



Year 1 Computing overview

Term	Autumn		Spring		Summer
Unit	Programming A-Moving a robot	Creating media-Digital Painting	Computer systems and networks - Technology around us	Creating media – Digital Writing	Programming B – Into to Animation
Enquiry Question	What is a robot?	How do I create a Digital picture?	What is Technology?	Isn't a computer keyboard old school?	How can I create my first animation?
Unit scope	<p>Children will be introduced to early programming concepts. They will explore using individual commands, both with other learners and as part of a computer program. They will identify what each command for the floor robot does, and use that knowledge to start predicting the outcome of programs.</p> <p>The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Children are also introduced to the early stages of program design through the introduction of algorithms.</p>	<p>Children will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with children considering their preferences when painting with and without the use of digital devices.</p>	<p>Children will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills.</p> <p>Children will also consider how to use technology responsibly.</p>	<p>Children will develop their understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. They will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes.</p> <p>Finally, children will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.</p>	<p>Children will be introduced to on-screen programming through ScratchJr. They will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs.</p> <p>Children will also be introduced to the early stages of program design through the introduction of algorithms.</p>
Knowledge	<ul style="list-style-type: none"> Words that can be enacted A command has a set outcome. A program is a set of commands that a computer can run A series of instructions can be issued before they are enacted 	<ul style="list-style-type: none"> Different freehand tools do different things Computers can be used to create art A tool can be adjusted to suit my need and to know when it is appropriate to use each tool Choices made have an impact. 	<ul style="list-style-type: none"> Technology is something that can help us and how so. A computer is an example of technology. Choices are made when using technology Rules are needed when using technology 	<ul style="list-style-type: none"> Know how to use Microsoft Word. Know how to change the font and use bold, italic and underline. 	<ul style="list-style-type: none"> A command has a set outcome. You press a button to run a command A program is a set of commands a computer can run A series of instructions can be issued before they are enacted

		<ul style="list-style-type: none"> There are differences between painting using a computer with painting using brushes 			
Skills	<ul style="list-style-type: none"> To enact a given word To predict the outcome of a command on a device To list which commands can be used on a given device To run a command on a floor robot To choose a command for a given purpose To build and combine a sequence of commands in steps to run a programme on a device 	<ul style="list-style-type: none"> To create a picture using freehand tools To use shape and line tools when precision is needed To use a range of paint colours To use the fill tool to colour an enclosed area To use the undo button to correct a mistake To combine a range of tools to create a piece of artwork 	<ul style="list-style-type: none"> To recognise that some technology can be used in different ways and to choose accordingly. To identify the main parts of a computer To use a mouse in different ways To use a keyboard to type and to edit text To show how to use technology safely 	<ul style="list-style-type: none"> To find and identify keys on a key pad. To use a computer to write To add and remove text on a computer using the backspace key. To change the look of the text by using bold, italic and underlining. To make careful choices when changing text, for example, changing the font, selecting a word by double clicking or clicking and dragging. To explain why I used the tools that I chose. To compare writing on a computer with writing on paper 	<ul style="list-style-type: none"> To predict the outcome of a command on a device To list that commands can be used on a given device To choose a series of commands that can enacted and be run as a program To run a program on a device
Vocabulary	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.
Education for a Connected World (Online Safety)	<p>Health, well-being and lifestyle I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples.</p> <p>Copyright and ownership I know that the work I create belongs to me. To name my work so that others know it belongs to me.</p>			I can give reasons why I should only share information with people I choose to and can trust. (Y1)	



Year 2 Computing overview					
Term	Autumn		Spring		Summer
Unit	Computer systems and networks - Information technology around us		Programming A – Robot Algorithms	Creating media – Making Music	Programming B – Programming quizzes
Enquiry Question	Does IT really make a difference?		How do I program a robot to get it to do what I want?	How do computers make music?	How can I create a quiz in ScratchJr?
Unit scope	<p>Children will develop their understanding of what information technology (IT) is and will begin to identify examples. They will discuss where they have seen IT in school and beyond, in settings such as shops, hospitals, and libraries.</p> <p>Children will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.</p>		<p>This unit develops children's understanding of instructions in sequences and the use of logical reasoning to predict outcomes. They will use given commands in different orders to investigate how the order affects the outcome.</p> <p>They will learn about design in programming and will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as</p>	<p>Children will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel.</p> <p>Children will compare creating music digitally and non-digitally. They will look at patterns and purposefully create music.</p>	<p>(This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations')</p> <p>Children will begin to understand that sequences of commands have an outcome, and make predictions based on their learning. They will use and modify designs to create their own quiz questions in ScratchJr, and realise these designs in ScratchJr using blocks of code.</p> <p>Finally, children will evaluate their work and make improvements to their programming projects.</p>
Knowledge	<ul style="list-style-type: none"> Different types of computers are used in school There are different features of information technology and they have different features There are rules of information technology and they can benefit us Choices are made when using information technology 		<ul style="list-style-type: none"> A series of instructions is a sequence Know what happens when we change the order of instructions A series of instructions can be issued before they are enacted You can predict the outcome of a program 	<ul style="list-style-type: none"> Know how to edit more complex digital data such as music compositions. Know how to use a range of media in their digital content including photos, text and sound and present ideas. Know notes in music are arranged in a sequence. Changing the order changes the sound. 	<ul style="list-style-type: none"> A series of instructions can be issued before they are enacted A series of instructions is called a 'sequence'
Skills	<ul style="list-style-type: none"> To identify information technology beyond school To show how to use information technology safely 		<ul style="list-style-type: none"> To choose a series of words or phrases that can be enacted as a sequence To create and run a programme on a device To trace a sequence to make a prediction To debug a program that I have written 	<ul style="list-style-type: none"> Listen to music, for longer periods of time, identifying differences in pieces and say how it makes me feel. Create a rhythm pattern and follow a rhythm pattern on a percussion instrument. Use a computer to experiment with pitch and duration. 	<ul style="list-style-type: none"> To use logical reasoning to predict the outcome of a program To choose a series of words or phrases that can be enacted as a sequence To run a program on a device To trace a sequence to make a prediction To create and debug a program

			<ul style="list-style-type: none"> • Use a computer to create a musical pattern using three notes, refining my pattern • Create and save a musical pattern to describe an animal. • Evaluate my work stating how I could improve it. 	<ul style="list-style-type: none"> • that I have written • To test a prediction by running the sequence
Vocabulary	Information technology (IT), computer, barcode, scanner/scan	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.
Education for a Connected World (Online Safety)	<p>Health, well-being, and lifestyle I can identify rules that help keep us safe and healthy in and beyond the home when using technology</p> <p>I will think about the choices that are made when using information technology, and the responsibility associated with those choices</p>		<p>Copyright and ownership I know that work I create belongs to me.</p> <p>I can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</p>	



Year 3 Computing overview				
Term	Autumn		Spring	Summer
Unit	Computer systems and networks - Connecting computers	Creating media – Stop frame animation	Programming A – Sequencing sounds	Programming B – Events and actions in programs
Enquiry Question	Why are networks so important?	How can I create an animation using a computer?	What are sequences?	How can I create a maze in Scratch?
Unit scope	<p>Children will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices.</p> <p>Children will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. They will discover the benefits of connecting devices in a network.</p>	<p>Children will use a range of techniques to create a stop-frame animation using tablets. They will apply those skills to create a story-based animation.</p> <p>Children will add other types of media to their animation, such as music and text.</p>	<p>This unit explores the concept of sequencing in programming through Scratch. It begins with an introduction to the programming environment, which will be new to most children. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano.</p> <p>The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Children also apply stages of program design through this unit</p>	<p>This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Children will begin by moving a sprite in four directions (up, down, left, and right). They will then explore movement within the context of a maze, using design to choose an appropriately sized sprite. This unit also introduces programming extensions, through the use of Pen blocks.</p> <p>Children will be given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with children designing and coding their own maze-tracing program.</p>
Knowledge	<ul style="list-style-type: none"> Information can be shared through multiple connections There are benefits of computer networks A network is made up of a number of components Devices in a network are connected to one another A computer system can change the way that we work Know what an input is Processes act on inputs to produce an output Changing the process can affect the output 	<ul style="list-style-type: none"> Know how to create a stop frame animation. Know how to add media to my animation. Know how to use 'onion skinning.' 	<ul style="list-style-type: none"> Know what a sequence is A programme includes a sequence of commands Programs start because of an input 	<ul style="list-style-type: none"> Know what a sequence is A programme includes a sequence of commands Programs start because of an input

Skills	<ul style="list-style-type: none"> To identify inputs and outputs devices To explain that a computer system accepts inputs and processes it to produce an output To explain how a computer network can be used to share information To explain the role of a switch, server and wireless access point in a network To identify network devices To explain how networks can be connected to other networks 	<ul style="list-style-type: none"> To explain that animation is a sequence of drawings or photographs To create a stop frame animation and predict what it will look like. To break down a story into setting, characters and events to create a storyboard. To evaluate the quality of my animation and review a series of frames to check my work. To review and improve an animation explaining how I will improve it. To evaluate the impact of adding other media to my animation 	<ul style="list-style-type: none"> To create a sequence of commands to produce a given outcome To build, order and combine commands in a program 	<ul style="list-style-type: none"> To create a sequence of commands to produce a given outcome To order commands in a program To build, combine and order commands in a program
Vocabulary	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	Animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency evaluation, animation, delete, frame, media, import, transition	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.
Education for a Connected World (Online Safety)			<p>Managing online information I can use key phrases in search engines. I can use search technologies effectively.</p> <p>Copyright and ownership I can explain why copying someone else's work from the internet without permission can cause problems. I can give examples of what those problems might be. When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples. I can give examples of content that is permitted to be reused. I can demonstrate the use of search tools to find and access online content which can be reused by others.</p>	



Year 4 Computing overview					
Term	Autumn		Spring		Summer
Unit	Computer systems and networks - The Internet		Programming A – Repetition in shape	Creating media – Audio production	Programming B – Repetition in games
Enquiry Question	Is the internet and the WWW the same thing?		What does a Turtle know about computing?	Can I really create a podcast	How easy is it to create a game in Scratch?
Unit scope	<p>Children will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create.</p> <p>Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.</p>		<p>Children will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.</p>	<p>Children will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. They will discuss the ownership of digital audio and the copyright implications of duplicating the work of others.</p> <p>In order to record audio themselves, children will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, children will evaluate their work and give feedback to their peers.</p>	<p>Children will explore the concept of repetition in programming using the Scratch environment. The unit begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where children will discover similarities between two environments.</p> <p>Children will look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.</p>
Knowledge	<ul style="list-style-type: none"> The global interconnection of networks is the internet There is a need for security when on the internet To know how information can be shared via the World Wide Web The internet enables us to view the World Wide Web and it contains websites and web pages Know how the content of the World Wide Web is created, owned, and shared by people There are benefits of the World Wide Web 		<ul style="list-style-type: none"> Know what 'repeat' means You can use a loop command in a program to repeat instructions To know that in programming there are indefinite loops and count-controlled loops An indefinite loop will run until the program is stopped and you can program a loop to stop after a specific number of times Know when to use a loop and when not to There is an importance of instruction order in a loop Not all tools enable more than one process to be run at once 	<ul style="list-style-type: none"> Know what a podcast is. Record a podcast, editing to make improvements and add sound. 	<ul style="list-style-type: none"> Know what 'repeat' means You can use a loop command in a program to repeat instructions To know that in programming there are indefinite loops and count-controlled loops An indefinite loop will run until the program is stopped and you can program a loop to stop after a specific number of times Know when to use a loop and when not to There is an importance of instruction order in a loop Not all tools enable more than one process to be run at once
Skills	<ul style="list-style-type: none"> To describe how networks connect to other networks 		<ul style="list-style-type: none"> To list an everyday task as a set of instructions including repetition 	<ul style="list-style-type: none"> To identify digital devices that can record sound and play it back and 	<ul style="list-style-type: none"> To list an everyday task as a set of instructions including repetition

	<ul style="list-style-type: none"> To describe how to access the world wide web and its current limitations To describe the types of content/media that can be added, created, and shared on the World Wide Web To evaluate the reliability of content and the consequences of unreliable content 	<ul style="list-style-type: none"> To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a given outcome To plan a program that includes appropriate loops to produce a given outcome To create two or more sequences that run at the same time 	<p>that a range of sounds can be recorded.</p> <ul style="list-style-type: none"> To plan and record a podcast, saving it as a file. To discuss how to improve my podcast and edit sections of an audio recording. To reopen my recording and add sound, using editing tools to rearrange sections of audio. 	<ul style="list-style-type: none"> To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a given outcome To plan a program that includes appropriate loops to produce a given outcome To create two or more sequences that run at the same time
Vocabulary	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate
Education for a Connected World (Online Safety)	<p><u>Managing online information</u></p> <p>I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.</p> <p>I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</p> <p>I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers).</p> <p>I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.</p>		<p><u>Copyright and ownership</u></p> <p>I can explain why copying someone else's work from the internet without permission can cause problems (Y3)</p> <p>I can give examples of what those problems might be (Y3)</p> <p>When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it (Y4)</p> <p>I can give some simple examples (Y4)</p>	



Year 5 Computing overview				
Term	Autumn		Spring	Summer
Unit	Computer systems and networks - Systems and searching	Programming A – Selection in physical computing	Creating media – Video production	Programming B – Selection in quizzes
Enquiry Question	How do search engines work?	What are carousels and are they that complicated?	How difficult is it to make a movie?	How do I make my quiz more exciting
Unit scope	<p>Children will develop their understanding of computer systems and how information is transferred between systems and devices. They will consider small-scale systems as well as large-scale systems.</p> <p>They will explain the input, output, and process aspects of a variety of different real-world systems.</p> <p>Children will discover how information is found on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines.</p>	<p>Children will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. They will be introduced to a microcontroller (Crumble controller) and learn how to connect and program it to control components (including output devices — LEDs and motors).</p> <p>Children will be introduced to conditions as a means of controlling the flow of actions in a program. They will make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the 'if...then...' structure) and write algorithms and programs that utilise this concept.</p> <p>To conclude the unit, children will design and make a working model of a fairground carousel that will demonstrate their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model.</p> <p>Throughout this unit, children will apply the stages of programming design.</p>	<p>Children will learn how to create short videos by working in pairs or groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video.</p> <p>Children are guided with step-by-step support to take their idea from conception to completion. At the conclusion of the unit, they have the opportunity to reflect on and assess their progress in creating a video.</p>	<p>Children will develop their knowledge of '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'.</p> <p>They will represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment.</p> <p>They will learn how to write programs that ask questions and use selection to control the outcomes based on the answers given. They use this knowledge to design a quiz in response to a given task and implement it as a program.</p> <p>To conclude the unit, children will evaluate their program by identifying how it meets the requirements of the task, the ways they have improved it, and further ways it could be improved.</p>
Knowledge	<ul style="list-style-type: none"> A system is a set of interconnected parts which work together Computers can be connected together to form IT systems 	<ul style="list-style-type: none"> A condition can only be true or false A count-controlled loop contains a condition A condition-controlled loop will stop 	<ul style="list-style-type: none"> Know how to use suitable video editing software Edit video to improve it. How to add audio 	<ul style="list-style-type: none"> A condition can only be true or false A count-controlled loop contains a condition A condition-controlled loop will stop

	<ul style="list-style-type: none"> Data can be transferred between IT systems Know the role of a particular IT system in their lives Search engines are examples of large IT systems Search engines create indices, and they are different for each search engine Know the role of web crawlers in creating an index Know how ranking is determined by rules, and that different search engines use different rules The order of results is important and to different people Search engines make money by selling targeted advertising space 	<ul style="list-style-type: none"> when a condition is met When a condition is met, a loop will complete a cycle before it stops Selection can be used to branch the flow of a program A loop can be used to repeatedly check whether a condition has been met Know the importance of instruction order in 'if...then...else...' statements 	<ul style="list-style-type: none"> Set video to music Add a title and credits Change the transition method and length between sections or stills. 	<ul style="list-style-type: none"> when a condition is met When a condition is met a loop will complete a cycle before it stops Selection can be used to branch the flow of a program A loop can be used to repeatedly check whether a condition has been met Know the importance of instruction order in 'if... then... else...' statements
Skills	<ul style="list-style-type: none"> To recognise inputs, processes, and outputs in large IT systems To describe the input and output of a search engine To demonstrate that different search terms produce different results To explain how search results are selected To explain that ranking orders search results to make them more useful To identify some of the limitations of search engines To evaluate the results of search terms 	<ul style="list-style-type: none"> To compare a count-controlled loop with a condition-controlled loop To create a condition-controlled loop To use a condition in an 'if...then...' statement to start an action To explain that selection can be used to branch the flow of a program To use selection to switch the program flow in one of two ways To use a condition in an 'if...then...else...' statement to produce given outcomes 	<ul style="list-style-type: none"> Explain that a video can hold visual and audio media. To plan a video using a storyboard. To make a recording taking into account light and angles. To reshot, edit and improve my video and include special effects, title screen and end credits 	<ul style="list-style-type: none"> To choose a condition to use in a program To compare a count-controlled loop with a condition-controlled loop To create a condition-controlled loop To use a condition in an 'if... then...' statement to start an action To use selection to switch program flow To use 'if... then... else...' to switch program flow in one of two ways
Vocabulary	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator
Education for a Connected World (Online Safety)	I am aware that a person's online activity, history or profile (their 'digital personality') will affect the type of information returned to them in a search or on a social media feed, and how this may be intended to		Internet safety I can technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour	

	<p>influence their beliefs, actions and choices. I can explain how search engine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results)</p>			
--	--	--	--	--



Year 6 Computing overview					
Term	Autumn		Spring		Summer
Unit	Computer systems and networks - Communication and collaboration	Programming A – Variables in games	Creating media – Web page/Sway creation	Programming B – Sensing	
Enquiry Question	Are data packets the same as crisp packets?	How do I make my games even better?	How can I get information to a lot of people?	How can I make things happen?	
Unit scope	<p>Children will explore how data is transferred over the internet. They will initially focus on addressing, before they move on to the makeup and structure of data packets.</p> <p>Children will then look at how the internet facilitates online communication and collaboration; they will complete shared projects online and evaluate different methods of communication.</p> <p>Finally, they will learn how to communicate responsibly by considering what should and should not be shared on the internet.</p>	<p>This unit explores the concept of variables in programming through games in Scratch. Children will find out what variables are and relate them to real-world examples of values that can be set and changed. They will use variables to create a simulation of a scoreboard.</p> <p>In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, children will experiment with variables in an existing project, then modify them, before they create their own project.</p> <p>In Lesson 4, children will focus on design. Finally, in Lesson 6, they will apply their knowledge of variables and design to improve their games in Scratch.</p>	<p>Children will be introduced to creating websites for a chosen purpose. They will identify what makes a good web page and use this information to design and evaluate their own website using Google Sites.</p> <p>Throughout the process, children will pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.</p>	<p>This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – ‘Programming A’). It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit.</p> <p>The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Children will then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth.</p>	
Knowledge	<ul style="list-style-type: none"> Data is transferred across networks using agreed protocols (methods) and in packets Connections between computers allow access to shared stored files, and allows people in different places to work together There are opportunities that technology offers for communication and collaboration Know which types of media can be shared through the internet <p>Communicating and collaboration using the internet can be public or private</p>	<ul style="list-style-type: none"> ‘variable’ is something that is changeable Know examples of information that is variable, for example, a football score during a match A variable can be used in a program, e.g. ‘score’ A program variable as a placeholder in memory for a single value A variable has a name and a value The value of a variable can be used by a program. The value of a variable can be updated 	<ul style="list-style-type: none"> Know how to plan and create a Web page or Sway, adding content and hyperlinks. Know that some images have copyright. 	<ul style="list-style-type: none"> A ‘variable’ as something that is changeable Know examples of information that is variable, for example, a football score during a match A variable can be used in a program, e.g. ‘score’ To know a program variable as a placeholder in memory for a single value A variable has a name and a value The value of a variable can be used by a program To know that the value of a variable can be updated 	

		<ul style="list-style-type: none"> • Variables can hold numbers (integers) or letters (strings) • Variables can be changed • A variable can be set as a constant (fixed value) • There is an importance of setting up a variable at the start of a program (initialisation) • There is only one value for a variable at any one time • If you change the value of a variable, you cannot access the previous value (cannot undo) variable, the value remains • The name of a variable is meaningless to the computer • The name of a variable needs to be unique 		<ul style="list-style-type: none"> • Variables can hold numbers (integers) or letters (strings) • Know a variable can be changed • A variable can be set as a constant (fixed value) • Setting up a variable at the start of a program (initialisation) is important • There is only one value for a variable at any one time • If you change the value of a variable, you cannot access the previous value (cannot undo) • If you read a variable, the value remains • The name of a variable is meaningless to the computer • The name of a variable needs to be unique
Skills	<ul style="list-style-type: none"> • To outline and evaluate methods of communicating and collaborating using the internet, and to choose for given purposes • To decide what you should and should not share online 	<ul style="list-style-type: none"> • To identify a variable in an existing program • To experiment with the value of an existing variable • To choose a name that identifies the role of a variable to make it easier for humans to understand it • To decide where in a program to set a variable • To update a variable with a user input • To use an event in a program to update a variable • To use a variable in a conditional statement to control the flow of a program • To use the same variable in more than one location in a program 	<ul style="list-style-type: none"> • To explore a webpage and identify the different types of media that are used in its construction and its common features. • To plan a design for a webpage that suits my purpose. • To find suitable images and consider the ownership of these images. • To add content to my page, make edits and preview it on a different device. • To make multiple pages and link them using hyperlinks. • To evaluate my/the users experience of a website. 	<ul style="list-style-type: none"> • To identify a variable in an existing program • To experiment with the value of an existing variable • To choose a name that identifies the role of a variable to make it more usable (to humans) • To decide where in a program to set a variable • To update a variable with a user input • To use an event in a program to update a variable • To use a variable in a conditional statement to control the flow of a program • To use the same variable in more than one location in a program
Vocabulary	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink,	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug

			subpage, evaluate, implication, external link, embed.	
Education for a Connected World (Online Safety)	<p>I can describe and assess the benefits and the potential risks of sharing information online.</p> <p>I can assess and justify when it is acceptable to use the work of others</p> <p>I can give examples of content that is permitted to be reused</p>		<p>Online relationships I can use the internet with adult support to communicate with people I know. (EY-7)</p> <p>Managing information online I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). (11-14)</p> <p>Copyright and ownership I can explain why copying someone else's work from the internet without permission can cause problems. I can give examples of what those problems might be. When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples. I can assess and justify when it is acceptable to use the work of others. I can give examples of content that is permitted to be reused. I can demonstrate the use of search tools to find and access online content which can be reused by others. I can demonstrate how to make references to and acknowledge sources I have used from the internet. I can explain the principles of fair use and apply this to case studies. (11-14)</p>	