

## Progression of knowledge and understanding for Computing & ICT

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Computer Science</b>						
<b>Programming</b>	<p>I can understand and create <b>algorithms</b> (steps or rules as instructions, e.g. how to make a sandwich)</p> <p>I understand that algorithms must be precise and unambiguous</p>	<p>I can <b>predict</b> the behaviour of simple programs</p> <p>I can create and run a <b>program</b> (an algorithm or multiple algorithms that can be understood by a computer)</p> <p>I can <b>debug</b> (find and fix a problem) within a simple program</p>	<p>I can use <b>selection</b> in my programs. (Also known as <b>conditionals</b> or <b>If / Then</b> statements). (e.g. if a character moves onto a yellow square, then gain two points)</p> <p>I can create <b>variables</b> within my programs (e.g. a timer, score)</p>	<p>I can use <b>repetition</b> (sometimes referred to as <b>loops</b>) in my programs.</p> <p>I can <b>debug</b> programs multiple times to accomplish specific goals</p>	<p>I can write code that performs calculations with <b>variables</b> (e.g. every time a coin is collected, add one point to the score)</p> <p>I can <b>decompose</b> (break into smaller chunks) a programming problem</p>	<p>I can use a <b>random</b> function in my code for purposeful effect (e.g. a program randomly chooses a number from 1-4 and displays a corresponding statement)</p> <p>I can produce a multi-function, debugged program that uses <b>variables, selection and repetition.</b></p>
<b>Controlling hardware and machines</b>	<p>I can identify the major parts of <b>digital devices</b> (e.g. keyboard, screen, power, batteries, touchscreen)</p>	<p>I understand that <b>digital devices</b> run programs that have been created by humans</p>	<p>I can control or simulate <b>programmable hardware</b> (e.g. a Sphero robot)</p>	<p>I can identify <b>inputs</b> of common computing devices (e.g. keys on a keyboard, temperature sensor, tilting a device)</p> <p>I can identify the <b>outputs</b> of common computing devices (e.g. display on a screen, Bluetooth signal, print)</p>	<p>I can create code that acts on multiple <b>inputs</b></p> <p>I can create code that produces multiple <b>outputs</b></p>	<p>I can <b>program</b> and <b>debug</b> multiple functions on programmable hardware (e.g. with a Microbit)</p>

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<b>Information Technology</b>						
<b>Operate, Understand and Implement</b>	<p>I can use <b>apps</b> and <b>websites</b> to aid my learning</p> <p>I can <b>save and retrieve</b> work that I have produced (includes <b>auto-save</b>)</p> <p>I can move a <b>cursor</b> with the trackpad and <b>click</b> on an icon</p>	<p>I can <b>type</b> and <b>edit</b> text</p> <p>I can use <b>two-finger scrolling</b> on a touchpad</p> <p>I understand that <b>emails</b> and other digital communications can be sent and received from various types of digital device</p>	<p>I know how to <b>search</b> for items on the internet</p> <p>I can use technology to organise and manipulate <b>digital content</b></p> <p>I can <b>type</b> to achieve a specific goal</p> <p>I can perform a <b>two-finger click</b> to access additional options</p>	<p>I can <b>present</b> collected information or data to a group or audience</p> <p>I can <b>type</b> to achieve a specific goal, including accurate punctuation and spelling check</p> <p>I can use technical vocabulary to describe how computing equipment and networks function, including <b>storage</b> (e.g. <b>USB drives, Google drive</b>), <b>apps</b> and the <b>world wide web</b></p>	<p>I can edit and improve <b>on-screen writing</b>, including digital thesaurus use</p> <p>I can <b>collaborate</b> meaningfully with <b>networked technologies</b> (for example, within a shared document or shared workspace)</p> <p>I can combine a variety of <b>software</b> (programs that run on computers) to accomplish given goals</p>	<p>I can collect and <b>analyse</b> data or information using technology (e.g. use a <b>spreadsheet to produce a graph</b>)</p> <p>I can make document <b>layout and design</b> decisions based on purpose (e.g. <b>format a formal letter</b>)</p> <p>I can <b>re-order</b> on-screen sentences for clarity, purpose or effect</p>
	<b>Multimedia and Sound</b>	<p>I can use <b>technology</b> to capture photos (e.g. with an iPad)</p>	<p>I can use <b>technology</b> to capture and manipulate (position, re-size, rotate) photos as part of a piece of work</p>	<p>I can create <b>video</b> as part of my learning (e.g. using an iPad)</p> <p>I can create an <b>animation</b> (e.g. stop-frame animation on an iPad)</p>	<p>I can create sound, music or a <b>podcast</b> using digital technology</p> <p>I can create a <b>3D graphic</b> using computer-aided design software (e.g. using <b>Tinkercad</b>)</p>	<p>I can edit <b>video</b>, bringing together different media elements (e.g. <b>stills, video, captions and sound</b>) to produce an effective final product</p> <p>I can storyboard and create an <b>animation</b></p>

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<b>Digital Literacy</b>						
<b>Self-image and Identity</b>	<i>If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust.</i>	<i>I can describe ways in which people might make themselves look different online.</i>	<i>I can describe ways in which media can shape ideas about gender.</i>	<i>I can explain how my online identity can be different to the identity I present in 'real life'.</i>	<i>I can explain how identity online can be copied, modified or altered.</i>	<i>I can explain how I can represent myself in different ways online.</i>
<b>Online relationships</b>	<i>I can recognise some ways in which the <b>internet</b> can be used to communicate.</i>	<i>I can explain some risks of communicating <b>online</b> with others I don't know well.</i>	<i>I can explain how my and other people's feelings can be hurt by what is said or written online.</i>	<i>I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life.</i>	<i>I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming).</i>	<i>I can demonstrate how I would support others (including those who are having difficulties) online.</i>
<b>Online reputation</b>	<i>I can describe what information I should not put <b>online</b> without asking a trusted adult first.</i>	<i>I can explain how information put online about me can last for a long time.</i>	<i>I know who I should ask if I am not sure if I should put something online.</i>	<i>I can describe how others can find out information about me by looking online.</i>	<i>I can describe ways that information about people online can be used by others to make judgments about an individual.</i>	<i>I can describe some simple ways that help build a positive online reputation.</i>
<b>Online bullying</b>	<i>I can describe how to behave online in ways that do not upset others</i>		<i>I can describe rules about how to behave online and how I follow them.</i>	<i>I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).</i>	<i>I can explain how I would report online bullying on the apps and platforms that I use.</i>	<i>I can identify a range of ways to report concerns both in school and at home about online bullying.</i>

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<b>Managing online information</b>	<i>I can identify devices I could use to access information on the internet.</i>	<i>I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).</i>	<i>I can evaluate digital content and can explain how I make choices from search results.</i>	<i>I can <b>analyse</b> information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'</i>	<i>I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.</i>	<i>I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important.</i>
<b>Health, well-being and lifestyle</b>	<i>I can explain rules to keep us safe when we are using technology both in and beyond the home.</i>	<i>I can explain simple guidance for using technology in different environments and settings.</i>	<i>I can identify situations when I might need to limit the amount of time I use technology.</i>	<i>I can describe ways technology can affect healthy sleep and can describe some of the issues.</i>	<i>I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.</i>	<i>I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise).</i>
<b>Privacy and security</b>	<i>I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).</i>	<i>I can explain why I should always ask a trusted adult before I share any information about myself online.</i>	<i>I can describe simple strategies for creating and keeping passwords private.</i>	<i>I can explain how internet use can be monitored.</i>	<i>I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</i>	<i>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).</i>
<b>Copyright and ownership</b>	<i>I can name my work so that others know it belongs to me.</i>	<i>I can recognise that content on the internet may belong to other people.</i>	<i>I can explain why copying someone else's work from the internet without permission can cause problems.</i>	<i>I can assess and justify when it is acceptable to use the work of others.</i>	<i>I can demonstrate the use of search tools to find and access online content which can be reused by others.</i>	<i>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</i>