Computing Subject Overview

	Nursery				
Term	**Autumn Term**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Mini Mash Objectives *(these activities will be demonstrated with a short carpet focus and then children can explore those activities on ipads and laptops during provision time)*	*The focus this half term is establishing routines, building relationships with children and ensuring they can use the environment/areas of the classroom effectively.*	**Games:** I can use drag and drop to complete a jigsaw (4 piece) **Numbers & Counting:** I can click to identify which is taller. I can click to identify which is longer.	**Paint Project** I can click and drag to fill a picture (animal or any of the other options) **Number & Countings:** Number paint project 1: I can click and drag to trace a number and draw a picture (numbers 1-5) E-Safety: Stranger Danger	**Games:** I can use drag and drop to complete a jigsaw (6 piece) **Number & Countings:** Number paint project 2: I can click and drag to trace a number and draw a picture (numbers 5-10) **Reading & writing:** I can complete an iInitial sound quiz by clicking the sound button and clicking the correct word (m, a, s, d, t, i, n, p, g, o, c, k, u)	**Games:** I can click to complete a 4 or 6 card pairs game. **Reading & writing:** I can complete an iInitial sound quiz by clicking the sound button and clicking the correct word (b, f, e, l, h, r, j, v, y, w, z, q, x) **Number & Countings:** I can drag and drop to complete an ordering numbers quiz (1-5).
Computing specific Vocabulary		drag, drop, click, hold	drag, drop, click, hold, fill, image	select, drag, drop, click, hold, fill, image, order, trace	select, drag, drop, click, hold, fill, image, order, trace, pattern

	Reception					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Mini Mash/iCompute *See iCompute website Lesson Plans for objectives and specific vocabulary*	**Mini Mash -** L1 - **Numbers & Counting** - Ladybird doubling. To click and drag to form a number. L2 - **Numbers & Counting** - Ordering numbers quiz. One more and one less. To click and select the correct answer. L3 - **Reading & Writing -** Phonics, Phase 2 spellings. Click and drag the missing sound.	**Mini Mash -** L1, 2 & 3 - **Reading & Writing** - 'My Simple Story' To click, drag, drop and type to draw a picture and type a label or caption.	*iCompute* computing lessons: **L1 - iMke Algorithms** - To understand that nursery rhymes involve sequences -To create simple flow charts for popular nursery rhymes **L2 - iMake Pixel Art** - To decode simple digital images by colouring pixels **L3 - iMake Art** - To identify and compare simple 2D shapes - To use digital tools to create artwork	*iCompute* computing lessons: **L1 - iMake Media** - To understand that devices can be used to capture images - To explore using software to combine images, sound and text **L2 - iCan Move** - To develop basic mouse skills **L3 - iCan Turn** - To program a toy to move and make turns	*iCompute* computing lessons: **L1 - iCan animate** - To create a simple animation using stop motion **L2 - iCan Model** - Compare real life and virtual situations - Begin to understand that computers can represent real or imaginary situations **L3- iCan Direct** - To give and follow simple directions	*iCompute* computing lessons: **L1 - iStay Safe** - To understand that the Internet can be used to visit places and learn from - To compare staying safe online to staying safe in the real world **L2 - iSearch Online** - To search digital content **L3 - iCan program** - To give simple commands to a programmable toy
Key Vocab	*click, drag, drop, number, order, more, less, select*	*click, drag, drop, picture, letters, keyboard, draw*	*before, after, first, next, last, image, pixel, pattern, shape*	*picture, image, photograph, playing, together, control, forward, backward, turn, instruction*	*animation, real, pretend, model, up, down, forward, backward, direction*	*internet, online, website, picture, letters, search, program, code, go, forward, backwards, left, right*

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
				Year 1		
Unit	iDraw	iModel	iSafe	iProgram	iData	iWrite
	Lesson 1: iMark The children explore how computer models work and learn that they can be used to represent real or imaginary environments, situations and scenarios.	**Lesson 1: iDress** The children explore how computer models work and learn that they can be used to represent real or imaginary environments, situations and scenarios.	**Lesson 1: iWatch** To understand what being online means, how it feels and how to identify adults who can help	**Lesson 1: iRobot** The children identify everyday devices that perform an action in response to an instruction	**Lesson 1: iSurvey** To conduct a survey and produce a pictogram	**Lesson 1: iText** The children engage in a carousel of activities producing text in different ways
	Lesson 2: iShape Up To investigate simple digital mark-making tools	**Lesson 2: iDecide** To understand that computers can be used to make choices	**Lesson 2: iPlay** To understand that people online may try to manipulate others and where to go for help if you need it	**Lesson 2: iControl** Programming toys to move	**Lesson 2: iRepresent** The children create a graph using digital tools	**Lesson 2: iSentence** The children use word processing software to create text
	Lesson 3: iCopy To create digital art in the style of an artist	**Lesson 3: iVenture** To understand that a computer can be used to model an environment where choices can be made	**Lesson 3: iShare** To understand that photographs can be shared online and that permission is needed	**Lesson 3: iPlan** Planning, testing and debugging a sequence of instructions that moves a programmable toy	**Lesson 3: iPresent** The children create a pictogram using collected data	**Lesson 3: iTell** The children construct a simple story using a word processor and a word bank

	Lesson 4: illustrate	Lesson 4: iRepresent	Lesson 4: iPlay More	Lesson 4: iProgram	Lesson 4: iSort	Lesson 4: iReview
	To explore a range of digital drawing tools	To create a representation of a real or fantasy game or story	To understand online manipulation and where to go to for help if you need it	Programming virtual toys with directional commands	To sort information and present data using a graph	The children practise keyboard skills and type text about themselves
	Lesson 5: iCompile To create a representation of a real or fantasy game or story			**Lesson 5: iHunt** Recording instructions and programming objects to move to specific locations		
Vocabulary	Line, fill, undo, brush tools, paint, shape, colour, eBook, import, upload, edit	Mouse, point, click, drag, algorithm, instructions, drop, left click, choose, decide, real, fantasy, model	Trusted adult, online, manipulate, approach, shared, permission	Device, signal, instructions, respond, input, output, step, program, debugging, algorithm, sequence	survey, tally, pictogram, data, select, click, data, column, sort, graph	Return, backspace, spacebar, scroll, text, mouse, click, shift, user, connect, word, keys, keyboard, save, bold

Year 2						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Unit	iAnimate	iAnimate	isafe	iProgram1	iBlog	iProgram2
Learning objectives	**Lesson 1: iFlip** **To understand what an animation is**	**Lesson 4: iScript** To understand that animations need to be scripted	**Lesson 1: iWatch** To understand what being online means, how it feels and how to identify adults who can help	**Lesson 1: iSequence** To understand algorithms can describe everyday activities and can be followed by humans and computers	**Lesson 1: iLog In** To log in to a class blog **Lesson 2: iWrite** To know how to respond to the writing of others	**Lesson 1: iRescue** To program an animation using motion blocks
	Lesson 2: iDesign To understand that an animation consists of characters, a stage, props, sound, text and a story	**Lesson 5: iCreate** To understand that stop-frame animations involve physical characters, settings and props	**Lesson 2: iPlay** To understand that people online may try to manipulate others and where to go for help if you need it	**Lesson 2: iInstruct** To understand that algorithms are made up of steps, some of which can be repeated	**Lesson 3: iPost** To know how to post on a blog	**Lesson 2: iBehave** To use sequence, triggers, and movement in computer programs
	Lesson 3: iStoryboard To understand the importance of a storyboard in the story planning process	**Lesson 6: iFilm** To create a stop-motion animation	**Lesson 3: iShare** To understand that photographs can be shared online and that permission is needed	**Lesson 4: iMove** To program a simple animation involving movement	**Lesson 4: iJustify** To explain what you think and why	**Lesson 3: iExplore** To use sequence, selection and repetition in computer programs

			Lesson 4: iPlay More	**Lesson 6: iCreate**	**Lesson 5: iBlog**	**Lesson 4: iGrow**
			To understand online manipulation and where to go to for help if you need it	To combine images and text to create a simple animation	To use a blog to demonstrate and share learning	To use events, triggers and sequences in programs
Vocabulary	Stop motion, image, animate[tion] ,movie, character, flipbook, background, stage, sound, a udio, test,storyboard	Animation, characters, scene, stop motion, storyboard, script, setting, props, shot	personal, information, trust, safe, online, trustworthy, untrustworthy, emotions,	Algorithm, instructions, sequence, input, output, process, list, steps, order, repeat, cut, paste, undo, redo, copy, sprite, statement, execute,edit, undo, redo	Blog online, website, text, images, audio, video, webpage, hyperlink, login, username, password,post, response, comment, publish, evidence, evaluate,	programming, coding, algorithm, sequence, sprite, trigger, execute, messages, send, receive,

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Year 3					
Unit	iProgram	iPodcast	iSafe	iNetwork	iConnect	iData
Learning objectives	**Lesson 1: iMove** To program an animation that executes a sequence of statements	**Lesson 1: iRecord** To understand that technology can be used to control sound	**Lesson 1: iBlock** To understand some measures that can be taken to stay safe	**Lesson 1: iMap** To understand what a network is	**Lesson 1: iConnect** To understand that the internet is many computers that are connected	**Lesson 1: iRecord** To understand how information in a database is organised
	Lesson 2: iExplore To understand that programs with graphics use x/y coordinates	**Lesson 2: iEdit** To understand that sound can be stored digitally	**Lesson 2: iFind Out** To understand potential consequences of sharing without consent	**Lesson 2: iConnect** To know key parts of a computer network	**Lesson 2: iSurf** To use basic navigation skills to browse the world wide web	**Lesson 2: iCompare** To understand the advantages of a computer based database over a paper one
	Lesson 3: iAnimate To program a sequence of instructions that create visual effects	**Lesson 3: iPodcast** To understand what a podcast is	**Lesson 3: iFriend** To understand some of the ways we can protect ourselves online against manipulation	**Lesson 3: iNet** To understand that the internet is the physical connections between computers and networks	**Lesson 3: iBrowse** To know the main features of web browsers	**Lesson 3: iAdd** To find and enter information to create additional records in a database

	Lesson 4: iMake Music	Lesson 4: iRefine	Lesson 4: iFeel	Lesson 4: iAddress	Lesson 4: iSearch	Lesson 4: iTravel
	Lesson 4: iMake Music To understand that algorithms and programs can involve repetition	**Lesson 4: iRefine** To use digital tools to edit a podcast	**Lesson 4: iFeel** To understand the ways the internet can make young people feel about themselves	**Lesson 4: iAddress** To understand that devices on networks have a unique address	**Lesson 4: iSearch** To understand how to find information using a search engine	**Lesson 4: iTravel** To demonstrate the knowledge skills and understanding they have learned during this unit
	Lesson 5: iShape Up To use a repeat function to draw a 2D shape	**Lesson 5: iMix** **To combine audio sound and effects**	**Lesson 6: iChat** To identify several different forms advertising can take online		**Lesson 5: iCheck** To know the basic steps that can help distinguish safe and credible websites	
Vocabulary	Sprite, blocks, programming, coordinates, up, down, left, right, if, axis, sequence, animate, repeat, loop, import, record, repeat, internet, image	audio, sound, record, playback, microphone, speaker, headphones, inout, output, data, crop, trim, edit, play, pause, resume, delete, save, effects, fade,	post, message, share, privacy, settings, like/dislike, block, comment, public, private, threat, manipulation, bribe, offers, flatter, self-esteem, body image, isolate, fans, advertise, ads, target, pop up, vlog, endorse, email, website	Network, connect, network switch, server, wireless access point (WAP),Device, WIFI, router, Local Area Network [LAN], URL, Domain Name Server [DNS], Internet protocol [IP]	Network, internet, world wide web, email, communicate, connected, forward, backwards, home, router, data, images, text, audio, hyperlinks, browser, refresh/reload, address bar, URL, favourite icon, default, navigate	Database, record, question, field data, internet

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
				Year 4		
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Unit	iProgram1	iData	iSafe	iAnimate	Algorithm stand alone unit	iProgram 2
Learning objectives	**Lesson 1: iMake Blocks** To understand the need to reuse code in programming	**Lesson 1: iBinary** To understand that computers represent data as numbers and count using switches of 'on' and 'off' (0 and 1)	**Lesson 1: iPrivate** Distinguish between personal information, which is safe to share online, and private information, which is unsafe to share	**Lesson 1: iFlip** To understand what an animation is	**Algorithm** Children can explain what an algorithm is and apply it to coding and computing	**Lesson 1: iDraw** To program a turtle to execute a sequence of statements
	Lesson 2: iSync To understand that action can be programmed to synchronise	**Lesson 2: iSort** To sort record cards using field names	**Lesson 2: iPower** Generate solutions for dealing with cyberbullying	**Lesson 2: iDraw** To create a scene for an animation	**Decomposition** Children can explain what decomposition is and apply it to coding and computing	**Lesson 2: iWrite** To understand that computer programs consist of statements that perform a specific task
	Lesson 3: iScene To understand that broadcasts can be used to change scenes in Scratch	**Lesson 3: iEnter** To understand that storing information in an organised way helps answer questions	**Lesson 6: iKnow** Spam Explore strategies for safely managing unwanted messages	**Lesson 3: iFrame** To understand that animations can be created using digital tools	**Abstraction** Children can explain what abstraction is and how it might be useful in computing	**Lesson 3: iShape Up** To amend an algorithm to change the size of a shape
	Lesson 4: iDebug To detect and correct errors in a computer program	**Lesson 4: iSearch** To search a database to answer questions	**Lesson 7: iCommunicate** Analyse why private information should not be given to anyone online without the	**Lesson 4: iScene** To create an animated scene	**Pattern recognition** Children can explain what pattern recognition is and make links to	**Lesson 4: iRobot** To program a virtual robot to move and draw

			permission of a trusted adult		mathematics and computing	
	Lesson 5: iCreate To understand that code can be remixed and reused to create new content	**Lesson 5: iChart** To use the information in a database to create a simple chart	**Lesson 8: iBeat** Cyberbullying Identify strategies for dealing responsibly with cyberbullying	**Lesson 5: iProduce** To storyboard and create a short animation		**Lesson 5: iDesign** To design a program that makes choice
Vocabulary	Coding, programming, reusing, procedure, custom block, pattern recognition, wait, broadcast, timing, scene, backdrop, message, sequence, debug, fix, test,	Binary, series, base, on, off, data, digital, information, record, field, file, database, search, chart,	register, personal & private information, identity theft, cyberbully, keywords, precise, results, spam, computer virus, monitor, track, target, empathise, by/upstander	Image, camera, animation, stop, motion, illusion, onion skin, animator, frame, dimension, frame rate, FPS[frames per second] CGI [computer generated images] GIF [graphics interchange format] 3D, design, plan, storyboard	Order, compare, measure, sort, , decomposition, abstraction, algorithm,, logical reasoning, computational thinking,	Turtle, repeat, angles, degrees, repeat, value, remote control, condition, if, then, true, false, execute, statement, repeat

	Year 5					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Unit	iCrypto	iDraw	iSafe	iWeb	iProgram	iProgram
Learning objectives	**Lesson 1: iDecipher** To understand that messages can be sent and received secretly	**Lesson 1: iCreate** To understand that digital tools can be used to create images	**Lesson 1: iCommunicate** To understand the risks and benefits of various modes of communication	**Lesson 1: iShare** To understand that the world wide web is one of the services offered on the internet	**Lesson 1: iMove** To understand that computer programs containing graphics use x y coordinates and turns are measured in degrees	**Lesson 5: iScore** To program statements that make something happen in response to the value of a variable
	Lesson 2: iSignal To understand signalling is a form of communication	**Lesson 2: iShape** To understand that vector images are made up of shapes and lines	**Lesson 2: iPersonal** To understand the concept of personal and private information	**Lesson 2: iRemix** To understand that many people remix content to work on the world wide web	**Lesson 2: iSense** To understand that programs can do different things if the value of a boolean variable is true or false (conditional statements)	**Lesson 6: iDesign** To develop an outline of tasks and activities required to develop a project
	Lesson 3: iCode To understand that data can be transmitted as binary (on or off)	**Lesson 3: iDetail** To use digital tools to improve detail in images	**Lesson 3: iStay Safe** To learn the SMART rules for being online	**Lesson 3: iHack** To know that HTML gives a web page structure	**Lesson 3: iNavigate** To program statements that make something happen in response to events on screen	**Lesson 7: iCode** To use the computational concepts of sequence, selection, repetition and variables to program a computer game

	Lesson 4: iShift To encode/decode messages using a simple shift cipher	Lesson 4: iLayer To understand that vector images are constructed of layers	Lesson 5: iChat To understand how to chat sensibly and safely	Lesson 4: iDecode To read basic HTML code	Lesson 4: iVary To be able to understand what a variable is and why they are useful	Lesson 8: iTest To develop strategies for testing and debugging computer programs
	Lesson 5: iCrack Code Understand the algorithm of a simple shift cipher	**Lesson 5: iDesign** To design and create vector images	**Lesson 6: iKnow** Bullying To understand what to do if confronted with cyber bullying	**Lesson 5: iPresent** To use research for the creation of a website		
Vocabulary	Cipher, code, encrypt, decrypt, cryptography, key, signalling, semaphore, message, data, binary, encode, decode, morse, dots and dashes,dit, dah	Tools, area, resize, rotate, toolbar,, handles, canvas, undo, redo, fill, vector, stamp, duplicate, layer, send backwards, send forwards,zoom, resize, design, evaluate, improve, order, position	communication, internet, risk, personal, private, SMART, website, address, search engine, search bar, compare, user-friendly, cyber-bullying, benefit,	Internet, communicate, world wide web, email, instant messaging, HTML code, hacking, CSS, element, copyright, syntax,	Sprite, xy coordinates, condition, if/then statements, Boolean, sense, vary, change, data, type, string, memory, store	Sprite, xy coordinates, condition, if/then statements, Boolean, sense, vary, change, data, type, string, memory, store, design, storyboard, input, sequence, output, test, debug, amend, systematically

	Year 6					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Unit	iProgram	iProgram	iSafe (esafety)	iData	iApp	iApp
Learning objectives	**Lesson 1: iControl** To identify the various inputs that computer games can use	**Lesson 4: iCode** To program an algorithm according to a plan	**Lesson 4: iKind** Identify situations of harassment or bullying online	**Lesson 1: iCell** To identify some parts of a spreadsheet	**Lesson 1: iMobile** To understand the value of mobile technology and its future development	**Lesson 5: iPlan** To understand that apps are computer programs that are developed according to a plan
	Lesson 2: iGame To program a computer game by sequencing conditional statements	**Lesson 5: iDevelop** To develop a program according to a plan	**Lesson 5iUpstand** Learn there are different ways to intervene in a specific situation	**Lesson 2: iWork it Out** To understand that spreadsheets can be used to store numerical data and to make calculations	**Lesson 2: iExplore** To explore event-driven programming using a text-based programming language	**Lesson 6: iDevelop** To develop an app according to a plan
	Lesson 3: iPlan To understand that programs are developed according to a plan	**Lesson 6: iTest** To develop strategies for testing and debugging computer programs	**Lesson 6: iNice** Express feelings and opinions in positive, effective ways	**Lesson 3: iCalculate** To enter a formula to calculate totals	**Lesson 3: iPaint** To understand the importance of decomposition in programming	**Lesson 7: iDebug** To develop strategies for testing and debugging computer programs

			Lesson 7: iTone Make good decisions when choosing how and what to communicate	**Lesson 4: iRecord** To understand that graphs and charts can be created and easily be changed from spreadsheet data	**Lesson 4: iTap** To use algorithms to develop a solution to a problem	
			Lesson 9: iReport Be aware of online tools for reporting abuse			
Vocabulary	Control, input, output, simulation, condition, statement [if, then], design, plan, logical operators, variables, sprite, plan, test, bug, iteration,		report, block, abuse, trusted adult, communication, support ,advice, message, face-to-face , tone ,clarify, cyberbullying ,positive, negative, comment	Spreadsheet, cell, cell reference, calculate, format cell, formula, SUM, + - * /, Chart, graph, update	Events, test, debug, conditional, test, syntax, assets, commands, decomposition, event, variables, function, design, abstraction, algorithm, pseudo-code, input, process, output, function, interface, parameters, amend	