Computing Progression & Embedded Knowledge

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Systems and Networks - Technology Around Us	Systems and Networks - Operating Hardware	E-Safety	Programming – Moving a Robot	Creating Media – Digital Drawing	Systems and Networks - Operating Hardware
Vocabulary	*technology, classroom, electricity, lights, lightbulb, whiteboard, laptop, type, search, work, print, iPad, games, camera, photo, video, headphones, music, listen*	*technology, story phones, stories, skip, play, listen, hear, sound, button, hold, press, record*	*e-safety, hold, careful, safe, adult, grown up, device, check, ask*	*BeeBot, robot, press, button, move, forward, go*	*interactive whiteboard, draw, pen, picture, app, erase, choose, press, screen*	*talking tin, voice, speak, record, button, press, hold, play, listen*
Embedded knowledge	To name some technology around them in the classroom and explain what it is used for. (Lights, interactive whiteboard, laptop, iPads, headphones)	To know how to stop and start the story phones and skip the story. To know how to operate sound buttons to hear recordings.	To use and handle equipment safely. To know that they need to ask an adult before using a device.	To know how to program a BeeBot to go forwards. (Press forward and GO)	To know how to draw a picture on the IWB app and know how to erase it.	To know how to record their voice on a talking tin.
Reception	Systems and Networks - Technology Around Us	Systems and Networks - Operating Hardware & Software	E-Safety	Creating Media – Digital Drawing	Programming – Moving a Robot	Programming - Coding
Vocabulary	*Technology, home, house, world, electricity, power, plug, socket, TV, watch, films, programmes, washing machine, clean, wash, microwave, oven, cook, heat, mobile phones, call, text, tablets, internet, search, games, games console, traffic lights, cars, travel, safety, sat nav, aeroplane, engine, pilot, card machine, pay, card, walkie talkie, police, messages, emergency, x-ray machine, hospital, doctor*	*technology, iPad, app, choose, select, camera, photo, video, record, play, QR code, hover, scan, button, press*	*e-safety, safe, online, internet, strangers, private, adult, grown up, device, check, ask*	*interactive whiteboard, draw, create, pen, picture, shape, outline, fill, app, erase, choose, change, colour, press, screen*	*BeeBot, robot, program, direction, path, follow, forwards, backwards, left, right, turn, press, button, move, go, clear*	*iPad, code, coding, instruct, instruction, program, select, press, direction, turn*
Embedded knowledge	To name different technology in their home and explain what it is used	To know how to switch an iPad on and select an app.	To give reasons why we need to stay safe online.	To draw a picture on the IWB app and know how to create a shape and fill it.	To know how to program a BeeBot to go forwards, backwards, left and right.	To be able to complete a simple coding game on an iPad.

	for. (TV, washing machine, microwave, oven, mobile phones, tablets, games consoles) To name some technology in the world around us and say who may use it. (traffic lights, cars, aeroplanes, card machines, walkie talkies, sat nav, x-ray machine)	To know how to take a picture on an iPad. To know how to record a video on an iPad. To know how to use a QR code with the iPads to access stories & nursery rhymes.	To know that they need to ask and adult before using a device and to check anything they are unsure of.	To know how to change the colour of the pen and erase it.	To program a BeeBot to go along a path using different directions.	
KS1 **Cycle A**		**Systems and Networks:** Technology around us	**Creating Media:** Making music		**Data and Information:** Pictograms	**Programming:** An introduction to quizzes
Vocabulary		*information technology (IT)* *computer* *barcode* *scanner/scan*	*music* *quiet* *loud* *feelings* *emotions* *pattern* *rhythm* *pulse* *pitch* *tempo* *notes* *create* *emotion* *beat* *instrument* *open* *edit*		*common* *popular* *organise* *data* *object* *tally* *chart* *votes* *total* *pictogram* *enter* *data* *compare* *attribute* *group* *conclusion* *block diagram* *sharing*	*sequence* *command* *program* *run* *start* *outcome* *predict* *blocks* *design* *actions* *sprite* *project* *modify* *change* *algorithm* *build* *match* *compare* *debug* *features* *decomposition* *code*
Embedded knowledge		To recognise the uses and features of information technology	To say how music can make us feel		To recognise that we can count and compare objects using tally charts	To explain that a sequence of commands has a start

		To identify the uses of information technology in the school To identify information technology beyond school To explain how information technology helps us To explain how to use information technology safely To recognise that choices are made when using information technology	To identify that there are patterns in music To experiment with sound using a computer To use a computer to create a musical pattern To create music for a purpose To review and refine our computer work		To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer	To explain that a sequence of commands has an outcome To create a program using a given design To change a given design To create a program using my own design To decide how my project can be improved
KS1 **Cycle B**		**Computing Systems and Networks:** Connecting Computers		**Programming:** Moving a robot	**Creating Media:** Digital Writing	**Data and Information:** Grouping Data
Vocabulary		*technology* *computer* *mouse* *trackpad* *keyboard* *screen* *double-click* *typing*		*Bee-bot* *forwards* *backwards* *turn* *clear* *go* *commands* *instructions* *directions* *route* *plan* *algorithm* *program*	*word processor* *keyboard* *keys* *letters* *type* *numbers* *space* *backspace* *text cursor* *capital letters* *toolbar* *bold* *italic* *underline* *mouse* *select* *font* *undo*	*object* *label* *group* *search* *image* *property* *colour* *size* *shape* *value* *data set*

					redo *Format* *compare* *typing* *writing*	
Embedded knowledge		To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type on a computer To use the keyboard to edit text To create rules for using technology responsibly		To explain what a given command will do To act out a given word To combine forwards and backwards commands to make a sequence To combine four direction commands to make sequences To plan a simple program To find more than one solution to a problem	To use a computer to write To add and remove text on a computer To identify that the look of text can be changed on a computer To make careful choices when changing text To explain why I used the tools that I chose To compare typing on a computer to writing on paper	To label objects To identify that objects can be counted To describe objects in different ways To count objects with the same properties To compare groups of objects To answer questions about groups of objects
Year 3		**Computing Systems and Networks** Connecting Computers	**Programming** Sequencing Sounds		**Data and Information** Branching Databases	**Creating Media** Stop Frame Animation
Vocabulary		*digital device, input, process, output, program, digital, non-digital, connection, network, switch,* *server, wireless access point, cables, sockets*	*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.*		*attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.*	*animation, flip book, stop-frame, frame, sequence,* *image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.*

Embedded knowledge		-To explain how digital devices function -To identify input and output devices -To recognise how digital devices can change the way we work -To explain how a computer network can be used to share information -To explore how digital devices can be connected -To recognise the physical components of a network	-To explore a new programming environment -To identify that commands have an outcome -To explain that a program has a start -To recognise that a sequence of commands can have an order -To change the appearance of my project -To create a project from a task description		-To create questions with yes/no answers -To identify the attributes needed to collect data about an object -To create a branching database -To explain why it is helpful for a database to be well structured -To plan the structure of a branching database -To independently create an identification tool	-To explain that animation is a sequence of drawings or photographs -To relate animated movement with a sequence of images -To plan an animation -To identify the need to work consistently and carefully -To review and improve an animation -To evaluate the impact of adding other media to an animation
Year 4	**Creating Media:** Photo Editing	**Systems and Networks:** Connecting Computers		**Data and Information:** Data Logging		**Programming B:** Repetition in Games

Vocabulary	*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.*	*tinternet, 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*		*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.*		*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.*
Embedded knowledge	-To explain that the composition of digital images can be changed -To explain that colours can be changed in digital images -To explain how cloning can be used in photo editing -To explain that images can be combined	-To describe how networks physically connect to other networks -To recognise how networked devices make up the internet -To outline how websites can be shared via the World Wide Web (WWW)		-To explain that data gathered over time can be used to answer questions -To use a digital device to collect data automatically -To explain that a data logger collects 'data points' from sensors over time		-To develop the use of count-controlled loops in a different programming environment -To explain that in programming there are infinite loops and count controlled loops -To develop a design that includes two or more loops which run at the same time

	-To combine images for a purpose -To evaluate how changes can improve an image	-To describe how content can be added and accessed on the World Wide Web (WWW) -To recognise how the content of the WWW is created by people -To evaluate the consequences of unreliable content		-To recognise how a computer can help us analyse data -To identify the data needed to answer questions -To use data from sensors to answer questions		-To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition
Year 5	**Systems and Networks:** Sharing Information	**Creating Media:** Video Editing	**Data and Information:** Flat-file Databases	**Programming:** Selection in Quizzes		
Vocabulary	*system* *connection* *digital* *input* *process* *output* *search* *search engine* *refine* *index* *crawler* *bot* *ordering* *ranking* *links* *algorithm*	*vector* *drawing tool* *object* *toolbar* *vector drawing* *move* *resize* *colour* *rotate,* *duplicate/copy, zoom* *select* *align* *modify* *layers,* *order* *copy* *paste*	*database* *data* *information* *record* *field* *sort* *order* *group* *search* *value* *criteria* *graph* *chart* *axis* *compare* *filter* *presentation.*	*selection* *condition* *true* *false, count-controlled loop* *outcomes, conditional* *statement* *algorithm* *program* *debug* *question* *answer* *task* *design* *input* *implement* *test* *run*		

	search engine optimisation (SEO) *web crawler* *content creator* *selection* *searching*	*group* *ungroup* *reuse* *reflection*		*setup,* *operator*		
Embedded knowledge	-To explain that computers can be connected together to form systems -To experiment with search engines -To describe how search engines select results -To explain how search results are ranked -To recognise why the order of results is important and to whom.	To explain what makes a video effective -To identify digital devices that can record video -To captur-e video using a range of techniques -To describe how search engines select results -To explain how search results are ranked -To recognise why the order of results is important, and to whom	-To control a simple circuit connected to a computer -To write a program that includes count-controlled loops -To explain that a loop can stop when a condition is met -To explain that a loop can be used to repeatedly check whether a condition has been met -To design a physical project that includes selection -To create a program that controls a physical computing project	-To explain how selection is used in computer programs -To relate that a conditional statement connects a condition to an outcome -To explain how selection directs the flow of a program -To design a program which uses selection -To create a program which uses selection -To evaluate my program		
Year 6		**Systems and Networks:** Communication and Collaboration	**Programming:** Variables in Games		**Data and Information:** Introduction to Spreadsheets	**Creating Media:** Webpage Creation
Vocabulary		*communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration,*	*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,*	*website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google*

		internet, public, private, oneway, two-way, one-to-one, one-to-many.			*propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.*	*Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.*
Embedded knowledge		To explain the importance of internet addresses To recognise how data is transferred across the internet To explain how sharing information online can help people to work together To evaluate different ways of working together online To recognise how we communicate using technology To evaluate different methods of online communication	To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project		To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data	To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images (copyright) To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people