



Strand	EYFS	End of KS1 (Y2)	Mid KS2 (Y4)	End of KS2 (Y6)
<p><b>Computer Science</b></p>	<ul style="list-style-type: none"> <li>There are no specific Early Learning Goals for Computing. However, children will experience using information technology in school and outside in a variety of contexts to support their learning in other areas.</li> </ul> <p><i>For instance, children will program Beebots to navigate obstacles, physically and virtually. They may use classroom games and physical equipment to understand sequences of instructions in PurpleMash's Unplugged programming unit.</i></p>	<ul style="list-style-type: none"> <li>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.</li> </ul> <p><i>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.</i></p> <ul style="list-style-type: none"> <li>Create and debug simple programs.</li> </ul> <p><i>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.</i></p> <ul style="list-style-type: none"> <li>Use logical reasoning to predict the behaviour of simple programs.</li> </ul> <p><i>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.</i></p> <ul style="list-style-type: none"> <li>Vocabulary: algorithm, bug, command, debug, input.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</li> </ul> <p><i>When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.</i></p> <ul style="list-style-type: none"> <li>Use sequence, selection and repetition in programs, work with variables and various forms of input and output.</li> </ul> <p><i>Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code.</i></p> <ul style="list-style-type: none"> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul> <p><i>Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they</i></p>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</li> </ul> <p><i>Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem</i></p> <ul style="list-style-type: none"> <li>Use sequence, selection and repetition in programs, work with variables and various forms of input and output.</li> </ul> <p><i>Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.</i></p> <ul style="list-style-type: none"> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul> <p><i>Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul>

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			<p><i>can 'read' programs with several steps and predict the outcome accurately.</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><i>Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.</i></p> <ul style="list-style-type: none"> <li>vocabulary: algorithm, action, control, command, code, debug, input, simulation, variable.</li> </ul>	<p><i>Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.</i></p> <ul style="list-style-type: none"> <li>vocabulary: algorithm, action, control, command, code, debug, input, simulation, variable, flowchart, binary, machine code.</li> </ul>
<p><b>Information Technology</b></p>	<ul style="list-style-type: none"> <li>There are no specific Early Learning Goals for Computing. However, children will experience using information technology in school and outside in a variety of contexts to support their learning in other areas.</li> </ul> <p><i>For instance children may use 2 Paint or 2 Create in PurpleMash when writing or telling stories, creating poems or painting pictures. In this case they make work alone, or with support to select tools, change size of object, change colours or change pictures.</i></p>	<ul style="list-style-type: none"> <li>Use technology purposefully to create, organise, store, manipulate and retrieve digital content.</li> </ul> <p><i>Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.</i></p> <ul style="list-style-type: none"> <li>vocabulary: spreadsheet, column, row, pictogram, database, avatar, digitally, animated, mind map.</li> </ul>	<ul style="list-style-type: none"> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> </ul> <p><i>Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><i>Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.</i></p> <ul style="list-style-type: none"> <li>vocabulary: copy and paste, cell, formula, chart, column, row, spreadsheet, font, bold, italic, animation, stop-motion, hardware, software.</li> </ul>	<ul style="list-style-type: none"> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> </ul> <p><i>Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.</i></p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p><i>Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.</i></p> <ul style="list-style-type: none"> <li>vocabulary: copy and paste, cell, formula, chart, column, row, spreadsheet, font, bold, italic, animation, stop-motion, hardware, software, blog, post.</li> </ul>

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<b>Digital Literacy</b>	<ul style="list-style-type: none"> <li>▪ There are no specific Early Learning Goals for Computing. However, children will experience using information technology in school and outside in a variety of contexts to support their learning in other areas.</li> </ul> <p><i>Children may find out about where computers are used at home and in school and experience sending messages by computer, learning about the importance of respecting computer equipment and being responsible when sending messages. They will know who to speak to should something online upset them.</i></p>	<ul style="list-style-type: none"> <li>▪ Recognise common uses of information technology beyond school.</li> </ul> <p><i>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.</i></p> <ul style="list-style-type: none"> <li>▪ 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.</li> </ul> <p><i>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.</i></p> <ul style="list-style-type: none"> <li>▪ vocabulary: attachment, email, internet, search, search engine.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.</li> </ul> <p><i>Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.</i></p> <ul style="list-style-type: none"> <li>▪ vocabulary: computer virus, cookies, copyright, digital footprint, email, malware, phishing, spam, search, website, internet, search engine, internet, internet browser.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.</li> </ul> <p><i>Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety</i></p> <ul style="list-style-type: none"> <li>▪ vocabulary: passwords, spoof website, computer virus, cookies, copyright, digital footprint, email, malware, phishing, spam, search, website, internet, search engine, internet, internet browser, Local Area Network (LAN), Wide Area Network (WAN), wireless, router, network,</li> </ul>
<b>Online Safety</b>	<ul style="list-style-type: none"> <li>▪ There are no specific Early Learning Goals for Computing. However, children will experience using information technology in school and outside in a variety of contexts to support their learning in other areas.</li> </ul> <p><i>Children will begin to understand more about the internet and the world wide web. They will experience using digital technology to share work on</i></p>	<ul style="list-style-type: none"> <li>• To know how to refine searches using the Search tool.</li> <li>• To know how to share work electronically using the display boards.</li> <li>• To use digital technology to share work on Purple Mash to communicate and connect with others locally.</li> <li>• To have some knowledge and understanding about sharing more globally on the Internet</li> <li>• To introduce Email as a communication tool</li> <li>• using 2Respond simulations.</li> <li>• To understand how we talk to others when they are not there in front of us.</li> <li>• To open and send simple online communications in the form of email.</li> <li>• To understand that information put online leaves a digital footprint or trail.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand how pupils can protect themselves from online identity theft.</li> <li>• Understand that information put online leaves a digital footprint or trail and that this can aid identity theft.</li> <li>• To Identify the risks and benefits of installing software including apps.</li> <li>• To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.</li> <li>• To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.</li> <li>• To identify the positive and negative influences of technology on health and the environment.</li> <li>• To understand the importance of balancing game and screen time with other parts of their lives.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify benefits and risks of mobile devices</li> <li>• broadcasting the location of the user/device, e.g. apps</li> <li>• accessing location.</li> <li>• Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon.</li> <li>• Identify the benefits and risks of giving personal information and device access to different software.</li> <li>• To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user.</li> <li>• To have a clear idea of appropriate online behaviour and how this can protect themselves and others</li> <li>• from possible online dangers, bullying and inappropriate behaviour.</li> </ul>

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	<p><i>PurpleMash. They will begin to understand that staying safe online means that an adult should know what they are looking at. They will know who to speak to should something online upset them.</i></p>	<ul style="list-style-type: none"> <li>• To begin to think critically about the information they leave online.</li> <li>• To identify the steps that can be taken to keep personal data and hardware secure</li> </ul>	<ul style="list-style-type: none"> <li>• To assess whether an information source is true and reliable.</li> </ul>	<ul style="list-style-type: none"> <li>• To begin to understand how information online can persist and give away details of those who share or modify it.</li> <li>• To understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health.</li> <li>• To identify the positive and negative influences of technology on health and the environment.</li> </ul>