

KS1						
National Curriculum Statements Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions create and debug simple programs Use logical reasoning to predict the behaviour of simple programs Use technology purposefully to create, organise, store, manipulate and retrieve digital content Recognise common uses of information technology beyond school Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.						
Year 1						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	Technology around us	Digital painting	Moving a robot	Grouping data	Digital writing	Programming animations
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To identify technology and explain technology as something that helps us. To identify the main parts of a computer. To use a mouse in different ways such as opening a program and to click and drag. To use a keyboard to type on a computer, to know it's purpose and type familiar words. To use the keyboard to edit text such as deleting letters and use the arrow keys to move the cursor. To create rules for using technology responsibly	To describe what different freehand tools do, to make marks on a screen and explain which tools I used. To use the shape tool and the line tools and use the shape and line tools effectively. To make careful choices when painting a digital picture. To explain why I chose the tools I used and choose appropriate paint tools and colours to recreate the work of an artist To use a computer on my own to paint a picture with using skills of changing the brush size. To compare painting a picture on a computer and on paper	To explain what a given command will do and run a command on a device. To act out a given word and give directions. To combine 'forwards' and 'backwards' commands to make a sequence. To combine four direction commands to make sequences. To plan a simple program and explain what my program should do. To find more than one solution to a problem and use two different programs to get to the same place	To label objects and match objects to groups To identify that objects can be counted To describe objects in different ways To count objects with the same properties To compare groups of objects and describe groups of objects To answer questions about groups of objects and record and share what they have found	To use a computer to write and open a word processor. To add and remove text on a computer and enter text into a computer To identify that the look of text can be changed on a computer and type capital letters To make careful choices when changing text and select a word by double-clicking To explain why I used the tools that I chose and say what tool I used to change the text and use 'Undo' to remove changes To compare typing on a computer to writing on paper and explain the differences between typing and writing	To choose a command for a given purpose and find the commands to move a sprite To show that a series of commands can be joined together and use a Start block in a program To identify the effect of changing a value and find blocks that have numbers To explain that each sprite has its own instructions and show that a project can include more than one sprite To design the parts of a project and choose appropriate artwork for my project To use an algorithm to create a program
Vocabulary	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	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.

Tooting Primary School Computing Curriculum

Year 2						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	Information Technology Around Us	Digital Photography	Robot Algorithms	Pictograms	Digital Music	Programming Quizzes
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To recognise the uses and features of information technology and identify examples of computers To identify the uses of information technology in the school and identify that some IT can be used in more than one way To identify information technology beyond school To explain how information technology helps us and recognise common types of technology To explain how to use information technology safely and talk about different rules for using IT To recognise that choices are made when using information technology and explain the need to use IT in different ways	To use a digital device to take a photograph and recognise what devices can be used to take photographs To make choices when taking a photograph and explain the process of taking a good photograph To describe what makes a good photograph and improve a photograph by retaking it To decide how photographs can be improved and explore the effect that light has on a photo To use tools to change an image and recognise that images can be changed To recognise that photos can be changed and identify which photos are real and which have been changed	To describe a series of instructions as a sequence and choose a series of words that can be acted out as a sequence To explain what happens when we change the order of instructions and use the same instructions to create different algorithms To use logical reasoning to predict the outcome of a program and predict the outcome of a sequence To explain that programming projects can have code and artwork To design an algorithm and explain what my algorithm should achieve To create and debug a program that I have written and put together the different parts of my program	To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram and explain what the pictogram shows To select objects by attribute and make comparisons when answering 'more than'/'less than' and 'most/least' questions To recognise that people can be described by attributes To explain that we can present information using a computer and use a computer program to present information in different ways	To say how music can make us feel and identify simple differences in pieces of music To identify that there are patterns in music and play an instrument following a rhythm pattern To experiment with sound using a computer and use a computer to experiment with pitch To use a computer to create a musical pattern and explain how my music can be played in different ways To create music for a purpose and add a sequence of notes to my rhythm To review and refine our computer work and listen to music and describe how it makes me feel	To explain that a sequence of commands has a start and show how to run my program To explain that a sequence of commands has an outcome and match two sequences with the same outcome To create a program using a given design and work out the actions of a sprite in an algorithm To change a given design and choose characters for the design To create a program using my own design and create an algorithm To decide how my project can be improved and decide how my project can be improved
Vocabulary	Information technology (IT), computer, barcode, scanner/scan	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	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	Information technology (IT), computer, barcode, scanner/scan	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.

KS2						
National Curriculum Statements Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.						
Year 3						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	Connecting Computers	Stop-frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To explain how digital devices function and explain that digital devices accept inputs To identify input and output devices and classify input and output devices To recognise how digital devices can change the way that we work To explain how a computer network can be used to share information and recognise different connections To explore how digital devices can be connected and recognise that a computer network is made up of a number of devices To recognise the physical components of a network	To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation and break down a story into settings, characters and events To identify the need to work consistently and carefully To review and improve an animation and explain ways to make my animation better To evaluate the impact of adding other media to an animation	To explore a new programming environment and identify the objects in a Scratch project To identify that commands have an outcome and create a program following a design To explain that a program has a start and start a program in different ways To recognise that a sequence of commands can have an order To change the appearance of my project and build a sequence of commands To create a project from a task description and relate a task description to a design	To create questions with yes/no answers To identify the attributes needed to collect data about an object To create a branching database To explain why it is helpful for a database to be well structured To plan the structure of a branching database To independently create an identification tool	To recognise how text and images convey information To recognise that text and layout can be edited 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 explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To identify and fix bugs in a program To design and create a maze-based challenge
Vocabulary	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	animation, flip book, stop frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, 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.	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.

Year 4						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	The Internet	Audio Production	Repetition in Shapes	Data Logging	Photo Editing	Repetition in Games
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web (WWW) To describe how content can be added and accessed on the World Wide Web (WWW) To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content	To identify that sound can be recorded To explain that audio recordings can be edited To recognise the different parts of creating a podcast project To apply audio editing skills independently To combine audio to enhance my podcast project To evaluate the effective use of audio	To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given outcome To decompose a task into small steps To create a program that uses count-controlled loops to produce a given outcome	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 a data logger collects 'data points' from sensors over time To recognise how a computer can help us analyse data To identify the data needed to answer questions To use data from sensors to answer questions	To explain that the composition of digital images can be changed To explain that colours can be changed in digital images To explain how cloning can be used in photo editing To explain that images can be combined To combine images for a purpose To evaluate how changes can improve an image	To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count-controlled loops To develop a design that 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 To create 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	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.	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	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	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.

Year 5						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	Systems and Searching	Video Production	Selection in Physical Computing	Flat-file Databases	Introduction to Vector Graphics	Making Quizzes
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To identify how to use a search engine To describe how search engines select results To recognise why the order of results is important, and to whom	To explain what makes a video effective To use a digital device to record video To capture video using a range of techniques To create a storyboard 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 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 explain 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 program that controls a physical computing project	To use a form to record information To outline how you can answer questions by grouping and then sorting data To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To use a real-world database to answer 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 apply what I have learned about vector drawings	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 that uses selection To create a program that uses selection To evaluate my program I can identify ways the program could be improved
Vocabulary	system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	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.	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	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	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	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator

Year 6						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Learning	Communication and Collaboration	Webpage creation	Variables in Games	Introduction to spreadsheets	3D Modelling	Sensing movement
Strand	Computing systems and networks	Creating media	Programming	Data and information	Creating media	Programming
Learning Objectives	To explain the importance of internet addresses To recognise how data is transferred across the internet To explain how sharing information online can help people to work together To evaluate different ways of working together online To recognise how we communicate using technology To evaluate different methods of online communication	To review an existing website and consider its structure To plan the features of a web page 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 implications of linking to content owned by other people	To define a 'variable' as something that is changeable 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 my design to create a project To evaluate my project	To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data	To recognise that you can work in three dimensions To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model To create a 3D model for a given purpose To plan my own 3D model To create my own digital 3D model	To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use an conditional statement to compare a variable to a value To design a project that uses inputs 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.	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.	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	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	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.	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.