Edison Primary School

Computing & Coding Curriculum Plan

for 2022 – 2023

by Jam Coding

Units by Year Group and Computing Area: AUTUMN 2022 – SUMMER 2023

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
	PROGRAMMING		NETWORKS	DATA	CREATING MEDIA	
Year 2	Robot Algorithms	Introduction to Quizzes	Information Technology around us	Pictograms	Digital Music	Digital Photos
Year 3	Selection in Music	Events and Actions	Systems and Networks	Branching Databases	Animation	Desktop Publishing
Year 4	Repetition in Shapes	Repetition in Games	The Internet	Data Logging	Audio Editing	Photo Editing
Year 5	Selection in Physical Computing	Selection in Quizzes	Sharing Information	Flat-file Databases	Vector Drawings	Video Editing
Year 6	Variables in Games	Sensing	Communication	Spreadsheets	3D Modelling	Webpage Creation

YEAR 2 - AUTUMN 2022 - SUMMER 2023

YEAR 2	Programming		Networks	Data	Creating Media	
	Robot Algorithms	**Introduction to Quizzes**	**Information Technology around us**	**Pictograms**	**Digital Music**	**Digital Photos**
Unit Overview	Learners will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.	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 ScratchJr using blocks of code.	Learners will look at information technology at school and beyond, in settings such as shops, hospitals, and libraries. Learners will investigate how information technology improves our world, and they will learn about using information technology responsibly.	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 block diagrams. Learners will use the data presented to answer questions.	Learners will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.	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.
Software/Hardware used in plans	Robot Mouse	Scratch Jr	Web Browsers	Jet2 Data online	Chrome music lab-Rhythm	Camera on tablet / Pixlr online

YEAR 3 - AUTUMN 2022 - SUMMER 2023

YEAR 3	Programming		Networks	Data	Creating Media	
	Selection in Music	**Events and Actions**	**Systems and networks**	**Branching databases**	**Animation**	**Desktop Publishing**
Unit Overview	Learners will explore the concept of sequencing in programming through Scratch. They will be introduced to Scratch and a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. They will make a representation of a piano. .	Learners will begin by moving a sprite in four directions (up, down, left and right). The will then explore movement within the context of a maze,This unit also introduces programming extensions, through the use of pen blocks. They will design and coding their own maze tracing program.	Learners develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will compare digital and non-digital devices. Following this, they are 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.	Learners learn what a branching database is and how to create one. They will understand what attributes are and how to use them to sort groups of objects by using yes/no questions. Th# they 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.	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.	Learners 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 use these to create their own magazine front cover. They will add text and images to create their own pieces of work using desktop publishing software.
Software/Hardware used in plans	Scratch (online or offline versions available)	Scratch (online or offline versions available)	Unplugged unit- Technology will be observed but not used. paintz.app lesson 3	j2data (online resource)	Tablet with stop motion app OR webcams J2e animation/ FlipAnim/ Culture Street online	Adobe Spark/ Canva/ MS Publisher/ GoogleDocs

YEAR 4: AUTUMN 2022 – SUMMER 2023

YEAR 4	Programming		Networks	Data	Creating Media	
	Repetition in Shapes	**Repetition in Games**	**The Internet**	**Data Logging**	**Audio Editing**	**Photo Editing**
Unit Overview	Learners to identify that accuracy in programming is important. Learners to create a program in a test-based language. Learners explain what 'repeat' means. Learners to modify a count controlled loop to produce a given outcome Leanes to decompose a program into parts. Leaners to create a program that uses count controlled loops to produce a given outcome	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.	Learners will learn that the internet is 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 it 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.	Learners will find out about 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. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. They will pose questions and then use data loggers to automatically collect the data needed to answer questions.	Learners will initially examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones). They will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. They will produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files.	Learners will understand 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.

Software/Hardware used in plans	Logo- Turtle Academy	Scratch (online or offline versions available)	Web browsers	Data loggers OR tablets and Google Science Journal app.	Audacity	paint.net or another image editor

YEAR 5: AUTUMN 2022 – SUMMER 2023

YEAR 5	Programming		Networks	Data	Creating Media	
	Selection in Physical Computing	Selection in Quizzes	Sharing information	Flat-file databases	Vector Drawing	Video Editing

Unit Overview	Learners will use selection in programming through the use of the makecode.com programming environment and Micro:Bit controllers. They will connect and program components. They are introduced to condition as a means of controlling the flow of actions and explore how these can be used in algorithms and programs through the use of an input device.	Learners 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. They use algorithms and construct programs using the Scratch programming environment. They design a quiz in response to a given task and implement it as a program.	Learners will develop their understanding of computer systems and how information is transferred between systems and devices. They will explain the input, output, and process aspects of a variety of different real-world systems. They will also take part in a collaborative online project with other class members and develop their skills in working together online.	Learners 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.	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.	Learners will create short videos in groups. They will develop the skills of capturing, editing, and manipulating video.
Software/Hardware used in plans	Micro:Bits	Scratch (online and offline versions available)	Collaborative apps such as GoogleDocs	j2data	Google Drawings, MS Publisher or MS Powerpoint	Video editing software such as Windows Movie Maker Green Screen & GreenScreen Apps (optional)

YEAR 6: AUTUMN 2022 – SUMMER 2023

YEAR 6	Programming		Networks	Data	Creating Media	
	Variables in Games	Sensing	Communication	Spreadsheets	3D Modelling	Webpage creation

Unit Overview	This unit explores the concept of variables in programming through games in Scratch. First, learners will learn what variables are, Learners will then use variables to create a simulation of a scoreboard. They will experiment with variables in an existing project, then modify them, then they will create their own project. Finally, learners will apply their knowledge of variables and design to improve their game in Scratch.	This unit brings together elements of all the four programming constructs: sequence repetition, selection and variables. 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. Learners will apply their knowledge of the programming constructs and use their design to create their own micro:bit based step counter.	Learners will learn about the World Wide Web as a communication tool. 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,Finally, they will evaluate which methods of internet communication to use for particular purposes.	Learners will organise data into columns and rows to create their own data set. They will format data to support calculations. They are introduced to formulas and begin to understand how these can be used to produce calculated data. They will apply formulas which include a range of cells and apply formulas to multiple cells by duplicating them. They will use spreadsheets to plan an event. Finally they will create graphs and charts and evaluate their results in comparison to questions asked.	Learners will use a computer to produce 3D models.They will combine 3D objects to make a house They will progress to making accurate 3D models of physical objects, such as a pencil holder, which 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.	Learners are introduced to the creation of 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. Specific attention will be paid to copyright and fair use of media, the aesthetics of the site, and navigation paths.
Software/Hardware used in plans	Scratch (online and offline versions available)	Micro:bit	Web browser	Excel/ GoogleSheets (account needed)	TinkerCad (online resource, teacher account needed)	GoogleSites (account needed)