely? Understand how and why we collaborate online (including blogging).	

Software Creation					Adjust slide size to mimic a phone/tablet size. Add text and images to a slide. Add icons and text to use as navigation. Duplicate slides to create multiple pages of the app. Create hyperlinks to create navigation.	Add and format text within a website. Organise sections of web-pages and multiple page with relevant titles. Add and edit images. Include other features such as hyperlinks, buttons and files. Evaluate other websites and provide constructive feedback. Make necessary changes to the website based on feedback.

		DIGITAL LITERACY											
		Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
E-Safety		Keep personal information private. To know why websites want personal information.		Understanding some of the dangers of sharing photos online.						Keep personal information private. Understand the consequences of sharing photo/videos online. Understand the term digital footprint.			
		Identify when and where to go for help when concerned.		Understanding that people are not always who they say they are online.		Identify a range of ways to report concerns about content and contact.				How, where and who can we report concerns we have to.			
				Trusting information online.						How can we check online content is trustworthy.			
				Using the Internet responsibly.		Use technology safely, respectfully and responsibly.				Use suitable usernames and passwords for online accounts.			
				Being respectful.		Recognise acceptable/ unacceptable behaviour.				Respect and protect against online bullies.			