Computing Skills Progression Map

	By the end of Early Years:	By the end of Year 2 (KS1):		By the end of Year 4 (lower KS2):		By the end of Year 6 (Upper KS2):	
		Technology Around Us Robots & Algorithms Digital Writing Grouping Data Digital Painting Animated Stories Technology Around Us (Introduction to Chromebooks) Making Music Pictograms Digital Photography Programming Quizzes		Connecting Computers Programming Sequencing Sounds Animation Programming Events and Actions Desktop Publishing Branching Databases The Internet Programming Repetition in Shapes Photo Editing Repetition in Games Audio Editing Data Loggers		NCCE Gender Balance in Computing project Video Editing Physical Computing Sharing Information Vector Drawings Internet Communication Webpage Creation Multimodal Presentation Spreadsheets Programming variables in games 3D Modelling Programming Sensing	
Information Technology	Children select and use technology for particular purposes	**Word Processing:** Open and log into a computer/ Chromebook Identify and find keys on a keyboard Use a mouse to click and drag Add and remove text Move a cursor with arrow keys Use capital letters, bold, italic and underline Select words and all text Change font Use 'undo' to make changes Compare writing on paper to writing on a computer	**Word Processing:**	**Word Processing:** Recognise how text and images coney information Change font style, size and colours Edit text Choose appropriate page orientation Recognise 'placeholders' Choose the best locations for my contents Paste text and images Consider different layouts, depending on purpose Identify the uses of desktop publishing in the real world Compare work made on desktop publishing to work created by hand	**Word Processing:**	**Word Processing:**	**Word Processing:**

Data Handling:	Data Handling:	Data Handling:	Data Handling:	Data Handling:	Data Handling:
Label objects	Record data in a tally chart	Create questions with yes/no answers	Identify data that can be gathered over time	Use a form to record information	Identify questions which can be answered using data
Count and group objects	Enter data onto a computer	Identify attributes to separate objects into groups	Use a digital device to collect data	Compare paper and computer-based databases	Explain that objects can be described using data
Describe objects based on their properties	Use pictograms to answer simple questions	Arrange objects in a tree structure	Explain that a data logger collects 'data points' from sensors over time	Group and sort data to answer questions	Explain that formulas can be used to produce calculated data
Group objects in different ways	Create a pictogram	Create a branching database	Discuss data captured	Use tools to refine data	Apply formulas to data
Describe and compare groups of objects	Select objects by attribute and make comparisons	Compare and evaluate the structures of branching databases	Import a data set	Explain how computer programs are used to compare data visually	Create a spreadsheet to plan an event
Record objects in a group and share information	Answer 'more than/less than/most/least questions about an attribute	Create questions and answer questions based on a branching database	Use a computer to sort data	Answer real-world questions	Choose suitable ways to present data
Decide how to group objects computer	Share what I have found out	Compare a pictogram to a branching database	Identify data needed to answer questions		
Create rules for using technology responsibly			Interpret data		
			Explain the benefits of using a data logger		
Presentation / Web design / E-books	**Presentation / Web design / E-books**	**Presentation / Web design / E-books**			**Presentation / Web design / E-books**
Know the difference between traditional books and e-books					Review an existing website and consider its structure
Use different tools to draw a picture on the screen					Plan features of a webpage
Add text and change colour, font and size of text.					Consider the ownership and use of images (copyright)
Save work.					Recognise the need to preview pages
Retrieve and open saved work.					Outline the need for a navigation path
Add sound to the animation.					Recognise the implications of linking to content owned by other people
Copy and paste.					
Create pages.					
Share my e-book with an audience.					

		Sound / Animation	Sound / Animation	Sound / Animation	Sound / Animation	Sound / Animation	Sound / Animation
			Describe how music makes me feel Create a rhythm pattern Use a computer to experiment with pitch and duration Use a computer to create a musical pattern using 3 notes Create music for a purpose Save, review and refine my work.	Explain that animation is a sequence of pictures Draw a sequence of pictures Create a stop-frame animation by making little changes for each frame Plan an animation with a storyboard Use onion skinning to make changes between frames Evaluate the quality of my animation Add other media into an animation	Identify that sound can be digitally recorded Name devices that can record and play sound Identify inputs and outputs to play audio or record sound Use a digital device to record sound Plan and write content for a podcast Save and open a digital recording as a file Edit an audio recording Choose suitable sounds to include in a podcast Evaluate editing choices made and suggest improvements		
		Photography / Digital Art / Video Creation Make marks and lines on a screen Use shape and line tools to draw pictures Choose appropriate colours and shapes Create a picture in the style of an artist Spot differences between painting on a computer and on paper, and give my preference	**Photography / Digital Art / Video Creation** Use a digital device to take photos Take photos in landscape and portrait Know features of a 'good' photo Experiment with different light sources Edit a photo Move and resize images Recognise when a photo is not real (fake)	**Photography / Digital Art / Video Creation**	**Photography / Digital Art / Video Creation** Identify changes that can be made to images Explain the effect that editing can have on an image Change the composition of an image Consider that changes to images might be made Give examples of positive and negative effects that retouching can have on an image Choose appropriate tools to edit an image Sort 'fake' or 'real' images	**Photography / Digital Art / Video Creation** Identify drawing tools can be used to produce different outcomes Create a vector drawing by combing shapes Use tools to achieve a desired effect Recognise that vector drawings consist of layers Group objects to make them easier to work with Evaluate my vector drawing Explain what makes a video effective	**Photography / Digital Art / Video Creation**

						Use a digital device to record video Capture video using a range of techniques Create a storyboard Improve a video through reshooting and editing Consider the impact of choices made when making and sharing a video	
Computer Science		Evaluate how changes can improve an image					
		Coding/Programming: Predict the outcome of a command on a device Run a command on a device Follow an instruction Give direction Combine commands to make a sequence Plan a simple program Debug my program Problem-solve	**Coding/Programming:** Describe a series of instructions as a sequence Give and follow clear instructions Use an algorithm to program a sequence on a Beebot Use logical reasoning to predict the outcome of a program (series of commands) Follow a sequence Design an algorithm for a specific goal Create and debug a program that I have written	**Coding/Programming:** Identify objects in a Scratch project Recognise commands in block coding Identify commands have an outcome Start a program Create a sequence of commands Explain and build a sequence of commands Make design choices Implement my algorithm as code Explain the relationship between an event and an action Create a program to move a sprite in 4 directions Choose blocks to set up my program Develop my program by adding features	**Coding/Programming:** Program a computer by typing commands (in a text-based language) Write an algorithm to produce a given outcome Test my algorithm in a text-based language Explain what 'repeat' means Use a count-controlled loop to produce a given outcome Change the number of times a task is repeated Choose which values to change in a 'loop' Decompose a task into small steps Create a program and develop it by debugging it Develop the use of count-controlled loops in a different programming environment	**Coding/Programming:** Build a simple circuit to connect to a computer Write a program that includes count-controlled loops Explain that a loop can stop when a condition is being met Conclude that a loop can be used to repeatedly check whether a condition has been met Design a physical project that includes selection Create a controllable system that includes selection	**Coding/Programming:** Define a 'variable' as something that is changeable Explain why a variable is used in a program Choose how to improve a game by using variables Design a project Evaluate my project Create a program to run on a controllable device Explain that selection can control the flow of a program Update a variable with a user input Use a conditional statement to compare a variable to a value Design a project that uses inputs and outputs on a controllable device Develop a program to use inputs and outputs on a controllable device

				Identify and fix bugs in a program Design and create a maze-based challenge	Modify loops to produce a given outcome Explain that in programming there are infinite loops and count-controlled loops and I can choose when to use both Develop a design that includes 2 or more loops which run at the same time Modify an infinite loop Design a project that includes repetition Evaluate and refine the algorithm in my design		
				Computer Networks: Explain how digital devices function Identify input and output devices Identify similarities and difference between using digital and non-digital tools Explain how a computer network can be used to share information Explain the role of a switch, server and wireless access point in a network Recognise the physical components of a network	**Computer Networks:** Describe how networks physically connect to other networks Recognise how networked devices make up the internet Explain how websites can be shared via the World Wide Web Create media which can be found on websites Recognise how the content of the WWW is created by people Explain that there are rules to protect content Evaluate the consequences of unreliable content	**Computer Networks:** Explain that computers can be connected together to form systems	

Digital Literacy inc. Online Safety (see below)	Children recognise that a range of technology is used in places such as homes and schools	Explain how technology helps us Give examples of technology in the classroom Name the main parts of a	Name examples of information technology Identify different computers Identify information technology at home and beyond school Explain the benefits of information technology Explain how to use information technology safely			Recognise the role of computers in our lives Recognise how information is transferred over the internet Contribute to a shared project Evaluate different ways of working together online *Gender Balance project:* Describe careers in the STEM field Discuss the impact & importance of computing in our lives Prepare questions to ask a role model Research answers to questions Present ideas	Use a search engine, refining my search and comparing results Describe how search engines select results Explain how search results are ranked Recognise why the order of results is important, and to whom Recognise how we communicate using technology Evaluate different methods of online communication
Online Safety (Follow objectives from 'Educated for a Connected World' through half-termly online safety lessons and assemblies) Focus on: • Autumn 1st half term: Privacy & Security (link to establishing class rules about online behaviour) • Aut 2nd half term: Online Bullying (link to Anti-Bullying Week) • Spr 1st half term: Health, well-being & lifestyle (link to	I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset. • I can explain how this could be either in real life or online. I can recognise some ways in which the internet can be used to communicate. • I can give examples of how I (might) use technology to communicate with people I know. I can identify ways that I can put information on the internet.	I can recognise that there may be people online who could make me feel sad, embarrassed or upset. • If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust. I can use the internet with adult support to communicate with people I know. • I can explain why it is important to be considerate and kind to people online I can recognise that information can stay online and could be copied. • I can describe what information I should not put online without asking a trusted adult first. can describe how to behave online in ways that do not upset others and can give examples. can use the internet to find things out. • I can use simple keywords in search engines • I can describe and demonstrate how to get help from	I can explain how other people's identity online can be different to their identity in real life. • I can describe ways in which people might make themselves look different online. • I can give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help I can use the internet to communicate with people I don't know well (e.g. email a penpal in another school/ country). • I can give examples of how I might use technology to communicate with others I don't know well I can explain how information put online about me can last for a	I can explain what is meant by the term 'identity'. • I can explain how I can represent myself in different ways online. • I can explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media). I can describe ways people who have similar likes and interests can get together online. • I can give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak). • I can explain some risks of communicating online with others I don't know well. • I can explain how my and other people's feelings can be hurt by what is said or written online. • I can explain why I should be careful who I trust online	I can explain how my online identity can be different to the identity I present in 'real life' • Knowing this, I can describe the right decisions about how I interact with others and how others perceive me I can describe strategies for safe and fun experiences in a range of online social environments • I can give examples of how to be respectful to others online. I can describe how others can find out information about me by looking online. • I can explain ways that some of the information about me online could have been created, copied or shared by others	I can explain how identity online can be copied, modified or altered. • I can demonstrate responsible choices about my online identity, depending on context. I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. • I can make positive contributions and be part of online communities. • I can describe some of the communities in which I am involved and describe how I collaborate with others positively I can search for information about an individual online and create a summary report of the information I find. •	I can describe ways in which media can shape ideas about gender. • I can identify messages about gender roles and make judgements based on them. • I can challenge and explain why it is important to reject inappropriate messages about gender online. • I can describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. I know and can give examples of how I might get help, both on and offline. • I can explain why I should keep asking until I get the help I need I can show I understand my responsibilities for the well-being of others in my online social group. • I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced

Children's Mental Health Week) • Spr 2nd half term: Managing Online Information • Sum 1st half term: Self-image & identity • Sum 2nd half term: Online relationships	I can describe ways that some people can be unkind online. • I can offer examples of how this can make others feel. I can talk about how I can use the internet to find things out. • I can identify devices I could use to access information on the internet. • I can give simple examples of how to find information (e.g. search engine, voice activated searching). I can identify rules that help keep us safe and healthy in and beyond the home when using technology. • I can give some simple examples. I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). • I can describe the people I can trust and can share this with; I can explain why I can trust them know that work I create belongs to me. • I can name my work so that others know it belongs to me.	a trusted adult or helpline if I find content that makes me feel sad, uncomfortable worried or frightened. I can explain rules to keep us safe when we are using technology both in and beyond the home. • I can give examples of some of these rules I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school). • I can explain why I should always ask a trusted adult before I share any information about myself online. • I can explain how passwords can be used to protect information and devices I can explain why work I create using technology belongs to me. • I can say why it belongs to me (e.g. 'it is my idea' or 'I designed it'). • I can save my work so that others know it belongs to me (e.g. filename, name on content	long time. • I know who to talk to if I think someone has made a mistake about putting something online. I can give examples of bullying behaviour and how it could look online. • I understand how bullying can make someone feel. • I can talk about how someone can/would get help about being bullied online or offline. I can use keywords in search engines. • I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). • I can explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri). • I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. • I can explain why some information I find online may not be true. I can explain simple guidance for using technology in different environments and settings. • I can say how those rules/guides can help me I can describe why other people's work belongs to them. • I can recognise that content on the internet may belong to other people I can describe why other people's work belongs to them. • I can recognise that content on the internet may belong to other people.	and what information I can trust them with. I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried.•I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life. I can explain what is meant by 'trusting someone online'. I can explain why this is different from 'liking someone online' I can search for information about myself online. • I can recognise I need to be careful before I share anything about myself or others online. • I know who I should ask if I am not sure if I should put something online. I can explain what bullying is and can describe how people may bully others. • I can describe rules about how to behave online and how I follow them. can use key phrases in search engines. • I can explain what autocomplete is and how to choose the best suggestion. • I can explain how the internet can be used to sell and buy things • I can explain the difference between a 'belief', an 'opinion' and a 'fact'. I can explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos) I can give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. • I understand and can give reasons why passwords are	I can identify some online technologies where bullying might take place. • I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). • I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation). I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. • I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). • I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. • I can explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. • can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true I can explain how using technology can distract me from other things I might do or should be doing. • I can identify times or situations when I might need to limit the amount of time I use technology. • I can suggest strategies to help me limit this time. I can explain what a strong password is. • I can describe strategies for keeping my personal information private, depending on context. • I	I can describe ways that people online can be used by others to make judgments about an individual I can recognise when someone is upset, hurt or angry online. • I can describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone. • I can explain how to block abusive users. • I can explain how I would report online bullying on the apps and platforms that I use. • I can describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline). can use different search technologies. • I can evaluate digital content and can explain how I make choices from search results. • I can explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence. • I understand the difference between online mis-information (inaccurate information distributed by accident) and dis-information (inaccurate information deliberately distributed and intended to mislead). • I can explain what is meant by 'being sceptical'. • I can give examples of when and why it is important to be 'sceptical'. • I can explain what is meant by a 'hoax'. • I can explain why I need to think carefully before I forward anything online. • I can explain why some information I find online may not be honest, accurate or legal. • I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of	in live streaming). • I can demonstrate how I would support others (including those who are having difficulties) online. • I can demonstrate ways of reporting problems online for both myself and my friends. I can explain how I am developing an online reputation which will allow other people to form an opinion of me. • I can describe some simple ways that help build a positive online reputation I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. • I can identify a range of ways to report concerns both in school and at home about online bullying. I can use search technologies effectively. • I can explain how search engines work and how results are selected and ranked. • I can demonstrate the strategies I would apply to be discerning in evaluating digital content. • I can describe how some online information can be opinion and can offer examples. • I can explain how and why some people may present 'opinions' as 'facts'. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. advertising and 'ad targeting'). • I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important. • I can identify, flag and report inappropriate content. I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings)

				important. • I can describe simple strategies for creating and keeping passwords private. • I can describe how connected devices can collect and share my information with others I can explain why copying someone else's work from the internet without permission can cause problems. • I can give examples of what those problems might be	can explain that others online can pretend to be me or other people, including my friends • I can suggest reasons why they might do this • I can explain how internet use can be monitored. When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. • I can give some simple examples	misinformation either by accident or on purpose). I can describe ways technology can affect healthy sleep and can describe some of the issues. • I can describe some strategies, tips or advice to promote healthy sleep with regards to technology I can create and use strong and secure passwords. • I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. • I can explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing I can assess and justify when it is acceptable to use the work of others. • I can give examples of content that is permitted to be reused.	and describe their purpose. • I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise). • I can explain the importance of self-regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents) I use different passwords for a range of online services. • I can describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories). • I know what to do if my password is lost or stolen. • I can explain what app permissions are and can give some examples from the technology or services I use. • I can describe simple ways to increase privacy on apps and services that provide privacy settings. I can describe ways in which some online content targets people to gain money or information illegally; • I can describe strategies to help me identify such content (e.g. scams, phishing I can demonstrate the use of search tools to find and access online content which can be reused by others. • I can demonstrate how to make references to and acknowledge sources I have used from the internet