Computing Subject Overview

Nursery								
Те r m	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 ilnitial 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 ilnitial sound quiz by clicking the sound button and clicking the correct word (b, f, e, I, 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	Select, click, hold, drag, drop, fill, image, patter	rn, sort, order, trace						

	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	Min i 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.	Min i 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	

	Year 1						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Unit	idraw	iModel	iSafe	iAlgorithm	iProgram	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: ifollow To understand that algorithms are precise instructions that can be followed To follow a simple algorithm To devise a simple algorithm	Lesson 1: iRobot The children identify everyday devices that perform an action in response to an instruction	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: iSilly To understand that programs execute by following precise and unambiguous instructions	Lesson 2: iControl Programming toys to move	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: iSay To test and debug a simple algorithm	Lesson 3: iPlan Planning, testing and debugging a sequence of instructions that moves a programmable toy	Lesson 3: iTell The children construct a simple story using a word processor and a word bank
	Lesson 4: illustrate To explore a range of digital drawing tools	Lesson 4: iRepresent To create a representation of a real or fantasy game or story	Lesson 4: iPlay More To understand online manipulation and where to go to for help if you need it	Lesson 4: iBuild To predict the outcome of an algorithm	Lesson 4: iProgram Programming virtual toys with directional commands	Lesson 4: iReview 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: iCompose To understand conditions and outcomes	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	Sequence, instruction, forward, backwards, up, down, algorithm, debug, pattern, repeat, true, false, commands, code	Device, signal, instructions, respond, input, output, step, program, debugging, algorithm, sequence	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	iProgram	iBlog	iSearch		
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: iFind To use links to navigate a website		
	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: iAnswer To know that the world wide web can be used to answer questions		

	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: iAsk To know that the World Wide Web can be used to answer questions
			Lesson 4: iPlay More To understand online manipulation and where to go to for help if you need it	Lesson 6: iCreate To combine images and text to create a simple animation	Lesson 5: iBlog To use a blog to demonstrate and share learning	Lesson 4: iLocate To locate specific information using a website
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,	Internet, website, webpage, browse[ing] hyperlink, navigate, information, world wide web, clue, solve, information, explore, scroll, URL

	Year 3							
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
Unit	iProgram	iSimulate	iSafe	iNetwork	iConnect	iData		
Learning objectives	Lesson 1: iMove To program an animation that executes a sequence of statements	Lesson 1: iExplore To understand that computer simulations can represent real or imaginary situations	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: iRule To understand that computer simulations are guided by rules	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: iAdventure To explore the effect of changing variables in a simulation using them to make and test predictions	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 To understand that algorithms and programs can involve repetition	Lesson 4: iCircuit To understand that simulations help us understand difficult concepts	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: iSim To design and produce a computer simulation or adventure game	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, d own, left, right, if, axis, sequence, animate, repeat, loop, import, record, repeat, internet, image	Simulation, choice, rules, variables, model, pattern, predict, decision, design, effect	post, message, share, privacy, settings, like/dislike, block, comment, public, private, threat, manipulation, bribe, offers, flatter, self-esteem, body image, isolate, fans, advertise,	Network, connect, network switch, server, wireless access point (WAP),Device, WIFI, router, Local Area Network [LAN], URL, Domain Name Server [DNS], Internet	Network, internet, world wide web, email, communicate, connected, forward, backwards, home, router, data, images, text, audio,	Database, record, question, field data, internet

	ads, targe vlog, en email, w	lorse,	hyperlinks, browser, refresh/reload, address bar, URL, favourite icon, default, navigate	
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Year 4								
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2		
Unit	iProgram	iData	iSafe	iAnimate	iAlgorithm	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	Lesson 1: iSort To understand that information is easier to find in a sorted order	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	Lesson 2: iNetwork To understand that splitting problems up and solving parts at the same time can speed up finding a solution	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	Lesson 3: iMarch To understand that algorithms are a set of instructions that complete a task	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 permission of a trusted adult	Lesson 4: iScene To create an animated scene	Lesson 4: iLocate To use decomposition to approach problems	Lesson 4: iRobot To program a virtual robot to move and draw
	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: iGraph To use logical reasoning and abstraction to design algorithms	Lesson 5: iDesign To design a program that makes choice DT L.O - apply their understanding of computing to program, monitor and control their products
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, sele ct, greater/less than, left, right, node, model, decomposition, abstraction, algorithm, optimisation, logical reasoning, computational thinker	Turtle, repeat, angles, degrees, repeat, value, remote control, condition, if, then, true, false, execute, statem ent, 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, cop yright, 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, d esign, storyboard, input, sequence, output, test, debug, amend, systematically

Year 6							
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Unit	iNetwork	iProgram	iData/isafe	iApp	iApp	iModel	
Learning objectives	Lesson 1: iConnect To understand that a computer network is a group of computers that are connected	Lesson 1: iControl To identify the various inputs that computer games can use	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 1: iShape To become familiar with basic 3D modelling tools	
	Lesson 2: iRoute To understand that the internet is many networks that are connected to each other	Lesson 2: iGame To program a computer game by sequencing conditional statements	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 2: iDesign To understand that graphical models can easily be changed	

Lesson 3: iTrace To know that computers connected to the Internet have their own address	Lesson 3: iPlan To understand that programs are developed according to a plan	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 3: iDevelop To use features of graphical modelling software to develop a 3D model
Lesson 4: iSearch To know that internet search engines maintain, and rank, a list (or index) of other websites available on the world wide web	Lesson 4: iCode To program an algorithm according to a plan	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 3: iDevelop To use features of graphical modelling software to develop a 3D model
		Week 6 – E Safety Lesson 3: iPlay Put into practice what they have learnt about privacy and security			
		Week 7 – E Safety Lesson 3: iPlay Put into practice what they have learnt about privacy and security			

Vocabulary	Network, internet, wired, wireless, data, devices, communicate, connected, LAN, WAN, network switch, router, packet, data, address, ISP[internet service providers] WWW [world wide web]trace, URL, ranking, algorithm, crawling, spider, search terms, search e ngine,	Control, input, output, simulation, condition, statement [if, then], design, plan, logical operators, variables, sprite, plan, test, bug, iteration,	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,	Events, test, debug, conditional, test, syntax, assets, commands, decomposition, event, variables, function, design, abstraction, algorithm, pseudo - code, input, process, output, function, interface, parameters, amend	2D, 3D, dimensions, model, graphics, resize, scale, pan, orbit, rotate, component, workspace, view, amend, 3D model, import
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