

# Computing: Progression of Skills



EYFS	Computer Science	Information Technology	Digital Literacy
Nursery	<ul style="list-style-type: none"> <li>Use robots to follow simple instructions.</li> <li>Learn how digital toys and apps work through exploration.</li> <li>Learn that repeated actions have effect. (effective teaching and learning)</li> <li>Draw information from a simple map. (Understanding the world)</li> </ul>	<ul style="list-style-type: none"> <li>Know how to use a painting app.</li> <li>Explore paint and brush tools.</li> <li>Develop their own ideas and then decide which materials to use to express them. (Expressive arts and design)</li> <li>Create closed shapes with continuous lines and begin to use these shapes to represent objects. (Expressive arts and design)</li> <li>Draw with increasing complexity and detail, such as representing a face with a circle and including details. (Expressive arts and design)</li> <li>Explore colour and colour mixing (Expressive arts and design)</li> </ul>	<ul style="list-style-type: none"> <li>Use age appropriate apps and devices.</li> <li>Ask for permission to use a device.</li> </ul>
Reception	<ul style="list-style-type: none"> <li>Understand algorithms are a sequence of instructions.</li> <li>Follow simple instructions (Algorithms).</li> <li>Make simple algorithms by sequencing actions.</li> <li>Explain my thought process and explain my reasons (Logical thinking).</li> <li>Explain what is the same and what is different (Pattern).</li> <li>Use robots to follow simple instructions.</li> <li>Learn how digital toys and apps work through exploration.</li> <li>Input more than one command into a programmable toy or app.</li> <li>Fix things through trial and error.</li> </ul>	<ul style="list-style-type: none"> <li>Know how to use a painting app.</li> <li>Explore paint and brush tools.</li> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings. (Expressive arts and design)</li> </ul>	<ul style="list-style-type: none"> <li>Use age appropriate apps and devices.</li> <li>Identify some simple examples of my personal information (name, address, birthday, age, location)</li> <li>Describe who would be trustworthy to share this information with.</li> <li>Explain why they are trusted.</li> <li>Identify rules that help keep us safe when using technology.</li> <li>Give examples of some simple examples of these rules.</li> </ul>

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KS1	<p><b><u>Computational Thinking</u></b></p> <ul style="list-style-type: none"> <li>Understand what algorithms are.</li> <li>Write simple algorithms for everyday tasks.</li> <li>Understand that the sequence of algorithms is important.</li> <li>Use logical reasoning to predict the outcome of an algorithm.</li> <li>Understand that decomposition is breaking objects/ processes down.</li> <li>Debug simple algorithms</li> </ul> <p><b><u>Coding/Programming</u></b></p> <ul style="list-style-type: none"> <li>Sequence instructions in the correct order.</li> <li>Follow precise instructions</li> <li>Use a sequence in a program</li> <li>Use logical reasoning to predict the outcome of the program.</li> <li>Simplify programs by using loops.</li> <li>Program simple outputs for audio or text.</li> <li>Program using selection and conditions.</li> </ul>	<p><b><u>Animation</u></b></p> <ul style="list-style-type: none"> <li>Understand what animation is.</li> <li>Add backgrounds to a frames.</li> <li>Clone objects/ frames.</li> <li>Add filters and stickers to enhance animation.</li> <li>Add pictures that the child has taken to an animation.</li> <li>Move multiple objects simultaneously.</li> <li>Create a screen recording.</li> <li>Crop photos and adjust points of movement.</li> </ul> <p><b><u>Photo editing</u></b></p> <ul style="list-style-type: none"> <li>Know how to edit a photo with simple tools (crop, filter, mark up).</li> <li>Use an age appropriate app to create a digital image.</li> <li>Layer an image onto another image.</li> </ul> <p><b><u>Sound creation</u></b></p> <ul style="list-style-type: none"> <li>Create a short sequence of sounds (apps/ software)</li> <li>Explore long and short sounds.</li> <li>Create a musical composition using software.</li> <li>Record sound effects.</li> <li>Create music with a purpose</li> </ul>	<ul style="list-style-type: none"> <li>Understand what the internet is and how people use it.</li> <li>Understand what personal information is and why we keep personal information private.</li> <li>Explain how passwords can be used to protect information, accounts and devices.</li> <li>Explain and give examples of what is meant by 'private' and 'keeping things private'</li> <li>Explain how information put online about someone can last for a long time.</li> <li>Describe how anyone's online information could be seen by others</li> <li>Identify when and where to go for help when concerned.</li> </ul>

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LKS2	<p><b><u>Computation thinking</u></b></p> <ul style="list-style-type: none"> <li>Decompose projects into small steps to create algorithms.</li> <li>Understand abstraction is focusing on the important information.</li> <li>Identify patterns in an algorithm.</li> <li>Write more precise algorithms.</li> <li>Use simple selection and repetition.</li> <li>Use logical reasoning to detect and correct errors.</li> </ul> <p><b><u>Coding/ Programming</u></b></p> <ul style="list-style-type: none"> <li>Design and create a program.</li> <li>Create a sequence of code.</li> <li>Work with a range of inputs and outputs.</li> <li>Use logical reasoning to detect and correct errors on programs.</li> <li>Use repetition in programs.</li> <li>Use simple selection in programs.</li> <li>Evaluate my program and make improvements.</li> </ul>	<p><b><u>Comic Creation</u></b></p> <ul style="list-style-type: none"> <li>Add backgrounds and resize to suit the platform.</li> <li>Include characters in different panels.</li> <li>Add text as narration, using speech bubbles for direct speech.</li> <li>Use the fill tool.</li> <li>Combine shapes and lines and arrange them appropriately.</li> <li>Use making tools to adapt the opacity.</li> <li>Save files with an appropriate title.</li> </ul> <p><b><u>Video editing</u></b></p> <ul style="list-style-type: none"> <li>Understand what photographs are and use appropriate images in videos.</li> <li>Include more than one page.</li> <li>Sequence clips of mixed media into a time-line.</li> <li>Include recorded voice overs.</li> <li>Add music to a creation.</li> <li>Trim and cut clips.</li> <li>Use transitions.</li> <li>Understand what export means and export projects to an appropriate format.</li> </ul>	<p><b><u>Online relationships</u></b></p> <ul style="list-style-type: none"> <li>Describe ways people can get together online.</li> <li>Give examples of how to be respectful online.</li> <li>Explain why it is important to be careful about who is trusted online.</li> <li>Explain how someone's feelings can be hurt by what is said/ written online.</li> <li>Explain the importance of giving/ gaining permission before sharing things online.</li> <li>Recognise healthy and unhealth online behaviours.</li> <li>Explain shared content can be important to peoples thoughts, feelings and beliefs.</li> </ul> <p><b><u>Copyright</u></b></p> <ul style="list-style-type: none"> <li>Explain why copying someone else's work without permission isn't fair and can explain a problem it may raise.</li> <li>Understand that some content cannot be used with out permission from the owner.</li> </ul>

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LKS2	<p><b><u>Networks</u></b></p> <ul style="list-style-type: none"> <li>Understand that computers are connected together in a network.</li> <li>Understand why computers are networked.</li> <li>Know that servers on the Internet are located across the planet.</li> <li>Recognise and understand the different between the Internet and WWW.</li> <li>Understand how webpages are viewed across the internet.</li> </ul> <p><b><u>Artificial Intelligence</u></b></p> <ul style="list-style-type: none"> <li>Understand that data is used to train AI technology.</li> <li>Know the basics of machine learning.</li> <li>Understand that computers can be trained to simulate computer-like abilities.</li> <li>Train an AI model.</li> <li>Investigate how data can make a model more accurate.</li> <li>Understand 'big-data' and how it is used to inform decision-making and improve machine learning.</li> </ul>	<p><b><u>E-books</u></b></p> <ul style="list-style-type: none"> <li>Use sound, formatted text and video.</li> <li>Annotate images.</li> <li>Resize images to ensure that they are suitable</li> <li>Understand what a hyper link is</li> <li>Create hyperlinks to link pages together.</li> <li>Understand what a background is and how to change it</li> </ul>	<p><b><u>Health, Well-being and Lifestyle</u></b></p> <ul style="list-style-type: none"> <li>Understand why too much time on the internet has a negative impact.</li> <li>Give examples of positive and negative activities.</li> <li>Understand that technology can be a distraction .</li> <li>Recognise why online platforms have age restrictions.</li> <li>Understand that who I can talk to if I feel uncomfortable online.</li> <li>Identify situations why time online may need to be limited.</li> <li>Suggest strategies to limit time spent online.</li> </ul>

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UKS2	<p><b><u>Computational Thinking</u></b></p> <ul style="list-style-type: none"> <li>Decompose a design or code to focus on specific parts</li> <li>Use abstraction to hide complexity.</li> <li>Recognise and make use of patterns</li> <li>Critically evaluate my work and suggest improvements.</li> </ul> <p><b><u>Programming</u></b></p> <ul style="list-style-type: none"> <li>Create a program by decomposing them in to smaller parts.</li> <li>Use a range of sequences, selection and repetition commands to implement my design.</li> <li>Use a variety of selection commands in programs.</li> <li>Use conditions in repetition commands.</li> <li>Understand how to work with variables.</li> <li>Create procedures to hide complexity in programs.</li> <li>Create programs that control or simulate physical systems.</li> <li>Critically evaluate work, identify errors and suggest improvements</li> </ul>	<p><b><u>Web Design</u></b></p> <ul style="list-style-type: none"> <li>Use collaboration tools to plan.</li> <li>Explore a web design platform.</li> <li>Understand what a homepage is.</li> <li>Create a site identity.</li> <li>Include text and multiple types of media.</li> <li>Use hyperlinks to link multiple pages.</li> <li>Understand what embed means.</li> <li>Embed videos into webpages.</li> </ul> <p><b><u>Podcasts</u></b></p> <ul style="list-style-type: none"> <li>Record a sound.</li> <li>Edit a sound so it is fit for purpose using volume, pitch., fade and effect.</li> <li>Use tools to remix sounds/ music that currently exist.</li> <li>Compose and record a sound.</li> </ul> <p><b><u>App design</u></b></p> <ul style="list-style-type: none"> <li>Understand what import means.</li> <li>Import text and images.</li> <li>Use different forms of navigation.</li> <li>Link multiple pages together.</li> </ul>	<p><b><u>Managing Online Safety</u></b></p> <ul style="list-style-type: none"> <li>Explain the benefits and limitations of using different types of search technologies .</li> <li>Explain how some technology can limit the information presented.</li> <li>Give examples of when and why it is important to be 'skeptical'</li> <li>Evaluate digital content</li> <li>Identify, flag and report inappropriate content.</li> </ul> <p><b><u>Copyright and Ownership</u></b></p> <ul style="list-style-type: none"> <li>Assess and justify when it is acceptable to use others work.</li> <li>Understand what content is permitted to be reused.</li> <li>Give examples of content that can be re-used.</li> <li>Demonstrate how to acknowledge sources used from the internet.</li> </ul>

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UKS2		<u>AR/VR</u> <ul style="list-style-type: none"><li>• Understand what AR/VR is.</li><li>• Explain when AR/VR can be used.</li><li>• Explain how AR/VR works.</li><li>• Create animated objects.</li><li>• Insert animated objects into surroundings using AR.</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>