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Computing progression of skills



Key skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems & networks	<u>Technology around us</u> To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type To use the keyboard to edit text To create rules for using technology responsibly	<u>Information technology around us</u> To recognise the uses and features of information technology To identify information technology in the home To identify information technology beyond school To explain how information technology benefits us To show how to use information technology safely To recognise that choices are made when using information technology	<u>Connecting computers</u> To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way we work To explain how a computer network can be used to share information To explore how digital devices can be connected To recognise the physical components of a network	<u>The internet</u> To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web To describe how content can be added and accessed on the World Wide Web To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content	<u>Sharing information</u> To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online	<u>Communication</u> To identify how to use a search engine To describe how search engines select results To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom To recognise how we communicate using technology To evaluate different methods of online communication

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Creating media	<p><u>Digital painting</u></p> <p>To describe what different freehand tools do</p> <p>To use the shape tool and the line tools</p> <p>To make careful choices when painting a digital picture</p> <p>To explain why I chose the tools I used</p> <p>To use a computer on my own to paint a picture</p> <p>To compare painting a picture on a computer and on paper</p>	<p><u>Digital photography</u></p> <p>To know what devices can be used to take photographs</p> <p>To use a digital device to take a photograph</p> <p>To describe what makes a good photograph</p> <p>To decide how photographs can be improved</p> <p>To use tools to change an image</p> <p>To recognise that images can be changed</p>	<p><u>Stop-frame animation</u></p> <p>To explain that animation is a sequence of drawings or photographs</p> <p>To relate animated movement with a sequence of images</p> <p>To plan an animation</p> <p>To identify the need to work consistently and carefully</p> <p>To review and improve an animation</p> <p>To evaluate the impact of adding other media to an animation</p>	<p><u>Audio editing</u></p> <p>To identify that sound can be digitally recorded</p> <p>To use a digital device to record sound</p> <p>To explain that a digital recording is stored as a file</p> <p>To explain that audio can be changed through editing</p> <p>To show that different types of audio can be combined and played together</p> <p>To evaluate editing choices made</p>	<p><u>Video editing</u></p> <p>To recognise video as moving pictures, which can include audio</p> <p>To identify digital devices that can record video</p> <p>To capture video using a digital device</p> <p>To recognise the features of an effective video</p> <p>To identify that video can be improved through reshooting and editing</p> <p>To consider the impact of the choices made when making and sharing a video</p>	<p><u>Web page creation</u></p> <p>To review an existing website and consider its structure</p> <p>To plan the features of a web page</p> <p>To consider the ownership and use of images (copyright)</p> <p>To recognise the need to preview pages</p> <p>To outline the need for a navigation path</p> <p>To recognise the implications of linking to content owned by other people</p>
	<p><u>Digital writing</u></p> <p>To use a computer to write</p> <p>To add and remove text on a computer</p> <p>To identify that the look of text can be changed on a computer</p> <p>To make careful choices when changing text</p> <p>To explain why I used the tools that I chose</p> <p>To compare writing on a computer with writing on paper•</p>	<p><u>Making music</u></p> <p>To say how music can make us feel</p> <p>To identify that there are patterns in music</p> <p>To describe how music can be used in different ways</p> <p>To show how music is made from a series of notes</p> <p>To create music for a purpose</p> <p>To review and refine our computer work</p>	<p><u>Desktop publishing</u></p> <p>To recognise how text and images convey information</p> <p>To recognise that text and layout can be edited</p> <p>To choose appropriate page settings</p> <p>To add content to a desktop publishing publication</p> <p>To consider how different layouts can suit different purposes</p> <p>To consider the benefits of desktop publishing</p>	<p><u>Photo editing</u></p> <p>To explain that digital images can be changed</p> <p>To change the composition of an image</p> <p>To describe how images can be changed for different uses</p> <p>To make good choices when selecting different tools</p> <p>To recognise that not all images are real</p> <p>To evaluate how changes can improve an image</p>	<p><u>Vector drawing</u></p> <p>To identify that drawing tools can be used to produce different outcomes</p> <p>To create a vector drawing by combining shapes</p> <p>To use tools to achieve a desired effect</p> <p>To recognise that vector drawings consist of layers</p> <p>To group objects to make them easier to work with</p> <p>To evaluate my vector drawing</p>	<p><u>3D modelling</u></p> <p>To use a computer to create and manipulate three-dimensional (3D) digital objects</p> <p>To compare working digitally with 2D and 3D graphics</p> <p>To construct a digital 3D model of a physical object</p> <p>To identify that physical objects can be broken down into a collection of 3D shapes</p> <p>To design a digital model by combining 3D objects</p> <p>To develop and improve a digital 3D mode</p>



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Data & Information	<p><u>Grouping data</u></p> <p>To label objects</p> <p>To identify that objects can be counted</p> <p>To describe objects in different ways</p> <p>To count objects with the same properties</p> <p>To compare groups of objects</p> <p>To answer questions about groups of objects</p>	<p><u>Pictograms</u></p> <p>To recognise that we can count and compare objects using tally charts</p> <p>To recognise that objects can be represented as pictures</p> <p>To create a pictogram</p> <p>To select objects by attribute and make comparisons</p> <p>To recognise that people can be described by attributes</p> <p>To explain that we can present information using a computer</p>	<p><u>Branching databases</u></p> <p>To create questions with yes/no answers</p> <p>To identify the object attributes needed to collect relevant data</p> <p>To create a branching database</p> <p>To identify objects using a branching database</p> <p>To explain why it is helpful for a database to be well structured</p> <p>To compare the information shown in a pictogram with a branching database</p>	<p><u>Data logging</u></p> <p>To explain that data gathered over time can be used to answer questions</p> <p>To use a digital device to collect data automatically</p> <p>To explain that a data logger collects 'data points' from sensors over time</p> <p>To use data collected over a long duration to find information</p> <p>To identify the data needed to answer questions</p> <p>To use collected data to answer questions</p>	<p><u>Flat-file databases</u></p> <p>To use a form to record information</p> <p>To compare paper and computer-based databases</p> <p>To outline how grouping and then sorting data allows us to answer questions</p> <p>To explain that tools can be used to select specific data</p> <p>To explain that computer programs can be used to compare data visually</p> <p>To apply my knowledge of a database to ask and answer real-world questions</p>	<p><u>Spreadsheets</u></p> <p>To identify questions which can be answered using data</p> <p>To explain that objects can be described using data</p> <p>To explain that formula can be used to produce calculated data</p> <p>To apply formulas to data, including duplicating</p> <p>To create a spreadsheet to plan an event</p> <p>To choose suitable ways to present data</p>

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Programming	<p>Moving a robot To explain what a given command will do</p> <p>To act out a given word To combine forwards and backwards commands to make a sequence</p> <p>To combine four direction commands to make sequences</p> <p>To plan a simple program</p> <p>To find more than one solution to a problem</p> <p>Introduction to animation To choose a command for a given purpose</p> <p>To show that a series of commands can be joined together</p> <p>To identify the effect of changing a value</p> <p>To explain that each sprite has its own instructions</p> <p>To design the parts of a project</p> <p>To use my algorithm to create a program</p>	<p>Robot algorithms To describe a series of instructions as a sequence</p> <p>To explain what happens when we change the order of instructions</p> <p>To use logical reasoning to predict the outcome of a program (series of commands)</p> <p>To explain that programming projects can have code and artwork</p> <p>To design an algorithm</p> <p>To create and debug a program that I have written</p> <p>Introduction to quizzes To explain that a sequence of commands has a start</p> <p>To explain that a sequence of commands has an outcome</p> <p>To create a program using a given design</p> <p>To change a given design</p> <p>To create a program using my own design</p> <p>To decide how my project can be improved</p>	<p>Sequence in music To explore a new programming environment</p> <p>I can identify that each sprite is controlled by the commands I choose</p> <p>To explain that a program has a start</p> <p>To recognise that a sequence of commands can have an order</p> <p>To change the appearance of my project</p> <p>To create a project from a task description</p> <p>Events and actions To explain how a sprite moves in an existing project</p> <p>To create a program to move a sprite in four directions</p> <p>To adapt a program to a new context</p> <p>To develop my program by adding features</p> <p>To identify and fix bugs in a program</p> <p>To design and create a maze-based challenge</p>	<p>Repetition in shapes To identify that accuracy in programming is important</p> <p>To create a program in a text-based language</p> <p>To explain what 'repeat' means</p> <p>To modify a count-controlled loop to produce a given outcome</p> <p>To decompose a program into parts</p> <p>To create a program that uses count-controlled loops to produce a given outcome</p> <p>Repetition in games To develop the use of count-controlled loops in a different programming environment</p> <p>To explain that in programming there are infinite loops and count controlled loops</p> <p>To develop a design which includes two or more loops which run at the same time</p> <p>To modify an infinite loop in a given program</p> <p>To design a project that includes repetition</p> <p>To create a project that includes repetition•</p>	<p>Selection in physical computing To control a simple circuit connected to a computer</p> <p>To write a program that includes count-controlled loops</p> <p>To explain that a loop can stop when a condition is met, eg number of times</p> <p>To conclude that a loop can be used to repeatedly check whether a condition has been met#</p> <p>To design a physical project that includes selection</p> <p>To create a controllable system that includes selection</p> <p>Selection in games To explain how selection is used in computer programs</p> <p>To relate that a conditional statement connects a condition to an outcome</p> <p>To explain how selection directs the flow of a program</p> <p>To design a program which uses selection</p> <p>To create a program which uses selection</p> <p>To evaluate my program</p>	<p>Variables in games To define a 'variable' as something that is changeable</p> <p>To explain why a variable is used in a program</p> <p>To choose how to improve a game by using variables</p> <p>To design a project that builds on a given example</p> <p>To use my design to create a project</p> <p>To evaluate my project</p> <p>Sensing To create a program to run on a controllable device</p> <p>To explain that selection can control the flow of a program</p> <p>To update a variable with a user input</p> <p>To use an conditional statement to compare a variable to a value</p> <p>To design a project that uses inputs and outputs on a controllable device</p> <p>To develop a program to use inputs and outputs on a controllable device</p>

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E-Safety	<p><u>Self-image and identity</u></p> <p>To recognise that there may be people online who could make someone feel sad, embarrassed or upset.</p> <p>To give examples of when and how to speak to an adult when something happens that makes them feel sad, worried, uncomfortable or frightened.</p>	<p><u>Self-image and identity</u></p> <p>To explain how other people may look and act differently online and offline</p> <p>To give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened</p> <p>To give examples of how they might get help</p>	<p><u>Self-Image and Identity</u></p> <p>To explain what is meant by the term 'identity'</p> <p>To explain how people can represent themselves in different ways online</p> <p>To explain ways in which someone might change their identity depending on what they are doing online</p>	<p><u>Self-Image and Identity</u></p> <p>To explain how their online identity can be different to my offline identity</p> <p>To describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them</p>	<p><u>Self Image and Identity</u></p> <p>To explain how identity online can be copied, modified or altered</p> <p>To demonstrate how to make responsible choices about having an online identity, depending on context</p>	<p><u>Self Image and Identity</u></p> <p>To identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups.</p> <p>To explain why it is important to challenge and reject inappropriate representations online</p>
	<p><u>Online Relationships</u></p> <p>To give examples of when they should ask permission to do something online and explain why this is important.</p> <p>To use the internet with adult support to communicate with people they know.</p>	<p><u>Online Relationships</u></p> <p>To give examples of how someone might use technology to communicate with others they don't know offline and how this could be risky</p> <p>To explain who they should ask before sharing things about themselves or others online</p>	<p><u>Online Relationships</u></p> <p>To describe ways people who have similar likes and interests can communicate online</p>	<p>To explain that others online can pretend to be someone else, including friends and can suggest reasons why they might do this</p>	<p><u>Online Relationships</u></p> <p>To give examples of technology-specific forms of communication</p> <p>To recognize and explain that there are some people they communicate with online who may want them to harm</p>	<p>To describe issues online that could make anyone feel sad, worried, uncomfortable or frightened.</p> <p>To explain the importance of asking until they get the help needed</p>
	<p>To explain why it is important to be considerate and kind to people online and to respect their choices.</p> <p>To explain why things one person finds funny or sad online may not always be seen in the same way by others</p>	<p>To describe different ways to ask for, give, or deny their permission online and identify who can help them if they are unsure</p> <p>To explain why they have a right to say 'no' or 'I will have to ask someone'.</p> <p>To explain who can help them if they feel under pressure to agree to something they are unsure about or don't want to do</p>	<p>To explain what it means to 'know someone' online and why this might be different from knowing someone offline</p> <p>To explain what is meant by 'trusting someone online'</p> <p>To explain why someone many change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried</p>	<p><u>Online Relationships</u></p> <p>To describe strategies for safe and fun experiences in a range of online social environments</p> <p>To give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours</p>	<p>To describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions</p> <p>To explain how someone can get help if they are having problems and identify when to tell a trusted adult</p>	<p><u>Online Relationships</u></p> <p>To explain how sharing something online may have an impact either positively or negatively</p> <p>To describe how to be kind and show respect to others online including the importance of respecting boundaries regarding what is shared about them online and to support them if others do not</p>
		<p>To identify who can help them if something happens online without their consent</p> <p>To explain how it may make others feel if they do not ask permission before sharing something about them online</p> <p>To explain why they should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online</p>	<p>To explain how someone's feelings can be hurt by what is said or written online</p> <p>To explain the importance of giving and gaining permission before sharing things online</p>		<p>To demonstrate how to support others (including those who are having difficulties) online</p>	<p>To describe how things shared privately online can have unintended consequences for others</p> <p>To explain that taking or sharing inappropriate images of someone even if they say it is ok</p>

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E-Safety	<p><u>Managing Online Information</u></p> <p>To give simple examples of how to find information using digital technologies</p> <p>To know and understand that they can encounter a range of things online including things which are make believe.</p> <p>To know how to get help from a trusted adult if they see content that makes them feel sad, uncomfortable, worried or frightened</p>	<p><u>Managing Online Information</u></p> <p>To use simple keywords in search engines</p> <p>To demonstrate how to navigate a simple webpage to get information they need</p> <p>To explain what voice activated searching is and how it might be used and know that it is not a real person</p> <p>To explain the difference between things that are imaginary, 'made up' and 'make believe'</p> <p>To explain why some information they fine online may not be true or real</p>	<p><u>Managing Online Information</u></p> <p>To demonstrate how to use key phrases in search engines to gather accurate information online</p> <p>To explain what autocomplete is and how to choose the best suggestion</p> <p>To explain how the internet can be used to sell and buy things</p> <p>To explain the difference between a 'belief', an 'opinion' and a 'fact'</p> <p>To explain that not all opinions shared may be accepted as true or fair by others</p> <p>To describe and demonstrate how we can help from a trusted adult if we see content that makes us sad, uncomfortable or frightened.</p>	<p><u>Managing Online Information</u></p> <p>To analyse information to make a judgement about probable accuracy and understand why it is important to make their own decisions regarding content</p> <p>To describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy</p> <p>To describe some of the methods used to encourage people to buy things online</p> <p>To explain why lots of people sharing the same opinions or beliefs online do not make those opinions or beliefs true</p> <p>To explain that technology can be designed to act like or impersonate living things and describe what the benefits and the risks are.</p> <p>To explain what is meant by fake news</p>	<p><u>Managing Online Information</u></p> <p>To explain the benefits and limitations of using different types of search technologies</p> <p>To explain what is meant by 'being skeptical' and to give examples of when and why it is important</p> <p>To evaluate digital content and can explain how to make choices about what is trustworthy</p> <p>To explain key concepts: information, reviews, fact, opinion, belief, validity, reliability and evidence</p> <p>To identify ways the internet can draw us to information for different agendas</p> <p>To describe ways of identifying when online content has been commercially sponsored or boosted</p> <p>To explain what is meant by the term 'stereotype'</p> <p>To describe how fake news may affect someone's emotions and behaviour</p> <p>To explain what is meant by 'hoax' and can explain why someone would need to think carefully before they share</p>	<p><u>Managing Online Information</u></p> <p>To explain how search engines work and how results are selected and ranked</p> <p>To explain how to use search technologies effectively</p> <p>To describe how some online information can be opinion and can offer examples</p> <p>To explain how and why some people may present 'opinions' as 'facts'</p> <p>To define the terms of 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online</p> <p>To understand the concept of persuasive design and how it can be used to influence people's choices</p> <p>To demonstrate how to analyse and evaluate the validity of 'facts' and information</p> <p>To explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this</p> <p>To describe the difference between online misinformation and dis-information</p> <p>To explain why information that is on a large number of sites may still be inaccurate or untrue</p> <p>To identify, flag and report inappropriate content</p>

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E-Safety	<p><u>Privacy and Security</u></p> <p>To explain how passwords are used to protect information, accounts and devices.</p> <p>To recognise more detailed examples of information that is personal to someone</p> <p>To explain why it is important to always ask a trusted adult before sharing personal information online, belonging to myself or others</p> <p><u>Copyright and Ownership</u></p> <p>To explain why work they create using technology belongs to them</p> <p>To save work under suitable titles or names so that others know it belongs to them.</p> <p>To understand that work created by others does not belong to them even if they save a copy</p>	<p><u>Privacy and Security</u></p> <p>To explain how passwords can be used to protect information, accounts and devices</p> <p>To explain and give examples of what is meant by 'private' and 'keeping things private'</p> <p>To describe and explain some rules for keeping personal information private</p> <p>To explain how some people may have devices in their homes and connected to the internet and give examples</p> <p><u>Copyright and Ownership</u></p> <p>To recognise that content on the internet may belong to other people</p> <p>To describe why other people's work belongs to them</p>	<p><u>Privacy and Security</u></p> <p>To describe simple strategies for creating and keeping passwords private</p> <p>To give reasons why someone should only share information with people they choose to and can trust</p> <p>To describe how connected devices can collect and share anyone's information with others</p> <p><u>Copywrite and Ownership</u></p> <p>To explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause</p>	<p><u>Privacy and Security</u></p> <p>To describe strategies for keeping personal information private, depending on context</p> <p>To explain that internet use is never fully private and is monitored</p> <p>To describe how some online services may seek consent to store information about them.</p> <p>To know what digital age of consent is</p> <p><u>Copyright and Ownership</u></p> <p>To know why to consider who owns content on the internet and whether they have a right to re-use it</p> <p>To give some simple examples of content which they must not use without permission from the owner</p>	<p><u>Privacy and Security</u></p> <p>To explain what a strong password is and demonstrate how to create one</p> <p>To explain how many free apps or services may read and share private information with others</p> <p>To explain what app permissions are and give some examples</p> <p><u>Copyright and ownership</u></p> <p>To access and justify when it is acceptable to use the work of others</p> <p>To give example of content that is permitted to be reused and know how this content can be found online</p>	<p><u>Privacy and Security</u></p> <p>To describe effective ways people can manage passwords</p> <p>To explain what to do if a password is shared, lost or stolen</p> <p>To describe how and why people should keep their software and apps up to date</p> <p>To describe simple ways to increase privacy on apps and services that provide privacy settings</p> <p>To describe ways in which some online content targets people to gain money or information illegally</p> <p>To know that online services have terms and conditions that govern their use</p> <p><u>Copyright and Ownership</u></p> <p>To demonstrate the use of search tools to find and access online content which can be reused by others</p> <p>To demonstrate how to make references to and acknowledge sources they have used from the internet</p>