







## Computing Long Term Plan

### ***Journeying together with hope and aspiration***

*At Parish, we value each person as they are, seeing every member of our school family as a precious, unique individual and treating them with **dignity**. Seeking first to understand through the building of relationships, we live in a **community** of **hope**. We aspire to enable each person to be a curious learner, inspired to develop the knowledge and **wisdom** to make the world a better place. We strive to encourage all to fulfil their God-given potential, having a confidence in transformation for the better.*

### **How does our vision impact Computing at Parish?**

Inspired by our Church school vision, we use our core four values to guide all aspects of our thinking and practice. Below is an explanation of how each of the core four impacts upon the teaching and learning of Computing at Gainsborough Parish.

<div style="text-align: center;">  <p><b>Dignity</b></p> </div> <p>Our children will be taught to be responsible, competent, confident and creative users of information and communication technology.</p>	<div style="text-align: center;">  <p><b>Community</b></p> </div> <p>Computing is a subject that allows children to communicate and gain information from all over the world to grow their knowledge and participation in the largest community known. This is done at a level suitable for the future workplace and allows them to be active participants in a digital world.</p>
<div style="text-align: center;">  <p><b>Hope</b></p> </div> <p>Through a Computer Science rich curriculum our computing curriculum will equip pupils to use computational thinking and creativity to understand and change the world.</p>	<div style="text-align: center;">  <p><b>Wisdom</b></p> </div> <p>We strive to provide a Computing curriculum that teaches children the principles of information and computation and how to put this knowledge to use through programming</p>

EYFS	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
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<u>Characteristics of effective learning</u>	<p>Children will engage in their learning through the characteristics of effective teaching and learning.</p> <p>The three characteristics of effective teaching and learning are:</p> <ul style="list-style-type: none"> <li>● <b>Playing and exploring</b> – children investigate and experience things and have a go</li> <li>● <b>Active learning</b> – children concentrate and keep on trying if they encounter difficulties and enjoy achievements</li> <li>● <b>Creating and thinking critically</b> – children have and develop their own ideas, make links between their ideas and develop strategies for doing things</li> </ul>
<p><b>How might Computing look within EYFS? Development Matters statements in bold</b> (Examples of what this could look like)</p>	<p>The new EYFS framework does not cover technology, however, the children at Gainsborough Parish will still have ample opportunities to engage with technology through their learning and provision.</p> <p>This could be shown through: A range of technological resources e.g phones, keyboards, microwave,, torches, beebots, access to interactive SMART board, cameras, microscopes, range of toys, stopwatches, laptops, iPads, calculators, CD player etc.</p> <p>Children will build up computing skills through: Individual log on to Oxford Owl Reading Platform, use of iPads, unplugged algorithms through giving directions and use of beebots.</p> <p>Children to understand the wider use of technology and participate in school learning walks to identify different technological uses and their purposes.</p> <p>Parents/carers will be encouraged to share how children engage with technology at home through Tapestry.</p> <p>Key texts and stories will be used to expose the children to different technologies and moral stories about online safety.</p> <p>Children will develop an awareness of how to keep themselves safe online through E-safety Day and classroom teaching.</p>
<b>Vocabulary</b>	<p>Computing vocabulary children may be exposed to: Technology, internet, iPad, app, camera, switch, digital, website, mobile phone, computer, laptop, mouse, keyboard, click, open, close, program, type, record, play, headphones, speaker, volume</p> <p><u>Key vocab concepts supported by Word Aware</u></p>

Cycle A		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
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	Year 1/2	Data and information	Creating media	Programming B	Data and information	Creating media	Programming B	
		1.4 Grouping data	1.5 Digital Writing	1.6 Programming animations	2.4 Pictograms	2.5 Digital music	2.6 Programming quizzes	
		Education for a Connected World						
		Copyright and Ownership	Privacy and Security		Self-image and Identity Health, Wellbeing and Lifestyle Privacy and Security	Copyright and Ownership		
	Year 3/4	Data and information	Creating media	Programming A	Data and information	Creating media	Programming B	
		3.4 Branching databases	3.5 Desktop publishing	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games	
		Education for a Connected World						
			Managing Online Information Copyright and Ownership			Self-image and Identity		
	Year 5/6	Data and information	Creating media	Programming B	Data and information	Creating media	Programming B	
		5.4 Flat-file databases	5.5 Introduction to vector graphics	5.6 Selection in quizzes	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movement	
		Education for a Connected World						
					Managing Information	Online Privacy and Security		

Cycle B		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
	Year 1/2	Computing systems and networks	Creating media	Programming A	Computing systems and networks	Creating media	Programming A	
		1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	
		Education for a Connected World						
		Health, Wellbeing and Lifestyle Copyright and Ownership			Health, Wellbeing and Lifestyle	Self-image and Identity		
	Year 3/4	Computing systems and networks	Creating media	Programming A	Computing systems and networks	Creating media	Programming B	
		3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	4.1 The internet	4.2 Audio production	3.6 Events and actions in programs	
		Education for a Connected World						
			Managing Online Information Copyright and Ownership		Managing Online Information	Copyright and Ownership		
	Year 5/6	Computing systems and networks	Creating media	Programming A	Computing systems and networks	Creating media	Programming A	
		5.1 Systems and searching	5.2 Video production	5.3 Selection in physical computing	6.1 Communication and collaboration	6.2 Webpage creation	6.3 Variables in games	
		Education for a Connected World						
		Managing Information Online			Online Relationships Copyright and Ownership	Online Relationships Managing Information Online Copyright and Ownership		

## Computing Curriculum Cycle A

KS1 Focus	Learning Why this, why now?	Lower KS2 Focus	Why this, why now??	Upper KS2 Focus	Why this, why now?
<b>Data and information</b>  <b>1.4 Grouping data</b>	This builds on work in EYFS where pupils group and sort objects as children further explore object labels and use them to sort and group objects by properties. This prepares pupils for using data in all future units.	<b>Data and information</b>  <b>3.4 Branching databases</b>	This builds on <b>Grouping Data</b> in KS1 by teaching children to build and use branching databases to group objects. This prepares pupils for <b>flat-file databases</b> in UKS2.	<b>Data and information</b>  <b>5.4 Flat-file databases</b>	This builds on <b>Branching databases</b> in LKS2 as pupils use a database to order data and create charts to answer questions.
	<b>Key Vocabulary:</b> Object, label, group, search, image, property, colour, size, shape, data set, value, more, less, most, fewest, the same.		<b>Key Vocabulary:</b> Attribute, value, questions, table, objects, branching database, database, attribute, value, questions, objects, equal, even, separate, compare, organise, order, j2data, selecting, pictogram, decision tree.		<b>Key Vocabulary:</b> Database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.
<b>Creating media</b>  <b>1.5 Digital Writing</b>	This builds on EYFS where pupils have input information into iPads, laptops and other devices as pupils use a computer to create and format text. This prepares pupils for <b>Desktop Publishing</b> in LKS2.	<b>Creating media</b>  <b>3.5 Desktop publishing</b>	This builds on <b>Digital Writing</b> in KS1 as pupils learn to create documents by modifying text, images, and page layouts for a specified purpose. This prepares pupils for <b>Introduction to vector graphics</b> in UKS2.	<b>Creating media</b>  <b>5.5 Introduction to vector graphics</b>	This builds on <b>Desktop Publishing and Photo Editing</b> in LKS2 as pupils create images in a drawing program by using layers and groups of objects.
	<b>Key Vocabulary:</b> Word processor, keyboard, keys, letters, Microsoft Word, Google Docs, Teams, account, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, cursor, select, font, undo.		<b>Key Vocabulary:</b> Text, images, advantages, disadvantages, communicate, font, font style, communicate, template, landscape, portrait, orientation, placeholder, desktop publishing, copy, paste, layout, purpose, desktop publishing, benefits		<b>Key Vocabulary:</b> Vector, drawing tools, shapes, object, icons, toolbar, move, resize, colour, rotate, duplicate/copy, organise, zoom, select, rotate, object, alignment grid, resize, handles, consistency, modify, layers, object, front, back, order, Copy, paste, group, ungroup, duplicate, object, vector drawing, reuse, Improvement, evaluate, alternatives.
<b>Programming B</b>  <b>1.6 Programming animation</b>	This builds on EYFS where pupils have input information into iPads, laptops and other devices as pupils now design and programme the movement of a character on screen to tell stories. This prepares pupils for <b>Programming</b> later in KS1 and in LKS2.	<b>Programming A</b>  <b>4.3 Repetition in shapes</b>	This builds on <b>Programming Animation and Moving a robot</b> in KS1 as pupils manipulate digital images and reflect on the impact of changes and whether the required purpose is fulfilled. This prepares pupils for <b>Selection in quizzes</b> in UKS2.	<b>Programming B</b>  <b>5.6 Selection in quizzes</b>	This builds on <b>Repetition in Shapes</b> in LKS2 as pupils explore selection in programming to design and code an interactive quiz.
	<b>Key Vocabulary:</b> Forwards, backwards, turn, clear, go, commands, Instructions,		<b>Key Vocabulary:</b> Code snippet, program, turtle , commands, algorithm, design, logo, debug, Pattern, repeat, repetition, count controlled loop, algorithm, value, repeat, repetition, count-		<b>Key Vocabulary:</b> Selection, condition, true, false, count controlled loop, outcomes, conditional statement algorithm, program, debug, input,

	directions, Left, right, turn, plan, algorithm, program, route.		controlled loop, trace, value, repeat, count controlled loop, decompose, procedure,		program, implement, design, test, run, program, setup, selection, share, evaluate, constructive.
<b>Data and information</b>  2.4 Pictograms	This builds on EYFS where pupils have grouped objects and taken part in physical voting activities by teaching them how to organise and present data on a computer. This prepares pupils for <b>Data Logging</b> in LKS2.	<b>Data and information</b>  4.4 Data logging	This builds on from <b>Pictograms</b> in KS1 by teaching children how and why data is collected over time, before using data loggers to carry out an investigation. This prepares pupils for <b>Introduction to spreadsheets</b> in UKS2.	<b>Data and information</b>  6.4 Introduction to spreadsheets	This builds on <b>Data Logging</b> in LKS2 as pupils use spreadsheets to organise data. This introduces spreadsheets in readiness for KS3 curriculum
	<b>Key Vocabulary:</b> More than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, data, tally chart, compare, count, explain, more, less, most, least, more common, least common, attribute, group, same, different, most popular, least popular, conclusion,		<b>Key Vocabulary:</b> Data, table (layout), input device, sensor, data logger, logging, data point, interval, data set, import, export, analyse, logged, collection, review, conclusion.		<b>Key Vocabulary:</b> Data, format, rows, column, formula, charts, evaluate, duplicate, cell, structure, spreadsheet, cell-reference, operation, multiple cells, calculate, tool, application, table
<b>Creating media</b>  2.5 Digital music	This builds on exploration of both instruments and digital technology in EYFS as pupils use a computer as a tool to explore rhythms and melodies, before creating a musical composition. This prepares pupils for input output work needed in future units in LKS2; <b>Photo editing</b> .	<b>Creating media</b>  4.5 Photo editing	This builds on input, output work in KS1 unit <b>Digital music</b> and <b>Digital photography</b> as pupils extend their learning to how to edit images by learning how to recolour, crop, rotate, clone and combine images.	<b>Creating media</b>  6.5 3D modelling	This builds on <b>Introduction to vector graphics</b> earlier in UKS2 as pupils produce 3D models, working in a 3D space, moving, resizing, and duplicating objects.
	<b>Key Vocabulary:</b> Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, rhythm, notes, instrument, create, emotion, pulse/beat, open, edit		<b>Key Vocabulary:</b> Image, edit, arrange, select, digital, crop, undo, copyright, composition, edit, save, pixels, crop, rotate, flip, image, adjustments, effects, colours, hue/saturation, sepia, save, version, illustrator, vignette, retouch, clone, recolour, magic wand, select, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font style, shapes, border, layer.		<b>Key Vocabulary:</b> 2D, 3D, Project, relative, dimension, modelling, combine, construct, evaluate, view, resize, recolour, Perspective, select, modify, handles, lift, lower, rotate, duplicate, hollow
<b>Programming B</b>	This builds on the earlier KS1 unit <b>Programming animations</b> as pupils design algorithms and programs that use events to trigger sequences of code to make an interactive quiz. This prepares pupils for LKS2 units;	<b>Programming B</b>	This builds on <b>Programming quizzes</b> in KS1 and the earlier LKS2 unit <b>Repetition in shapes</b> as pupils now use a block-based programming language to explore count-controlled and infinite loops when creating a game.	<b>Programming B</b>	This is the final unit of programming where pupils will revisit and bring together elements of all the four programming constructs: sequence from KS2 to overlearn and help keep these in their long term memory as they are introduced to Micro:bits.

2.6 Programming quizzes	<b>Repetition in shapes and Repetition in games.</b>	4.6 Repetition in games		6.6 Sensing movement	
	<b>Key Vocabulary:</b> Sequence, command, program, run, program, start, outcome, predict, blocks, sprite, algorithm, blocks, design, sequence, actions, sprite, blocks, design, modify, change, match, compare, design, debug, program, features, evaluate.		<b>Key Vocabulary:</b> Scratch, programming, sprite, blocks, code, loop, repeat, value, block, repeat, forever, infinite loop, count, controlled loop, costume, repetition, animate, costume, event block, duplicate, block, modify, design, sprite, algorithm, debug, refine, evaluate		<b>Key Vocabulary:</b> Sensing, Micro:bit, step counter, transfer, environment, selection, determine, sense, controllable device, algorithm, bug, emulator, USB, interactive, project, conditions.

## Computing Curriculum Cycle B

KS1 Focus	Why this, why now?	Lower KS2 Focus	Why this, why now??	Upper KS2 Focus	Why this, why now?
<b>Computing systems and networks</b>  1.1 Technology around us	This builds on exploration of the world around them in EYFS as children recognise technology in school and using it responsibly. This supports children with all future units.	<b>Computing systems and networks</b>  3.1 Connecting computers	This builds on KS1 unit <b>Technology around us</b> as pupils identify that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks. This prepares them for future units involving input/output including <b>Systems and searching</b> in UKS2.	<b>Computing systems and networks</b>  5.1 Systems and searching	This builds on <b>Connecting computers</b> in LKS2 as pupils understand computer systems and how information is transferred between systems and devices. This supports pupils key understanding of computer science as they move into KS3.
	<b>Key Vocabulary:</b> Technology, help, support, desk, computer mouse/trackpad, keyboard, screen, click, drag, double click, input, device, shift, space bar, capital letter, full stop, safely, responsibly, computer, technology.		<b>Key Vocabulary:</b> Digital device, input, output, process, program, connection, network, network switch, server, WAP wire access point		<b>Key Vocabulary:</b> Collaboration  input, output, real-world system, physical and electronic connections, search engine, result, refine, specific, web crawler, ranking, limitations
<b>Creating media</b>  1.2 Digital painting	This builds on practical painting and use of ipads in EYFS as children now choose appropriate tools in a program to create art and make comparisons with working non-digitally. This prepares pupils for creating media in LKS2 through <b>Photo editing</b> and <b>Stop-frame animation</b>	<b>Creating media</b>  3.2 Stop-frame animation	This builds on KS1 units <b>Digital music</b> and <b>Digital painting</b> as pupils capture and edit digital still images to produce a stop-frame animation that tells a story. This prepares pupils for <b>3D modelling</b> and <b>Video production</b> in UKS2.	<b>Creating media</b>  5.2 Video production	This builds on <b>Stop-frame animation</b> and <b>Photo editing</b> in LKS2 and earlier UKS2 learning in <b>3D modelling</b> as pupils plan, capture, and edit video to produce a short film. This prepares pupils for further data representation work in KS3.
	<b>Key Vocabulary:</b> paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool, Henri Matisse, shape tool,		<b>Key Vocabulary:</b> Animation, flip book, stop-frame animation, frame, sequence, image, photograph, setting, character, events, stop frame animation, onion		<b>Key Vocabulary:</b> Video, audio, recording, storyboard, script, soundtrack, dialogue, recording, capture, zoom, storage, digital, tape, AV (audio-visual), save,

	fill tool, Wassily Kandinsky, tools, feelings, colour, brush style, Georges Seurat, Pointillism, brush size, p, painting, computers.		skinning, consistency, delete, frame, evaluating, media, import, transition.		videographer Video techniques: Zoom, pan, tilt, angle, Video, lighting, setting, YouTuber, content, light, audio/sound, camera angle, colour, export, computer,
<b>Programming A</b> <b>1.3 Moving a robot</b>	This builds on pupils' exploration of BeeBots from EYFS as they write short algorithms and programs for floor robots, and predict program outcomes. This prepares pupils for further programming work in LKS2 in <b>Repetition in games</b> and <b>Sequencing sounds</b>	<b>Programming A</b>  <b>3.3 Sequencing sounds</b>	This builds on from KS1 learning <b>Programming quizzes</b> and <b>Moving a robot</b> and the earlier KS2 unit <b>Repetition in games</b> as pupils create sequences in a block-based programming language to make music. This prepares pupils for further programming units in UKS2; <b>Sensing movement</b> and <b>Selection in physical computing</b>	<b>Programming A</b>  <b>5.3 Selection in physical computing</b>	This builds on from LKS2 learning; <b>Repetition in games</b> and <b>Sequencing sounds</b> as pupils explore conditions and selection using programmable microcontroller. This prepares pupils to understand algorithms in KS3.
	<b>Key Vocabulary:</b> Scratch Jr, Bee-Bot, command, sprite, compare, programming, programming area, Block, joining, command, start block, run, program, background, delete, reset, algorithm, predict, effect, change, value, Instructions, appropriate, design.		<b>Key Vocabulary:</b> Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, programming blocks, motion, turn, point in direction, go to, glide, sequence, event, task, design, code, run the code, sequence, order, note, chord, algorithm, bug, debug.		<b>Key Vocabulary:</b> Microcontroller, Crumble controller, components, LED, sparkle, crocodile clips, connect, battery box, program, repetition, infinite loop, count controlled loop, condition, true, false, input, output devices, selection, condition, action, Task, design,
<b>Computing systems and networks</b>  <b>2.1 Information technology around us</b>	This builds on the knowledge and uses of technology in the wider world started in EYFS and the earlier KS1 unit <b>Technology around us</b> as pupils identify IT and how its responsible use improves our world in school and beyond. This prepares pupils for the LKS2 units <b>Connecting computers</b> and <b>The internet</b> .	<b>Computing systems and networks</b>  <b>4.1 The internet</b>	This builds on the KS1 unit <b>Technology around us</b> and earlier LKS2 unit <b>Connecting computers</b> as pupils recognise the internet as a network of networks including the WWW, and why we should evaluate online content. This prepares pupils for UKS2 learning <b>Systems and searching</b> and <b>Communication and collaboration</b> .	<b>Computing systems and networks</b>  <b>6.1 Communication and collaboration</b>	This builds on LKS2 units <b>Connecting computers</b> and <b>The internet</b> as pupils explore how data is transferred over the internet. This prepares pupils for KS3 where they will use the internet across the curriculum to support and extend their learning.
	<b>Key Vocabulary:</b> Information technology (IT), computer, barcode, scanner/scan.		<b>Key Vocabulary:</b> Internet, network, router, network security, network switch, server, WAP wire access point, Website, web page, web address, router, routing, route tracing, browser, World Wide, , content, links, files, content, download, sharing,		<b>Key Vocabulary:</b> System, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide,

			ownership, permission, Information, accurate, honest, adverts		
<b>Creating media</b> <b>2.2 Digital photography</b>	This build on the different ways to capture objects started in EYFS and the earlier KS1 unit <b>Digital painting</b> as pupils capture and change digital photographs for different purposes. This prepares pupils for LKS2 learning <b>Stop-frame animation</b> and <b>Audio production</b> .	<b>Creating media</b>  <b>4.2 Audio production</b>	This builds on KS1 units <b>Digital painting</b> and <b>Digital photography</b> and the earlier LKS2 unit <b>Stop-frame animation</b> as pupils capture and edit audio to produce a podcast, ensuring that copyright is considered This prepares pupils for UKS2 units <b>Video production</b> and <b>Webpage creation</b> .	<b>Creating media</b> <b>6.2 Webpage creation</b>	This builds on LKS2 unit <b>Stop-frame animation</b> and <b>Audio production</b> and the earlier UKS2 unit <b>Video production</b> as pupils are introduced to the creation of websites for a chosen purpose. This supports KS3 learning
	<b>Key Vocabulary:</b> Device, camera, photograph, capture, image, digital, Landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject matter, compose, natural lighting, artificial lighting, flash, focus, background, editing, tools, colour, filter,		<b>Key Vocabulary:</b> Audio, record, playback, microphone, speaker, headphones, input, output, audio, sound, record, playback, start, pause, stop, podcast, save, file, selection, open, save, mixing, time shift, export, MP3, audio, editing, evaluate, feedback.		<b>Key Vocabulary:</b> Revises, explore, HTML, fair use, copyright, copyright-free images, preview, own web page/home page, navigation path, hyperlinks,
<b>Programming A</b> <b>2.3 Robot algorithms</b>	This builds on children’s problem solving learning in EYFS as they create and debug programs using logical reasoning to make predictions. This prepares children for LKS2 units <b>Sequencing sounds</b> and <b>Events and actions in programs</b> .	<b>Programming B</b>  <b>3.6 Events and actions in programs</b>	This builds on KS1 units of <b>Robot algorithms</b> and <b>Moving a robot</b> and earlier LKS2 unit <b>Sequencing sounds</b> as children write algorithms and programs that use a range of events to trigger sequences of actions. This prepares them for the UKS2 units <b>Selection in physical computing</b> and <b>Variables in games</b> .	<b>Programming A</b> <b>6.3 Variables in games</b>	This builds upon LKS2 units <b>Sequencing sounds</b> and <b>Events and actions in programs</b> as pupils are introduced to the idea of ‘variables’ in Scratch continuing to develop programming skills by experimenting with variables. This prepares them for applying computer science principles as they move into KS3.
	<b>Key Vocabulary:</b> Instruction, sequence, clear, unambiguous, algorithm, program, order, commands, artwork, design, route, mat, debugging.		<b>Key Vocabulary:</b> Motion, event, sprite, algorithm, logic, resize, algorithm, move, extension block, pen up, set up, event, action, debugging, errors, setup, design, code, set up, test, debug.		<b>Key Vocabulary:</b> project, modify, variable, define, letter-string, algorithm, artwork, role, code, task, design

**All further detailed information including individual lesson plans, rubrics, assessment, curriculum maps and teacher guide can be found at [Curriculum teaching resources](#)**