THE STOKE POGES SCHOOL

Computing Long Term Plan

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**	**Data and Information**
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?	How can I group data?
Unit scope	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. 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.	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.	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. Children will also consider how to use technology responsibly.	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. 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.	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. Children will also be introduced to the early stages of program design through the introduction of algorithms	This unit introduces children to data and information. Labelling, grouping and searching are important aspects of data and information. Searching is a common operation in many applications, and requires an understanding that to search data, it may have labels. The children will focus on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. During this unit, the children will be logging on to the computers, opening their documents, and saving the latter.
Skills	• To describe what a given command will do • To act out a given word • To combine forwards and backwards commands to make a sequence	• To describe what different freehand tools do • To use the shape tool and the line tools • To make careful choices when painting a digital picture	• To identify technology • To identify a computer and its main parts • To use a mouse in different ways • To use a keyboard to type • To use the keyboard to edit text	• To use a computer to write • To add and remove text on a computer • To identify that the look of text can be changed on a computer	• To choose a command for a given purpose • To show that a series of commands can be joined together • To identify the effect of changing a value	• To label objects • To identify that objects in different ways • To count objects with the same properties • To compare groups of objects

	• To combine four direction commands t make sequences • To plan a simple program • To find more than one solution to a problem	• To explain why they chose the tool they used • To use a computer on their own to paint a picture • To compare painting a picture on a computer and on paper	• To create rules for using technology responsibly	• To make careful choices when changing text • To explain why they used the tools that they chose • To compare writing on a computer with writing on paper	• To explain that each sprite has its own instructions • To design the parts of a project • To use their algorithm to create a program	• To answer questions about groups of objects
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.	Object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same
Digital Literacy	• Use digital technology to find information • Know not to share personal information online					

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Computing Long Term Plan

Year 2 Computing overview						
Term	**Autumn**		**Spring**		**Summer**	
Unit	**Computer systems and networks - Information technology around us**	**Programming A – Robot Algorithms**	**Creating media – Digital Photography**	**Creating media – Making Music**	**Programming B – Programming quizzes**	**Pictorgrams**
Enquiry Question	Does IT really make a difference?	How do I program a robot to get it to do what I want?	How can I edit a digital image?	How do computers make music?	How can I create a quiz in ScratchJr?	How can pictograms help me understand data?
Unit scope	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. Children will then investigate how IT improves our world, and they will learn about the importance of using IT responsibly.	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. 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	Children will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.	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. Children will compare creating music digitally and non-digitally. They will look at patterns and purposefully create music.	(This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B – Programming animations') 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. Finally, children will evaluate their work and make improvements to their programming projects.	Children will begin to understand what the term data means and how data can be collected n the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Children will use the data presented to answer questions.
Skills	• To recognise the uses and features of IT • To identify IT in the home • To identify IT beyond school	• To describe a series of instructions as a sequence • To explain what happens when we change the order of instructions	• To know what devices can be used to take photographs • To use a digital device to take a photograph	• To say how music can make them feel • To identify that there are patterns in music • To describe how music can be used in different ways	• To explain that a sequence of commands has a start • To explain that a sequence of commands has an outcome	• To recognise that they can count and compare objects using tally charts • To recognise that objects can be represented as pictures

	• To explain how IT benefits us • To show how to use IT safely • To recognise that choices are made when using IT	• To use logical reasoning to predict the outcome of a program (series of commands) • To explain that programming projects can have code and artwork • To design an algorithm • To create and debug a program that they have written	• To describe what makes a good photograph • To decide how photographs can be improved • To use tools to change an image • To recognise that images can be changed	• To show how music is made from a series of notes • To create music for a purpose • To review and refine their computer work	• To create a program using a given design • To change a given design • To decide how their project can be improved	• To create a pictogram • To select objects by attribute and make comparisons • To recognise that people can be described by attributes • To explain that we can present information using a computer
Vocabulary	Information technology (IT), computer, barcode, scanner/scan	Instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	Device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	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.	More than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing
Digital Literacy	• Navigate the web to complete simple searches • Know what personal information is and why to keep it private • Can say who they would go to for help if they were worried by something they saw online • Can choose appropriate websites and avoid sites/pop ups that are not appropriate or accurate					

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Computing Long Term Plan

Year 3 Computing overview						
Term	**Autumn**		**Spring**		**Summer**	
Unit	**Computer systems and networks - Connecting computers**	**Programming A – Sequencing sounds**	**Creating media – Stop frame animation**	**Data and information – Branching databases**	**Creating media – Desktop publishing**	**Programming B – Events and actions in programs**
Enquiry Question	Why are networks so important?	What are sequences?	How can I create an animation using a computer?	How can I use questioning to organise data?	How can I create and improve word documents?	How can I create a maze in Scratch?
Unit scope	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. 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	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. 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	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. Children will add other types of media to their animation, such as music and text.	Children will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. They will create physical and on-screen branching databases. To conclude the unit, children will create an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.	Children will become familiar wit the term 'text' and 'images'. They will look at emojis and understand that they can be used to communicate messages offline and online. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Children will be introduced to the term 'template', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software.	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. 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.
Skills	• To explain how digital devices function • To identify input and output devices • To recognise how digital devices can	• To explore a new programming environment • To identify that eacy sprite is controlled by the commands	• To explain that animation is a sequence of drawings or photographs	• To create questions with yes/no answers • To identify the object attributes needed to collect relevant data	• To recognise how text and images convey information • To recognise that text and layout can be edited	• To explain how a sprite moves in an existing progect • To create a program to move a sprite in 4 directions

	change the way we work • To explain how a computer network can be used to share information • To explore how digital devices can be connected • To recognise the physical components of a network	• To explain that a program has a start • To recognise that a sequence of commands can have an order • To change the appearance of their project • To create a project from a task description	• To relate animated movements with a sequence of images • To plan an animation • To identify the need to work consistently and carefully • To review and improve an animation • To evaluate the impact of adding other media to an animation	• To create a branching database • To identify objects using a branching database • To explain why it is helpful for a database to be well structured • To compare the information shown in a pictogram with a branching database	• To choose appropriate page settings • To add content to a desktop publishing publication • To consider how different layouts can suit different purposes • To consider the benefits of desktop publishing	• To adapt a program to a new context • To develop their program by adding features • To identify and fix bugs in a program • To design and crate a maze-based challenge
Vocabulary	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	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	Animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency evaluation, animation, delete, frame, media, import, transition	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.	text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.
Digital Literacy	• Can search for information on the web in different ways • Know how to access help if they are concerned about anything on social media or the internet • Know how to use technology safely, respectfully and responsibly • Understands why passwords are used online and how to use them responsibly					

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Computing Long Term Plan

Year 4 Computing overview						
Term	**Autumn**		**Spring**		**Summer**	
Unit	**Computer systems and networks - The Internet**	**Programming A – Repetition in shape**	**Creating media – Audio production**	**Data and Information - Data logging**	**Creating Media - Photo editing**	**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 can data help an investigation?	How can we manipulate a photo?	How easy is it to create a game in Scratch?
Unit scope	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. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.	Children will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming.	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. 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.	In this unit, children will consider how and why data is collected over time. They will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. They will collect data as well as access data captured over long periods of time. Children will look at data points, data sets, and logging intervals. They will spend time using a computer review and analyse data. Towards the end of the unit, children will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	Children will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have and evaluate the effectiveness of their choices.	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. 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.
Skills	• To describe how networks physically connect to other networks • To recognise how networked devices make up the internet	• To identify that accuracy in programming is important • To create a program in a text-based language	• To identify that sound can be digitally recorded • To use a digital device to record sound • To explain that a digital recording is stored as a file	• To explain that data gathered over time can be used to answer questions • To use a digital device to collect data automatically	• To explain that digital images can be changed • To change the composition of an image • To describe how images can be	• To develop the use of count-controlled loops in a different programming environment • To explain that in programming there

	• To outline how websites can be shared via the World Wide Web • To describe how content can be added and accessed on the World Wide Web • To recognise how the content of the World Wide Web is created by people • To evaluate the consequences of unreliable content	• To explain what 'repeat' means • To modify a count-controlled loop to produce a given outcome • To decompose a program into parts • To create a program that uses count-controlled loops to produce a given outcome	• To explain that audio can be changed through editing • To show that different types of audio can be combined and played together • To evaluate editing choices made	• To explain that a data logger collects 'data points' from sensors over time • To use data collected over a long duration to find information • To identify the data needed to answer questions • To use collected data to answer questions	changed for different uses • To make good choices when selecting different tools • To recognise that not all images are real • To evaluate how changes can improve an image	are infinite loops and count controlled loops • To develop a design which includes two or more loops which run at the same time • To modify an infinite loop in a given program • To design a project that includes repetition
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.	image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion	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
Digital Literacy	• Understand that not all information on the World Wide Web is accurate • Understand how to protect their identify online and how to report any concerns • Know what to do if they see inappropriate content or they are contacted by someone they do not know online • Understand what cyberbullying is and know how to be a member of a respectful and positive online community					

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Computing Long Term Plan

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 editing**	**Data and Information - Flat-file databases**	**Creating Media - Introduction to vector graphics**	**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 can databases answer questions?	How can we create an image by layering objects?	How do I make my quiz more exciting?
Unit scope	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. They will explain the input, output, and process aspects of a variety of different real-world systems. 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.	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). 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. To conclude the unit, children will design and make a working model of a fairground carousel.	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. 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	This unit looks at how a flat-file database can be used to organise data in records. Children will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will use a real-life database to answer a question, and present their work to others.	In this unit children will start to create vector drawings. They will learn how to use different drawing tools to help them create images. They will recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. They will also layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.	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'. They will represent this understanding in algorithms, and then by constructing programs in the Scratch programming environment. 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. To conclude the unit, children will evaluate their program.

Skills	• To explain that computers can be connected together to form systems • To recognise the role of computer systems in their lives • To recognise how information is transferred over the internet • To explain how sharing information online lets people in different places work together • To contribute to a shared project online • To evaluate different ways of working together online	• To control a simple circuit connected to a computer • To write a program that includes count-controlled loops • To explain that a loop can stop when a condition is met • To conclude that a loop can be used to repeatedly check whether a condition has been met • To design a physical project that includes selection • To create a controllable system that includes selection	• To recognise video as moving pictures, which can include audio • To identify digital devices that can record video • To capture video using a digital device • To recognise the features of an effective video • To identify that video can be improved through reshooting and editing • To consider the impact of the choices made when making and sharing a video	• To use a from to record information • To compare paper and computer-based databases • To outline how grouping and then sorting data allows us to answer questions • To explain that tools can be used to select specific data • To explain that computer programs can be used to compare data visually • To apply their knowledge of a database to ask and answer real-world questions	• To identify that drawing tools can be used to produce different outcomes • To create a vector drawing by combining shapes • To use tools to achieve a desired effect • To recognise that vector drawings consist of layers • To group objects to make them easier to work with • To evaluate their vector drawing	• To explain how selection is used in computer programs • To relate that a conditional statement connects a condition to an outcome • To explain how selection directs the flow of a program • To design a program which uses selection • To evaluate their program
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.	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator
Digital Literacy	• Understand how search results are selected and ranked • Know that there are rights and responsibilities in an online community or social network • Know that there are rights and responsibilities when playing a game online • Know that too much screen time isn't healthy • Know how to stay safe when using technology to communicate with friends • Know what to do if they see inappropriate content (including pop ups) or contacted by someone they do not know online • Understand the importance of online security and how to create a secure password					

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Computing Long Term Plan

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**	**Data and Information - Introduction to spreadsheets**	**Creating Media 3D Modelling**	**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 spreadsheets be useful?	How does a 3D printer work?	How can I make things happen?
Unit scope	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. 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. Finally, they will learn how to communicate responsibly by considering what should and should not be shared on the internet.	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. 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. 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.	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. Throughout the process, children will pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	This unit introduces children to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. They will be taught the importance of formatting data to support calculations, while also being introduced to formulas. Children will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. They will use spreadsheets to plan an event and answer questions. Finally, they will create charts, and evaluate their results in comparison to questions asked.	Children will develop their knowledge and understanding of using a computer to produce 3D models. They will initially familiarise themselves with working in a 3D space, moving, resizing and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, they will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.	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. 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.
Skills	• To identify how to use a search engine • To describe how search engines select results	• To define a variable as something that is changeable	• To review an existing website and consider its structure • To plan the features of a web page	• To identify questions which can be answered using data	• To use a computer to create and manipulate 3D digital objects	• To create a program to run on a controllable device

	• To explain how search results are ranked • To recognise why the order of results is important, and to whom • To recognise how we communicate using technology • To evaluate different methods of online communication	• To explain why a variable is used in a program • To choose how to improve a game by using variables • To design a project that builds on a given example • To use their design to create a project • To evaluate their project	• To consider the ownership and use of images (copyright) • To recognise the need to preview pages • To outline the need for a navigation path • To recognise the implication of linking to content owned by other people	• To explain that objects can be described using data • To explain that formula can be used to produce calculated data • To apply formulas to data, including duplicating • To create a spreadsheet to plan an event • To choose suitable ways to present data	• To compare working digitally with 2D and 3D graphics • To construct a digital 3D model of a physical object • To identify that physical objects can be broken down into a collection of 3D shapes • To design a digital model by combining 3D objects • To develop and improve a digital 3D model	• To explain that selection can control the flow of a program • To update a variable with a user input • To use a conditional statement to compare a variable to a value • To design a project that uses input and outputs on a controllable device • To develop a program to use inputs and outputs on a controllable device
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, subpage, evaluate, implication, external link, embed.	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.	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
Digital Literacy	• Be able to carry out specific searches on the WWW • Understand how search engines work • Know some of the dangers of being online • Know how to use technology safely and positively to communicate with their friends and family • Know how to protect private information when they are online • Understand how to be respectful and responsible online as well as offline					