Computing Learning Sequence Document - Year 3/4 - 2022/2023

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	Staying safe online. Connecting computers (3.1)	Sequencing sound (3.3)	Events and actions in programs (3.6)	Creating media, animations (3.2)	Repetition in shapes (4.3)	Repetition in games (4.6)
Learning Outcomes	Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	Creating sequences in a block-based programming language to make music.	Writing algorithms and programs that use a range of events to trigger sequences of actions.	Capturing and editing digital still images to produce a stop-frame animation that tells a story.	Using a text-based programming language to explore count-controlled loops when drawing shapes.	Using a block-based programming language to explore count-controlled and infinite loops when creating a game.
Science Knowledge NC Focus:	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.	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 error in algorithms and programs. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.	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 error in algorithms and programs. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.	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 error in algorithms and programs. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.	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 error in algorithms and programs. 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 and content that accomplish given goals, including collecting, analysing, evaluating and presenting data.
Prior learning:	Technology around us (1.1) Information technology around us. (2.1) Staying safe online	Making music (2.5)	Sequencing sound (3.4)	Events and actions in programs (3.6)	Creating media, animations (3.2)	Repetition in shapes (4.3)
Sequence of learning:	To explain how digital devices function	To explore a new programming environment	To explain how a sprite moves in an existing project	To explain that animation is a sequence of drawings or photographs	To identify that accuracy in programming is important	To develop the use of count-controlled loops in a different programming environment
	To identify input and output devices	To identify that commands have an outcome	To create a program to move a sprite in four directions	To relate animated movement with a sequence of images	To create a program in a text-based language	To explain that in programming there are infinite loops and count controlled loops
	To recognise how digital devices can change the way we work	To explain that a program has a start	To adapt a program to a new context	To plan an animation	To explain what 'repeat' means	To develop a design that includes two or more loops which run at the same time
	To explain how a computer network can be used to share information	To recognise that a sequence of commands can have an order	To develop my program by adding features	To identify the need to work consistently and carefully	To modify a count-controlled loop to produce a given outcome	To modify an infinite loop in a given program
	To explore how digital devices can be connected	To change the appearance of my project	To identify and fix bugs in a program	To review and improve an animation	To decompose a task into small steps	To design a project that includes repetition
	To recognise the physical components of a network	To create a project from a task description	To design and create a maze-based challenge	To evaluate the impact of adding other media to an animation	To create a program that uses count-controlled loops to produce a given outcome	To create a project that includes repetition

End Point:	Children are able to describe how digital devices can be connected to form a network.	Children learn to use a programming platform.	Children create a programme that moves an object across / around a screen.	Children create a stop frame animation.	Children create a programme using shapes.	Children create a game.
Class Topic	From Stone Age to the Romans.	From Stone Age to the Romans.	Exploring the characteristics of Earths layers, volcanic, tectonic and seismic activity.	Exploring the characteristics of Earths layers, volcanic, tectonic and seismic activity.	Learning the characteristic and features of rivers and mountain ranges	Learning the characteristic and features of rivers and mountain ranges
Linking to class topic suggestion.		Create rhymical music suitable for Stone Age peoples.	Can the sprite be made to move like someone in an earthquake?	Stop frame animation to explore Earths layers		Children to create a mountain climbing game?