



# Gladstone Road Primary School - Computing

## Curriculum Planning

### Intent

The National Curriculum provides a structure and skill development for the Computing curriculum being taught. This is linked to our Learning Missions to provide a creative approach tailored to our children's needs, which reflects a balanced programme of study.

- Pupils' computing education begins in the early years and builds year on year, developing pupils' expertise.
- Curriculum plans have been sequenced effectively to ensure that pupils know more, remember more and are able to do more. We do so via Launch, re Launch and Landing
- Golden Threads, based on the three key strands: Computer Science, Information Technology and Digital Literacy have been identified for each year group and underpin the key knowledge and concepts taught through our curriculum.
- The organisation of the curriculum builds knowledge so that pupils can draw on it in future learning.
- Vocabulary has been identified and outlined clearly so that this can be taught explicitly within lessons.
- Clearly defined end points have been identified to ensure that pupils build upon prior learning and develop their knowledge of key concepts.
- Pupils commit knowledge to their long-term memory through recalling and repeated practice outlined in plans.
- Curriculum plans ensure that pupils use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

### Implementation

We provide a range of opportunities and implement a range of teaching methods to ensure that over the course of study, teaching is designed to help learners to remember in the long term the content they have been taught and to integrate new knowledge into larger concepts.

- In EYFS, we implement technology through a wide range of technological toys. We use iPads to support reading, phonics and maths as well as teach children about the importance of keeping themselves safe when using electronic equipment and the internet.
- A well sequenced cycle of lessons carefully plans for progression and depth concentrating on the computing knowledge and skills suited to the age group.
- Lessons follow a consistent structure of: retrieval, explanation, application and assessment which may include such features as questioning, modelling, individual, partner, group or whole class activities.
- Learning Mission journeys reflect what is being taught, vocabulary, relevant diagrams, photos and knowledge organisers
- Learning mission books show a range of evidence and evidence high expectations.
- Our inclusive approach is demonstrated through the way in which tasks and activities are adapted to ensure that all pupils are able to access the curriculum.
- Through retrieval, teachers make sure that pupils can draw on what they already know so that they can remember more.
- Key vocabulary is explicitly taught to enable pupils to develop their range of geographical vocabulary and understanding.
- Assessment for learning strategies are used at the start, during and at the end of lessons to assess pupils' learning and identify any gaps or misconceptions.

### Impact

Our Computing Curriculum is high quality, well thought out and is planned to demonstrate progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- Pre and post unit assessments
- Assessment against 'End of Year Expectations' with clearly identified end points. These are then passed to the receiving teacher to ensure any gaps can be addressed when a key concept is revisited.
- Staff and volunteers are confident in online safety, identifying and responding to concerns.



GOLDEN THREADS	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p><b>Computer Science</b></p> <p>Uses ICT hardware to interact with age-appropriate computer software.</p>	<p><b>Technology has been removed from the Early Learning Goals.</b></p>	<ul style="list-style-type: none"> <li>• Understand algorithms are a set of precise instructions.</li> <li>• Create and debug simple programs.</li> </ul>	<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> <li>• Create and debug simple programs.</li> <li>• Use logical reasoning to predict the behaviour of simple programs.</li> </ul>	<ul style="list-style-type: none"> <li>• Can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts.</li> <li>• Designs show that they are thinking of the desired task and how this translates into code.</li> <li>• Identify errors within their program that prevents it following the desired algorithm and then fix it.</li> <li>• The 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the ability to design and code a program that follows a simple sequence.</li> <li>• Experiment with timers to achieve repetition effects in their programs.</li> <li>• Begin to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects.</li> <li>• Understand how variables can be used to store information while a program is executing.</li> </ul>	<ul style="list-style-type: none"> <li>• Translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures.</li> <li>• Combine sequence, selection and repetition with other coding structures to achieve their algorithm design.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<p><b>Information Technology</b></p> <p>Completes a simple program on electronic devices.</p> <p>Can create content such as a video recording, stories, and/or draw a picture on screen.</p>	<p><b>Technology has been removed from the Early Learning Goals.</b></p>	<ul style="list-style-type: none"> <li>• Use technology purposefully to create, store digital content. E.g. children can name, save and follow simple instructions to access online resources, design mode (manipulating backgrounds) or using pictogram software.</li> </ul>	<ul style="list-style-type: none"> <li>• Use technology purposefully to create, store and retrieve digital content.</li> <li>• Organise data using, for example, a database and can retrieve specific data for conducting simple searches.</li> <li>• Are able to edit more complex digital data such as music compositions.</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out simple searches to retrieve digital content.</li> <li>• Understand that to do this, they are connecting to the internet and using a search engine.</li> <li>• Collect, analyse, evaluate and present data and information using a selection of software,</li> <li>• Consider what software is most</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the function, features and layout of a search engine.</li> <li>• Appraise selected webpages for credibility and information at a basic level.</li> <li>• Make improvements to digital solutions based on feedback.</li> <li>• Make informed software choices when presenting information and data.</li> </ul>	<ul style="list-style-type: none"> <li>• Search with greater complexity for digital content when using a search engine.</li> <li>• Explain in some detail how credible a webpage is and the information it contains.</li> <li>• Make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution.</li> </ul>	<ul style="list-style-type: none"> <li>• Can readily apply filters when searching for digital content.</li> <li>• Are able to explain in detail how credible a webpage is and the information it contains.</li> <li>• They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy.</li> <li>• Use critical thinking skills in everyday use</li> </ul>



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			<ul style="list-style-type: none"> <li>• Are confident when creating, naming, saving and retrieving content.</li> <li>• Can use a range of media in their digital content including photos, text and sound.</li> </ul>	appropriate for a given task.	<ul style="list-style-type: none"> <li>• Share digital content within their community.</li> </ul>	<p>E.g. creating their own program to meet a design brief.</p> <ul style="list-style-type: none"> <li>• Review solutions from others.</li> <li>• Collaboratively create content and solutions using digital features within software such as collaborative mode.</li> <li>• Use several ways of sharing digital content.</li> </ul>	of online communication
<b>Digital Literacy</b>	<p><b>Technology has been removed from the Early Learning Goals.</b></p> <p>Develops digital literacy skills by being able to access, understand and interact with a range of technologies.</p> <p>Can use the internet with adult supervision to find and retrieve information of interest to them.</p>	<ul style="list-style-type: none"> <li>• Recognise common uses of information technology beyond school.</li> <li>• Use technology safely, keeping personal information private; identify where to go for help.</li> </ul>	<ul style="list-style-type: none"> <li>• Use technology safely and respectfully, keeping personal information private.</li> <li>• 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>	<ul style="list-style-type: none"> <li>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify how to report concern about content and contact.</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>	<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> <li>• Know appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.</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> <li>• To recognise the value in preserving privacy when online for their own and other people's safety.</li> </ul>



KS1 Medium Term Plans	Autumn Term	Spring Term	Summer Term
<b>Prior Knowledge (Retrieval)</b>	<b>KS1</b> <ul style="list-style-type: none"> <li>To explain what an algorithm is.</li> <li>Know the coding blocks timer and collision detection and explain their function.</li> <li>Explain what debugging is.</li> <li>To give examples of a digital footprint.</li> <li>To know what to do if they have concerns online.</li> </ul>	<b>KS1</b> <ul style="list-style-type: none"> <li>To explain what a spreadsheet is and give an example of how it can be used.</li> <li>To recognise the tools from 2Calculate, e.g. count tool, lock cell, move cell.</li> <li>To give examples of yes/no questions to sort information.</li> <li>To explain what a binary tree is and what is it used for.</li> </ul>	<b>KS1</b> <ul style="list-style-type: none"> <li>To know what a block graph is.</li> <li>Name and describe examples of how to present information.</li> <li>Name and describe different styles of art you could create in 2Paint.</li> </ul>
<b>Y3</b>	<b>Knowledge and Skills to be developed:</b> <p><b>Coding</b></p> <ul style="list-style-type: none"> <li>To understand what a flowchart is and how flowcharts are used in computer programming.</li> <li>To understand that there are different types of timers.</li> <li>To be able to select the right type of timer for a purpose.</li> <li>To understand how to use the repeat command.</li> <li>To understand the importance of nesting.</li> <li>To design and create an interactive scene.</li> </ul> <p><b>Online Safety</b></p> <ul style="list-style-type: none"> <li>To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away.</li> <li>To understand how the Internet can be used to help us to communicate effectively.</li> <li>To understand how a blog can be used to help us communicate with a wider audience.</li> <li>To consider if what can be read on websites is always true.</li> <li>To look at a 'spoof' website.</li> <li>To learn about the meaning of age restrictions symbols on digital media and devices.</li> <li>To discuss why PEGI restrictions exist.</li> </ul>	<b>Knowledge and Skills to be developed:</b> <p><b>Email</b></p> <ul style="list-style-type: none"> <li>To think about the different methods of communication.</li> <li>To open and respond to an email.</li> <li>To learn how to use email safely.</li> <li>To add an attachment to an email.</li> </ul> <p><b>Spreadsheets</b></p> <ul style="list-style-type: none"> <li>To add and edit data in a table layout.</li> <li>To find out how spreadsheet programs can automatically create graphs from data.</li> <li>To introduce the 'more than', 'less than' and 'equals' tools.</li> <li>To introduce the 'spin' tool and show how it can be used to count through times tables.</li> <li>To introduce the Advanced mode of 2Calculate.</li> </ul> <p><b>Branching Databases</b></p> <ul style="list-style-type: none"> <li>To complete a branching database using 2Question.</li> <li>To create a branching database of the children's choice.</li> </ul>	<b>Knowledge and Skills to be developed:</b> <p><b>Simulations</b></p> <ul style="list-style-type: none"> <li>To find out what a simulation is and understand the purpose of simulations.</li> <li>To explore a simulation, making choices and discussing their effects.</li> <li>To work through and evaluate a more complex simulation.</li> </ul> <p><b>Graphing</b></p> <ul style="list-style-type: none"> <li>To enter data into a graph and answer questions.</li> <li>To solve an investigation and present the results in graphic form.</li> </ul>



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		<b>Touch Typing</b> <ul style="list-style-type: none"> <li>To introduce typing terminology.</li> <li>To understand the correct way to sit at the keyboard.</li> <li>To practice the keys typed with the left hand.</li> <li>To practice the keys typed with the right hand.</li> </ul>		
<b>Future Learning</b>		<b>Year 4</b> To create a playable game. To understand how the IF/ELSE command works. To find out how to add formulae to a cell. To use the line graphing tool.	<b>Year 4</b> To use Logo. To search effectively. To assess if information is true and reliable.	<b>Year 4</b> To understand and name the different parts of a computer. To learn about animation by hand and how it can be done using technology. To learn about 'stop motion' animation.
<b>Vocabulary</b>	<b>All</b>	nest, predict, repeat, test, appropriate, personal information, keys, spacebar	email, inbox, more than, less than, equals, binary tree,	simulation, solution, row, column, chart, graph
	<b>Most</b>	timer, sequence, bug, verify, spoof, typing	attachment, compose, bar graph, data, branching database	decision, advantages, disadvantages, data, sorting
	<b>Some</b>	alert, action, reliable source, verify, posture	communication, CC, BCC, advanced mode,	point of view, investigation, survey, tally chart
<b>Quality Texts</b>		Level Up! Tom Nicoll		The History of the Computer - Rachel Ignatofsky
<b>National Curriculum</b>		Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Use technology safely, respectfully and responsibly.	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.	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.