St Columb Major Academy: Computing Curriculum Progressions

The National Curriculum states:

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Computing Curriculum: NC Programmes of Study						
FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
UW: Technology (30-50 and 40-60)	*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		*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			

		Computing Curriculum: Progression of Skills					
	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online-Safety/ Digital Literacy	Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Relate this to, and talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private.	Understand they need to follow certain rules to remain safe when visiting places online. Begin to understand that if you creative something you own it. Learn that many websites ask for information that is private & discuss how to responsibly handle such requests. Explore how email can be used to communicate with real people within their schools, families & communities. Learn that directory sites with alphabetical listings offer one way to find things on the Internet.	Stay safe online by choosing websites that are good for them to visit & not inappropriate sites. Explore what cyber-bullying means & what to do when they encounter it. Know that if they put information online it leaves a digital footprint or "trail" & they need to manage it so it's not hurtful. . Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results. Discuss criteria for rating informational websites a site. Realise that not all websites are equally good sources of information.	Agree sensible e-safety rules for the classroom. Encourage discussion about what games they are playing and whether these are appropriate. Explore why we use passwords. Learn about connecting with other people through the internet. Learn about how some websites might encourage you to buy things. Learn about the importance of respect online and how to write respectfully. Learn about how to construct a good email, and how to send one.	Agree sensible e-safety rules for the classroom. Encourage discussion about what games they are playing and whether these are appropriate. Learn about being a good digital citizen. Learn what information to keep private, and how to keep it private. Explore the impact their words can have, and the actions they can take towards unkind words. Learn how to use key words to support online searching. Learn when it is ok and not ok to use other people's work.	Agree sensible e-safety rules for the classroom. Encourage discussion about what games they are playing and whether these are appropriate. Learn how to generate strong and secure passwords. Create a digital citizenship pledge. Learn about spam mail, and how to deal with it. Learn how to reference a website source. Explore how images can be digitally altered, and how these are used on social media.	Agree sensible e-safety rules for the classroom. Encourage discussion about what games they are playing and whether these are appropriate. Learn about developing healthy online relationships. Explore digital citizenship, and their role in improving the online community. Learn about how different websites protect our information, and how to recognise these. Explore what cyberbullying is, and the strategies they can use to deal with incidents. Learn about the use of stereotypes within the media.
Computer science	Help adults operate equipment around the school, independently operating simple equipment Use simple software to make things happen. Press buttons on a bee bot robot and talk about the movements. Explore options and make choices with toys, software and websites **UW: Technology** **30-50** Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.	Physically follow & give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a beebot. Begin to use software to create movement & patterns on a screen. Begin to identify an algorithm to achieve a specific purpose. Execute a program on a beebot to achieve an algorithm. Use the word debug to correct any mistakes when programming a floor robot, and begin to debug the movement of the beebot when it does not reach its intended destination. Begin to predict what will happen for a short sequence of instructions in a program.	To explore giving instructions to a computer based movement program e.g. logo or kodable. Predict what will happen & test results Talk about similarities & differences between floor robots and the program on screen To explore simple graphic programming language to make a character move around a screen. - To create a short script. - To debug a short script. - To use logic to predict the behaviour of simple programs.	Write and debug an algorithm using a graphical language which will enable a program to create shapes.	To lean how to sequence instructions within an algorithm. To be able to use logic to write and debug an algorithm which creates a simple game using a graphical coding language.	Use variables within an algorithm. Explore instructions to control software or hardware with an input & using if... then... Commands	To use a graphical coding language to create a script which will interact with the physical world. To explore a programming language which is non-graphical.

Computing Curriculum: Progression of Skills

	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information technology	Use a mouse to rearrange objects and pictures on a screen. Recognise text, images and sound when using ICT. Use a camera or sound recorder to collect photos or sound. Use paint programs to create pictures. Begin to use a keyboard see programming. Develop an interest in ICT by using age appropriate websites or programs. **UW: Technology** **30-50** Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones. **40-60** Completes a simple program on a computer.	Record their own voices and play back to an audience. Use a video or stills camera to record an activity. Create sounds and simple music phrases using ICT tools. Add text and images to a template document using an image & word bank. Use index fingers (left and right hand) on a keyboard to build words and sentences. Know when & how to use the SPACE BAR (thumbs) to make spaces between words Take photographs, video and record sound to record learning experiences. Contribute to and interpret a pictogram.	Use templates to make electronic books individually and in pairs. Explore the effects of sound and music in animation and video. Create own documents, adding text and images. Use keyboard to enter text (index fingers left & right hand). Know when and how to use the RETURN/ ENTER key. Use SHIFT & CAPS LOCK to enter capital letters. Use DELETE & BACKSPACE buttons to correct text. Create sentences, SAVE & edit later. Take and save photographs, video & record sound to capture learning—look at how this is presented. Investigate different types of digital data e.g. online encyclopaedias Save & retrieve the data to show to others.	Explore & begin to evaluate the use of multimedia to enhance communication. Create & begin to edit presentation documents & text, experimenting with fonts, size, colour, alignment for emphasis & effect. Introduce and explore the use of video, animation or green screening. Use ICT tools to create musical phrases. Amend text & save changes. Use individual fingers to input text & use SHIFT key to type characters. Amend text by highlighting & using SELECT/ DELETE & COPY/ PASTE. Find out information from a pre-prepared database, asking straightforward questions.	Explore how multimedia can create atmosphere & appeal to different audiences. Be confident in creating & modifying text & presentation documents to achieve a specific purpose. Explore the use of video, animation, or green screening for a specific audience. Use ICT tools to create music phrases for a specific purpose. Use a keyboard effectively, including the use of keyboard shortcuts copy and paste. Use font sizes & effects such as bullet points appropriately. Know how to use a spell check. Look at their own, and a friend's work & provide feedback that is constructive & specific. Plan and create a database to answer questions.	Select an appropriate ICT or online tool to create and share ideas. Explore the effects of multimedia (photos, video, sound) in a presentation or video. Use art programs & online tools to modify photos for a specific purpose using a range of effects. Use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness. Know how to use text and video editing tools in programs to refine their work. Use online tools to create and share presentations and films. Collect and record data using a spreadsheet.	Discuss audience, atmosphere and structure of a presentation or video. Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. Use sound, images, text, transitions, hyperlinks. Store work in a collaborative system, such as when using cloud storage. Evaluate the effectiveness of their own work and the work of others. Collect and record data using a spreadsheet. Present this data in different ways.