



Braywood CE First School Computing Progression of Skills and Knowledge

	Computing systems and networks					
	EYFS		Year 1 Year 2		Year 3 Year 4	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Identifying and operating hardware	Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary Recognising and identifying familiar letters and numbers on a keyboard Developing basic mouse skills such as moving and clicking.	To be able to understand what a computer keyboard is and recognising some letters and numbers. To know that a mouse can be used to click, drag and create simple drawings. To know that you can take simple photographs with a camera or iPad. To know that you must hold the camera still and ensure the subject is in the shot to take a photo	Using a mouse, trackpad and/or touchscreen to interact with digital devices. Using a keyboard to interact with a device and for a specific purpose. Describe where technology is used at home (e.g., playing games, watching videos). Using inputs to create outputs. Recognising that different devices have different parts. Identifying common uses of IT in the wider world (e.g. shops, self-service screens, traffic lights)	To know the names of common digital devices (e.g., computer, tablet, camera). To know the names of the parts of the device (e.g., screen, keyboard, mouse). To know that button presses and movements of the mouse, trackpad or on the touchscreen are inputs. To know that the screen or speaker produces an output. To know that IT is a part of our everyday life and the world we live in.	Selecting and using appropriate devices for a specific purpose. Recognising the shape and name of connectors and their ports. Connecting or pairing a wireless peripheral, like headphones or a micro:bit.	To know that a peripheral is something that you can connect to a device. To know that ports are where peripherals can be attached. To know that a computer is made from different components that do different jobs. To know that some peripherals connect wirelessly.
Networks	N/A	N/A	Browsing and interacting with pre-selected websites, software or videos Following links on websites to get to other parts of a page.	To know that online means to be connected to other devices or the internet. To know that some digital devices are online.	Using search engines effectively to find information and navigate links. Recognising that a network is two or more wireless or wired connected devices.	To know that a network is a group of two or more connected computers. To know that networks are made up of components such as servers, routers and switches.

			Beginning to recognise a search tool.	To know that some parts of websites are linked together. To know that there are visual clues on websites to show the links.	Identifying examples of networks) e.g. school network, home Wi-Fi, internet) and their components (e.g. router, switch and server.). Communicate digitally with others.	To know that networks allow devices to share information and resources (e.g. printers and files). To know that some networks are local and some are global. To know what happens when they access a website. To know that text, images and videos on the internet are all forms of data. To know the world wide web consists of web pages and websites. To know that the internet enables collaboration and communication. To know the history and evolution of the internet
Data storage	N/A	N/A	Create and name a file with guidance. Save and retrieve their work with guidance. Naming and saving files so they can be found easily. Recognising simple icons associated with saving their work	To know that computer files need a name so they can be found again. To know that their work can be saved on a digital device. To know that their work can be organised into folders so that they can find it easily. To know that icons are used across digital devices.	Saving and retrieving files from different places on a network. Create and name a folder, then save files into it. Using a cloud-based tool to save, retrieve and share a file (Google drive, OneDrive).	To know that there are different places to save their work. To know the difference between local, network and cloud storage. To know that a server stores information and services.
Digital security	Learning to log in and log out.	To know that to use a computer you need to log in to it and then log out at the end of your session	Using a password to login and logout of a common platform (this could be a visual password or with support). Recognising a login screen Describing why passwords are important. Beginning to use username and password independently to log in and out of a common platform.	To know that people should have different passwords. To know that passwords keep things safe. To know that strong passwords can't be easily guessed by others. To know that passwords mean that they can share devices in school.	Creating strong passwords. Independently logging in and out. Describing how computer accounts are personalised to a user. Identifying places on the network that they can access. Recognising that having multiple logins and passwords adds more security	To know that some areas on a network or device are restricted. To know that permission means they can access part of a network. To know that different logins have different purposes. To know that the school network is a private system that can only be accessed at school.

	Programming					
	EYFS		Year 1 Year 2		Year 3 Year 4	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Understanding Programming	Following instructions as part of practical activities and games. Learning to give simple instructions. Experimenting with programming a Bee-bot/Blue-bot and learning how to give simple commands. Learning to debug instructions, with the help of an adult, when things go wrong.	To know that being able to follow and give simple instructions is important in computing. To understand that it is important for instructions to be in the right order. To understand why a set of instructions may have gone wrong. To know that you can program a Bee-Bot with some simple commands. To understand that debugging means how to fix some simple programming errors. To understand that an algorithm is a set of clear and precise instructions.	Recognising that robots are programmed by humans. Recognising examples of computers being programmed by humans to perform simple tasks (computer games, animations, computer-generated music).	To know that humans need to give robots instructions to follow and that they will carry out these instructions exactly, even if they are wrong. To know that humans need to give instructions in the correct language for the robot to understand. To know that programming a computer or device involves giving it instructions to perform specific tasks To know that video games, phones, websites and apps are all created using programming. To know that different devices and programs use different programming languages or 'codes'.	Recognising visual and text-based programming languages. Recognising further examples of computers being programmed by humans to perform simple tasks	To know that websites have all been programmed, often using HTML. To know that programming languages can be visual (Scratch) or text-based (HTML). To know that 'coding' is the process of turning an algorithm into a programming language. To know that HTML tells a browser how to display text, images and multimedia on a webpage.

Plan			Explaining what they are trying to achieve with their instructions (algorithms) or program. Writing clear, sequenced instructions (algorithms) for familiar tasks. Using terms like 'start,' 'end' and 'next' to describe the steps in instructions (algorithms). Verbally planning what they aim to achieve with a program.	To know that instructions (algorithms) must give every step of a task. To know that an algorithm must give clear, sequenced instructions. To know that an algorithm becomes a program when it is coded. To know that programs execute the exact instructions they are given, even if they are incorrect. To know that a program is a series of instructions (algorithms) that are written for a computer to follow. To know that a person can program a device by giving it an algorithm/algorithms to follow.	Working towards a given goal that a program needs to accomplish. Breaking down what they want to achieve into smaller, manageable parts. Using logic, pattern recognition and decomposition to solve simple problems	To know that 'decomposition' is the process of breaking down a task or problem into smaller parts. To know that breaking down a problem into smaller parts makes it easier to solve the problem. To know that 'abstraction' is identifying the important detail and ignoring irrelevant information
Create			Changing their instructions or algorithms into code that the robot understands. Using basic block code to implement an algorithm. Looking at different forms of code (Bee-bot and Scratch) and predicting how a program will execute. Tinkering with a basic existing visual code to see how it affects a program.	To know that instructions can be altered to affect a change.	Tinkering with an existing text-based code to see how it affects a program (website). Remixing code to alter and add to an existing program. Recognising repeating patterns in a program or code. Creating loops to make code more efficient in block-based programs. Beginning to use variables in block-based programming languages to make programs more interactive. Including a conditional statement in block-based programming languages.	To know that loops are used to save time when writing code by reducing repetition. To know that a variable is a container or holder for storing information that can change, e.g. numbers or text. To know that conditional statements tell the computer what to do next based on a user's input.
Evaluate			Beginning to identify errors in instructions (algorithms) or a simple program. Making suggestions for how to fix errors in instructions (algorithms). Correcting errors or bugs in simple programs they have created.	To know that there may be an error if a set of instructions (an algorithm) or program does not give the expected result. To know that errors could result from sequencing, unclear instructions or missing steps. To know that an error in a computer program is known as a 'bug' and fixing errors is known as 'debugging'.	Recognising the relationship between what is happening in a program and the written (block) code. Working backwards, beginning to identify the code they think a program uses. Running small chunks of code at a time to find the error or 'bug.'	To know that it is important to identify where the mistake is in the programming as part of the debugging process. To know that errors in a program could result from sequencing errors, coding errors or missing code.

	Creating Media					
	EYFS		Year 1 Year 2		Year 3 Year 4	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Plan	N/A	N/A	Making decisions about the digital content they make. Ordering ideas so that content makes sense. Identifying the audience and purpose of digital content. Planning how to use the space on a digital page.	To know that digital tools can be used to make content that is presented clearly. To know that digital content should be organised to suit its purpose and audience.		
Create- Creating digital content	Using a simple online paint tool to create digital art	To know that art can be created digitally	Using a basic drawing or writing tools to create a simple piece of digital content (e.g., drawing a picture, typing words). Selecting and using simple editing tools (e.g., formatting, resizing). Typing simple words and short phrases. Importing images onto a digital page. Positioning images and text on a digital page. Typing familiar words and short sentences. Cutting, copying and pasting	To know that programs and apps can be used to create simple content such as pictures and text. To know that different tools in a program or app can change how digital content looks (e.g., colour, shape, formatting tools). To know that a word processing program or app can be used to create text. (e.g. letter keys, spacebar, caps lock, enter) To know that using digital tools to create content can make it easier to change. To know that the cursor shows where content appears on a screen. To know that text and images can be combined to make digital content. To know that cut and paste can be used to change the position of text or images.		

Create – Design principles	N/A	N/A	Choosing and arranging simple elements (e.g., text, images, colours) to make digital content clear and appealing. Using basic tools to change the appearance of digital content (e.g., selecting different brush styles, filling shapes with colour, formatting text). Arranging text and images to create an organised, clear layout	To know that colours, shapes and space can be used to make content clearer and more interesting. To know that size, position and space can be used to organise digital content. To know that different fonts and colours can make text easier to read. To know that images and text work together to communicate.		
Evaluate	N/A	N/A	Explaining their decisions about the digital content they created and the tools they used to make it. Making simple changes to improve their work (e.g., changing colours, deleting). Suggesting a change to their digital content or someone else's to improve how clear it is. Making small improvements based on feedback (e.g., reordering text, adjusting image placement).	To know that digital content can be changed and improved. To know that digital content should be organised, clear and easy to understand. To know that checking digital content helps to find and fix mistakes.		

	Data handling					
	EYFS		Year 1 Year 2		Year 3 Year 4	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Understanding data	Representing data through sorting and categorising objects in unplugged scenarios. Representing data through physical pictograms. Exploring branch databases through physical games.	To know that sorting objects into various categories can help you locate information. To know that using yes/no questions to find an answer is a branching database. To know that a pictogram is a way of showing information.	Recognising some ways that data is presented (pictograms, tally charts, block diagrams and simple tables).	To know that there are many reasons to gather data. To know that data can be grouped and organised in different ways. To know that information can be shown as pictures or symbols.		
Plan			Creating a simple survey. Asking simple questions to gather data. Sorting objects or pictures into simple categories (e.g., grouping animals by type).	To know that data can come from asking people questions, To know that sorting and grouping things can help us spot patterns. To know that objects can be sorted based on their characteristics (e.g., colour, size, shape).		
Create			Creating a simple pictogram or tally chart with support. Organising simple data into a table or pictogram. Creating labels to sort data in a pictogram.	To know that a tally chart is way to record and count data. To know that a pictogram is a way to record data as pictures.		
Evaluate			Using a pictogram or chart to answer basic questions (e.g., "Which is the most popular fruit?")	To know that data can be counted and compared to find answers.		

	Online safety					
	EYFS		Year 1 Year 2		Year 3 Year 4	
	Skills	Knowledge	Skills	Knowledge	Skills	Knowledge
Being online	N/A	N/A	Recognising when they are online. Identifying programs (e.g. apps and websites) they use online. Recognising indicators of being logged into an account (e.g. avatar, username, initials).	To know that 'online' means being connected to other devices or the internet. To know that an 'account' is a personal space within an online program.	Identifying what the internet can be used for.	To know that online games allow players to interact with each other in various ways.
Online relationships	N/A	N/A	Recognising that being kind, polite and safe is just as important online as in-person.	To know they should not speak to or message unfamiliar people online. To know that they can still hurt someone's feelings online.	Identifying how people connect online. Recognising the difference between acceptable and unacceptable behaviour.	To know that connecting online can involve actions such as liking, commenting, emoting and chatting. To know that if behaviour is unacceptable in-person, it is unacceptable online.
Risks and harms	N/A	N/A	Describing how someone might change their account if they have their password.	To know that passwords help keep online accounts and programs safe. To know that passwords help keep online accounts and programs safe. To know that logging in to their account helps keeps them safe online.	Identifying when online contact from other players is unwanted or inappropriate. Recognising signs of online bullying (e.g. repeated unkind comments or being excluded)	To know that usernames should not contain personal information. To know that not everyone online is who they claim to be. To know that online bullying is repeated unkind behaviour.
Responsible and safe use	N/A	N/A	Checking with an adult before they use new apps or websites. Beginning to remember their username and password for an online account. Treating devices carefully.	To know that using someone else's login is not safe or respectful.	Describing appropriate and safe responses to unwanted or unkind behaviour	To know that being anonymous online does not make unkind behaviour acceptable.
Reporting online	N/A	N/A	Recognising when something online scares or worries them. Describing how to respond safely to an online message.	To know who to report concerns to about online content or if they receive messages from someone they don't know. To know they should tell an adult if something in their account has changed.	Recognising when something online is unsafe, inappropriate or suspicious.	To know reporting problems online to a trusted adult is an important part of staying safe.