Computing Learning Progression at Northstead CP School

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
EYFS	Use Smart boards to interact with games and activities Know the purpose of a key board, mouse	Doodling/drawing on an ipad Use Ipads to take photos	Use programmable toys – Beebots – to explore position and direction		Add mark making on a screen	
Year 1	***Technology around us*** *Recognising technology in school and using it responsibly* Identify technology, a computer and it's main parts, use a mouse, use a keyboard to type and edit text and create rules for using technology responsibly	***Digital painting*** *Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.* Use a computer to paint a picture, explaining why they chose the tools they did, and compare with paper version	***Moving a robot*** *Writing short algorithms and programs for floor robots and predicting program outcomes.* Explain what given commands do, combine forwards, backwards, left and right to make a sequence and plan a simple program	***Grouping data*** *Exploring object labels, then using them to sort and properties.* Label, identify and describe objects in different ways, counting and comparing and answer questions about different groups of objects	***Digital writing*** *Using a computer to create and format text, before comparing to writing non-digitally.* Use a computer to write, add and remove text, change the font and compare with handwritten text	***Programming animations*** *Designing and programming the movement of a character on screen to tell stories.* Choose a command for a purpose and join a series of commands together, design instructions for a sprite and use algorithms to create a program
Year 2	***Information technology around us*** *Identifying IT and how it's responsible use improves our world in school and beyond* Identify uses of information technology in school and beyond, how it helps us and how	***Digital photography*** *Capturing and changing digital photographs for different purposes.* Use a digital device to take photographs, describe how to improve photos and use tools to change images	***Robot algorithms*** *Creating and debugging programs and using logical reasoning to make predictions.* Describe a series of instructions as a sequence and explain what happens when we change the order.	***Pictograms*** *Collecting data in tally charts and using attributes to organize and present data on a computer.* Count and compare object using tally charts, represent objects as pictures,	***Digital music*** *Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.* Identify and create patterns in music, experiment with sound to create music for a	***Programming quizzes*** *Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.* Explain that a sequence of commands has a start and outcome,

	to use if safely		Predict the outcome and design, create and debug their own algorithms	create a pictogram, including people described by their attributes, present information on the computer	purpose, review and refine	create a program and change a given design, say how a project can be improved
Year 3	**Connecting computers** *Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.* Explain how digital devices function, identify input and output devices, recognize how they change the way we work, how a computer network can be used to share information, explore how digital devices are connect and recognize physical components of a network	**Stop-frame animation** *Capturing and editing digital still images to produce a stop-frame animation that tells a story* Explain that animation is a sequence of drawings or photographs, relate animated movement to a sequence of images, plan, review and improve an animation, evaluate the impact of adding other media to an animation	**Sequencing sounds** *Creating sequences in a block-based programming language to make music* Explore a new programming environment, identify that commands have an outcome, explain a program has a start and that the sequence has to have an order, create and change the appearance of a project from a task description	**Branching databases** *Building and using branching databases to group objects using yes/no questions* Create questions with yes/no answers, identify attributes needed to collect data about an object, plan the structure and create a branching database, explain why it should be well structured and independently create an identification tool	**Desktop publishing** *Creating documents by modifying text, images, and page layouts for a specified purpose* Recognize how text and images convey information, recognize that text and layout can be edited, choose appropriate page settings, adding content to desktop publishing, consider how different layouts suit different purposes and consider the benefits	**Events and actions in programs** *Writing algorithms and programs that use a range of events to trigger sequences of actions* Explain how a sprite moves in an existing project, create a program to move a sprite in four directions, adapt a program to a new context,, develop own program by adding features, identify and fix bugs in a program and design and create a mazed-based challenge
Year 4	**The Internet** *Recognising the internet as a network of networks including the WWW, and why we should evaluate online content* Describe how networks physically connect to other networks, how networked devices make up the internet, how websites can be shared via the WWW, describe how content	**Audio production** *Capturing and editing audio to produce a podcast, ensuring that copyright is considered* Identify that sound can be recorded and that audio recordings can be edited, recognize the different parts of creating a podcast project, apply audio editing skills independently and enhance by combining	**Repetition in shapes** *Using a text-based programming language to explore count-controlled loops when drawing shapes* Identify that accuracy in programming is important, create a program in text-based language, explain what repeat means, modify a count-controlled loop to produce a given outcome, decompose a	**Data logging** *Recognizing how and why data is collected over time, before using data loggers to carry out an investigation* Explain that data gathered over time can answer questions, use digital devices to collect data automatically, explain that a data logger collects data points from sensors over time, that	**Photo editing** *Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled* Explain that the composition of digital images and colours can be changed, how cloning can be used in photo editing, that images can be combined for a purpose	**Repetition in games** *Using a block-based programming language to explore count-controlled and infinite loops when creating a game* Develop the use of count-controlled loops in a different programming environment, explain that there are infinite loops and count controlled loops,

Year						
	can be added and accessed on the WWW, recognize how the content of the WWW is created by people and evaluate the consequences of unreliable content	audio, evaluate the effective use of audio	task into small steps and create a program that uses count-controlled loops to produce a given outcome	computers help analyse data, identify and use the data from sensors to answer questions	and how changes can improve an image	develop a design that includes two or more loops which run at the same time, modify an infinite loop, design and create a project that includes repetition
Year 5	**Systems and searching** *Recognizing IT systems in the world and how some can enable searching on the internet* Explain that computers can be connected together to form systems, recognize the role of computer systems in our lives, experiment with search engines and describe search results, explain how they are ranked and recognize why the order of results is important	**Video production** *Planning, capturing, and editing video to produce a short film* Explain what makes a video effective, identify digital devices that record video, capture video using a range of techniques, create a storyboard, then shoot, reshoot and edit video, and consider the impact of making a video	**Selection in physical computing** *Exploring conditions and selection using a programmable microcontroller* Control a simple circuit connected to a computer, write a program that includes count-controlled loops, explain that a loop can stop when a condition is met, or be used repeatedly to check, design a physical project that includes selection and create a program that controls a physical computing project	**Flat-file databases** *Using a database to order data and create charts to answer questions* Use a form to record information, compare paper and computer-based databases, answer questions by grouping and sorting data, use tools to select specific data, explain that computer programs can be used to compare data visually, use a real-world database to answer questions	**Introduction to vector graphics** *Creating images in a drawing program by using layers and groups of objects* Identify that drawing tools can be used to produce different outcomes, create a vector drawing by combining shapes, use tools to achieve a desired effect, recognize that vector drawings consist of layers, group objects to make them easier to work with	**Selection in quizzes** *Exploring selection in programming to design and code an interactive quiz* Explain how selection is used in computer programs, that a conditional statement connects a condition to an outcome, how selection directs the flow of a program, design, create and evaluate a program which uses selection
Year 6	**Communication and collaboration** *Exploring how data is transferred by working collaboratively online* Explain the importance of internet addresses, recognize how data is transferred across the internet, explain how sharing information online can help people work together, evaluate	**Webpage creation** *Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation* Review an existing website and consider it's structure, plan features of a web page, consider ownership of images/copyright, review pages, outline	**Variables in games** *Exploring variables when designing and coding a game* Define a variable as something that is changeable, explain why a variable is used in a program, choose how to improve a game by using variables, design, build and evaluate a project	**Introduction to spreadsheets** *Answering questions by using spreadsheets to organize and calculate data* Create and build a data set in a spreadsheet, explain that formulas can be used to produce calculated data, apply formulas, crate a spreadsheet to plan an	**3D modelling** *Planning, developing, and evaluating 3S computer models of physical objects* Recognize that you can work in three dimensions on a computer, identify that digital 3D objects can be modified, recognize that objects can be combined in a 3D	**Sensing movement** *Designing and coding a project that captures inputs from a physical device* Create a program to run on a controllable device, explain that selection can control the flow of a program, update a variable with a use input, use a conditional statement

	different ways of working together, recognize how we communicate using technology and evaluate different methos of online communication	the need for a navigation path, recognize the implications of linking to content owned by other people		event and choose suitable ways to present data	model, plan and create a 3D model for a purpose	to compare a variable to a value, design and develop a project that uses inputs and outputs on a controllable device

Vocabulary

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
EYFS						
Year 1 vocabulary	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	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.	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.
Year 2 vocabulary	Information technology (IT), computer, barcode, scanner/scan	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	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	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.
Year 3 vocabulary	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server,	animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events,	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate,	text, images, advantages, disadvantages, communicate, font, style, landscape,	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action,

	wireless access point, cables, sockets	onion skinning, consistency, evaluation, delete, media, import, transition.	direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.	structure, compare, order, organise, selecting, information, decision tree.	portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	debugging, errors, setup, code, test, debug, actions.
Year 4 vocabulary	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	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	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.	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.
Year 5 vocabulary	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.	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	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	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	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	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator
Year 6 vocabulary	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, oneway,	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,	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	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,	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,	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step

	two-way, one-to-one, one-to-many.	navigation, hyperlink, subpage, evaluate, implication, external link, embed.		evaluate, results, sum, comparison, software, tools.	combine, construct, evaluate, modify.	counter, plan, create, code, test, debug.