



Computing

at Morton Church of England Primary School

Intent

At Morton, we aim to prepare our learners for their future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever changing digital world. Knowledge and understanding of ICT is of increasing importance for children's future both at home and for employment. Our Computing curriculum focuses on a progression of skills in digital literacy, computer science, information technology and online safety to ensure that children become competent in safely using, as well as understanding, technology. These strands are revisited repeatedly through a range of themes during children's time in school to ensure the learning is embedded and skills are successfully developed. Our intention is that Computing also supports children's creativity and cross curricular learning to engage all learners and enrich their experiences in school.



Computing Implementation Statement

Our scheme of work for Computing is adapted from the ‘Teach Computing’ Curriculum and covers all aspects of the National Curriculum. It provides an innovative progression framework where computing content (concepts, knowledge, skills and objectives) has been organised into interconnected networks to support children as they build upon existing knowledge and understanding.

To ensure a broad range of skills and understanding, Computing is taught across three main strands: digital literacy, computer science and information technology. As part of information technology, children learn to use and express themselves and develop their ideas through ICT for example writing and presenting as well as exploring art and design using multimedia. Within digital literacy, children develop practical skills in the safe use of ICT and the ability to apply these skills to solving relevant, worthwhile problems for example understanding safe use of internet, networks and email. In computer science we teach children to understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation. Also to analyse problems to computational terms, and have repeated practical experience of writing computer programs in order to solve such problems. We also teach a progression of Computing vocabulary to support children in their understanding and ability to articulate and share their learning.

Computing Impact Statement

The implementation of this curriculum ensures that when children leave Morton Primary School, they are competent and safe users of ICT with an understanding of how technology works. They will have developed skills to express themselves and be creative in using digital media and be equipped to apply their skills in Computing throughout secondary and further education and into the adult life.



National Curriculum Expectations

Early Years

Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, which focuses on the learning and development of children from birth to age five, there are many opportunities for young children to use technology to solve problems and produce creative outcomes.

Key Stage 1

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.



Key Stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.



Our Computing Curriculum

Curriculum Map and Skills Progression

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery						
Reception	<p>Ipads-using the camera – to take selfies and compare to friends. Instructions can be verbal, pictorial, written, programmed – Use google maps on IWB. How have appliances changed – what technology is in our home/school?</p>	<p>Ipads-using the camera to take own autumn natural collage</p> <p>Make an animal costume for beebot – explore how to use a beebot.</p>	<p>Laptops – logon to laptop using Teams password. Use paint to create winter scene or animal picture</p>	<p>Use IWB to create/draw pictures – link to maths or UW</p> <p>Use beebots to move around our buildings – programme for a purpose.</p>	<p>Laptops – find google – use search to find information about minibeasts</p>	<p>Ipads – to retrieve information about farming or transport</p>
Year 1	Technology around us	Digital Painting		Grouping Data		Introduction to animation
Year 2	Information around us		Making music	Pictograms		Introduction to quizzes
Year 3	Connecting computers		Desktop publishing	Branching databases	Sequence in music	
Year 4	The Internet	Audio editing		Data logging		Repetition in games
Year 5	Sharing information		Video editing	Flat-file databases		Selection in quizzes
Year 6	Internet Communication	3D Modelling		Introduction to Spreadsheets		Variables in Games



Progression in Knowledge and Vocabulary

	Aut1	Aut2	Spr1	Spr2	Sum1	Sum2
F1	<ul style="list-style-type: none"> Asking Google when we have a question and selecting eg. images on interactive board Cd player – songs play and stop button Completing the register on the ipad to send via internet Torches – recharging after use <p>In addition, some adult planned experiences are used as appropriate and linked to children’s needs and interests</p> <ul style="list-style-type: none"> Bee bot robots Using Word and keyboard on a laptop 					
	<i>Why this and why now?</i>					
	In the moment activities as the occur while the children spend time in FS1. Teaching children from a very young age about technology is all around us and used in many everyday aspects as and when possible.					
	<i>Vocabulary and key concepts</i>					
	Push, on, off, up, down, switch, move, start, stop, go, forward, backward, turn.					
F2	<p>Ipads-using the camera – to take selfies and compare to friends. Instructions can be verbal, pictorial, written, programmed – Use google maps on IWB. How have appliances changed – what technology is in our home/school?</p>	<p>Ipads-using the camera to take own autumn natural collage</p> <p>Make an animal costume for beebot – explore how to use a beebot.</p>	<p>Laptops – logon to laptop using Teams password. Use paint to create winter scene or animal picture</p>	<p>Use IWB to create/draw pictures – link to maths or UW</p> <p>Use beebots to move around our buildings – programme for a purpose.</p>	<p>Laptops – find google – use search to find information about minibeasts</p>	<p>Ipads – to retrieve information about farming or transport</p>
	<i>Why this and why now?</i>					
	The children have experiences using technology for a purpose rather than playing games or watching videos. Can follow	Using the Ipad for a purpose has to make sure they get the object in the picture. Learning that things only move if they are given instructions in a program.	Children may have never seen a laptop before and know how to use one. It is important that they have opportunities to use these as they will sue frequently	Continuing their gross motor skills and using the IWB to draw objects linking to maths learning. Recognising that their mark will transfer to the board using technology.	Continuing their skills by logging onto a device and then using their knowledge to search for objects.	Building on their skills and searching for information. These basic skills will build as the children work through the school.



	instructions using the images		as they move through school.		Understanding that they need to tell the computer what they wish to search for by typing in the box.	
<u>Vocabulary and key concepts</u>						
	Button, Ipad, on, off, switch, point, image, object, selfie, instruction, follow, way, programme, map, direction, technology, appliance washing machine.	Image, object, button, see, beebot, move, forward, backward, on, off.	Laptop, on, button, switch, letters, numbers, user, password, initials, date of birth, paint, brush, colour, copy, create, new, open.	Interactive whiteboard, draw, design, lines, colour, piece, picture, create, object, maths, number. Move, forward, backward, program, move, left, right, on, off, straight, curve, around.	Word, letters, search, minibeast, home, colour, look, input, find.	Retrieve, find, search, look, input, ask, farming, tractor, animals,
Y1	Technology around us Recognising technology in school and using it responsibly.	Digital Painting Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.		Grouping Data Exploring object labels, then using them to sort and group objects by properties.		Introduction to animation Designing and programming the movement of a character on screen to tell stories.
<u>Why this and why now?</u>						
	To teach children that in the world surrounding them is full of useful technology. Builds on knowledge learned in EYFS	Introducing our technology can have many uses. Builds on knowledge learned in EYFS		Understanding data and how it can be in many forms. Builds on knowledge learned in EYFS		To start to understand that we can program things to move objects.
<u>Vocabulary and key concepts</u>						
	Technology, help, support, desk, computer mouse/trackpad,	paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian,		Object, label, group, search, image,		Forwards, backwards, turn, clear, go, commands,



	keyboard, screen, click, drag, double click, input, device, shift, space bar, capital letter, full stop, safely, responsibly, computer, technology.	primary colours, shape tools, line tool, fill tool, undo tool, Henri Matisse, shape tool, fill tool, Wassily Kandinsky, tools, feelings, colour, brush style, Georges Seurat, Pointillism, brush size, p, painting, computers.		property, colour, size, shape, data set, value, more, less, most, fewest, the same.		Instructions, directions, Left, right, turn, plan, algorithm, program, route.
Y2	IT around us Identifying IT and how its responsible use improves our world in school and beyond.		Making music Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer.		Introduction to quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.
<i>Why this and why now?</i>						
	Building on the knowledge and uses of technology in the wider world.		Building on their knowledge and skills using a computer. Linking to their music knowledge and supporting their learning.	Beginning to understand how we collect and analyse data. Linking to their maths.		Builds on the learning from the previous year group and also Robot algorithms.
<i>Vocabulary and key concepts</i>						
	Information technology (IT), computer, barcode, scanner/scan.		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.	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,		Sequence, command, program, run, program, start, outcome, predict, blocks, sprite, algorithm, blocks, design, sequence, actions, sprite, blocks, design, modify,



				group, same, different, most popular, least popular, conclusion, sharing, data, block data.		change, match, compare, design, debug, program, features, evaluate.
Y3	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.		Desktop publishing Creating documents by modifying text, images, and page layouts for a specified purpose.	Branching databases Building and using branching databases to group objects using yes/no questions.	Sequence in music Creating sequences in a block-based programming language to make music.	
<i>Why this and why now?</i>						
	To begin to learn about the way computers work. To ensure the curriculum is followed and built upon.		Building on skills taught in KS1 and how to modify documents.	Linking to science and using their knowledge of branching data bases.	Continuing the use of computers to make media can link their programming skills to create this.	
<i>Vocabulary and key concepts</i>						
	Digital device, input, output, process, program, connection, network, network switch, server, WAP wire access point.		Text, images, advantages, disadvantages, communicate, font, font style, communicate, template, landscape, portrait, orientation, placeholder, desktop publishing, copy, paste,	Attribute, value, questions, table, objects, branching database, database, attribute, value, questions, objects, equal, even, separate, compare, organise, order, j2data, selecting, pictogram, decision tree.	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, programming blocks, motion, turn, point in	



			layout, purpose, desktop publishing, benefits.		direction, go to, glide, sequence, event, task, design, code, run the code, sequence, order, note, chord, algorithm, bug, debug.	
Y4	The Internet Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Audio Editing Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	.	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation.		Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
<i>Why this and why now?</i>						
	To begin to understand how the WWW is a network before progressing to UKS2.	To develop progressive skills using media types.		To progress with the new skills and what information is logged with this equipment.		Building on sequences and using repetition. Progressing the skills in computer science.
<i>Vocabulary and key concepts</i>						
	Internet, network, router, network security, network switch, server,	Audio, record, playback, microphone, speaker, headphones, input, output, audio, sound, record, playback, start,		Data, table (layout), input device, sensor, data logger, logging, data point, interval, data set, import, export, analyse,		Scratch, programming, sprite, blocks, code, loop, repeat, value, block, repeat, forever, infinite loop, count-



	WAP wire access point, Website, web page, web address, router, routing, route tracing, browser, World Wide Web, internet, content, website, web page, links, files, content, download, sharing, ownership, permission, Information, sharing, accurate, honest, content, adverts.	pause, stop, podcast, save, file, selection, open, save, mixing, time shift, export, MP3, audio, editing, evaluate, feedback.		logged, collection, review, conclusion.		controlled loop, costume, repetition, animate, costume, event block, duplicate, block, modify, design, sprite, algorithm, debug, refine, evaluate.
Y5	Sharing information Identifying and exploring how information is shared between digital systems.		Video editing Planning, capturing, and editing video to produce a short film.	Flat file databases Using a database to order data and create charts to answer questions.		Selection in quizzes Exploring selection in programming to design and code an interactive quiz.
<i>Why this and why now?</i>						
	Progressive as children move on to UKS2.		Progressing from photos to videos to add more content.	A commonly used data type and encourages the children to consider their fields. Progression using different uses of data.		Combining the elements previously taught and progressing to add more age-appropriate curriculum.
<i>Vocabulary and key concepts</i>						
	System, connection, digital, input, process, output, protocol,		Video, audio, recording, storyboard, script, soundtrack, dialogue,	Database, data, information, record, field, sort, order, group,		Selection, condition, true, false, count controlled loop,



	address, packet, chat, explore, slide deck, reuse, remix, collaboration.		recording, capture, zoom, storage, digital, tape, video, audio, AV (audiovisual), recording, save, videographer Video techniques: Zoom, pan, tilt, angle, Video, lighting, setting, YouTuber, content, light, audio/sound, camera angle, colour, export, computer, Microsoft Movie Maker, split, trim/clip, edit, titles, end credits, timeline, transitions, audio, soundtrack, content, retake/reshoot special effects, title screen, end credits, export, constructive feedback.	search, value, criteria, graph, chart, axis, compare, filter, presentation.		selection, condition, true, false, outcomes, conditional statement - the linking together of a condition and outcomes- algorithm, program, debug, selection, condition, true, false, outcomes, question, answer, algorithm, program, debug, task, design, algorithm, input, program, selection, condition, outcomes, implement, design, algorithm, program, selection, condition, outcome, test, run, program, debug, test, setup, selection, condition, outcome, share, evaluate, constructive.
Y6	Internet Communication Recognising how the WWW can be used to communicate and be searched to find information.	3D modelling Planning, developing, and evaluating 3D computer models of physical objects		Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.		Variables in games Exploring variables when designing and coding a game.



<u>Why this and why now?</u>						
	<p>This unit progresses learners' knowledge and understanding of computing systems and online collaborative working.</p>	<p>This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications.</p>		<p>This unit progresses students' knowledge and understanding of data and teaches them how to organise and modify data within spreadsheets. Specifically, learners will have experienced data in tables and charts in the Y4 data logging and Y5 branching database units.</p>		<p>This unit assumes that learners have some prior experience of programming in Scratch. Specifically, they should be familiar with the programming constructs of sequence, repetition, and selection. These constructs are covered in the Year 3, 4, and 5 National Centre for Computing Education programming units respectively. Each year group includes at least one unit that focuses on Scratch.</p>