



## Computing Skills Progression

EYFS	Key Stage 1		Key Stage 2			
Hardware						
Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To know how to operate simple equipment.</p> <p>To show an interest in technological toys with knobs or pulleys, or real objects.</p> <p>To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</p> <p>To recognise that a range of technology is used in places such as homes and schools. To select and use technology for particular purposes.</p>	<p>Learning how to explore and tinker with hardware to find out how it works.</p> <p>Understanding that computers and devices around us use inputs and outputs, identifying some of these.</p> <p>Learning where keys are located on the keyboard.</p> <p>Learning how to operate a camera</p>	<p>Understanding what a computer is and that it's made up of different components.</p> <p>Recognising that buttons cause effects and that technology follows instructions.</p> <p>Learning how we know that technology is doing what we want it to do via its output.</p> <p>Using greater control when taking photos with tablets or computers.</p> <p>Developing confidence with the keyboard and the basics of touch typing.</p>	<p>Understanding what the different components of a computer do and how they work together.</p> <p>Drawing comparisons across different types of computers.</p> <p>Learning what a server does.</p>	<p>Learning about the purpose of routers</p>	<p>Learning that external devices can be programmed by a separate computer.</p> <p>Learning the difference between ROM and RAM.</p> <p>Recognising how the size of RAM affects the processing of data.</p> <p>Understanding the fetch, decode, execute cycle.</p>	<p>Learning about the history of computers and how they have evolved over time.</p> <p>Using the understanding of historic computers to design a computer of the future.</p> <p>Learning how barcodes, QR codes and RFID work.</p> <p>Learning about some of the methods which cause data corruption.</p>



### Computing Skills Progression

#### Networks and Data Representation

Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To show an interest in technological toys with knobs or pulleys, or real objects.</p> <p>To know that information can be retrieved from computers.</p>			<p>Learning what a network is and its purpose.</p> <p>Identifying the key components within a network, including whether they are wired or wireless.</p> <p>Recognising links between networks and the internet.</p> <p>Learning how data is transferred.</p>	<p>Consolidating understanding of the key components of a network.</p> <p>Understanding that websites &amp; videos are files that are shared from one computer to another.</p> <p>Learning about the role of packets.</p> <p>Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.</p>	<p>Learning the vocabulary associated with data: data and transmit. Learning how the data for digital images can be compressed.</p> <p>Recognising that computers transfer data in binary and understanding simple binary addition. Relating binary signals (Boolean) to the simple character-based language, ASCII.</p> <p>Learning that messages can be sent by binary code, reading binary up to 8 characters and carrying out binary calculations.</p>	<p>Understanding that computer networks provide multiple services.</p>



## Computing Skills Progression

Computational Thinking						
Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To show an interest in technological toys with knobs or pulleys, or real objects.</p> <p>To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</p> <p>To complete a simple program on a computer.</p>	<p>Learning that decomposition means breaking a problem down into smaller parts. Using decomposition to solve unplugged challenges. Using logical reasoning to predict the behaviour of simple programs.</p> <p>Developing the skills associated with sequencing in unplugged activities.</p> <p>Learning that an algorithm is a set of step by step instructions used to carry out a task, in a specific order.</p> <p>Assembling instructions into a simple algorithm.</p>	<p>Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it.</p> <p>Using decomposition to decompose a story into smaller parts. Learning what abstraction is. Learning that there are different levels of abstraction.</p> <p>Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm.</p> <p>Learning that computers use algorithms to make predictions.</p>	<p>Using decomposition to explain the parts of a laptop computer.</p> <p>Using decomposition to explore the code behind an animation.</p> <p>Using repetition in programs. Understanding that computers follow instructions. Using an algorithm to explain the roles of different parts of a computer. Using logical reasoning to explain how simple algorithms work.</p> <p>Explaining the purpose of an algorithm.</p>	<p>Solving unplugged problems by decomposing them into smaller parts.</p> <p>Using decomposition to understand the purpose of a script of code. Using decomposition to help solve problems. Identifying patterns through unplugged activities.</p> <p>Using past experiences to help solve new problems.</p> <p>Creating algorithms for a specific purpose.</p>	<p>Decomposing animations into a series of images.</p> <p>Decomposing a program without support.</p> <p>Decomposing a story to be able to plan a program to tell a story.</p> <p>Predicting how software will work based on previous experience.</p> <p>Writing more complex algorithms for a purpose.</p>	<p>Decomposing a program into an algorithm.</p> <p>Using past experiences to help solve new problems.</p> <p>Writing increasingly complex algorithms for a purpose.</p>



### Computing Skills Progression

Programming						
Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>To know how to operate simple equipment.</p> <p>To show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</p> <p>To complete a simple program on a computer.</p>	<p>Programming a Bee-bot/Blue-bot to follow a planned route.</p> <p>Learning to debug instructions when things go wrong.</p> <p>Developing a how-to video to explain how the Bee-bot/Blue-bot works.</p> <p>Learning to debug an algorithm in an unplugged scenario.</p>	<p>Using logical thinking to explore software, predicting, testing and explaining what it does.</p> <p>Using an algorithm to write a basic computer program.</p> <p>Learning what loops are.</p> <p>Incorporating loops to make code more efficient.</p>	<p>Using logical thinking to explore more complex software; predicting, testing and explaining what it does.</p> <p>Incorporating loops to make code more efficient.</p> <p>Remixing existing code.</p> <p>Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.</p>	<p>Understanding that websites can be altered by exploring the code beneath the site.</p> <p>Coding a simple game.</p> <p>Using abstraction and pattern recognition to modify code.</p>	<p>Programming an animation.</p> <p>Iterating and developing their programming as they work.</p> <p>Beginning to use nested loops (loops within loops).</p> <p>Debugging their own code.</p> <p>Writing code to create a desired effect.</p> <p>Using a range of programming commands.</p> <p>Using repetition within a program.</p> <p>Amending code within a live scenario.</p>	<p>Debugging quickly and effectively to make a program more efficient.</p> <p>Remixing existing code to explore a problem.</p> <p>Using and adapting nested loops.</p> <p>Programming using the language Python.</p> <p>Changing a program to personalise it.</p> <p>Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose.</p> <p>Altering a website's code to create changes.</p>



### Computing Skills Progression

Online Safety						
Rec	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Begin to understand what a password is and that it belongs to them.</p> <p>Understand what the internet is.</p> <p>Understand different types of technology around them.</p> <p>Experience using a range of technology safely.</p> <p>Develop knowledge of online behaviour and who can help them when they are online.</p> <p>Begin to explore the internet for information (mostly supported).</p>	<p>Understand that their passwords must never be shared to anyone – even by trusted adults!</p> <p>Begin to understand what personal information is and who and what they should be sharing and what they shouldn't be</p> <p>Secure understand of rules that need to be followed in order to remain safe when online</p>	<p>Pupils will begin to learn how to communicate appropriately online.</p> <p>Pupils to develop awareness of, and knowledge of how to respond appropriately to, cyberbullying</p> <p>Pupils will develop their knowledge of how to behave online and whether to trust everything that they read when working online</p>	<p>Pupils will discuss how to stay safe when communicating with people online and how to behave appropriately</p> <p>Begin to explore benefits of password strength and how a strong password is better than a weak one</p> <p>Pupils develop their knowledge of how to have a positive identify and identification when working online</p> <p>Begin to understand the links between technology usage and health</p>	<p>Children to continue to develop their knowledge and understanding of cyberbullying and who they can turn to (and how) for support</p> <p>Begin to further develop skills of determining whether something they see/read online is real or not</p> <p>To continue to develop their awareness of their online footprint and how technology usage can impact on health in different ways</p>	<p>To develop knowledge and understanding of how to behave online (talking to people when playing games etc)</p> <p>Begin to develop awareness of an online community and what this is.</p> <p>Secure skills when determining whether something they see/read online is real and can be trusted or not</p> <p>Begin to look at the importance of copyright and what this means</p>	<p>Further understanding communication online, including when playing games or on chat sites/social media</p> <p>Understand that it is their responsibility to report any content they deem unsafe/inappropriate, and who they should turn to in order to achieve this</p> <p>Pupils will develop their knowledge of social media and how the media can shape our views and influence people</p>



### Computing Skills Progression

<p>Technology must be shared, and children develop understand of turn-taking.</p> <p>Recognise when they need help when working online and who they can ask for help.</p>	<p>Pupils will learn that many websites ask for information that is private and discuss how to responsibly go about responding to this</p> <p>Develop their knowledge of their online behaviour</p> <p>Begin to recognise how to recognise signs of online bullying</p> <p>Children know who to tell when they see something that makes them uncomfortable</p>	<p>Continue to understand what personal information is and who and what they should be sharing and what they shouldn't be</p> <p>Securely understand who they can turn to for help both in and outside of school</p>	<p>Children begin to understand that any personal information they put online can be seen and used by others and cannot be removed once added</p>	<p>Begin to understand how your online behaviour can affect other people (positively and negatively)</p>	<p>Secure understanding of how your online behaviour can affect other people both positively and negatively</p> <p>Begin to understand the difference between appropriate usage of the internet and over-usage of it</p>	<p>Begin and secure the dangers of social media and other online sites can impact on people's finances</p> <p>Understand just how important it is to respect the views and opinions of other people online.</p>
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