	Code	This concept involves developing an understanding of instructions, logic and sequence.
	Connect	This concept involves developing an understanding of how to safely connect with others.
	Communicate	This concept involves using apps to communicate one's ideas.
	Collect	This concept involves developing an understanding of databases and their uses.

Upper KS2 Cycle A	Autumn		Spring		Summer	
Breadth	Computing systems and networks – Sharing information	Programming – Controlling devices	Online Safety	Data and information – Spreadsheets	Programming – Variables in games	Creating media – Web page creation
Knowledge Categories						
Overview	Learners will develop their understanding of computer systems and how information is transferred between systems and devices. Understand small-scale systems as well as large-scale systems. Explain the input, output, and process aspects of a variety of different real-world systems. Explore collaborative online project/s to develop skills in working together online.	Explore simulations of real life automatic computer systems. Build a sequences of instructions, control multiple outputs and structure algorithms with decisions and inputs. Extended by using external devices.	Understand email safety - focus on preventing and dealing with spam. Understand the importance of strong passwords and how to create them. Build on their knowledge of plagiarism and fair use of people's work by learning how to write citations and references for websites they may use. Examine photographs online and learn how easy it is to manipulate pictures and present them as reality.	Explore organising data into columns and rows to create data set. Learners will be taught the importance of formatting data to support calculations. Look at how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Use spreadsheets to plan an event and answer questions. Create graphs and charts, and evaluate their results.	Explore the concept of variables in programming through games in Scratch. Relate variables to real-world examples of values that can be set and changed. Use variables to create a simulation of a scoreboard. Experiment with variables in an existing project, then modify them. Create, design and improve own game project.	Explore the creation of websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website. Pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.
NC Links	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	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 technology safely, respectfully, and responsibly; recognise acceptable /unacceptable behaviour. 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	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.	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) to design and create content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information. Use technology safely, respectfully, and responsibly; recognise acceptable /unacceptable behaviour.

Milestone 3	Collaborate with others online on sites approved and moderated by teachers. Understand how simple networks are set up and used.	**Events:** Set events to control other events by 'broadcasting' information as a trigger. **Control:** Use IF THEN ELSE conditions to control events or objects.. **Sensing:** Use a range of sensing tools **Variables and lists:** Use lists to create a set of variables.	Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems. Understand the effect of online comments and show responsibility and sensitivity when online.	Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner. To Code: **Operators:** Use the Reporter operators to perform calculations.	**Motion:** Set IF conditions for movements. Specify types of rotation giving the number of degrees. **Looks:** Change the position of objects between screen layers (send to back, bring to front). **Sound:** **Events:** Set events to control other events by 'broadcasting' information as a trigger. **Control:** Use IF THEN ELSE conditions to control events or objects.. **Variables and lists:** Use lists to create a set of variables.	Create: Choose the most suitable applications and devices for the purposes of communication. Use many of the advanced features in order to create high quality, professional or efficient communications. Connect: Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.
Vocab	System, connection, digital, input, process, output , protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	Flow chart, input, symbol, process, program, sequence, output, input, mimic, algorithm, sub routine, decision, multiple, control, start, stop, delay, loop, variable	Email, spam, rules, password, source, cite, citation, false, content, consequence	Spreadsheet, data, data heading, data set, cells, columns and rows, data item, data set, object, application, format, common attribute, formula, calculation, input, output. cell reference, propose, question, graph, chart, evaluate, results, comparison, questions, software, tools	Variable, change, name, value, set, design, event, algorithm, code, improve, ask, artwork, program, project, code, test, debug evaluate, share	Website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed

Upper KS2 Cycle B	Autumn		Spring		Summer	
Breadth	Computing systems and networks – Communication	Programming Selection in quizzes	Online Safety	Programming – Animated Stories	Creating Media - Radio Station	Creating media – Video editing / Film Making
Knowledge Categories						
Overview	Understand the World Wide Web as a communication tool. Find information on the World Wide Web, through search engines (including how they select and rank results) and what influences searching, and through comparing different search engines. Investigate different methods of communication, explore internet-based communication. Evaluate which methods of internet communication to use for particular purposes.	Understand 'selection' by revisiting how 'conditions' can be used in programming, and then learning how the 'if… then… else…' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. Represent this understanding in algorithms, and then by constructing programs using the Scratch programming environment. Write programs that ask questions and use selection to control the outcomes based on the answers given. Design a quiz in response to a given task and implement it as a program.	Understand that the internet is a type of media, and how it can shape our ideas about boys and girls through stereotypes. Children will be given ways to deal with online content that they find worrying or even believe to be dangerous.	Develop skills in writing algorithms ; editing and debugging existing codes. Structure code and animate characters and scenes, to create a short animated story.	Use software and digital devices for recording sound. Explore interviewing, making adverts and using jingles. Other software is incorporated where children write scripts and design additional advertising. Learners will present, listen, review and evaluate their own content as well as professional and commercial examples, plus those created by their peers.	Create short videos. Understand topic-based language and develop the skills of capturing, editing, and manipulating video.
NC Links	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Use technology safely, respectfully, and responsibly; recognise acceptable /unacceptable behaviour. 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	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.	Use technology safely, respectfully, and responsibly; recognise acceptable /unacceptable behaviour. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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.	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	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
Milestone 3	Give examples of the risks of online communities and demonstrate knowledge of how	**Motion:** Set IF conditions for movements. Specify types of rotation giving the number of degrees.	Give examples of the risks of online communities and demonstrate knowledge	**Looks:** Change the position of objects between screen layers (send to back, bring to front).	Choose the most suitable applications and devices for the purposes of communication.	Choose the most suitable applications and devices for the purposes of communication.

	to minimise risk and report problems. Understand the effect of online comments and show responsibility and sensitivity when online. Understand how simple networks are set up and used.	**Looks:** Change the position of objects between screen layers (send to back, bring to front). **Events:** Set events to control other events by 'broadcasting' information as a trigger. **Control:** Use IF THEN ELSE conditions to control events or objects.. **Variables and lists:** Use lists to create a set of variables.	of how to minimise risk and report problems. Understand the effect of online comments and show responsibility and sensitivity when online.	**Sound:** Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. **Events:** Set events to control other events by 'broadcasting' information as a trigger. **Control:** Use IF THEN ELSE conditions to control events or objects.. **Variables and lists:** Use lists to create a set of variables.	Use many of the advanced features in order to create high quality, professional or efficient communications.	Use many of the advanced features in order to create high quality, professional or efficient communications.
Vocab	Search, search engine, Google, Bing, Yahoo!,, refine, Index, crawler, bot, search engine, content creator, selection, ranking, search engine optimisation, links, Communication, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, outcomes, question, answer, implement, design, outcome, test, run	Stereotype, bullying, cyberbullying, security, lock symbol, privacy, gender stereotype, information, media	Algorithm, code, edit, block, animate, scene, speech, broadcast, audio, command, repeat, animation, interactive, transition, control, timing, invisible, visible	Record, play, sound, import, rerecord, download, combine, tracks, podcast, advert	Video, audio, recording, storyboard, script, soundtrack, dialogue, Video, capture, zoom, storage, digital, tape, AV (audiovisual), save, videographer, Lighting, setting, YouTuber, content, light, camera angle, colour, export, , split, trim/clip, edit, titles, end credits, timeline, transitions, content, retake/reshoot, special effects, title screen, end credits, Video techniques: Zoom, pan, tilt, angle