



Computing- Knowledge Progression Grid

	EYFS	Years 1 & 2	Years 3 & 4	Years 5 & 6
Computer Science	<p><u>Hardware</u></p> <ul style="list-style-type: none"> • To know how to operate a camera to take photographs of meaningful creations or moments • To know how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary • To know how to operate a camera • To know a range of technology is used in places such as homes and schools • To know what a keyboard is and how to locate relevant keys • To know what a mouse is and developing basic mouse skills such as moving and clicking. 	<p><u>Hardware</u></p> <ul style="list-style-type: none"> • To know how to explore and tinker with hardware to find out how it works • To know that computers and devices around us use inputs and outputs, identifying some of these • To know where keys are located on the keyboard • To know how to operate a camera • To know what a computer is and that it's made up of different components • To know that buttons cause effects and that technology follows instructions • To know that technology is doing what we want it to do via its output. 	<p><u>Hardware</u></p> <ul style="list-style-type: none"> • To know what the different components of a computer do and how they work together • To know what a server does • To know the purpose of routers 	<p><u>Hardware</u></p> <ul style="list-style-type: none"> • To know that external devices can be programmed by a separate computer • To know the difference between ROM and RAM • To know that the size of RAM affects the processing of data • To know the fetch, decode, execute cycle • To know about the history of computers and how they have evolved over time • To know how barcodes, QR codes and RFID work • To know about some of the methods which cause data corruption
				<p><u>Networks and Data Representation</u></p> <ul style="list-style-type: none"> • To know what a network is and its purpose • To know how data is transferred • To know the key components of a network • To know that websites & videos are files that are shared from one computer to another • To know about the role of packets

			<ul style="list-style-type: none"> • To know that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration 	<ul style="list-style-type: none"> • To know that computer networks provide multiple services
<p><u>Computational Thinking</u></p> <p>To know logical reasoning to read simple instructions and predict the outcome.</p>	<p><u>Computational Thinking</u></p> <ul style="list-style-type: none"> • To know that decomposition means breaking a problem down into smaller parts • To know that an algorithm is a set of step by step instructions used to carry out a task, in a specific order • To know what abstraction is • To know that there are different levels of abstraction • To know what an algorithm is • To know that computers use algorithms to make predictions • To know that programs execute by following precise instructions 	<p><u>Computational Thinking</u></p> <ul style="list-style-type: none"> • To know that computers follow instructions • To know the purpose of an algorithm • To know the purpose of a script of code 	<p><u>Computational Thinking</u></p> <ul style="list-style-type: none"> • To know how software will work based on previous experience • To know past experiences to help solve new problems 	
<p><u>Programming</u></p> <ul style="list-style-type: none"> • To know how to follow instructions as part of practical activities and games and learning to debug when things go wrong • To know how to give simple instructions • To know that an algorithm is a set of instructions to carry out a task, in a specific order 	<p><u>Programming</u></p> <ul style="list-style-type: none"> • To know how to debug instructions when things go wrong • To know how the Bee-bot works • To know how to debug an algorithm in an unplugged scenario using 'Scratch Dinosaur'. • To know how to plan algorithms to solve problems using Google Doodle! – Coding for carrots 	<p><u>Programming</u></p> <ul style="list-style-type: none"> • To know that incorporating loops makes coding more efficient using 'Scratch' • To know how to program an animation, story and a game using 'Scratch' • To know how to use variables in code scripts using 'Scratch' 	<p><u>Programming</u></p> <ul style="list-style-type: none"> • To know that writing code can give a desired effect using Sonic Pi and Scratch • To know a range of programming commands • To know how to use BBC Micro:bit to test and evaluate algorithms when creating and debugging programs with specific aims 	

	<ul style="list-style-type: none"> • To know how to experiment with programming a Bee-bot and learning how to give simple commands • To know how to debug instructions, with the help of an adult, when things go wrong. 	<ul style="list-style-type: none"> • To know what loops are using Scratch Jr 	<ul style="list-style-type: none"> • To know that websites can be altered by exploring the code beneath the site 	<ul style="list-style-type: none"> • To know the functions of code and how it can be manipulated for a range of purposes. • To know how to create nested loops when tinkering with Logo, using Turtle Academy.
<p>Information Technology</p>	<p><u>Using Software</u></p> <ul style="list-style-type: none"> • To know how to use a simple online paint tool to create digital art 	<p><u>Using Software</u></p> <ul style="list-style-type: none"> • To know a basic range of tools within graphic editing software • To know different software tools • To know word processing skills, including altering text, copying and pasting and using keyboard shortcuts • To know that software can create story animations using J2E animation 	<p><u>Using Software</u></p> <ul style="list-style-type: none"> • To know software that can edit and enhance their video using Movie Maker and Digital Blue 	<p><u>Using Software</u></p> <ul style="list-style-type: none"> • To know ways to improve and edit final products
	<p><u>Using email and the internet</u></p> <ul style="list-style-type: none"> • To know how to participate in group image searches, led by the teacher 	<p><u>Using Email and the Internet</u></p> <ul style="list-style-type: none"> • To know the importance of searching and downloading images from the internet safely 	<p><u>Using Email and the Internet</u></p> <ul style="list-style-type: none"> • Learning to log in and out of an email account • To know email include a subject and 'to' and 'from' • To know emails have attachments 	<p><u>Using Email and the Internet</u></p> <ul style="list-style-type: none"> • To know search engines can find information effectively using key words

	<p><u>Using data</u></p> <ul style="list-style-type: none"> • To know how to represent data through sorting and categorising objects in unplugged scenarios • To know how to represent data through pictograms • To know how to explore branch databases through physical games 	<p><u>Using Data</u></p> <p>Introduction to spreadsheets</p> <ul style="list-style-type: none"> • To know the functions and purposes of spreadsheets. 	<p><u>Using Data</u></p> <ul style="list-style-type: none"> • To know the vocabulary associated with databases: field, record, data • To know the pros and cons of digital versus paper databases • To know that sorting and filtering within databases can easily retrieve information 	<p><u>Using Data</u></p> <ul style="list-style-type: none"> • To know how data is collected • To know how barcodes, QR codes and RFID work
		<p><u>Wider Use of Technology</u></p> <ul style="list-style-type: none"> • To know common uses of information technology, including beyond school • To know uses of technology beyond school • To know computers are used in the wider world 	<p><u>Wider Use of Technology</u></p> <ul style="list-style-type: none"> • To know the purpose of emails. • To know that software can be used collaboratively online to work as a team 	<p><u>Wider Use of Technology</u></p> <ul style="list-style-type: none"> • To know what a search engine is • To know about the Internet of Things and how it has led to 'big data'. • To know how 'big data' can be used to solve a problem or improve efficiency
<p>Digital Literacy</p>	<ul style="list-style-type: none"> • To know that a range of technology is used in places such as homes and schools • To know how to log in and log out • To know that, when using the internet alongside an adult, or independently, what to do if they come across something that worries them or makes them feel uncomfortable 	<ul style="list-style-type: none"> • To know the importance of logging in and out and saving work on their own account • To know the importance of a password • To know that when using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable is important 	<ul style="list-style-type: none"> • To know what constitutes as a responsible digital citizen; understanding their responsibilities to treat others respectfully and recognising when digital behaviour is unkind • To know about cyberbullying • To know that not all emails are genuine, recognising when an email might be fake and what to do about it 	<ul style="list-style-type: none"> • To know the possible dangers online and how to stay safe. • Creating an animation about digital safety • To know that information on the Internet might not be true or correct and to know ways of checking validity • To know the importance of secure passwords and how to create them

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		<ul style="list-style-type: none">• To know how to stay safe when talking to people online. Not sharing personal information and what to do if they see or hear something online that makes them feel upset or uncomfortable	<ul style="list-style-type: none">• To know what appropriate behaviour is when collaborating with others online• To know that information on the Internet might not be true or correct and that some sources are more trustworthy than others	<ul style="list-style-type: none">• To know that updated software can help to prevent data corruption and hacking
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