

Computing progression of skills

Computing is split into 5 different categories: Coding , Technology use in our lives , Data handling , Multi-media and Online-safety . Below is the progression of skills that children should learn from Year 3 until they leave us in Year 6.					
Curriculum statement	Year 3	Year 4	Year 5	Year 6	PurpleMash links
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	<ul style="list-style-type: none"> Children can use a flowchart to complete specific ideas. Children can plan and enter a sequence of instructions. Children understand there can be different ways to solve a problem. Children can run, test and improve their programs based on chosen themes. 	<ul style="list-style-type: none"> Children can use this program to complete given instructions. Children understand there can be different ways to solve a problem. Children can run, test and improve playable games. 	<ul style="list-style-type: none"> Children can explore procedure to achieve planned solutions. Children can group commands as a procedure to achieve a specific outcome within a program 	<ul style="list-style-type: none"> Children record in some detail the steps (the algorithm) that are required to achieve an outcome and refer to this when programming. Children can design their own text based adventure game based on one they have played. 	2Code, 2Logo, 2Chart
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	<ul style="list-style-type: none"> Children can create a computer program that uses clicks for events and timers. Children can create a program that uses a timer-after command. Children can create a program that uses a timer-every command Children can use the repeat command with an object. 	<ul style="list-style-type: none"> Children can confidently create a program that uses a timer-after command. Children can confidently create a program that uses a timer-every command. Children can create a program that includes an IF statement. Children can make use of the X and Y co-ordinates of objects in their coding. Children can read and use code that includes repeat until and IF/ ELSE and explain how it works. Children can explain what a variable is in programming. 	<ul style="list-style-type: none"> Children create programs using variables. Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task. Children can create a program which represents a physical system. Children can create and use strings in programming. Children know some ways that text variables can be used in coding. 	<ul style="list-style-type: none"> Children create programs that make use of various functions. Children can be creative with the way they code to generate novel visual effects. Children can code programs that take text input from the user and use this in the program. Children are aware of the need to code for all possibilities when using user input. 	2Code, 2Logo, 2DIY, 2Chart
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	<ul style="list-style-type: none"> Children can read and explain the function of a flowchart. Children understand there can be different ways to solve a problem. Children notice when something doesn't work as expected. 	<ul style="list-style-type: none"> Children can read, explain and use a flowchart to create a computer program. Children understand there can be different ways to solve a problem. Children notice and can explain when a program does not run as expected. 	<ul style="list-style-type: none"> Children can read, explain and simplify a flowchart to run a computer program more efficiently. Children understand there can be different ways to solve a problem and this can be addressed in differing ways. Children notice and can pinpoint why a program does not run as expected. 	<ul style="list-style-type: none"> Children can read, explain and simplify a flowchart to run a computer program more efficiently and can debug when things don't run as expected. Children understand there can be different ways to solve a problem and this can be addressed in differing ways for efficiency. Children notice and can pinpoint why a program does not run as expected referring to code and instructions of this program. 	2Code, 2Logo, 2Chart
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	<ul style="list-style-type: none"> Children can save work on the school network, on the Internet and on individual devices. Children talk about the parts of a computer. Children can use appropriate tools to collaborate on-line. Children can use appropriate tools to communicate on-line. Children can use simple search tools and find appropriate websites. Children can talk about the owner of information online. 	<ul style="list-style-type: none"> Children can talk about the school network & the different resources they can access, including the Internet. Children frame questions & identify key words to search for information on the Internet Children consider reliability of information & ways it may influence you Children check who the owner is before copying photos, clipart or text. 	<ul style="list-style-type: none"> Children identify different parts of computing devices. Children identify different parts of the Internet Children choose appropriate tools for communication and collaboration and use them responsibly Children use effective strategies to search with appropriate search engines Children talk about the different elements on web pages Children find out who the information presented on a webpage belongs to. 	<ul style="list-style-type: none"> Children describe different services provided by the Internet & how information moves around the Internet Children describe different parts of a computing device & how it connects to the Internet. Children can connect a computing device to a keyboard, mouse or printer. Children identify appropriate forms of online communication for different audiences. Children use search engines as part of an effective research strategy. Children describe how search results are selected & ranked. Children acknowledge who resources belong to that they have found on the internet. 	Topic lessons (Projects linked to research), 2Email, 2Blog, 2Connect, 2Write, 2Race

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	<ul style="list-style-type: none"> Children research using the internet. Children are aware of search engines. Children can read and retrieve information they are looking for. 	<ul style="list-style-type: none"> Children can structure search queries to locate specific information. Children have used search to answer a series of questions. Children have written search questions for a friend to solve. Children can analyse the contents of a web page for clues about the credibility of the information. 	<ul style="list-style-type: none"> Children select keywords and search techniques to find relevant information and increase reliability. Children look for specific information using search engines. 	<ul style="list-style-type: none"> Children select keywords and search techniques to find relevant information and increase reliability and efficiency. Children look for and decipher specific information using search engines. 	Topic lessons (Projects linked to research), searching for images, internet research, seeing an upsetting video, effective searching, general internet usage.
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	<ul style="list-style-type: none"> Children begin to explore and begin to evaluate the use of multimedia to enhance communication. Children can create and begin to edit presentation documents and text, experimenting with fonts, size, colour, alignment for emphasis and effect. Children amend text size and are able to save changes made. Children use individual fingers to input text and use SHIFT key to type characters. Children can consider their own work and how it can be improved for effectiveness 	<ul style="list-style-type: none"> Children explore how multimedia can create atmosphere and appeal to different audiences. Children are confident in creating and modifying text and presentation documents to achieve a specific purpose. Children use a keyboard effectively, including the use of keyboard shortcuts. Children use font sizes and effects such as bullet points appropriately. Children know how to use a spell check. Children look at their own, and a friend's work and provide feedback that is constructive and specific 	<ul style="list-style-type: none"> Children select an appropriate ICT or online tool to create and share ideas. Children explore the effects of multimedia (photos, video, and sound) in a presentation or video and show how they can be modified. Children develop skills using transitions and hyperlinks to enhance the structure of presentations. Children know how to use text and video editing tools in programs to refine their work and can use online tools to create and share presentations and films. 	<ul style="list-style-type: none"> Children identify the purpose for selecting an appropriate online tool. Children discuss audience, atmosphere and structure of a presentation or video. Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience. Children use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations. Children store presentations and videos online where they can be accessed by themselves and shared with others Children evaluate the effectiveness of their own work and the work of others. 	Topic lessons (Projects linked to research), general internet usage.
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	<ul style="list-style-type: none"> Children understand what makes a good password for use on the Internet. Children are beginning to realise the outcomes of not keeping passwords safe. Children can contribute to the different ways they know that the Internet can help us to communicate. Children have contributed to a class blog with clear and appropriate messages. Children understand that some information held on websites may not be accurate or true. Children relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting. 	<ul style="list-style-type: none"> Children know that security symbols such as a padlock protect their identity online and realise needs for keeping passwords protected. Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities Children can determine whether activities that they undertake online, infringe another's' copyright. They know the difference between researching and using information and copying it. Children know the meaning of the term 'phishing' and are aware of the existence of scam websites 	<ul style="list-style-type: none"> Children follow SMART guidance when working/ using online resources and have clear ideas about good passwords. Children are critical about what they share online. Children can see how they can use images and digital technology to create effects not possible without technology. Children can cite all sources when researching and explain the importance of this. Children show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each. 	<ul style="list-style-type: none"> Children are aware about risks online including sharing location, secure websites, spoof websites, phishing, and other email scams. Children can take steps to protect themselves including protecting their digital footprint, ask for help, and follow smart rules and security software. Children can talk about the positives and negative aspects of technology and balance these opposing views. Children can give reasons for limiting screen time. Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander. 	Topic lessons (Projects linked to research), searching for images, internet research, seeing an upsetting video, effective searching, general internet usage.
KS1 Curriculum statements	Year 1	Year 2			
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	<ul style="list-style-type: none"> Children can follow a given set of instructions to complete a task. Children can input instructions into a digital device (i.e. bee-bots). 	<ul style="list-style-type: none"> Children can follow and complete a given set of instructions to complete a task. Children can input instructions into a digital device (i.e. bee-bots) to complete a given task. 			

Create and debug simple programs	<ul style="list-style-type: none"> Children note when their algorithms do not work as expected. 	<ul style="list-style-type: none"> Children can run and test their algorithms noting when they do not work as expected. 			
Use logical reasoning to predict the behaviour of simple programs	<ul style="list-style-type: none"> Children can read and note the outcome of given instructions. Children can identify plausible outcomes from simple programs. 	<ul style="list-style-type: none"> Children can read and interpret the functions of given instructions. Children can predict the outcome of simple programs. 			
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	<ul style="list-style-type: none"> Children know how they can use technology to create digital content. Children know to save their work so it can be continued. 	<ul style="list-style-type: none"> Children know how they can use technology to create and improve digital content. Children know how to save and organise their created work. Children know how to retrieve save information from online systems. 			
Recognise common uses of information technology beyond school.	<ul style="list-style-type: none"> Children understand why the internet is useful. Children can identify how they use technology in their lives. 	<ul style="list-style-type: none"> Children understand how the internet has made our daily lives easier. Children can identify how they use technology in their lives beyond schooling. 			
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	<ul style="list-style-type: none"> Children understand the meaning of online safety. Children know what details they need to keep safe online. Children know how to stop and/or ask for support with upsetting online content. 	<ul style="list-style-type: none"> Children know how to use technology safety and respectfully. Children understand the needs for passwords to keep information private. Children know how to stop and/or ask for support with online content they have concerns about. 			