

## COMPUTING Progression Framework

Focus	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Computer Science</b>	<ul style="list-style-type: none"> <li>• Learning how to operate a camera to take photographs of meaningful creations or moments.</li> <li>• Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.</li> <li>• Recognising and identifying familiar letters and numbers on a keyboard.</li> <li>• Developing basic mouse skills such as moving and clicking.</li> <li>• Using logical</li> </ul>	<ul style="list-style-type: none"> <li>• Learning how to explore and tinker with hardware to find out how it works.</li> <li>• Recognising that some devices are input devices and others are output devices.</li> <li>• Learning where keys are located on the keyboard.</li> <li>• Learning how to operate a camera to take photos and videos.</li> <li>• Learning that decomposition means breaking a problem down into smaller parts.</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding what a computer is and that it's made up of different components.</li> <li>• Recognising that buttons cause effects and that technology follows instructions.</li> <li>• Learning how we know that technology is doing what we want it to do via its output.</li> <li>• Using greater control when taking photos with cameras, tablets or computers.</li> <li>• Developing confidence with</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding what the different components of a computer do and how they work together.</li> <li>• Learning about the purpose of routers.</li> <li>• Drawing comparisons across different types of computers.</li> <li>• Recognising links between networks and the internet.</li> <li>• Learning how data is transferred.</li> <li>• Identifying the key components within a network,</li> </ul>	<ul style="list-style-type: none"> <li>• Using tablets or digital cameras to film a weather forecast.</li> <li>• Understanding that weather stations use sensors to gather and record data which predicts the weather.</li> <li>• Understanding that computer networks provide multiple services, such as the World Wide Web.</li> <li>• Using decomposition to solve a problem by finding out what code was used.</li> <li>• Using</li> </ul>	<ul style="list-style-type: none"> <li>• Learning that external devices can be programmed by a separate computer.</li> <li>• Learning the difference between ROM and RAM.</li> <li>• Recognising how the size of RAM affects the processing of data.</li> <li>• Understanding the fetch, decode, execute cycle.</li> <li>• Understanding how bit patterns represent images as pixels.</li> <li>• Learning that messages can</li> </ul>	<ul style="list-style-type: none"> <li>• Learning about the history of computers and how they have evolved over time.</li> <li>• Using the understanding of historic computers to design a computer of the future.</li> <li>• Understanding and identifying barcodes, QR codes and RFID.</li> <li>• Identifying devices and applications that can scan or read barcodes, QR codes and RFID.</li> <li>• Understanding how corruption</li> </ul>

	<p>reasoning to understand simple instructions and predict the outcome.</p> <ul style="list-style-type: none"> <li>• Following instructions as part of practical activities and games.</li> <li>• Learning to give simple instructions.</li> <li>• Experimenting with programming a Bee-bot/Blue-bot and learning how to give simple commands.</li> <li>• Learning to debug instructions, with the help of an adult, when things go wrong.</li> <li>• To know that being able to</li> </ul>	<ul style="list-style-type: none"> <li>• Using decomposition to solve unplugged challenges.</li> <li>• Using logical reasoning to predict the behaviour of simple programs.</li> <li>• Developing the skills associated with sequencing in unplugged activities.</li> <li>• Following a basic set of instructions.</li> <li>• Assembling instructions into a simple algorithm.</li> <li>• Making suggestions for how to fix errors in algorithms.</li> <li>• Beginning to identify errors in algorithms.</li> </ul>	<p>the keyboard and the basics of touch typing.</p> <ul style="list-style-type: none"> <li>• Articulating what decomposition is.</li> <li>• Decomposing a game to predict the algorithms used to create it.</li> <li>• Learning that there are different levels of abstraction.</li> <li>• Explaining what an algorithm is.</li> <li>• Following an algorithm.</li> <li>• Learning that programs execute by following precise instructions.</li> <li>• Incorporating loops within algorithms.</li> <li>• Creating a clear and precise</li> </ul>	<p>including whether they are wired or wireless.</p> <ul style="list-style-type: none"> <li>• Understanding how networks work and their purpose.</li> <li>• Learning about the role of packets.</li> <li>• Understanding that websites &amp; videos are files that are shared from one computer to another.</li> <li>• Forming algorithms independently.</li> <li>• Explaining the purpose of an algorithm.</li> <li>• Using logical reasoning to explain how simple algorithms work.</li> <li>• Using repetition</li> </ul>	<p>decomposition to understand the purpose of a script of code.</p> <ul style="list-style-type: none"> <li>• Identifying patterns through unplugged activities.</li> <li>• Using abstraction to identify the important parts when completing both plugged and unplugged activities.</li> <li>• Using past experiences to help solve new problems.</li> <li>• Creating algorithms for a specific purpose.</li> <li>• Coding a simple game.</li> <li>• Using abstraction and pattern</li> </ul>	<p>be sent by binary code.</p> <ul style="list-style-type: none"> <li>• Relating binary signals (Boolean) to ASCII.</li> <li>• Recognising that computers transfer data in binary and understanding simple binary addition.</li> <li>• Learning how the data for digital images can be compressed.</li> <li>• Decomposing animations into a series of images.</li> <li>• Writing more complex algorithms for a purpose.</li> <li>• Predicting how software will work based on previous experience.</li> </ul>	<p>can happen within data during transfer.</p> <ul style="list-style-type: none"> <li>• Identify different types of AI and their applications in everyday life.</li> <li>• Analysing the effectiveness of prompts and refine them for improved AI outputs.</li> <li>• Writing increasingly complex algorithms for a purpose.</li> <li>• Debugging quickly and effectively to make a program more efficient.</li> <li>• Remixing existing code to explore a problem.</li> <li>• Applying coding skills to interact</li> </ul>
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	<p>follow and give simple instructions is important in computing.</p> <ul style="list-style-type: none"> <li>• To understand that it is important for instructions to be in the right order.</li> <li>• To understand why a set of instructions may have gone wrong.</li> <li>• To know that you can program a Bee-Bot with some simple commands.</li> <li>• To understand that debugging means how to fix some simple programming errors.</li> <li>• To understand that an algorithm is a</li> </ul>	<ul style="list-style-type: none"> <li>• Using terms like 'start,' 'end' and 'next' to describe the steps in algorithms.</li> <li>• Writing clear, sequenced algorithms for familiar tasks.</li> <li>• Explaining what they are trying to achieve with their algorithms.</li> <li>• Recognising that robots are programmed by humans.</li> <li>• Learning to debug an algorithm in an unplugged scenario.</li> <li>• Using programming language to explain how a floor robot works.</li> <li>• Learning to debug</li> </ul>	<p>algorithm.</p> <ul style="list-style-type: none"> <li>• Using logical thinking to explore software, predicting, testing and explaining what it does.</li> <li>• Using an algorithm to write a basic computer program.</li> <li>• Using loop blocks when programming to repeat an instruction more than once.</li> </ul>	<p>in programs.</p> <ul style="list-style-type: none"> <li>• Using decomposition to explore the code behind an animation.</li> <li>• Using decomposition to explain the parts of a laptop computer.</li> <li>• Making reasonable suggestions for how to debug their own and others' code.</li> <li>• Continuing existing code.</li> <li>• Incorporating loops to make code more efficient.</li> <li>• Using logical thinking to explore more complex software; predicting, testing and explaining what</li> </ul>	<p>recognition to modify code.</p> <ul style="list-style-type: none"> <li>• Incorporating variables to make code more efficient.</li> <li>• Remixing existing code.</li> <li>• Tinkering with an existing text-based code to see how it affects a program (website).</li> <li>• Creating loops to make code more efficient in block-based programs.</li> <li>• Beginning to use variables in block-based programming languages.</li> <li>• Including a conditional statement in block-based programming languages.</li> </ul>	<ul style="list-style-type: none"> <li>• Iterating and developing their programming as they work.</li> <li>• Confidently using loops in their programming.</li> <li>• Using a more systematic approach to debugging code.</li> <li>• Programming a physical system that has the capability for sensory input (e.g. a micro:bit).</li> <li>• Using nested loops to make code more efficient.</li> </ul>	<p>with AI applications.</p> <ul style="list-style-type: none"> <li>• Predicting code and adapting it to a chosen purpose.</li> <li>• Evaluating code to understand its purpose.</li> <li>• Programming using the language Python.</li> <li>• Using and adapting nested loops.</li> </ul>
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	<p>set of clear and precise instructions.</p>	<p>instructions when things go wrong.</p> <ul style="list-style-type: none"> <li>• Programming a floor robot to follow a planned route.</li> <li>• Changing their instructions or algorithms into code that the robot understands.</li> </ul>		<p>it does.</p> <ul style="list-style-type: none"> <li>• Recognising visual and text-based programming languages.</li> </ul>			
<p><b>Information Technology</b></p>	<ul style="list-style-type: none"> <li>• Using a simple online paint tool to create digital art.</li> <li>• Representing data through sorting and categorising objects in unplugged scenarios.</li> <li>• Representing data through physical pictograms.</li> <li>• Exploring branch</li> </ul>	<ul style="list-style-type: none"> <li>• Using a basic range of tools within graphic editing software.</li> <li>• Taking and editing photographs.</li> <li>• Developing control of the mouse through dragging, clicking and resizing of images.</li> <li>• Searching and downloading</li> </ul>	<ul style="list-style-type: none"> <li>• Developing word processing skills, including altering text, copying and pasting.</li> <li>• Using word processing software to type and reformat text.</li> <li>• Using software (and unplugged means) to create story animations.</li> </ul>	<ul style="list-style-type: none"> <li>• Taking photographs and recording video to tell a story.</li> <li>• Using software to edit and enhance their video adding music, sounds and text.</li> <li>• Replying to an email.</li> <li>• Sending an email with an attachment.</li> <li>• Writing an email</li> </ul>	<ul style="list-style-type: none"> <li>• Building a web page and creating content for it.</li> <li>• Designing and creating a webpage for a given purpose.</li> <li>• Use online software for documents, presentations, forms and spreadsheets.</li> <li>• Using software to work collaboratively</li> </ul>	<ul style="list-style-type: none"> <li>• Using logical thinking to explore software more independently.</li> <li>• Using a software programme (Sonic Pi/Scratch) to create music.</li> <li>• Using video editing software to animate.</li> <li>• Identify ways to improve and</li> </ul>	<ul style="list-style-type: none"> <li>• Using logical thinking to explore software independently.</li> <li>• Using search and word processing skills to create a presentation.</li> <li>• Planning, recording and editing an audio recording.</li> <li>• Creating and editing sound recordings for a</li> </ul>

	<p>databases through physical games.</p> <ul style="list-style-type: none"> <li>• To know that different types of technology can be found at home and in school.</li> <li>• To know that you can take simple photographs with a camera or iPad.</li> </ul>	<p>images from the internet safely.</p> <ul style="list-style-type: none"> <li>• Understanding that we are connected to others when using the internet.</li> <li>• Using software to explore and create pictograms and branching databases.</li> <li>• Using data representations to answer questions about data.</li> <li>• Recognising common uses of information technology, including beyond school.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating and labelling images.</li> <li>• Understanding what online information is.</li> <li>• Searching for appropriate images to use in a document.</li> <li>• Interpreting data from a spreadsheet.</li> <li>• Collecting and inputting data into a spreadsheet.</li> <li>• Learning how computers are used in the wider world.</li> </ul>	<p>including a subject, 'to' and 'from'.</p> <ul style="list-style-type: none"> <li>• Learning to log in and out of an email account.</li> <li>• Creating and interpreting charts and graphs to understand data.</li> <li>• Sorting and filtering databases to easily retrieve information.</li> <li>• Learning about the pros and cons of digital versus paper databases.</li> <li>• Recognising how social media platforms are used to interact.</li> </ul>	<p>with others.</p> <ul style="list-style-type: none"> <li>• Searching the internet for data.</li> <li>• Using keywords to effectively search for information on the internet.</li> <li>• Understanding why some results come before others when searching.</li> <li>• Sorting data in a spreadsheet to compare using the 'sort by...' option.</li> <li>• Recording data in a spreadsheet independently.</li> <li>• Designing a device which gathers and records sensor data.</li> </ul>	<p>edit programs, videos, images etc.</p> <ul style="list-style-type: none"> <li>• Independently learning how to use 3D design software package TinkerCAD.</li> <li>• Learning how to use search engines effectively to find information.</li> <li>• Understanding how data might be used to tell us about a location.</li> <li>• Understanding how data is collected in remote or dangerous places.</li> <li>• Learn about different forms of communication</li> </ul>	<p>specific purpose.</p> <ul style="list-style-type: none"> <li>• Creating and editing videos, adding multiple elements.</li> <li>• Using design software TinkerCAD to design a product.</li> <li>• Creating a website with embedded links and multiple pages.</li> <li>• Using text-based and image-based AI tools to generate content.</li> <li>• Understanding how search engines work.</li> <li>• Creating formulas and sorting data within spreadsheets.</li> <li>• Gathering and</li> </ul>
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						that have developed with technology.	analysing data in real time. <ul style="list-style-type: none"> <li>• Learning how 'big data' can be used to solve a problem.</li> </ul>
<b>Digital Literacy</b>	<ul style="list-style-type: none"> <li>• Recognising that a range of technology is used for different purposes.</li> <li>• Learning to log in and log out.</li> <li>• To be able to understand what a computer keyboard is.</li> <li>• To know that a mouse can be used to click, drag and create simple drawings.</li> <li>• To know that to use a computer you need to log in to it and then</li> </ul>	<ul style="list-style-type: none"> <li>• Logging in and out and saving work on their own account.</li> <li>• Learning what to do if they come across something online that worries them.</li> <li>• Understanding how to interact safely with others online.</li> <li>• Recognising how actions on the internet can affect others.</li> <li>• To be able to recognise what a digital footprint is.</li> <li>• To know that</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying whether information is safe or unsafe to be shared online.</li> <li>• Learning how to create a strong password.</li> <li>• Learning to be respectful of others when sharing online.</li> <li>• Learning strategies for checking if something they read online is true.</li> <li>• Understanding how to stay safe when talking to</li> </ul>	<ul style="list-style-type: none"> <li>• Recognising that different information is shared online including facts, beliefs and opinions.</li> <li>• Learning how to identify reliable information when searching online.</li> <li>• Learning how to stay safe on social media.</li> <li>• Considering the impact technology can have on mood.</li> <li>• Learning about cyberbullying.</li> <li>• Learning that not all emails</li> </ul>	<ul style="list-style-type: none"> <li>• Learning to make judgements about the accuracy of online searches.</li> <li>• Identifying forms of advertising online.</li> <li>• Recognising what appropriate behaviour is when collaborating with others online.</li> <li>• Reflecting on the positives and negatives of time online.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying possible dangers online and learning how to stay safe.</li> <li>• Evaluating the pros and cons of online communication .</li> <li>• Learning ways of checking validity of online information.</li> <li>• Learning what to do if they experience bullying online.</li> <li>• Learning to use an online community</li> </ul>	<ul style="list-style-type: none"> <li>• Learning about the positive and negative impacts of sharing online.</li> <li>• Learning strategies to create a positive online reputation.</li> <li>• Understanding the importance of secure passwords.</li> <li>• Learning strategies to capture evidence of online bullying in order to seek help.</li> <li>• Using search engines safely</li> </ul>

	<p>log out.</p>	<p>passwords are important for security.</p> <ul style="list-style-type: none"> <li>• To know that people you do not know on the internet are strangers.</li> <li>• To know that to stay safe online it is important to keep personal information safe.</li> </ul>	<p>people online.</p> <ul style="list-style-type: none"> <li>• To understand what information I should not post online.</li> <li>• To know that you should ask permission from others before sharing about them online.</li> </ul>	<p>are genuine.</p> <ul style="list-style-type: none"> <li>• To understand that email stands for 'electronic mail.'</li> <li>• To know that privacy settings limit who can access your important personal information.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying respectful and disrespectful online behaviour.</li> <li>• Recognising that information on the Internet might not be true or correct.</li> <li>• To understand some of the methods used to encourage people to buy things online.</li> </ul>	<p>safely.</p> <ul style="list-style-type: none"> <li>• To understand how online information can be used to form judgements.</li> <li>• To know that apps require permission to access private information.</li> </ul>	<p>and effectively.</p> <ul style="list-style-type: none"> <li>• Recognising that updated software can help to prevent data corruption and hacking.</li> <li>• Exploring ethical considerations around AI use and its impact on society.</li> <li>• To understand what "brute force hacking" is.</li> <li>• To know that a 'digital footprint' means the information that exists on the internet.</li> </ul>
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