Computing at Newbridge Primary School

"We are being **computer scientists**, this means we are using technology to innovate and solve problems."

Online Safety	Computing Systems and Networks	Creating Media	Programming	Data and Information
Understand risks when using technology, and how to protect individuals and systems. ***Jigsaw Scheme of Work*** ***Common Sense Media***	*Understand what a computer is, and how its constituent parts function together as a whole. Understand how networks can be used to retrieve and share information, and how they come with associated risks.*	*Select and create a range of media including text, images, sounds, and video.*	*Create software to allow computers to solve problems.*	*Understand how data is stored, organised, and used to represent real-world artefacts and scenarios*
https://www.commonsense.org/education/digital-citizenship/curriculum?grades=	https://teachcomputing.org/curriculum			

Curriculum Thread	EYFS	KS1		LKS2		UKS2	
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Online Safety	(Not compulsory) I know when, where and how we use technology. I know where I can find out information. I know what personal information is. I know what to do or say when something makes me feel worried or sad.	I know when, where and how we use technology. I know that the internet can be used to visit faraway places and learn new things. I can compare online safety with safety in the real world. I can consider the feelings of others around me when using devices. I know how to stay safe when visiting a website or using an app. I can explain rules for using the internet safely.	I know how to be a good digital citizen. I can recognise the different kind of feelings I have when using technology. I can identify similarities and differences between online and real-world safety. I understand the importance of being safe, responsible and respectful online. I can recognise ways the internet can be used to communicate. I can identify websites and apps that are 'just right' and 'not right' for me.	I know some strategies for keeping myself safe online. I can recognise the kind of information that is private. I know that when I leave information online it leaves a digital footprint or trail. I can compare and contrast how I am connected to different people and places in person and on the internet. I know the different ways people can connect on the internet. I know how giving credit for people's work online is a sign of respect.	I can describe and examine online responsibilities. I understand why creating a strong, memorable password is important. I can consider how posting selfies or images might lead others to make assumptions about me. I can reflect on the most important parts of my unique identity. I understand that it is important to think about the words I use when expressing myself or communicating online. I can recognise that photos and videos can be altered digitally.	I can use the 'What? When? How much? Framework for describing social media choices. I can define the term 'digital footprint' and identify online activities that contribute towards it. I can describe positives and negatives of social interaction in online games. I can recognise different forms of cyberbullying. I can understand the rights and responsibilities in an online community or social network. I can reflect on my own body image and know how important it is that this is positive and I accept and respect myself for who I am.	I can define "the curiosity gap" and explain how clickbait uses the curiosity gap to get your attention. I can evaluate digital content, making careful judgements about the information I read. I can develop strategies to resist pressure to do something online that might hurt myself or others. I understand that there are a variety of ways to report concerns about digital content and contact I have online. I can identify cyber-bullying and use strategies for dealing with cyberbullying and ways I can be an upstander for those being bullied. I can describe the benefits and risks of online-only friendships and describe how to respond to an online-only friend if the friend asks something that makes me uncomfortable.
Coverage and knowledge				**Jigsaw** Relationships (Term 5)		**Jigsaw** Healthy Me (Term 4)	**Jigsaw** Relationships (Term 5)

						Jigsaw Relationships (Term 5)	
Vocabulary		**Common Sense Media** Online Website App Balance Device Pause Frustrated	**Common Sense Media** Online Pause Uncomfortable Caution Just right	**Jigsaw** Safe Unsafe Risky Internet Social media Private Messaging (PM) Gaming **Common Sense Media** Digital Citizen Digital footprint Private information	**Common Sense Media** Community Digital Citizen Responsibility Password Phrase Symbol Username Assumption Identity Selfie Norm Pledge Empathy Interpret Advertising Alter Persuade Photo retouching	**Jigsaw** Social network Rights Trolled Gambling/ betting Screen time Mental health Physical health Personal information **Common Sense Media** Media balance Hardwired Digital footprint Griefing Cyberbullying Upstander Copyright Plagiarism	**Jigsaw** Influences Real/Fake Cyberbullying **Common Sense Media** Media balance Clickbait Avatar Bias Gender stereotypes Private Information Bystander Cyberbullying Upstander
Computing Systems and Networks	I can locate the 'home button' and 'lock button' on the iPads. I can explore and investigate how things work.	I can recognise technology in school and using it responsibly.	I can identify IT and how its responsible use improves our world in school and beyond.	I can identify that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	I can recognise the internet as a network of networks including the World Wide Web (WWW), and why we should evaluate online content.	I can recognise IT systems in the world and how some can enable searching on the internet.	I can explore how data is transferred by working collaboratively online.
Coverage and knowledge	**Ongoing**	Technology around us (Term 1)	Information technology around us (Term 1)	Connecting Computers (Term 1)	The internet (Term 1)	Systems and searching (Term 1)	Communication and collaboration (Term 1)
Vocabulary		technology, computer, mouse, trackpad, keyboard, screen, double-click, typing	Information technology (IT), computer, barcode, scanner/scan	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many
Creating Media (x 2)	I can use the interactive whiteboard to express my creativity. I can use technology to enhance my play (lights, music filming).	I can choose appropriate tools in a program to create art, and making comparisons with working non-digitally. (Term 2) I can use a computer to create and format text, before comparing to writing non-digitally. (Term 5)	I can capture and change digital photographs for different purposes. (Term 2) I can use a computer as a tool to explore rhythms and melodies, before creating a musical composition. (Term 5)	I can capture and edit digital still images to produce a stop-frame animation that tells a story. (Term 2) I can create documents by modifying text, images, and page layouts for a specified purpose. (Term 5)	I can capture and edit audio to produce a podcast, ensuring that copyright is considered. (Term 2) I can manipulate digital images, and reflect on the impact of changes and whether the required purpose is fulfilled. (Term 5)	I can plan, capture, and edit video to produce a short film. (Term 2) I can create images in a drawing program by using layers and groups of objects. (Term 5)	I can design and create webpages, giving consideration to copyright, aesthetics, and navigation. (Term 2) I can plan, develop, and evaluate 3D computer models of physical objects. (Term 5)

Coverage and knowledge	**Ongoing**	Digital painting (Term 2) Digital writing (Term 5)	Digital photography (Term 2) Digital music (Term 5)	Stop-frame animation (Term 2) Desktop publishing (Term 5)	Audio production (Term 2) Photo editing (Term 5)	Video production (Term 2) Introduction to vector graphics (Term 5)	Webpage creation (Term 2) 3D modelling (Term 5)
Vocabulary		paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers (Term 2) word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing (Term 5)	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting, (Term 2) music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit (Term 5)	animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition (Term 2) text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits (Term 5)	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback (Term 2) image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font (Term 5)	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share (Term 2) vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection (Term 5)	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed (Term 2) TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify (Term 5)
Programming (x2)	I can operate simple equipment, like motorised toys. I can use basic ICT skills to use a camera or an iPad.	I can write short algorithms and programs for floor robots, and predict program outcomes. (Term 3) I can design and program the movement of a character on screen to tell stories. (Term 6)	I can create and debug programs, and use logical reasoning to make predictions. (Term 3) I can design algorithms and programs that use events to trigger sequences of code to make an interactive quiz. (Term 6)	I can create sequences in a block-based programming language to make music. (Term 3) I can write algorithms and programs that use a range of events to trigger sequences of actions. (Term 6)	I can use a text-based programming language to explore count-controlled loops when drawing shapes. (Term 3) I can use a block-based programming language to explore count-controlled and infinite loops when creating a game. (Term 6)	I can explore conditions and selection using a programmable microcontroller. (Term 2) I can explore selection in programming to design and code an interactive quiz. (Term 6)	I can explore variables when designing and coding a game. (Term 2) I can design and code a project that captures inputs from a physical device. (Term 6)
Coverage and knowledge	**Ongoing**	Moving a robot (Term 3) Programming animations (Term 6)	Robot algorithms (Term 3) Programming quizzes (Term 6)	Sequencing sounds (Term 3) Events and actions in programs (Term 6)	Repetition in shapes (Term 3) Repetition in games (Term 6)	Selection in physical computing (Term 3) Selection in quizzes (Term 6)	Variables in games (Term 3) Sensing movement (Term 6)
Vocabulary		Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program (Term 3) Scratch Jr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict,	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition (Term 3) sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm,	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code (Term 3) motion, event, sprite, algorithm, logic, move, resize,	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure (Term 3) Scratch, programming, sprite, blocks, code, loop, repeat,	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer (Term 3)	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare (Term 3) Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if

		effect, change, value, instructions, design (Term 6)	build, match, compare, debug, features, evaluate, decomposition, code (Term 6)	extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions (Term 6)	value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate (Term 6)	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator (Term 6)	then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug (Term 6)
Data and Information	I can use the iPads to use an eBook.	I can explore object labels, then use them to sort and group objects by properties.	I can collect data in tally charts and use attributes to organise and present data on a computer.	I can build and use branching databases to group objects using yes/no questions.	I can recognise how and why data is collected over time, before using data loggers to carry out an investigation.	I can use a database to order data and create charts to answer questions.	I can answer questions by using spreadsheets to organise and calculate data
Coverage and knowledge	**Ongoing**	Grouping data (Term 4)	Pictograms (Term 4)	Branching databases (Term 4)	Data logging (Term 4)	Flat-file databases (Term 4)	Introduction to spreadsheets (Term 4)
Vocabulary		object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools