



## Computing Knowledge and Skills Progression

<b>Reception</b>	<b>Knowledge</b>	<b>Skills</b>
<b>Technology</b>	<p>Recognise that a range of technology is used in places such as homes and schools.</p> <p>Select and use technology for particular purposes.</p>	<p>Shows an interest in technological toys with knobs or pulleys, or real objects.</p> <p>Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</p> <p>Knows how to operate simple equipment.</p> <p>Knows that information can be retrieved from computers.</p> <p>Completes a simple program on a computer.</p> <p>Interacts with age-appropriate computer software.</p>



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Year 1	Knowledge	Skills
<b>Programming</b>	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>Create and debug simple programs.</p> <p>Use logical reasoning to predict the behaviour of simple programs.</p>	<p>Give instructions to a friend and follow instructions to move around.</p> <p>Describe what happens when buttons are pressed on a robot.</p> <p>Press the buttons in the correct order to make a robot do what is programmed.</p> <p>Describe what actions are needed to do to make something happen and begin to use the word 'algorithm'.</p> <p>Begin to predict what will happen for a short sequence of instructions.</p> <p>Begin to use software/apps to create movement and patterns on a screen.</p> <p>Use the word 'debug' when correcting mistakes when programming.</p>
<b>Multimedia</b>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Be creative with different technology tools.</p> <p>Use technology to create and present ideas.</p> <p>Use the keyboard or a word bank on a device to enter text.</p> <p>Save information in a special place and retrieve it again.</p>
<b>Data Handling</b>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Talk about the different ways in which information can be shown.</p> <p>Use technology to collect information, including photos, video and sound.</p> <p>Sort different kinds of information and present it to others.</p> <p>Add information to a pictograph and talk about what has been found out.</p>
<b>Digital Literacy</b>	<p>Recognise common uses of information technology beyond school.</p>	<p>Recognise the way technology is used in the classroom.</p> <p>Recognise ways that technology is used in a home and community.</p> <p>Use links to websites to find information.</p> <p>Begin to identify some of the benefits of using technology.</p>
<b>Online Safety</b>	<p>Use technology safely and respectfully.</p> <p>Identify where to go for help and support when they have concerns about content or contact on the internet or online technologies.</p>	<p>Keep a password private.</p> <p>Explain what personal information is.</p> <p>Tell an adult when seeing something unexpected or worrying online.</p> <p>Talk about why it's important to be kind and polite.</p> <p>Recognise an age-appropriate website.</p> <p>Agree and follow sensible online safety rules.</p>



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Year 2	Knowledge	Skills
<b>Programming</b>	<p>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</p> <p>Create and debug simple programs.</p> <p>Use logical reasoning to predict the behaviour of simple programs.</p>	<p>Give instructions to a friend (using forward, backward and turn) and physically follow instructions.</p> <p>Tell you the order needed to do things to make something happen and talk about this as an algorithm.</p> <p>Program a robot or software to do a particular task.</p> <p>Look at a friend's program and explain what will happen.</p> <p>Use programming software to make objects move.</p> <p>Watch a program execute and spot where it goes wrong so that it can be debugged.</p>
<b>Multimedia</b>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Use technology to organise and present my ideas in different ways.</p> <p>Use the keyboard on my device to add, delete and space text for others to read.</p> <p>Talk about an online tool that will help to share my ideas with other people.</p> <p>Save and open files on a device.</p>
<b>Data Handling</b>	<p>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p>	<p>Talk about the different ways technology is used to collect information, including a camera, microscope or sound recorder.</p> <p>Make and save a chart or graph using the data collected.</p> <p>Talk about the data that is shown in a chart or graph.</p> <p>Begin to understand a branching database.</p> <p>Talk about what kind of information could be used to help investigate a question.</p>
<b>Digital Literacy</b>	<p>Recognise common uses of information technology beyond school.</p>	<p>Tell you why technology is used in the classroom.</p> <p>Tell you why technology is used in my home and community.</p> <p>Begin to understand that other people have created the information.</p> <p>Identify benefits of using technology including finding information, creating and communicating.</p> <p>Talk about the differences between the internet and things in the physical world.</p>
<b>Online Safety</b>	<p>Use technology safely and respectfully.</p> <p>Identify where to go for help and support when they have concerns about content or contact on the internet or online technologies.</p>	<p>Explain why people need to keep passwords and personal information private.</p> <p>Describe the things that happen online that an adult must be told.</p> <p>Talk about why people should go online for a short amount of time.</p> <p>Talk about why it is important to be kind and polite online and in real life.</p> <p>Understand that not everyone is who they say they are on the internet.</p>



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Year 3	Knowledge	Skills
<b>Programming</b>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>Break an open-ended problem up into smaller parts.</p> <p>Put programming commands into a sequence to achieve a specific outcome.</p> <p>Keep testing a program and recognise when it needs debugging.</p> <p>Use repeat commands.</p> <p>Describe the algorithm needed for a simple task.</p> <p>Detect a problem in an algorithm which could result in an error.</p>
<b>Multimedia</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Create different effects with different technology tools.</p> <p>Combine a mixture of text, graphics and sound to share ideas and learning.</p> <p>Use appropriate keyboard commands to amend text on a device, including making use of a spellchecker.</p> <p>Evaluate work and improve its effectiveness.</p> <p>Use an appropriate tool to share work online.</p>
<b>Data Handling</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Talk about the different ways data can be organised.</p> <p>Search a ready-made database to answer questions.</p> <p>Collect data to help answer a question.</p> <p>Add to a database.</p> <p>Make a branching database.</p> <p>Use a data logger to monitor changes and talk about the information collected.</p>
<b>Digital Literacy</b>	<p>Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>Save and retrieve work on the internet, the school network or a device.</p> <p>Talk about the parts of a computer.</p> <p>Explain ways to communicate with others online.</p> <p>Describe the World Wide Web as the part of the internet that contains websites.</p> <p>Use search tools to find and use an appropriate website.</p> <p>Think about whether images that are found online are able to be used in work.</p>
<b>Online Safety</b>	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Talk about what makes a secure password and why they are important.</p> <p>Protect personal information when doing different things online.</p> <p>Use the safety features of websites as well as reporting concerns to an adult.</p> <p>Recognise websites and games that are age-appropriate.</p> <p>Make good choices about how long is spent online.</p> <p>Ask an adult before downloading files and games from the internet.</p> <p>Post positive comments online.</p>



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Year 4	Knowledge	Skills
<b>Programming</b>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>Use logical thinking to solve an open-ended problem by breaking it up into smaller parts.</p> <p>Use an efficient procedure to simplify a program.</p> <p>Use a sensor to detect a change which can select an action within a program.</p> <p>Know that repeated testing of a program is needed while it is being put together.</p> <p>Use a variety of tools to create a program.</p> <p>Recognise an error in a program and debug it.</p> <p>Recognise that an algorithm will help sequence more complex programs.</p> <p>Recognise that using algorithms will also help solve problems in other learning such as maths, science and design technology.</p>
<b>Multimedia</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Use photos, video and sound to create an atmosphere when presenting to different audiences.</p> <p>Explore new media to extend what can be achieved with confidence.</p> <p>Change the appearance of text to increase its effectiveness.</p> <p>Create, modify and present documents for a particular purpose.</p> <p>Use a keyboard confidently and make use of a spellchecker to write and review work.</p> <p>Use an appropriate tool to share work and collaborate online.</p> <p>Give constructive feedback to friends to help them improve their work and refine own work.</p>
<b>Data Handling</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Organise data in different ways.</p> <p>Collect data and identify where it could be inaccurate.</p> <p>Plan, create and search a database to answer questions.</p> <p>Choose the best way to present data to friends.</p> <p>Use a data logger to record and share readings with friends.</p>
<b>Digital Literacy</b>	<p>Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>Explain whether a resource being used is on the internet, the school network or an own device.</p> <p>Identify key words to use when searching safely on the World Wide Web.</p> <p>Think about the reliability of information read on the World Wide Web.</p> <p>Explain how to check who owns photos, text and clipart.</p> <p>Create a hyperlink to a source on the World Wide Web.</p>
<b>Online Safety</b>	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Choose a secure password when using a website.</p> <p>Talk about the ways to protect self and friends from harm online.</p> <p>Use the safety features of websites as well as reporting concerns to an adult.</p> <p>Know that anything posted online can be seen by others.</p> <p>Choose websites and games that are age-appropriate.</p> <p>Help friends make good choices about the time they spend online.</p> <p>Talk about why I need to ask a trusted adult before downloading files and games from the internet.</p> <p>Comment positively and respectfully online.</p>



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Year 5	Knowledge	Skills
<b>Programming</b>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>Decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program.</p> <p>Refine a procedure using repeat commands to improve a program.</p> <p>Use a variable to increase programming possibilities.</p> <p>Change an input to a program to achieve a different output.</p> <p>Use 'if' and 'then' commands to select an action.</p> <p>Talk about how a computer model can provide information about a physical system.</p> <p>Use logical reasoning to detect and debug mistakes in a program.</p> <p>Use logical thinking, imagination and creativity to extend a program.</p>
<b>Multimedia</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Use text, photo, sound and video editing tools to refine work.</p> <p>Use the skills already developed to create content using unfamiliar technology.</p> <p>Select, use and combine the appropriate technology tools to create effects that will have an impact on others.</p> <p>Select an appropriate online or offline tool to create and share ideas.</p> <p>Review and improve work and support others to improve their work.</p>
<b>Data Handling</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Use a spreadsheet and database to collect and record data.</p> <p>Choose an appropriate tool to help collect data.</p> <p>Present data in an appropriate way.</p> <p>Search a database using different operators to refine a search.</p> <p>Talk about mistakes in data and suggest how it could be checked.</p>
<b>Digital Literacy</b>	<p>Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>Describe different parts of the internet.</p> <p>Use different online communication tools for different purposes.</p> <p>Use a search engine to find appropriate information and check its reliability.</p> <p>Recognise and evaluate different types of information I find on the World Wide Web.</p> <p>Describe the different parts of a webpage.</p> <p>Find out who the information on a webpage belongs to.</p>
<b>Online Safety</b>	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Protect a password and other personal information.</p> <p>Explain why it is needed to protect self and friends and the best ways to do this, including reporting concerns to an adult.</p> <p>Know that anything posted online can be seen, used and may affect others.</p> <p>Talk about the dangers of spending too long online or playing a game.</p> <p>Explain the importance of communicating kindly and respectfully.</p> <p>Discuss the importance of choosing an age- appropriate website or game.</p> <p>Explain why it is needed to protect a computer or device from harm.</p> <p>Know which resources on the internet are appropriate to download and use.</p>



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Year 6	Knowledge	Skills
<b>Programming</b>	<p>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</p> <p>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</p> <p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p>	<p>Deconstruct a problem into smaller steps, recognising similarities to solutions used before.</p> <p>Explain and program each of the steps in my algorithm.</p> <p>Evaluate the effectiveness and efficiency of my algorithm while continually testing the programming of that algorithm.</p> <p>Recognise when it is needed to use a variable to achieve a required output.</p> <p>Use a variable and operators to stop a program.</p> <p>Use different inputs (including sensors) to control a device or onscreen action and predict what will happen.</p> <p>Use logical reasoning to detect and correct errors in algorithms and programs.</p>
<b>Multimedia</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Talk about audience, atmosphere and structure when planning a particular outcome.</p> <p>Confidently identify the potential of unfamiliar technology to increase creativity.</p> <p>Combine a range of media, recognising the contribution of each to achieve a particular outcome.</p> <p>Explain why a particular online tool for a specific purpose has been selected.</p> <p>Begin to be digitally discerning when evaluating the effectiveness of work and the work of others.</p>
<b>Data Handling</b>	<p>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.</p>	<p>Plan the process needed to investigate the world around me.</p> <p>Select the most effective tool to collect data for an investigation.</p> <p>Check the data collected for accuracy and plausibility.</p> <p>Interpret the data collected.</p> <p>Present the data collected in an appropriate way.</p> <p>Use the skills developed to interrogate a database.</p>
<b>Digital Literacy</b>	<p>Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.</p> <p>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</p>	<p>Explain the internet services needed to use for different purposes.</p> <p>Describe how information is transported on the internet.</p> <p>Select an appropriate tool to communicate and collaborate online.</p> <p>Talk about the way search results are selected and ranked.</p> <p>Check the reliability of a website.</p> <p>Explain about copyright and acknowledge the sources of information that is found online.</p>
<b>Online Safety</b>	<p>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</p>	<p>Protect a password and other personal information.</p> <p>Explain the consequences of sharing too much information about self online.</p> <p>Support friends to protect themselves and make good choices online, including reporting concerns to an adult.</p> <p>Explain the consequences of spending too much time online or on a game.</p> <p>Explain the consequences to self and others of not communicating kindly and respectfully.</p> <p>Protect a computer or device from harm on the internet.</p>