Clipston Primary School – Topic Overview for Computing

Reception	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Begin to explore the keyboard typing letters in familiar words including their name. Use the space bar. Use the delete key. Use "shift" to make a capital letter. Begin to type short sentences and captions. Use the full-stop key. Know that a search engine can be used to find information online, such as familiar teaching resources. Recognise that a range of technology is used in places such as homes and schools, and for particular purposes. Use laptops and i-pads to navigate instructions /	**Year 1:** Mouse and keyboard skills: - Move cursor and left click to select. - Click and drag to move items. - Find letters on a keyboard and begin touch-typing. Introduce programming: - Understand sequence and algorithms. - Sequence instructions (commands) to achieve an objective. - Use distances in commands. - Predict, write, execute and debug a simple program Music creation: - Create a rhythm using a pattern of beats. - Create digital sounds using patterns and shapes. - Create a simple melody using patterns and adjust tempo. Internet safety **Year 2:** Internet research: - Understand how a web-page displays information in different ways; text, images,	Internet research: - Use search technologies to find specific pieces of information. - Understand features of an Internet Browser. - Reference the correct source of information. - Check the internet for fake news by cross-referencing facts. Comic creation: - iPads / Photo Apps and associated editing software / Publishing - Add, resize and organise colour or picture backgrounds - Add, resize, organise characters/object to different panels. - Add narration using text and direct speech using speech bubbles Programming in Scratch: - block-based coding - Use sequence, selection, and repetition in programs. - Work with variables and various forms of input and output. - Debug programs that accomplish goals. Document editing and creation, including branching database: - Word / Google Docs / Pages	Graphic design: - PowerPoint / Google Slides / Keynotes - Add, adjust, fill, rotate and group shapes - Add and customise gradient effects - Adjust transparency / opacity for a purpose and use colour picker correctly Image editing: - iPads / Photo Apps and associated editing software / Publishing - Take and crop screen shots and understand ratio - Adjust colours, brightness, contrast and filters - Add drawing a text layers - Import new images as layers and resize / add effects - Save finished image to use in other projects. Programming in Scratch: - Program keyboard/touch screen inputs, selection (conditions), loops and random variables for unpredictability (operators). - Program inputs, conditions, sensing, random variables, operators for direction and data variables for scoring. - Use inputs, conditions, loops, sensing, costume changes and broadcasts. - Work with multiple sprites to send broadcast messages between them. App design:

commands to play simple games. Know the terms mouse, keyboard, key, delete, save, mouse-pad, cursor. Internet safety – know who to tell if something concerns them while online. Be able to articulate that they "feel worried" or "uncomfortable" "unsure" or "have butterflies in their tummy".	videos and interactive elements. - Use a web-page to answer questions. Programming with Scratch Jr: - Program movements. - Program outputs for audio or text - Find errors in a program - Program inputs. - Program selection/conditions (if one sprite hits another). E-book creation: - Add a book cover with title, author, colour and image. - Add multiple pages based on a theme. - Add text on different pages. - Add images on different pages to match the theme/text. - Add voice recordings to match the text and theme. Internet safety **Retrieval practice:** Other opportunities for computing will arise through other curriculum subject lessons, for example, internet research to find images, taking photos on the iPads, simple Word documents for publishing writing in English etc.	- Copy and paste text and images and format a text for a purpose - Find and replace words and add bullet points to make lists - Experiment with keyboard shortcuts - Animation: - iPads / Photo Apps and associated editing software / Publishing - Create a stop-motion video by duplicating slides that include backgrounds and shapes - Animate individual elements of objects. - Create animated GIF files by animating pixels Programming in Kodu: - block-based coding - Create a 3D place using various design tools - Write a program to control using keyboard inputs - Write a program with conditions (selection). Internet safety **Retrieval practice:** Other opportunities for computing will arise through other curriculum subject lessons, for example, internet research for self-study, photo (copying, pasting, cropping and manipulating) for Double Page Projects, Word software for publishing writing in English etc.	- PowerPoint / Google Slides / Keynotes - Adjust slide size, add text and images - Add icons and text to use as navigation - Duplicate slides to create multiple pages for the app - Create hyperlinks to create navigation Data handling: - Excel / Google Spreadsheets / Numbers - Select and use non-adjacent cells plus resize multiple cell widths and copy/paste cells. - Use formulae to find totals, averages and maximum/minimum numbers. - Search a database for specific information - Find data and create a spreadsheet to suit it. Text-based programming (Turtle Academy / Logo): - text-based coding - write and change variables accurately, use fill effects, stamps, colours, loops and functions - write text commands to programme keyboard inputs in a game - Programming a Logo turtle to move and use pen - Use co-ordinates in with a Logo turtle Internet safety **Retrieval practice:** Other opportunities for computing will arise through other curriculum subject lessons, for example, PowerPoint presentations in history/geography/science, excel graphs in maths, internet research for self-study, photo (copying, pasting, cropping and manipulating) for Double Page Projects, iMovie editing for assemblies and drama, Word software for publishing writing in English etc.

Clipston Primary School – End Points for Computing

R	Y1 or Y2	Y3 or Y4	Y5 or Y6
Programming Skills			
Progress from programmable toys to unplugged Activities. Use code blocks to sequence instructions.	With support, understand what an algorithm is.	With support, design and write programs with accurate sequences of instructions that accomplish specific goals using Scratch and Kodu.	Independently design and write more complex programs with accurate sequences of instructions that accomplish specific goals using Scratch and text-based programming (e.g. Logo).
To explore programming using toys, e.g. beebot.	Use a simple program (Scratch).	Use sequence, selection and repetition in programs.	Design and write programs, working with variables and various forms of input and output.
	Debug a simple program.	Test programs using models and simulations. Use logical reasoning to detect problems, make changes and find out what happens as a result.	Use logical reasoning to solve problems in programming and model situations and processes. Predict what will happen when variables and rules within a model are changed..
	Use logical reasoning to predict the behaviour of simple programs.	Debug simple programs and explain how they were solved.	Debug more complex programs with increasing confidence and independence, solving these problems by decomposing them into smaller parts.

R	Y1 or Y2	Y3 or Y4	Y5 or Y6
Digital Content			
Know the function of a growing number of keyboard keys.	On a computer, select and use appropriate software for task, i.e. Word and PowerPoint. Exploring font, typeface, layout, page orientation etc.	On a computer, select, use and combine a variety of software including for example, Word and internet based software.	On a computer, select, use and combine a variety of software including for example, Word, PowerPoint and Excel.
Complete a simple programme on a computer.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	On a tablet, select, use and combine a variety of software including for example, Photo apps and Video editing apps.	On a tablet, select, use and combine a variety of software including for example, Photo apps, Editing tools, Video editing apps, Google software.
Talk about a range of technology and how it is used in the home and at school.	Become more confident when creating, naming, saving and retrieving content.	Use a variety of software to collect, analyse, evaluate and present data and information, making informed choices.	Make clear connections to the audience when designing and creating digital content to collect, analyse, evaluate and present data and information.

R	Y1 or Y2	Y3 or Y4	Y5 or Y6
Digital Literacy			
Explore Digital Literacy to attain learning goals in English and Maths.	Explore and begin to identify computer systems, including hardware and software used in everyday life.	Demonstrate a knowledge of computer systems and hardware by describing devices and software used in everyday life.	Demonstrate a knowledge and understanding of computer systems and hardware by describing devices and software used in everyday life, including types of service offered e.g. through email, world wide web, and video conferencing.
		Discuss opportunities for online communication and collaboration.	Understand how computer systems are used for communication and collaboration.
Be aware of search engines and their possible uses.	Use search engines effectively. Discuss the use of reliable sources.	Use search engines effectively, becoming discerning in evaluating digital content. Check the plausibility and usefulness of the information they find.	Use search technologies proficiently. Take account of accuracy and bias when searching for and selecting information. Use different sources to check information found, considering the potential for 'fake news'.
		Know the principles of copyright and the need to cite the original source when using information found online.	Know the principles of copyright, plagiarism and the need to cite the original source when using information found online.
Know who to tell if something concerns them while online.	Be able to keep 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.	Identify ways to stay safe online and make judgements in order to stay safe while communicating with others.	Have a secure knowledge of common online safety rules and apply this by demonstrating the safe and respectful use of online services.
Be kind on and off the internet.	Be kind on and off the internet.	Be a good online citizen and friend.	Act as a role model for younger children.
	Know the implications of inappropriate online searches.	Recognise online behaviours that would be unfair. Show respect for individuals and know that they should think about the consequences before sending / posting.	Relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.
Be able to articulate to a trusted adult what they `feel worried about' if they need to.	Know ways of reporting inappropriate behaviours and content to a trusted adult.	Know who to tell if anything worries them online. Identify potential risks when presented with scenarios.	Find "report" buttons in commonly used sites and name sources of help e.g. ChildLine and CEOP.