Fairfield Road Primary School
Computing Skills Progression

	Nursery			Reception		
	Autumn Busy Bodies	Spring Winter Warmers	Summer Summer Fun	Autumn Awesome Autumn	Spring Springtime	Summer Boats Ahoy
Computational Thinking and Approaches	Logic Pattern Abstraction	Creating Pattern Logic	Tinkering Creating Debugging Persevering	Creating Pattern Logic	Algorithms Decomposition Collaborating	Tinkering Logic Pattern Abstraction
Early Learning Goals and Development Matters Links	■ Children use and understand recently introduced vocabulary during discussions about stories, nonfiction,rhymes and poems and during role-play. **Understanding the World** ■ Continue developing positive attitudes about the differences between people. **Literacy** ■ Understand that print has meaning ■ Engage in extended conversations about stories, learning new vocabulary.	**ELG: Speaking** ■ Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; **ELG: Creating with Materials** ■ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; **Active Learning** ■ Respond to new experiences that you bring to their attention **Creating and thinking critically** ■ Review their progress as they try to achieve a goal. Check how well they are doing **Mathematics** ■ Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. ■ Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern.	**Active Learning** ■ Begin to correct mistakes themselves. Creating and thinking critically ■ Help children to extend their ideas through sustained discussion that goes beyond what they, and you, have noticed. **Understanding the World** ■ Explore the natural world around them.	**ELG: Creating with Materials** ■ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; **ELG: Fine Motor Skills** ■ Use a range of small tools, including scissors, paint brushes and cutlery; **Active Learning** ■ Respond to new experiences that you bring to their attention **Creating and thinking critically** ■ Review their progress as they try to achieve a goal. Check how well they are doing. **Mathematics** ■ Continue, copy and create repeating patterns. Make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern. **Understanding the world** ■ Explore the natural world around them.	**ELG: Building Relationships** ■ Work and play cooperatively and take turns with others; **ELG: The Natural World** ■ Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Understanding the world** ■ Understand the effect of changing seasons on the natural world around them. Explore the natural world around them.	Children offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate **Communication and Language** ■ Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary. **Understanding the World** ■ Comment on images of familiar situations in the past **Playing and Exploring** ■ Plan and think ahead about how they will explore or play with objects. **Creating and thinking critically** ■ Know more, so feel confident about coming up with their own ideas. ■ Make more links between those ideas.

Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems and networks	• To identify technology • To identify a computer and its main parts • To use a mouse in different ways • To use a keyboard to type on a computer • To use the keyboard to edit text • To create rules for using technology responsibly	• To recognise the uses and features of information technology • To identify information technology in the home • To identify information technology beyond school • To explain how information technology benefits us • To show how to use information technology safely • To recognise that choices are made when using information technology	• To explain how digital devices function • To identify input and output devices • To recognise how digital devices can 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 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 • To describe how content can be added and accessed on the World Wide Web • To recognise how the content of the WWW is created by people • To evaluate the consequences of unreliable content	• To explain that computers can be connected together to form systems • To recognise the role of computer systems in our 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 explain the importance of internet addresses • To explain how data is transferred across the internet • To explain how sharing information online can help people work together • To evaluate different ways of working together online • To recognise how we communicate using technology • To evaluate different methods of online communication
Vocabulary	*technology, computer, mouse, trackpad, keyboard, screen, double-click, typing*	*Information technology (IT), computer, barcode, scanner/scan*	*digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets*	*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*	*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*	*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.*

Creating Media A	• To describe what different freehand tools do • To use the shape tool and line tool • To make careful choices when painting a digital picture • To explain why I used the tools I did • To use a computer on my own to paint a picture	• To know what devices can be used to take photographs • To use a digital device to take a photograph • 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 explain that animation is a sequence of drawings or photographs • To relate animated movement 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 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 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 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 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
Vocabulary	*paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers*	*device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting*	*text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits*	*audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback*	*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*	*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*

	• To explain what a given command will do	• To describe a series of instructions as a sequence	• To explore a new programming environment	• To identify that accuracy in programming is important	• To create and evaluate algorithms for musical compositions	• To define a 'variable' as something that is changeable
Programming A	• To act out a given word • To combine forwards and backwards commands to make a sequence • To combine four direction commands to make sequences • To plan a simple program • To find more than one solution to a problem	• To explain what happens when we change the order of instructions • 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 I have written	• To identify that each sprite is controlled by the commands I choose • To explain that a program has a start • To recognise that a sequence of commands can have an order • To change the appearance of my project • To create a project from a task description	• 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 program into parts • To create a program that uses count-controlled loops to produce a given outcome	• To program and debug musical phrases on the micro:bit • To design and apply algorithms using gestures and selection • To program the micro:bit using inputs and outputs to control music • To evaluate the micro:bit as a music-making device through programming challenges	• 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
Vocabulary	*Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program*	*instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition*	*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*	*Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure*	*micro:bit, MakeCode, algorithm, debug / debugging, input, output, selection, iteration / loop / repetition, gesture, accelerometer, pitch, timbre, composition, musical phrase, trigger / event, decompose/ decomposition, evaluate*	*variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare*
Data and information	• To label objects • 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 • To answer questions about groups of object	• 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 • 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	• To create questions with yes/no answers • To create a branching database • To explain why it is helpful for a database to be well structured • To identify objects using a branching database • To identify the object attributes needed to collect relevant data • To compare the information shown in a pictogram with a branching database	• To explain that data gathered over time can be used to answer questions • To use a microbit to collect data automatically • 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	• To use a form to record information • To compare paper and computer-based databases • To apply my knowledge of a database to ask and answer real-world questions • To explain that tools can be used to select data to answer questions • To apply my knowledge of a database to ask and answer real-world questions • To apply my knowledge of a database to ask and answer real-world questions	• To create a data set in a spreadsheet • To build a data set in a spreadsheet • To explain that formulae should be used to produce calculated data • To apply formulae to data • To create a spreadsheet to plan an event • To choose suitable ways to present data

Vocabulary	*object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same*	*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*	*attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree*	*data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion, micro:bit*	*database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation*	*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*
Creating Media B	• 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 make careful choices when changing text • To explain why I used the tools that I chose • To compare writing on a computer with writing on paper	• To say how music can make us feel (not a computing related progression step) • To identify that there are patterns in music • To describe how music can be used in different ways • To show how music is made from a series of notes • To create music for a purpose • To review and refine our computer work	• 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 that digital images can be changed • To change the composition of an image • To describe how images can be 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	• 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 my vector drawing	• To recognise that you can work in 3D on a computer • 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
Vocabulary	*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.*	*music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit*	*animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition*	*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*	*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*	*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*

Programming B	• 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 explain that each sprite has its own instructions • To design the parts of a project • To use my algorithm to create a program	• To explain that a sequence of commands has a start • To explain that a sequence of commands has an outcome • To create a program using a given design • To change a given design • To create a program using my own design	• 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 (given) challenge	• 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 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 • To create a project that includes repetition	• 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 create a program which uses selection • To evaluate my program	• To create a program to run on a controllable device • To explain that selection can control the flow of a program • To update the variable with a user input • To use a 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	*ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design*	*sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code*	*motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions*	*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*	*Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operato*	*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*