



Gladstone Road Primary School Computing

Curriculum design, LTP & Vocabulary Progression 2020/2021

Our **intent** for Computing is to equip children for our ever-developing technological world and to ensure our children behave responsibly online. We are passionate about e safety and educating our children how to stay safe online.

Our **intent** is for children to:

- Achieve their absolute potential by having the highest expectations of their learning
- Be confident in the use of a range of technology and to understand its place in today's world
- Be confident to ask questions and extend their knowledge.
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.

We **implement** our Computing curriculum through:

- In EYFS, we implement technology through a wide range of technological toys. We use technology 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
- Our curriculum follows the scheme Purple Mash.
- Lesson plans reflect what is being taught, vocabulary, relevant diagrams, photos and knowledge organisers
- Computing journals that are high quality and show a range of evidence and evidence high expectations
- A **creative and innovative** approach using a range of high quality ICT resources
- Ensuring staff and volunteers are trained and confident in online safety, identifying and responding to concerns
- Teaching children and young people the skills to stay safe online using advised guidance and through nurture and relationships, mutual respect and trust
- Sharing helpful advice and resources with parents and carers
- Developing robust e-safety policies and procedures
- Regularly reviewing and improving our e-safety provision
- Logging and monitoring any concerns

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

The **impact** of this is our children understand the importance of staying safe online and what to do if they have any concerns.



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We also encourage our families to use the

NSPCC guidance found at: <https://www.nspcc.org.uk/preventing-abuse/keeping-children-safe/online-safety>

Here's what our children say:

"It's fun because you get to search about things and you get to learn more about technology." (Year 5 pupil)

"I know to tell an adult or teacher if something is worrying me online." (Year 4 pupil)

"I feel safe using the laptops in school." (Year 6 pupil)

"I like making games." (Year 2 pupil)



KS1	Autumn Term Me and My World			Spring Term Amazing Animals			Summer Term Pirates	
Y1	Online Safety & Exploring Purple Mash (Tools, Paint Projects) Skills ~ Logging in safely. ~ Find saved work in the Online Work area and find teacher comments. ~ Familiarity with the icons. ~ Add pictures and text to work. ~ Open, save and print. ~ Understand the importance of logging out	Grouping & Sorting (2DIY) Skills ~ Sort items using a range of criteria. ~ Sort items on the computer using the 'Grouping' activities in Purple Mash.	Pictograms (2Count) Skills ~ Understand that data can be represented in picture format. ~ Contribute to a class pictogram. ~ Use a pictogram to record the results of an experiment.	Lego Builders (2DIY) Skills ~ Compare the effects of adhering strictly to instructions to completing tasks without complete instructions. ~ Follow and create simple instructions on the computer. ~ Consider how the order of instructions affects the result.	Maze Explorers (2Go) Skills ~ Understand the functionality of the direction keys. ~ Understand how to create and debug a set of instructions (algorithm). ~ Use the additional direction keys as part of an algorithm. ~ Understand how to change and extend the algorithm list.	Animated Story Books (2Create a Story) Skills ~ Introduce e-books and the 2Create a Story tool. ~ Add animation to a story. ~ Add sound to a story, including voice recording and music the children have composed. ~ Work on a more complex story, including adding backgrounds and copying	Coding (2Code) Skills ~ Understand what coding means. ~ Use design mode to set up a scene. ~ Add characters. ~ Use code blocks to make the character perform actions. ~ Use collision detection. ~ Save and share work. ~ Know the save, print, open and new icon.	Spreadsheets (2Calculate) Skills ~ Know what a spreadsheet program looks like. ~ Know to open 2Calculate in Purple Mash. How to enter data into spreadsheet cells. ~ Use 2Calculate image tools to add clipart to cells. ~ Use 2Calculate control tools: lock, move cell, speak and count.



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					~ Create a longer algorithm for an activity. ~ Set challenges for peers. ~ Access peer challenges set by the teacher as 2dos.	and pasting pages. ~ Share e-books on a class display board.		
Vocabulary	log in username password avatar my work log out save notification topics tools	sort criteria	pictogram data collate	instruction algorithm computer program debug	direction challenge arrow undo rewind forward backwards right turn left turn debug instruction algorithm	animation e-book font file sound effect display board	action background button character code block code design coder coding collision detection command design mode input object program properties scale stop command sound when clicked when key	technology



KS1	Autumn Term			Spring Term			Summer Term	
	Space			Great Fire of London			The Lonely Beast	
Y2	Coding (2Code) Skills ~ Understand what an algorithm is. ~ Design algorithms and then code them. ~ Compare different object types. ~ Use the repeat command. ~ Use the timer command. ~ Know what debugging is and debug programs.	Digital Literacy (Digital Footprint Quiz) Skills ~ Know how to refine searches using the Search tool. ~ Use digital technology to share work on Purple Mash to communicate and connect with others locally. ~ Have some knowledge and understanding about sharing more globally on the Internet.	Spreadsheets (2Calculate) Skills ~ Use 2Calculate image, lock, move cell, speak and count tools to make a counting machine. ~ Copy and paste in 2Calculate. To use the totalling tools. ~ Use a spreadsheet for money calculations. ~ Use the 2Calculate equals tool to	Questioning Skills (2Question, 2Investigate) Skills ~ Learn about data handling tools that can give more information than pictograms. ~ Use yes/no questions to separate information. ~ Construct a binary tree to identify items. ~ Use 2Question (a binary tree	Effective Searching (Kiddle.co.uk, leaflet template) Skills ~ Understand the terminology associated with searching. ~ Gain a better understanding of searching on the Internet. ~ Create a leaflet to help someone search for information on the Internet.	Creating pictures (2Paint a Picture) Skills ~ Learn the functions of the 2Paint a Picture tool. ~ Learn about and recreate the Impressionist style of art (Monet, Degas, Renoir). ~ Recreate Pointillist art and look at the work of pointillist artists such as Seurat.	Making Music (2Sequence) Skills ~ Make music digitally using 2Sequence. ~ Explore, edit and combine sounds using 2Sequence. ~ Edit and refine composed music. ~ Know how music can be used to express feelings and create tunes which depict feelings. ~ Upload a sound from a bank of sounds into the Sounds section.	Presenting ideas (2Quiz, UK Factfile) Skills ~ Explore how a story can be presented in different ways. ~ Make a quiz about a story or class topic. ~ Make a fact file on a non-fiction topic. ~ Make a presentation to the class.



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		<ul style="list-style-type: none"> ~ Know Email as a communication tool using 2Respond simulations. ~ Know how we should talk to others in an online situation. ~ Open and send simple online communications in the form of email. ~ Understand that information put online leaves a digital footprint or trail. ~ Identify the steps that can be taken to keep personal data and hardware secure 	<ul style="list-style-type: none"> check calculations. ~ Use 2Calculate to collect data and produce a graph. 	<ul style="list-style-type: none"> database) to answer questions. ~ Use a database to answer more complex search questions. ~ Use the Search tool to find information. 		<ul style="list-style-type: none"> ~ Learn about the work of Piet Mondrian and recreate the style using the lines template. ~ Learn about the work of William Morris and recreate the style using the patterns template. 	<ul style="list-style-type: none"> ~ Record and upload environmental sounds into Purple Mash. ~ Use the sounds to create tunes in 2Sequence. 	
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Vocabulary	action algorithm bug character code block code design command debug/debugging design mode input object properties repeat scale time when clicked when key	search internet sharing email digital footprint attachment	backspace key columns cells count tool delete key equals tool image toolbox lock tool move cell tool rows speak tool spreadsheet	pictogram question data collate binary tree avatar database	internet search search engine	impressionism palette pointillism share template	BPM composition digitally instrument music sound effects soundtrack tempo volume	concept map (mind map) node animated quiz non fiction presentation narrative audience
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Low er KS2	Autumn Term			Spring Term			Summer Term	
Y3	Coding (2Code) Skills ~ Design algorithms using flowcharts. ~ Design an algorithm that represents a physical system and code this representation. ~ Use selection in coding with the 'if' command. ~ Use variables in 2Code. ~ Deepen understanding	Online Safety (2Blog, 2Write) Skills ~ Know what makes a safe password/methods for keeping passwords safe. ~ Know the Internet can be used in effective communication. ~ Understand how a blog can be used to communicate with a wider audience.	Spreadsheets (2Calculate) Skills ~ Use the symbols more than, less than and equal to, to compare values. ~ Use 2Calculate to collect data and produce a variety of graphs. ~ Use the advanced mode of 2Calculate to learn about cell references.	Touch typing (2Type) Skills ~ Know typing terminology. ~ Sit the correct way at the keyboard. ~ Learn how to use the home, top and bottom row keys. ~ Practice typing with the left and right hand.	Email (2Email, 2Connect, 2DIY) Skills ~ Know about different methods of communication. ~ Open and respond to an email using an address book. ~ Learn how to use email safely. ~ Add an attachment to an email. ~ Explore a simulated email scenario.	Branching Databases (2Question) Skills ~ Sort objects using just 'yes' or 'no' questions. ~ Work a branching database using 2Question. ~ Create a branching database of the children's choice.	Simulations (2Simulate) Skills ~ Know what simulations are. ~ Explore a simulation. ~ Analyse and evaluate a simulation.	Graphing (2Graph) Skills ~ Enter data into a graph and answer questions. ~ Solve an investigation and present the results in graphic form.



	of the different between timers and repeat commands.	~ Consider the truth of the content of websites. ~ Know about the meaning of age restrictions symbols on digital media and devices.						
Vocabulary	action algorithm bug code block code design command control bug/debugging design mode event if input output object properties repeat computer simulation selection timer variable	password internet blog concept map username website webpage spoof website PEGI rating	<>= advance mode copy and paste columns cells delete key equals tool move cell tool rows spin tool spreadsheet	posture top row keys home row keys bottom row keys space bar	communication email compose send report to teacher attachment address book save to draft password cc formatting	branching database data database question simulation	Simulation	graph field data bar chart block graph line graph



Low er KS2	Autumn Term			Spring Term Greeks			Summer Term Yorkshire	
	Y4							
	Coding (2Code) Skills ~ 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	Online Safety (2Connect, 2Investigate) Skills ~ 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	Spreadsheets (2Calculate) Skills ~ Formatting cells as currency, percentage, decimal to different places or fraction. Using the formula wizard to calculate averages. Combining tools to make spreadsheet activities	Writing for Different Audiences (2Email, 2DIY, 2Connect) Skills ~ Explore how font size and style can affect the impact of a text. ~ Use a simulated scenario to produce a news report. ~ Use a simulated scenario to write for a community campaign.	Logo (Logo) Skills ~ Learn the structure of the coding language of Logo. ~ Input simple instructions in Logo. ~ Using 2Logo to create letter shapes. ~ Use the Repeat function in Logo to create shapes.	Animation (2Animate) Skills ~ Discuss what makes a good animated film or cartoon. ~ Learn how animations are created by hand. ~ Find out how 2Animate can be created in a similar way using the computer. ~ Learn about onion skinning in animation. ~ Add backgrounds	Effective searching (Browser) Skills ~ Locate information on the search results page. ~ Use search effectively to find out information. ~ Assess whether an information source is true and reliable.	Hardware Investigators (2Connect, 2Quiz) Skills ~ Understand the different parts that make up a computer. ~ Recall the different parts that make up a computer.



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	<p>to determine the repeat. To learn about and use computational thinking terms decomposition and abstraction.</p>	<p>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 contributing to collaborative online projects for learning. To identify the positive and negative influences of technology on health and the environment. To understand the importance of balancing game and screen time</p>	<p>such as timed times tables tests. Using a spreadsheet to model a real-life situation. To add a formula to a cell to automatically make a calculation in that cell.</p>		<p>~ Use and build procedures in Logo.</p>	<p>and sounds to animations. ~ Learn about 'stop motion' animation. ~ Share animation on the class display board and by blogging.</p>		
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		with other parts of their lives.						
Vocabulary	Action Alert Algorithm Bug Code Design Command Control Debug/Debugging Design Mode Event Get Input If If/Else Input Output Object Repeat Selection Simulation Timer Variable	Computer virus Cookies Copyright Digital footprint Email Identity theft Malware. Phishing Plagiarism Spam	Average Advance mode Copy and Paste Columns Cells Charts Equals tool Formula Formula Wizard Move cell tool Random tool Rows Spin Tool Spreadsheet Timer	Font Bold Italic Underline	LOGO BK FD RT LT REPEAT SETPC SETPS PU PD	Animation Flipbook Frame Onion - skinning Background Play Sound Stop motion Video clip	Easter egg Internet. Internet browser Search Search engine Spoof website Website	Motherboard CPU RAM Graphics card Network card Monitor Speakers Keyboard and mouse



Upper KS2	Autumn Term Beside the Seaside			Spring Term Egypt		Summer Term Local Area - York	
Y5	Coding (2Code) Skills ~ Represent a program design and algorithm. ~ Create a program that simulates a physical system using decomposition. ~ Explore string and text variable types so that the most appropriate can be used in programs.	Online Safety Skills (2Connect, 2Paint a Picture) ~Gain a greater understanding of the impact that sharing digital content can have. ~ Review sources of support when using technology and children's responsibility to one another in their online behaviour.	Spreadsheets Skills (2Calculate) ~ Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell. ~ Copy and paste within 2Calculate. ~ Using 2Calculate tools to test a hypothesis. ~ Add a formula to a cell to	Databases Skills (2Question, 2Investigate) ~ Learn how to search for information in a database. ~ Contribute to a class database. ~ Create a database around a chosen topic.	Game Creator Skills (2DIY 3D) ~ Set the scene for the game. ~ Create the game environment. ~ Create the game quest. ~ Finish and share the game. ~ Evaluate their and peers' games.	3D Modelling Skills (2Design and Make) ~ Know about 2Design and Make and the skills of computer aided design. ~ Explore the effect of moving points when designing. ~ Understand designing for a purpose. ~ Understand printing and making.	Concept Skills (2Connect) ~ Understand the need for visual representation when generating and discussing complex ideas. ~ Use the correct vocabulary when creating a concept map. ~ Create a concept map. ~ Understand how a concept map can be used to retell stories and



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	<ul style="list-style-type: none"> ~ Use the Launch command in 2Code Gorilla ~ Program a playable game with timers and scorepad. 	<ul style="list-style-type: none"> ~ Know how to maintain secure passwords. ~ Understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. ~ Be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. ~ Learn about how to reference sources in their work ~ Search the Internet with a consideration for the reliability of the 	<ul style="list-style-type: none"> automatically make a calculation in that cell. ~ Using a spreadsheet to model a real-life situation and answer questions. 				<p>present information.</p> <ul style="list-style-type: none"> ~ Create a collaborative concept map and present this to an audience.
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		results of sources to check validity and understand the impact of incorrect information.					
Vocabulary	If/Else Input Output Object Repeat Sequence Selection Simulation Timer Variable	Online safety Smart rules Password Reputable Encryption Identity theft Shared image Plagiarism Citations Reference Bibliography	Average Advance mode Copy and Paste Columns Cells Charts Equals tool Formula Formula Wizard Move cell tool Random tool Rows Spin Tool Spreadsheet Timer	Avatar Binary tree (branching database) Charts Collaborative Data Database Find Record Sort, Group and Arrange Statistics and reports Table	Animation Computer game Customise Evaluation Image Instructions Interactive Screenshot Texture Perspective Playability	CAD – Computer aided Design Modelling 3D Viewpoint Polygon 2D Net 3D Printing Points Template	Audience Collaboratively Concept Concept Map Connection Idea Node Thought Visual



Upper KS2	Autumn Term World War 2			Spring Term Rainforests			Summer Term London	
Y6	Coding (2Code) Skills ~ 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.	Online Safety (2DIY, 2Investigate, 2DIY 3D) Skills ~ 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.	Spreadsheet (2Calculate) Skills ~ 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. ~ Create graphs showing the data collected.	Blogging (2Blog) Skills ~ Identify the purpose of writing a blog and its key features. ~ Plan the theme and content for a blog and write the content. ~ Consider the effect upon the audience of changing the visual properties of the blog.	Text Adventure (2Code, 2Connect) Skills ~ Find out what a text adventure is. ~ Plan a story adventure. ~ Make a story-based adventure. ~ Introduce map-based text adventures. ~ Code a map-based text adventure.	Networks (Sir Tim Berners-Lee Profile, 2Connect) Skills ~ Learn about what the Internet consists of. ~ Find out what a LAN and a WAN are. ~ Find out how the Internet is accessed in school. ~ Research and find out about the age of the Internet.	Quizzing (2Quiz, 2DIY, 2Investigate, 2Connect) Skills ~ Create a picture-based quiz for young children. ~ Learn how to use the question types within 2Quiz. ~ Explore the grammar quizzes. ~ Make a quiz that requires the player to search a database.	Binary (2Connect, 2Question, Free Code) Skills ~ Know what the terms binary and denary mean and how they relate to the number system, the digital system and the terms base-10 and base-2 ~ Relate binary to the on and off states of electrical switches. ~ Convert numbers from



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	<ul style="list-style-type: none"> ~ Code, test and debug from these designs. ~ Use functions and tabs in 2Code to improve the quality of the code. ~ Code user interactivity using input functions 	<ul style="list-style-type: none"> ~ Review the meaning of a digital footprint. ~ Have a clear idea of appropriate online behaviour. ~ Begin to understand how information online can persist. ~ Understand the importance of balancing game and screen time with other parts of their lives. ~ Identify the positive and negative influences of technology on health and the environment. 	<ul style="list-style-type: none"> ~ 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. 	<ul style="list-style-type: none"> ~ Understand the importance of regularly updating the content of a blog. ~ Understand how to contribute to an existing blog. ~ Understand how and why blog posts are approved by the teacher. 		<ul style="list-style-type: none"> ~ Think about what the future might hold. 		<ul style="list-style-type: none"> decimal to binary. ~ Convert numbers from binary to decimal. ~ Represent states of object in their own program using binary.
Vocabulary	Action Alert Algorithm Bug	Digital footprint Password PEGI rating Phishing	Average Advance mode Copy and Paste	Audience Blog Blog page Blog post	Text-based adventure Concept map Debug	Internet World Wide Web Network	Audience Collaboration Concept map Database	Base 10 Base 2 Binary Bit



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Code Design Command Control Debug/Debugging Event Function Get Input If If/Else Input Output Object Repeat Sequence Selection Simulation Tabs Timer Variable	Screen time Spoof website	Columns Cells Charts Count (how many) tool Dice Equals tool Formula Formula Wizard Move cell tool Random tool Rows Spin Tool Spreadsheet Timer	Collaborative Icon	Sprite Function	Local area network (LAN) Wide area network (WAN) Router Network cables Wireless	Quiz	Byte Decimal Denary Digit Gigabyte (GB). Integer Kilobyte (KB) Machine code Megabyte (MB) Nibble – 4 bits. Switch Tetrabyte (TB) Transistor Variable
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