



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.

Since digital technology is not currently integrated into the existing framework, the units do not fit into the Year 1-6 progression. However, we propose various activities for EYFS children to familiarise them with computers. The Computing Discovery pack contains relevant skills aligned with the recognition of IT usage, as do the Mouse and Keyboard skills (identical to the Year 1 pack, making it suitable for introducing mouse skills in EYFS). The digital art pack includes skills that align with Year 1 digital art skills. Additionally, we offer other packs with adaptable activity ideas for teachers to incorporate into their specific classroom settings. (See Long Term Plan).

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, we have developed a progression of skills document which breaks down the National Curriculum expectations into a series of 'I can' statements for each year group and strand of the computing Curriculum. These are used to support planning and teaching to ensure children build on key skills year on year to achieve the above expectations.

Intent

At Archbishop Cranmer, we help pupils reflect on the development of their computing skills to apply their knowledge, solve problems, stay safe and respect others. We make computing fun for pupils, inspiring them to develop skills beyond the classroom and building an awareness of all the opportunities the subject provides. Technology is everywhere and will play a pivotal part in students' lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology (especially social media) to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skilful computer scientists. Staff embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and hope by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

Implementation

At Archbishop Cranmer, we use a Scheme of Work called iLearn2 which includes activity packs with step-by-step, easy to follow video tutorials and challenges for both teachers and pupils to access. This has many advantages including:

- Pupils can learn computing skills at their own pace, developing independent learning skills with opportunities to continually review and revisit the skills covered.
- The pupil activity codes help teachers provide pupils with specific activities, meaning pupils can access resources and content suitable for their individual ability and needs.
- The pupil activity packs are available across Key Stage 1 and 2. Key Stage 1 pupils learn how to apply the skills they learn in the tutorials to their own work. Key Stage 2 pupils apply and develop the skills they learn in the tutorials into their own projects, independently improving and evaluating their work.
- The video tutorials are compatible with Google Chrome's Live Caption tool, meaning pupils with hearing loss can access the video content.

The Embed page on iLearn2 provides pupils with cross-curricular projects, helping apply computing skills across the Key Stage 1 and 2 curriculum. The activity packs cover skills for the three most common platforms; Microsoft, Apple and Google. In many packs there are tutorials for all three, allowing pupils to learn skills regardless of the platform used in the school and to prepare pupils for all possibilities in the next steps of their education.

Impact

We encourage our children to enjoy and value the curriculum we deliver. We will constantly ask the WHY behind their learning and not just the HOW. We want learners to discuss, reflect and appreciate the impact computing has on their learning, development and wellbeing whilst developing their computing skills to apply their knowledge, solve problems, stay safe and respect others. Finding the right balance with technology is key to an effective education and a healthy life-style. We feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond. We encourage regular discussions between staff and pupils to best embed and understand this. The way pupils showcase, share, celebrate and publish their work will best show the impact of our curriculum. We also look for evidence through reviewing pupil's knowledge and skills digitally through tools like Google Drive and Classroom Platforms such as Class Dojo and observing learning regularly. Progress and attainment of our computing curriculum is demonstrated through outcomes and the record of coverage in the process of achieving these outcomes as well as a spreadsheet including the learning outcomes for the children with secure understanding and those working at greater depth enables teachers to keep records of formative assessments for each child or the unit has a skill catcher and knowledge assessment quiz which can be used at the end of the unit to provide a summative assessment.



Archbishop Cranmer C of E Primary Academy
Computing Progression of Skills/ Knowledge



INFORMATION TECHNOLOGY

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise Uses of IT		<p>Understand what makes a computer a computer. Understand computers store and follow instructions. Spot digital technology in school. Understand how different technology helps us.</p> <p>Understand how a web-page displays information in different ways; text, images, videos and interactive elements. Use a web-page to answer questions.</p>		<p>Use search technologies to find specific pieces of information. Understand features of an Internet Browser. Reference the correct source of information. Be discerning in evaluating digital content. Check the internet for fake news by cross-referencing facts.</p>		<p>Understand how technology has changed over time. Combine text and images to present ideas. Understand the impact (positive/negative) technological changes have on society. Predict how technology will change in the future.</p>
Word Processing	<p>Move cursor and left click to select. Click and drag to move items. Find letters on a keyboard and begin touch typing.</p>		<p>Copy and Paste text and images. Find and replace words. Format text for a purpose. Add bullet points to make lists. Experiment with keyboard shortcuts.</p>			

Presentations, web design and eBook Creation	<p>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.</p> <p>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.</p>	<p>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.</p>	<p>Understand what an infographic is and why we use them. Search for and add suitable graphic elements. Add and format suitable titles and text.</p> <p>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.</p>	<p>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.</p>	
Digital Art and Photography	<p>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.</p> <p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p> <p>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.</p>

Sound	<p>Create a rhythm using a pattern of beats. Create digital sounds using patterns and shapes. Create a simple melody using patterns and adjust tempo.</p>		<p>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.</p>		<p>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.</p>	
Animation		<p>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.</p>		<p>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.</p>		
Data Handling		<p>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.</p>	<p>Add and label objects within a branching database. Ask questions to sort (classify) objects.</p>	<p>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.</p>	<p>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.</p>	
Video Creation				<p>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.</p>		

COMPUTER SCIENCE

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computational thinking		<p>Understand sequence and algorithms. Sequence instructions (commands) to achieve an objective. Predict, write, execute and debug a simple program.</p>	<p>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.</p>		<p>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.</p>	<p>Understand why computers/electronics use binary. To convert binary code to denary numbers (decimal numbers) and visa versa.</p> <p>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.</p> <p>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.</p>

Coding and Programming	<p>Understand sequence and algorithms. Sequence instructions (commands) to achieve an objective. Use distances in commands. Predict, write, execute and debug a simple program.</p>	<p>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.</p>	<p>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.</p> <p>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</p>	<p>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.</p>	<p>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.</p> <p>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.</p> <p>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</p>	<p>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.</p> <p>Work with multiple sprites to send broadcast messages between them.</p> <p>Use the PRINT command for text. Program a simple calculator in Python. Program loops to repeat text. Program interactive inputs.</p> <p>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.</p>
Computer Networks					<p>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).</p>	

Software Creation					<p>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.</p>	<p>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.</p>
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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.	