Computing: Knowledge and Skills Progression Map

Nursery	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Substantive Knowledge:	**Throughout the year, these activities will be covered throughout continuous provision and extended with adult modelling:** -Use of iPads to press buttons to carry out actions, watch videos, play games, make marks -Use of interactive whiteboard to watch videos, make marks and select things by pressing -Use of computers to pay games and use a mouse -Know that the computer allows the interactive whiteboard to work -Know that you use the left button to click on a mouse -Know that you move the mouse to move the cursor on the computer -Use of coding critters					

Reception	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Throughout the year, these activities will be covered throughout continuous provision and extended with adult modelling: -Use of computers -Use of listening areas to listen to storybooks -Know different types of technology (microwaves, toasters, phones etc) have a purpose and require electricity to work					
Substantive Knowledge:	**Throughout the year, these activities will be carried out in small group work with an adult:** -Use of coding critters to… -Use of iPads to take photographs, play games relating to maths and phonics requiring pressing buttons and make videos Online Safety: Self-image and identity -Recognise, online or offline, that anyone can say 'no', 'please stop', 'I'll tell', 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset Online bullying: -Describe ways that some people can be unkind online. -Offer examples of how being unkind online can make others feel. Online Relationships: -Recognise some ways in which the internet can be used to communicate. -Give examples of how I (might) use technology to communicate with people I know. Copyright and ownership: -Know that work I create belongs to me. -Name my work so that others know it belongs to me. Managing online information: -Talk about how to use the internet as a way of finding information online. -Identify devices I could use to access information on the internet Health, well-being and lifestyle: -Identify rules that help keep us safe and healthy in and beyond the home when using technology. -Give some simple examples of these rules. Privacy and security: -Identify some simple examples of my personal information (e.g. name, address, birthday, age, location). -Describe who would be trustworthy to share this information with; I can explain why they are trusted.					

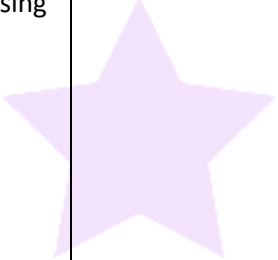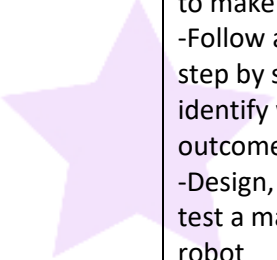| Key Stage 1 |
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| **By the end of KS1, children will:**

-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. | **KS1 Vocabulary:** |

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Technology Around Us (Digital Literacy)	Self-image and Identity Health, wellbeing and lifestyle Privacy and Security (Online Safety)	Digital Painting (Creating Media)	Copyright and Ownership Managing Online Information (Online Safety)	Moving a Robot (Programming)	Online Relationships Online Reputation Online Bullying (Online Safety)
National Curriculum links:	-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.	-Use technology purposefully to create, organise, store, manipulate and retrieve digital content	-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.	-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 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.
Substantive Knowledge:	-Understand what is 'technology' and how it helps us -Explore why we have rules and how those rules help us -Know what a mouse is and what it is for -Know the different parts of a computer	Online Reputation -Recognise that information can stay online and could be copied. -Describe what information I should not put online without asking a trusted adult first. Online Bullying -Describe how to behave online in ways that do not upset others and can give examples.	-Know which tools to use and when/why -Know how to change the size of brush and colour of paint	Self-image and Identity -Recognise that there may be people online who could make someone feel sad, embarrassed or upset. -Give examples of when and how to speak to an adult I can trust and how they can help. Privacy and Security -Explain how passwords are used	-Know what a floor robot is -Know which buttons move the robot, clear memory and run programs -Know how precise direction instructions need to be when using a computer -Understand there is more than one way to solve a problem	Online Relationships -Give examples of when I should ask permission to do something online and explain why this is important. -Use the internet with adult support to communicate with people I know (e.g. video call apps or services). -Explain why it is important to be considerate and kind to people online and

		Health, wellbeing and lifestyle -Explain rules to keep myself safe when using technology both in and beyond the home.		to protect information, accounts and devices. -Recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). -Explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others. Copyright and Ownership -Explain why work I create using technology belongs to me. -Save my work under a suitable title or name so that others know it belongs to me (e.g. filename, name on content). -Understand that work created by others does not belong to me even if I save a copy.		to respect their choices. -Explain why things one person finds funny or sad online may not always be seen the same way by others. Managing Online Information -Give simple examples of how to find information using digital technologies, e.g. search engines, voice activated searching. -Know/understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe/a joke. -Know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened.
Disciplinary Knowledge:	-Use a computer keyboard for a purpose		-Make marks on a screen using freehand tools	Self-image and Identity	-Predict what buttons might do and test their theories	

	-Use a mouse to click on things -Apply their knowledge of the different parts of a computer to use them -Apply their understanding of rules needed for using computer technology safely		-Use the shape and line tools to create their own digital painting in the style of an artist -Make careful choices to create a painting in the style of an artist -Explain the reasons for choosing certain tools and colours -Select appropriate colours, brush sizes and brush tools to independently create their own image -Compare their preferences when creating paintings on computers and on paper		-Link a button to an outcome -Follow and give instructions to a partner -Program the floor robot to move forwards and backwards -Progress to use the left and right turn commands -Predict when given programs will move the robot -Create a program and test it on the robot -Develop slightly more complex programs through trial and error -Debug their program where needed -Plan routes before programs are written

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	
	Technology Around Us (Digital Literacy)	Health, wellbeing and lifestyle Online Reputation Online Bullying (Online Safety)	Digital Photography (Creating Media)	Privacy and Security Copyright and Ownership Self-image and Identity (Online Safety)	Robot Algorithms (Programming)	Managing Online Information Online Relationships (Online Safety)
National Curriculum links:	-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.	-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.	-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 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.
Substantive Knowledge:	-Develop their understanding of what Information Technology is -Identify devices that are computers and consider how IT can help them both at school and beyond -Identify purposes of different technology in both the school setting and in the world	Online Reputation -Explain how information put online about someone can last for a long time. -Describe how anyone's online information could be seen by others. -Know who to talk to if something has been put online without consent or if it is incorrect.	-Understand the difference between portrait and landscape photography and explore the reasons why photographers might prefer one over the other -Discover what constitutes good photography composition -Explore the effects of artificial lighting on photographs	Self-image and Identity -Explain how other people may look and act differently online and offline. -Give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened Privacy and Security	-Understand that computers can only follow clear and unambiguous instructions -Understand decomposition by breaking algorithms into chunks	Online Relationships -Give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky (e.g. email, online gaming, a pen-pal from another school/country). -Explain who they should ask before sharing things about

	Know that IT devices can work together for a purpose -Know the rules of staying safe when using IT	Online Bullying -Explain what bullying is and how people may bully others and how bullying can make someone feel. -Explain why anyone who experiences bullying is not to blame. -Talk about how anyone experiencing bullying can get help. Health, wellbeing and lifestyle -Explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. -Say how those rules/guides can help anyone accessing online technologies.	-Understand that images can be altered and edited -Develop awareness that not all images they see are real -Identify which photos are real and which have been changed	-Explain how passwords can be used to protect information, accounts and devices. -Explain and give examples of what is meant by 'private' and 'keeping things private'. -Describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). Copyright and Ownership -Recognise that content on the internet may belong to other people. -Describe why other people's work belongs to them.		themselves or others online. -Describe different ways to ask for, give, deny their permission online and can identify who can help if they are not sure. -Explain why they have a right to say 'no' or 'I will have to ask someone'. Managing Online Information -Explain what voice activated searching is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). -Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. -Explain why some information I find online may not be real or true.
Disciplinary Knowledge:	-Use IT in different types of activities and explain that sometimes they will need to use IT in different ways		-Use devices to capture their own photographs -Compose and capture their own photographs		-Follow and give instructions -Create short sequences using the same commands in different orders	

| | -Demonstrate how IT devices work together to achieve a purpose
-Demonstrate ways of staying safe when using IT | | -Investigate the effect that good lighting has on the quality of photos | | -Test command sequences to find different outcomes
-Use logical reasoning to make predictions
-Follow a program step by step and identify what the outcome will be
-Design, create and test a mat for a floor robot
-Design algorithms to move robot around mats by identifying starting and finishing points of a route
-Find and fix errors in algorithms and programs | |