Year Group	Computing Systems and Networks	Programming A	Creating Media A	Creating Media B	Data and Information	Programming B
Nursery **(Specific lessons are not necessary and skills should be taught through exploration alongside focus activities)**	What is technology? Children should begin to name different examples of technology around them and say how they can be used.	Children should be able to push buttons, pull levers or twist knobs or toys/devices to make sounds or visuals appear.	Children should use drawing programmes on iPads or computers to mark make using a finger or their mouse.	Children should use iPads or cameras to take photos.	Children should understand that computers/iPads/laptops hold data. They should be able to ask to see or hear videos or songs that can be accessed online.	Children should be able to follow a set of given instructions to move or make something i.e. following directions to move from one place to another or to build something.
Reception **(Specific lessons are not necessary and skills should be taught through exploration alongside focus activities)**	Children should be able to identify devices that they use to be help them. They should be able to identify what objects need power to work.	Children should begin to predict what happens when certain buttons are pressed on toys and devices. They should be able to turn some devices on and off.	Children should use drawing programmes on iPads or computers to create drawings using a finger or their mouse. They should try using different settings to alter colours, shapes or thicknesses. They should try creating and moving different objects.	Children should use iPads or cameras to take videos or use devices to record sound and watch/listen back.	Children should understand they can learn from technology and ask questions that could be answered using a device.	Children should be able to give instructions to move or make something. They should be able to adapt their instructions if they are not successful.

Year 1	Develop your learners' understanding of technology and how it can help them. They will become more familiar with the different components of a computer by developing their keyboard and mouse skills, and also start to consider how to use technology responsibly.	This unit introduces learners to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command 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. Learners are also introduced to the early stages of program design through the introduction of algorithms.	Explore the world of digital art and its exciting range of creative tools with your learners. Empower them to create their own paintings, while getting inspiration from a range of other artists. Conclude by asking them to consider their preferences when painting with, and without, the use of digital devices.	Promote your learners' understanding of the various aspects of using a computer to create and change text. Learners will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text.	This unit introduces pupils to data and information. They will begin by using labels to put objects into groups, and labelling these groups. Pupils will demonstrate that they can count a small number of objects, before and after the objects are grouped. They will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.	This unit introduces learners to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.
	Computing systems and networks – Technology around us Unit guide Learning graph Lessons Lesson 1 Technology in our classroom Lesson 2 Using technology Lesson 3 Developing mouse skills Lesson 4 Using a computer keyboard Lesson 5 Developing keyboard skills Lesson 6 Using a computer responsibly	**Programming A – Moving a robot** Unit guide Learning graph Lessons Lesson 1 Buttons Lesson 2 Directions Lesson 3 Forwards and backwards Lesson 4 Four directions Lesson 5 Getting there Lesson 6 Routes	**Creating media – Digital painting** Unit guide Learning graph Lessons Lesson 1 How can we paint using computers? Lesson 2 Using shapes and lines Lesson 3 Making careful choices Lesson 4 Why did I choose that? Lesson 5 Painting all by myself Lesson 6 Comparing computer art and painting	**Creating media – Digital writing** Unit guide Learning graph Lessons Lesson 1 Exploring the keyboard Lesson 2 Adding and removing text Lesson 3 Exploring the toolbar Lesson 4 Making changes to text Lesson 5 Explaining my choices Lesson 6 Pencil or keyboard	**Data and information – Grouping data** Unit guide Learning graph Lessons Lesson 1 Label and match Lesson 2 Group and count Lesson 3 Describe an object Lesson 4 Making different groups Lesson 5 Comparing groups Lesson 6 Answering questions	**Programming B – Introduction to animation** Unit guide Learning graph Lessons Lesson 1 Comparing tools Lesson 2 Joining blocks Lesson 3 Make a change Lesson 4 Adding sprites Lesson 5 Project design Lesson 6 Following my design
Year 2	How is information technology (IT) being used for good in our lives? With an initial focus on IT in the home, learners explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of	This unit develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome. Pupils will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and	Through the lessons in this unit, learners 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.	Learners will explore how music can make them think and feel. They will make patterns and use those patterns to make music with both percussion instruments and digital tools. They will also create different rhythms and tunes, using the movement of animals for inspiration. Finally, learners will share their creations	This unit introduces the learners to the term 'data'. Learners will begin to understand what data means and how this can be collected in 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	This unit initially recaps on learning from the Year 1 Scratch Junior unit 'Programming B - Introduction to animation' Learners begin to understand that sequences of commands have an outcome and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr and realise these designs in

technology, and how to make smart choices when using it.	then test those algorithms as programs and debug them.		and compare creating music digitally and non-digitally.	block diagrams. Learners will use the data presented to answer questions.	ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.
Computing systems and networks – IT around us

Unit guide
Learning graph
Lessons

Lesson 1 What is information technology?

Lesson 2 Where have we seen information technology at home?

Lesson 3 Where have we seen information technology in the world?

Lesson 4 How does information technology improve our world?

Lesson 5 Demonstrate safe use of information technology

Lesson 6 Using information technology responsibly | Programming A – Robot algorithms
Unit guide
Learning graph
Lessons

Lesson 1 Giving instructions

Lesson 2 Same but different

Lesson 3 Making predictions

Lesson 4 Mats and routes

Lesson 5 Algorithm design

Lesson 6 Debugging | Creating media – Digital photography
Unit guide
Learning graph
Lessons

Lesson 1 Devices

Lesson 2 Landscape or portrait?

Lesson 3 What makes a good photograph?

Lesson 4 Lighting and focus

Lesson 5 Effects

Lesson 6 Is it real? | Creating media – Making music
Unit guide
Learning graph
Lessons

Lesson 1 How music makes us feel

Lesson 2 Rhythms and patterns

Lesson 3 How music can be used

Lesson 4 Notes and tempo

Lesson 5 Creating digital music

Lesson 6 Reviewing and editing music | Data and information – Pictograms
Unit guide
Learning graph
Lessons

Lesson 1 Counting and comparing

Lesson 2 Enter the data

Lesson 3 Creating pictograms

Lesson 4 What is an attribute?

Lesson 5 Comparing people

Lesson 6 Presenting information | Programming B – An introduction to quizzes
Unit guide
Learning graph
Lessons

Lesson 1 ScratchJr recap

Lesson 2 Outcomes

Lesson 3 Using a design

Lesson 4 Changing a design

Lesson 5 Designing and creating a program

Lesson 6 Evaluating |

Year 3											
	Challenge your learners to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Start by comparing digital and non-digital devices, before introducing them to computer networks that include network infrastructure devices like routers and switches.		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 learners. 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. Learners also apply stages of program design through this unit.		During this unit, learners will use a range of techniques to create a stop frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with learners adding other types of media to their animation, such as music and text.		During this unit, learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', '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. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.		During this unit, learners will develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The learners will create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database.		This unit explores the links between events and actions, whilst consolidating prior learning relating to sequencing. Learners 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. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. The unit concludes with learners designing and coding their own maze tracing program.
	Computing systems and networks – Connecting computers Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 How does a digital device work? Lesson 2 What parts make up a digital device? Lesson 3 How do digital devices help us? Lesson 4 How am I connected? Lesson 5 How are computers connected? Lesson 6 What does our school network look like?		Programming A – Sequence in music Unit guide Learning graph Rubric Lessons Lesson 1 Introduction to Scratch Lesson 2 Programming sprites Lesson 3 Sequences Lesson 4 Ordering commands Lesson 5 Looking good Lesson 6 Making an instrument		Creating media – Animation Unit guide Learning graph Rubric Lessons Lesson 1 Can a picture move? Lesson 2 Frame by frame Lesson 3 What's the story? Lesson 4 Picture perfect Lesson 5 Evaluate and make it great! Lesson 6 Lights, camera, action!		Creating media – Desktop publishing Unit guide Learning graph Rubric Lessons Lesson 1 Words and pictures Lesson 2 Can you edit it? Lesson 3 Great template! Lesson 4 Can you add content? Lesson 5 Lay it out Lesson 6 Why desktop publishing?		Data and information – Branching databases Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Yes or no questions Lesson 2 Making groups Lesson 3 Creating a branching database Lesson 4 Structuring a branching database Lesson 5 Using a branching database Lesson 6 Presenting information		Programming B – Events and actions Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Moving a sprite Lesson 2 Maze movement Lesson 3 Drawing lines Lesson 4 Adding features Lesson 5 Debugging movement Lesson 6 Making a project

Year 4	During this unit learners 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 be given opportunities to explore the World Wide Web for themselves 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.	This unit is the first of the two programming units in Year 4, and looks at repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.	In this unit, learners will initially examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones) if available. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers.	In this unit, pupils will consider how and why data is collected over time. Pupils 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. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	In this unit, pupils will consider how and why data is collected over time. Pupils 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. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	This unit explores the concept of repetition in programming using the Scratch environment. It begins with a Scratch activity similar to that carried out in Logo in Programming unit A, where learners can discover similarities between two environments. Learners 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.
	Computing systems and networks – The Internet Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Connecting networks Lesson 2 What is the internet made of? Lesson 3 Sharing information Lesson 4 What is a website? Lesson 5 Who owns the web? Lesson 6 Can I believe what I read?	Programming A – Repetition in shapes Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Programming a screen turtle Lesson 2 Programming letters Lesson 3 Patterns and repeats Lesson 4 Using loops to create shapes Lesson 5 Breaking things down Lesson 6 Creating a program	Creating media – Audio editing Unit guide Learning graph Rubric Lessons Lesson 1 Digital recording Lesson 2 Recording sounds Lesson 3 Creating a podcast Lesson 4 Editing digital recordings Lesson 5 Combining audio Lesson 6 Evaluating podcasts	Creating media – Photo editing Unit guide Learning graph Rubric Lessons Lesson 1 Changing digital images Lesson 2 Changing the composition of images Lesson 3 Changing images for different uses Lesson 4 Retouching images Lesson 5 Fake images Lesson 6 Making and evaluating a publication	Data and information – Data logging Unit guide Learning graph Rubric Lessons Lesson 1 Answering questions Lesson 2 Data collection Lesson 3 Logging Lesson 4 Analysing data Lesson 5 Data for answers Lesson 6 Answering my question	Programming B – Repetition in games Unit guide Learning graph Rubric Lessons Lesson 1 Using loops to create shapes Lesson 2 Different loops Lesson 3 Animate your name Lesson 4 Modifying a game Lesson 5 Designing a game Lesson 6 Creating our games

Year 5	In this unit, learners will develop their understanding of computer systems and how information is transferred between systems and devices. Learners 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. Learners will also take part in a collaborative online project with other class members and develop their skills in working together online.	In this unit, learners will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. Learners will be introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices- LEDs and motors) through the application of their existing programming knowledge. Learners are introduced to conditions as a means of controlling the flow of actions and make use of their knowledge of repetition and conditions when introduced to the concept of selection (through the if, then structure).	In this unit learners will find out that vector images are made up of shapes. They will learn how to use the different drawing tools and how images are created in layers. They will explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work. This unit is planned using the Google Drawings app other alternative pieces of software are available.	This unit gives learners the opportunity to learn how to create short videos in 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. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Learners are guided with step-by-step support to take their idea from conception to completion. At the teacher's discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners 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. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.	In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs 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 represent this understanding in algorithms and then by constructing programs using the Scratch programming environment. They use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.
	Computing systems and networks – Sharing information Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Systems Lesson 2 Computer systems and us Lesson 3 Transferring information Lesson 4 Working together Lesson 5 Better working together Lesson 6 Shared working	Programming A – Selection in physical computing Unit guide Learning graph Rubric Lessons Lesson 1 Connecting Crumbles Lesson 2 Combining output devices Lesson 3 Controlling with conditions Lesson 4 Starting with selection Lesson 5 Drawing designs Lesson 6 Writing and testing algorithms	Creating media – Vector drawing Unit guide Learning graph Rubric Lessons Lesson 1 The drawing tools Lesson 2 Create a vector drawing Lesson 3 Being effective Lesson 4 Layers and objects Lesson 5 Manipulating objects Lesson 6 Get designing	Creating media – Video editing Unit guide Learning graph Rubric Lessons Lesson 1 What is video? Lesson 2 Identifying devices Lesson 3 Using a device Lesson 4 Features of an effective video Lesson 5 Importing and editing video Lesson 6 Video evaluation	Data and information – Flat-file databases Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Creating a paper-based database Lesson 2 Computer databases Lesson 3 Using a database Lesson 4 Using search tools Lesson 5 Comparing data visually Lesson 6 Databases in real life	Programming B – Selection in quizzes Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Exploring conditions Lesson 2 Selecting outcomes Lesson 3 Asking questions Lesson 4 Planning a quiz Lesson 5 Testing a quiz Lesson 6 Evaluating a quiz

Year 6	In this unit, the class will learn about the World Wide Web as a communication tool. First, they will learn how we find information 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. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes.	This unit explores the concept of variables in programming through games in Scratch. First, pupils will learn what variables are, and relate them to real-world examples of values that can be set and changed. Pupils will then use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, pupils will experiment with variables in an existing project, then modify them, then they will create their own project. In Lesson 4, pupils will focus on design. Finally, in Lesson 6, pupils will apply their knowledge of variables and design to improve their game in Scratch.	During this unit, learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. Learners will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. Finally, learners will examine the need to group 3D objects, then go on to plan, develop, and evaluate their own 3D model of a photo frame.	This unit introduces learners to the creation of websites for a chosen purpose. Learners identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.	This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create graphs and charts, and evaluate their results in comparison to questions asked.	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 learners the opportunity to use all of these constructs in a different, but still familiar environment whilst also utilising a physical device - the micro:bit. The unit begins with a simple program which learners build in and test in the programming environment before transferring it to their micro:bit. Learners then take on year 6 new projects in lessons 2, 3 and 4, with each lesson adding more depth.
	Computing systems and networks – Communication Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Searching the web Lesson 2 Selecting search results Lesson 3 How search results are ranked Lesson 4 How are searches influenced? Lesson 5 How we communicate	Programming A – Variables in games Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 Introducing variables Lesson 2 Variables in programming Lesson 3 Improving a game Lesson 4 Designing a game Lesson 5 Design to code Lesson 6 Improving and sharing	Creating media – 3D Modelling Unit guide Learning graph Rubric Lessons Lesson 1 What is 3D Modelling? Lesson 2 Making changes Lesson 3 Rotation and position Lesson 4 Making holes Lesson 5 Planning my own 3D model Lesson 6 Making my own 3D model	Creating media – Web page creation Unit guide Learning graph Rubric Lessons Lesson 1 What makes a good website? Lesson 2 How would you layout your web page? Lesson 3 Copyright or CopyWRONG? Lesson 4 How does it look? Lesson 5 Follow the breadcrumbs Lesson 6 Think before you link!	Data and information – Spreadsheets Unit guide Learning graph Summative assessment Summative answers Lessons Lesson 1 What is a spreadsheet? Lesson 2 Modifying spreadsheets Lesson 3 What's the formula? Lesson 4 Calculate and duplicate Lesson 5 Event planning Lesson 6 Presenting data	Programming B – Sensing Unit guide Learning graph Rubric Lessons Lesson 1 The micro:bit Lesson 2 Go with the flow Lesson 3 Sensing inputs Lesson 4 Finding your way Lesson 5 Designing a step counter Lesson 6 Making a step counter

	Lesson 6 Communicating responsibly						

Computing Systems and Networks
Multimedia skills (Creating media)
Data and information
Programming