TPA Computing Progression Map (NCCE)

Year groups	Computing Systems and Networks		Creating Media		Programming A		Programming B		Data and Information		Creating Media	
	Overview		Overview		Overview		Overview		Overview		Overview	
	Software/ Hardware	Vocabulary	Software/ Hardware	Vocabulary	Software / Hardware	Vocabulary	Software/ Hardware	Vocabulary	Software/ Hardware	Vocabulary	Software/ Hardware	Vocabulary
Reception	Kapow **Computing systems and networks: using a computer** Learning about the main parts of a computer and how to use the keyboard and mouse. Logging in and out. To do over one term due to settling in.				Kapow **Programming 1 - all about instructions** Thinking about instructions		Kapow **Programming Bee-Bots** Children learn about directions, experiment with programming a Bee-bot/Blue-bot and tinker with hardware.		Kapow **All about instructions** The children learn to receive and give instructions and understand the importance of precise instructions.		Kapow **Introduction to data** Children sort and categorise data and are introduced to branching databases and pictograms.	
	PC access purplemash (or other program to use) paint		Computer Monitor Mouse Numbers Lowercase Computer Tower Keyboard Letters Uppercase Type Computer safety Password secure lock log out protect private security personal log in arrow paint log out right click cursor stamp left click drag drop		obstacle equipment blindfold selection of clothes soft ball/beanbag digital timer camera	instructions blindfold step over walk around turn left right to the side straight on stand still stop duck under bend down walk hop tiptoe shuffle skip run timer describe two-part instructions adjective algorithm order sequence predict prediction next last first second third	arrow cards beebots	forward back backwards right left arrow direction turn straight on directions route program instructions circle algorithm debug sequence	disconnected computer hardware tools (magnifying class, screwdrivers) working technology to explore (e.g. walkie talkie, toothbrush, ipad) a digital camera ipad/tablet	mouse buttons keyboard keys motherboard USB stick system fan hard drive monitor computer tower speaker click push pull twist under on top of behind open shut larger smaller computer dial memory technology power electricity batteries on off camera ipad tablet lens point shoot capture picture image gallery	sorting boxes objects to sort chalk pen and paper camera envelopes large graph paper glue/blutack	sort categorise category group describe texture colour pattern size weight height length more less count in total altogether share divide equal bigger than smaller than thicker than thinner than branch database pictogram column square collect least popular most popular graph row data record more

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								record photograph photographer still blurred blurry crisp clear		
Year 1	**Technology around us** Recognising technology in school and using it responsibly.		**Digital painting** Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.		**Moving a robot** Writing short algorithms and programs for floor robots, and predicting program outcomes.		**Programming animations** Designing and programming the movement of a character on screen to tell stories.		**Grouping data** Exploring object labels, then using them to sort and group objects by properties.		**Digital writing** Using a computer to create and format text, before comparing to writing non-digitally.	
	Microsoft paint Purple Mash (program for mouse and keyboard skills)	Technology Computer Mouse Trackpad Keyboard Screen Typing	Microsoft Paint	Paint Program Tool Paintbrush Erase Fill Undo Primary Colours Shape Tools Brush Style Brush Size Pointillism	Bee-Bots	Turn Clear Go Commands Instructions Directions Algorithms Program Route Bee-Bot	ScratchJr	ScratchJr Bee-Bot Command Sprite Program Programming Area Block Joining Start Block Run Delete Reset Algorithm		Object Label Group Search Image Property Data Set More Less Fewer More Same	Microsoft Word	Word Processor Keyboard Mouse Keys Microsoft Word Space Backspace Cursor Text Cursor Toolbar Font Undo
Year 2	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.		**Digital photography** Capturing and changing digital photographs for different purposes		**Robot algorithms** Creating and debugging programs, and using logical reasoning to make predictions.		**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz		**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.		**Digital music** Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	
		Information Technology Computer Barcode Scan Scanner	Digital cameras Torches	Device Camera Photograph Capture Image Digital Framing Subject Compose Flash Focus Background Editing Filter Portrait Landscape	Bee-Bots	Instructions Sequence Clear Unambiguous Algorithm Program Order Command Prediction Route Mat Debugging	Scratchjr	Sequence Command Program Run Outcome Predict Blocks Sprite Algorithm Design Actions Project Modify Build Compare Debug	j2data Pictograms	More Than Less Than Most/More Least/Less Common Organise Data Objects Tally Chart Votes Total Pictogram Compare Count Explain Attribute Group Same Different Conclusion Block Diagram Sharing	Chrome Music Lab	Music Quiet Loud Pattern Rhythm Pulse Pitch Tempo Instruction Create Emotion

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Year 3	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.		**Stop-frame animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story.		**Sequencing sounds** Creating sequences in a block-based programming language to make music.		**Events and actions in programs** Writing algorithms and programs that use a range of events to trigger sequences of actions.		**Branching databases** Building and using branching databases to group objects using yes/no questions.		**Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose.	
		Technicians Digital Device Input Output Process Program Connection Network Network Switch Server Wireless Access Point (WAP)	iMotion (ipads) Corel Video Studio	Animation Flip Book Stop-Frame Animation Frame Sequence Image Photograph Setting Character Event Onion Skinning Consistency Evaluation Delete Import Transition	Scratch	Programming Blocks Commands Code Costume Backdrop Go To Glide Event Run The Code Bug Debug Point In Direction Sprite Stage Motion Sequence/Order Algorithm Note Chord	Scratch	Motion Event Sprite Algorithm Resize Extension Block Pen Up Pen Down Setup Pen Design Action Debugging Errors Code Test	j2data Branching and Pictograms	Attribute Value Questions Objects Branching Database Database Equal/Even Separate Structure Compare Order Selecting	Canva.com (NCCE rec.) Adobe Publisher	Text Images Communicate Font Template Placeholder Layout Content Desktop Publishing Copy Paste Purpose
Year 4	**The internet** Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.		**Audio production** Capturing and editing audio to produce a podcast, ensuring that copyright is considered.		**Repetition in shapes** Using a text-based programming language to explore count-controlled loops when drawing shapes.		**Repetition in games** Using a block-based programming language to explore count-controlled and infinite loops when creating a game.		**Data logging** Recognising how and why data is collected over time, before using data loggers to carry out an investigation.		**Photo editing** Manipulating digital images, and reflecting on the impact of change and whether the required purpose is fulfilled.	
	Various websites	Internet Network Router Network Security Network Switch Wireless Access Point (WAP) Website Web Page Web Address Web Browser World Wide Web Content Files Download Sharing Ownership Permission Information Accurate	Audacity	Audio Record Playback Microphone Speaker Headphones Input Output Sound Open Save File Start Pause Stop Podcast Edit Selection Mixing Time Shift Export MP3	FMSLogo (NCCE rec.) …	Program Turtle Commands Code Snippet Algorithm Debug Pattern Repeat Repetition Count-Controlled Loop Trace Decompose Procedure	Scratch	Scratch Program Sprite Blocks Code Loop Repeat Value Forever Infinite Loop Count-Controlled Loop Costume Animate Event Block Duplicate Modify Design Algorithm Debug	Data logger associated software	Data Data Logger Analyse Data Set Data Point Interval Sensor Import Export Collection Review Conclusion	Paint.net Microsfot paint pixlr.com/e	Image Edit Arrange Crop Undo Save Copyright Composition Adjustments/Alter Hue/Saturation Sepia Version Illustration Retouch Clone Recolour Magic Wand Background Foreground Original Orientation

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		Honest Adverts						Refine Evaluate				Sharpen Brighten
Year 5	**Systems and searching** Recognising IT systems in the world and how some can enable searching on the internet.		**Introduction to vector graphics** Creating images in a drawing program by using layers and groups of objects.		**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.		**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.		**Flat-file databases** Using a database to order data and create charts to answer questions.		**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects. (Yr 6 swap)	
	Google slides	System Connection Digital Input Process Output Protocol Address Packet Chat Explore Reuse Remix Collaboration	Google Drawings	Vector Objects Icons Toolbar Vector Drawing Duplicate/Copy Organise Zoom Alignment Grid Consistency Modify Layers Group Ungroup	crumble kits pcs	Microcontroller Components LED Connect Program Repetition Infinite Loop Count-Controlled Loop Condition Input Selection Action Algorithm Program Debug	Scratch	Selection Condition True False Count-Controlled Loop Outcomes Conditional Statement Algorithm Program Debug Design Input Implement Run	J2data Databases	Database Data Information Record Field Sort Order Group Search Criteria Compare Filter Graph/Chart	Tinkercad	3D Object Workplane View Resize Lift Rotate Position Select Duplicate Dimensions Hole Group Ungroup Design Modify Placeholder
Year 6	**Communication and collaboration** Exploring how data is transferred by working collaboratively online.		**Video production** Planning, capturing, and editing video to produce a short film. (yr5 swap)		**Variables in games** Exploring variables when designing and coding a game.		**Sensing movement** Designing and coding a project that captures inputs from a physical device.		**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.		**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	
	Google Slides	Search Search Engine Search Engine Optimisation Refine Index Crawler Web Crawler Bot Ranking Selection Communication Internet Public One-Way Two-Way One-To-Many SMS Email WhatsApp Blog Youtube	Microsoft software Corel Video Studio	Filming Tripod Chroma Key Scene Digital Video Editing Software Production Overlay FX Transition Capture Render	Scratch	Variable Name Value Design Event Algorithm Code Program Test Debug Improve Evaluate	Micro:bits	Micro:Bit MakeCode Input Process Output Flashing USB Selection Condition If Then Else Variable Sensing Accelerometer Compass Navigation Design Algorithm Step Counter Code Test Debug	Microsoft Excel	Spreadsheet Data Data Heading Data Item Data Set Cells Columns Rows Spreadsheet Application Format Formula Calculation Calculate Operation Duplicate Sigma Input Ouptut Cell Reference Organised Graph	Google Sites	Website Web Page Browser Media Hypertext Markup Language (HTML) Logo Layout Header Purpose Copyright Fair Use Home Page Preview Evaluate Device Google Sites Breadcrumb Trail Navigation Hyperlink Subpage

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		Twitter								Chart		External Link Embed

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National Curriculum Coverage — Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Digital music	2.6 Programming quizzes
Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions			✓			✓			✓			✓
Create and debug simple programs			✓			✓			✓			✓
Use logical reasoning to predict the behaviour of simple programs			✓			✓			✓			✓
Use technology purposefully to create, organise, store, manipulate, and retrieve digital content	✓	✓		✓	✓		✓	✓		✓	✓	✓
Recognise common uses of information technology beyond school	✓		✓				✓	✓				
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	✓			✓	✓		✓	✓	✓	✓		

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National curriculum coverage - Years 5 and 6	5.1 Systems and searching	5.2 Video production	5.3 Selection in physical computing	5.4 Flat-file databases	5.5 Introduction to vector graphics	5.6 Selection in quizzes	6.1 Communication and collaboration	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movementz
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts			✓			✓	✓		✓			✓
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output			✓			✓			✓			✓
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			✓			✓			✓			✓
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration	✓						✓					
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content		✓		✓				✓				
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	✓	✓						✓	✓		✓	