Computing – Year 3

Autumn 1

Learners 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. Next, learners will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Finally, learners will discover the benefits of connecting devices in a network.

	CK/ Vocabulary	Skills
Computer Systems and Networks – Information Technology	• Information Technology helps us to do a job, communicate or for entertainment. • Input: Data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors. • A process is when a computer follows a set of instructions using the data that has been input. • Outputs The information produced by a computer system for its user; items on a screen, speakers, lights. Vocabulary: digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	• To identify input and output devices • To explain that a computer system accepts an input and processes it to produce an output. • To explain how a computer network can be used to share information • To explain the role of a switch, server, and wireless access point in a network. • To identify network devices around me • To explain how networks can be connected to other networks.

Autumn 2

Learners will use a range of techniques to create a stop-frame animation. 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.

	CK/ Vocabulary	Skills
Creating Media – Stop-frame Animation	• Technology can be used to create and change digital content. • Animation is a sequence of images. • When creating an animation, the capturing device needs to be in a fixed position. • Technology must be used safely, respectfully and responsibly. • Presenting is using sequence of multimedia formats to demonstrate knowledge or skills learned. Vocabulary: animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.	• Plan an animation using a storyboard • Review a sequence of images to improve work • Work consistently and carefully • Add media to improve an animation • Create an effective stop-frame animation, evaluating it.

Spring 1

Learners 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. Learners will create physical and on-screen branching databases. To conclude the unit, they 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

	CK/ Vocabulary	Skills
Data – Branching Databases	• Technology can be used to sort data. • **Data** is a collection of information that can be stored on a computer. • A **branching database** is a collection of data organised in a tree structure using yes/no or true/false questions. • **Grouping** and then **sorting** data allows us to answer questions Vocabulary: attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.	• Create questions with yes/no answers • Identify the attributes needed to collect data about an object • Create a branching database • Plan the structure of a branching database • Independently create a branching database

Spring 2		
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.		
	CK/ Vocabulary	**Skills**
Programming – Sequencing Sounds	• Programming is when you give an algorithm to a digital device so it can complete its action. • An algorithm is a precise set of ordered instructions • Algorithms need to be written in a special language called code so digital devices, can understand them. • Coding is how we communicate with computers. Code tells a computer what actions to take. • Bug: A mistake in the code. • Debug is when you check for mistakes in your code. • Sequence: steps carried out in order. Vocabulary: 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.	• Recognise that commands in Scratch are represented as blocks • Identify that commands have an outcome • Start a program in different ways • Explain what a sequence is • To change the appearance of my project • To create a project from a task description
Summer 1		
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.		
	CK/ Vocabulary	**Skills**
Creating Media – Desktop Publishing	• Information Technology helps us to do a job, communicate or for entertainment. • Desktop publishing is a way of creating documents that include both text and images, such as invitations, magazines, or newsletters using page layout software • Text is writing on a computer • Images are pictures • Page orientation: you can set your page up in portrait or landscape • Placeholders are boxes that hold the place of text or images that you are going to add to your document Vocabulary: text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	• Recognise how text and images convey information • Change font style, size, and colours for a given purpose • Choose appropriate page settings (Page orientation and placeholders) • Adds content to a desktop publishing publication • Can choose a suitable layout for a given purpose • Plans and completes their own desktop publishing page
Summer 2		

<table>
<tr><td colspan="3">This unit explores the links between events and actions, while consolidating prior learning relating to sequencing. Learners begin by moving a sprite in four directions (up, down, left, and right). They 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.</td></tr>
<tr><td rowspan="2">Programming B – Events and Actions in programs</td><td>• CK/ Vocabulary</td><td>Skills</td></tr>
<tr><td>• An algorithm is a precise set of ordered instructions which can be turned into code
• Coding is how we communicate with computers. Code tells a computer what actions to take.
• Sequence: steps carried out in order.
• Command is a specific instruction given to a computer application to perform some kind of task or function.
• Bug: A mistake in the code.
• Debugging is checking the code in a computer program to ensure it works and changing it if it doesn’t.

• Vocabulary: motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test debug, actions.</td><td>• Explain the relationship between an event and an action
• Create a program to move a sprite in four directions
• Adapt a program to a new context
• Develop my program by adding features
• identify and fix bugs in a program
• Design and create and evaluate a maze-based challenge</td></tr>
</table>