

Progression Document- Computing

Strand	NC objective	Units and progression Y1	Units and progression Y2
Computer Science	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.	Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.
	Create and debug simple programs.	Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash. Write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code.	Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps.
	Use logical reasoning to predict the behaviour of simple programs.	When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.	Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.
Information Technology	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources.	Children are confident when creating, naming, saving and retrieving content.

		<p>Children can create their own images and create a sequence of pictures to create a story.</p> <p>Children can use simple sorting tools on the computer to help them understand how data can be stored and sorted on a computer.</p> <p>Children can search Purple Mash to find specific apps.</p>	<p>Children create a series of images, learning to use the 'onion skin' layer in order to create simple but effective animations, such as a plant growing.</p> <p>Children understand how computers can record data and reasons why it is important for data to be recorded. Children record their own data in a simple way.</p> <p>Children can search the internet to find specific information and retrieve data from the internet.</p>
Digital Literacy	Recognise common uses of information technology beyond school.	Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.	Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.
	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.	Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.	Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.

Strand	NC objective	Units and progression Y3	Units and progression Y4	Units and progression Y5	Units and progression Y6
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<p>Computer Science</p>	<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>3.5 – Email Children to complete a scenario on 2email using the different tools they have learnt from the unit, eg. adding an attachment etc.</p>	<p>4.7 – Effective Searching To locate information on the search results page. To use search effectively to find out information. To assess whether an information source is true and reliable.</p>	<p>5.2 – Online Safety To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology and children’s responsibility to one another in their online behaviour. To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. To learn about how to reference sources in their work To search the Internet with a consideration for</p>	<p>6.2 - Identify benefits and risks of mobile devices broadcasting the location of the user/device. Identify secure sites by looking for privacy seals of approval. Identify the benefits and risks of giving personal information. To review the meaning of a digital footprint. To have a clear idea of appropriate online behaviour. To begin to understand how information online can persist. To understand the importance of balancing game and screen time with other parts of their lives. To identify the positive and negative influences of technology on health and the environment.</p> <p>6.4 – Blogging To identify the purpose of writing a blog and its key features.</p>
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				<p>the reliability of the results of sources to check validity and understand the impact of incorrect information.</p>	<p>To plan the theme and content for a blog and write the content. To consider the effect upon the audience of changing the visual properties of the blog. To understand the importance of regularly updating the content of a blog. To understand how to contribute to an existing blog. To understand how and why blog posts are approved by the teacher.</p>
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	<p>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</p>	<p>3.1 - Coding Children to input 'if' statements into their coding to show reasoning, and also add variables into their coding. Timers and repeat commands are also used to create programmes.</p>	<p>4.1 - Coding To use selection in coding with the 'if/else' command. To understand and use variables in 2Code. To use flowcharts for design of algorithms including selection. To use the 'repeat until' with variables to determine the repeat. To learn about and use computational thinking terms decomposition and abstraction.</p>	<p>5.1 - Coding To represent a program design and algorithm. To create a program that simulates a physical system using decomposition. To explore string and text variable types so that the most appropriate can be used in programs. To use the Launch command in 2Code Gorilla To program a playable game with timers and scorepad.</p>	<p>6.1 - Coding To use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program. To code, test and debug from these designs. To use functions and tabs in 2Code to improve the quality of the code. To code user interactivity using input functions.</p>
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	<p>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</p>	<p>3.1 - Coding Children to input 'if' statements into their coding to show reasoning, and also add variables into their coding. Timers and repeat commands are also used to create programmes.</p> <p>3.7 - Simulations Children know that a computer simulation can represent real and imaginary situations and children can recognise patterns within simulations and make and test predictions. Children can identify the relationships and rules on which the simulations are based and test their predictions.</p>	<p>4.1 - Coding Pupils can use the 'IF' statements, coordinates and number variables in their program. They can explain what a variable is and use a number variable in their program</p>	<p>5.1 - Coding They can use functions to make their codes more efficient. They know ways text variables can be used in coding. They can use strings to produce a range of outputs in their program. (5.1)</p>	<p>6.1 - Coding They make use of the tabs feature to section their code for less code error and test, improve and debug their program as they go. (6.1 NC 1,2,3)</p>
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	Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	<p>3.1 - Coding</p> <p>3.7 - Simulations</p> <p>Children know that a computer simulation can represent real and imaginary situations and children can recognise patterns within simulations and make and test predictions. Children can identify the relationships and rules on which the simulations are based and test their predictions.</p>	<p>4.5 – Logo</p> <p>To learn the structure of the coding language of Logo.</p> <p>To input simple instructions in Logo.</p> <p>Using 2Logo to create letter shapes.</p> <p>To use the Repeat function in Logo to create shapes.</p> <p>To use and build procedures in Logo.</p>	<p>5.1 – Coding</p> <p>They have begun to understand the need to remove unnecessary details from their program that don't contribute towards the aim of the task. (5.1)</p> <p>5.6 – 3D modelling</p>	<p>6.1 - Coding</p> <p>They make use of the tabs feature to section their code for less code error and test, improve and debug their program as they go. (6.1 NC 1,2,3)</p>
Information Technology	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	<p>3.2 – Online Safety</p> <p>Children are beginning to understand how to search the Internet and how to think critically about the results that are returned.</p>	<p>4.7 – Effective Searching</p> <p>To locate information on the search results page.</p> <p>To use search effectively to find out information.</p> <p>To assess whether an information source is true and reliable.</p>	<p>5.2 – Online Safety</p> <p>To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information.</p> <p>5.6 -</p>	<p>6.6 – Networks</p> <p>To learn about what the Internet consists of.</p> <p>To find out what a LAN and a WAN are.</p> <p>To find out how the Internet is accessed in school.</p> <p>To research and find out about the age of the Internet.</p> <p>To think about what the future might hold.</p>

	<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>3.6 – Children to use 2Question to create a branching database using yes or no questions. This will help children understand how information can be sorted.</p> <p>3.9 - Children learn how to make PowerPoint presentations, adding sounds, animations, editing pictures and inserting pictures and text.</p> <p>Kapow video – children design and create a video book trailer, considering what would make it effective, joining snippets of videos together.</p>	<p>4.4 Writing for different audiences To explore how font size and style can affect the impact of a text. To use a simulated scenario to produce a news report. To use a simulated scenario to write for a community campaign.</p> <p>4.6 – Web design Children create and design their own website, considering layout and appearance.</p> <p>Kapow comparison cards (Y3) – children use data to compile comparison cards and use the skills they have learn to plan a holiday.</p>	<p>Kapow Data – to understand how binary can be used as another form of storing data and to be able to read binary.</p> <p>Stop animation – Children build on skills learnt previously of stop motion animation and onion skinning, but this time with photos.</p> <p>Word Processing – Children use Microsoft word and use their knowledge of editing skills to edit photos, but also learn how to create tables in order to present information and data in another way.</p> <p>5.6 – 3D modelling To be introduced to 2Design and Make and the skills of computer aided design. To explore the effect of moving points when designing.</p>	<p>6.3 – Spreadsheets To use a spreadsheet to investigate the probability of the results of throwing many dice. Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell. To create graphs showing the data collected. To type in a formula for a cell to automatically make a calculation in that cell. Using a spreadsheet to create computational models and answer questions.</p> <p>6.5 – Text Adventure To find out what a text adventure is. To plan a story adventure. To make a story-based adventure. To introduce map-based text adventures. To code a map-based text adventure.</p>
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Digital Literacy	<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>3.5 – Email How to use the email safely. 3.2 – Online Safety To know what makes a safe password and ways to keep it safe. to understand more about how communication can be used effectively on the internet. Ways to communicate eg. blogs. Looking at whether things posted online are true. Children are to become more aware of age restrictions.</p>	<p>4.2 – Online Safety To understand how children can protect themselves from online identity theft. Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. To Identify the risks and benefits of installing software including apps. To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. To identify appropriate behaviour when participating or</p>	<p>5.2 – Online Safety To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology and children’s responsibility to one another in their online behaviour. To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. To be aware of appropriate and</p>	<p>6.2 - Identify benefits and risks of mobile devices broadcasting the location of the user/device. Identify secure sites by looking for privacy seals of approval. Identify the benefits and risks of giving personal information. To review the meaning of a digital footprint. To have a clear idea of appropriate online behaviour. To begin to understand how information online can persist. To understand the importance of balancing game and screen time with other parts of their lives.</p>

			<p>contributing to collaborative online projects for learning.</p> <p>To identify the positive and negative influences of technology on health and the environment.</p> <p>To understand the importance of balancing game and screen time with other parts of their lives.</p>	<p>inappropriate text, photographs and videos and the impact of sharing these online.</p> <p>To learn about how to reference sources in their work</p> <p>To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information.</p>	<p>To identify the positive and negative influences of technology on health and the environment.</p>
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