Curriculum and Progression in Computing

Intent:

The computing curriculum at Rothbury First School is designed to give children access to technology from a young age whilst providing a solid understanding of its uses and limitations. The curriculum is intended to be delivered using a spread of devices and unplugged lessons and activities should be chosen to complement the curriculum delivery in other subjects. Children should learn that computers present another way to present information and should produce work that can be shared with the world, such as podcasts, e-books and websites. Children should understand that technology should be used with purpose and understand the benefits that technology can bring us. The Rothbury First School computing curriculum is based on the NCCE Teach Computing Curriculum but personalised for our setting.

Year A/B	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
Early years	People who help us in the community	Colour and Light	Space	Pets	Minibeasts	Food
Year A	Y1/2 E Safety Computer Logins Y3/4 E Safety Computer Logins	Y3/4 Animation	Y1/2 Beebots, Beebots IPad. Link To Maths Y3/4 Desktop publishing	Y3/4 Data logging	Y1/2 Daisy Dinosaur 2 Simple Point: Mondrian Y3/4 Photo editing	Y3/4 Programming
Year B	Y1/2 E Safety Computer Logins	Y1/2 IPad Camera Y3 Programming	Y4 - Music production linked to	Branching Databases	Y1/2 JIT Write / Paint	Y3 - Music production linked to

	Y3/4 E Safety Computer Logins	A/B Sequence in Music/Events and Actions Y4 - Music production linked to music composition	music composition	(Science) Y3- Music production linked to music composition	Y4 Programming B - Repetition in Games Y3 - Music production linked to music composition	music composition

	What will a Rothbury First School Computer Scientist look like?		
	At the end of Reception they will have the following knowledge:	At the end of Year 2 they will have the following knowledge:	At the end of Year 4 they will have the following knowledge:
Being a Computer Scientist.	Understand uses of technology in the classroom and at home.	Explain how technology benefits our lives. How to use technology safely. Make effective choices when using technology. Understanding of digital recording. Identify patterns in music. Create music using technology. Understand basic logical reasoning.	Describe computer networks including the World Wide Web. How to record, edit and sound with a computer. How to take, manipulate and publish digital images. How to evaluate data taken over time How to use count-controlled loops to program simple computer games.

Progression of Skills

	EYFS	Year 1	Year 2	Year 3	Year 4
Computing System and Networks	**Technology around us.** To identify technology	**Technology around us** To identify technology	**Information technology around us**	**Connecting computers** To explain how digital	**The internet** To describe how networks physically

	devices. To use technology safely	To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type 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	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	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
Creating Media		**Digital painting** To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used	**Digital photography** 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	**Stop-frame animation** 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	**Audio editing** 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 use a computer on my own to paint a picture To compare painting a picture on a computer and on paper **Digital writing** 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 use tools to change an image To recognise that images can be changed **Making music** To say how music can make us feel 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	and carefully To review and improve an animation To evaluate the impact of adding other media to an animation **Desktop publishing** 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 show that different types of audio can be combined and played together To evaluate editing choices made **Photo editing** 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
Data and Information		**Grouping data** To label objects To identify that objects can be counted To describe objects in different ways To count objects with the same properties	**Pictograms** To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures	**Branching databases** To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database	**Data logging** To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data

		To compare groups of objects To answer questions about groups of objects	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 identify objects using a branching database To explain why it is helpful for a database to be well structured To compare the information shown in a pictogram with a branching database	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
Programming	**Basic Commands** To understand forwards/backwards/ left/right	**Moving a robot** To explain what a given command will do 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 **Introduction to animation** To choose a command for a given purpose To show that a series	**Robot algorithms** To describe a series of instructions as a sequence 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 **Introduction to quizzes**	**Sequence in music** To explore a new programming environment I can 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 **Events and actions** To explain how a sprite moves in an existing project	**Repetition in shapes** To identify that accuracy in programming is important 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 **Repetition in games** To develop the use of

		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 decide how my project can be improved	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 challenge	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

Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4
Computer, smart phone, robot, telephone, camera,	Online Safety Technology, computer, mouse, trackpad, keyboard, screen, click, drag, input device, shift, spacebar, capital letter, full stop, safely, responsibly	Online safety Information technology (IT), computer, barcode, scanner/scan Device, camera, photograph, capture, image, digital, landscape,	Digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP) Animation, flip book, stop frame, animation, frame,	Internet, network, router, network security, network switch, wireless access point (WAP), router, website, web page, web address, router, routing, route tracing, browser, World Wide Web, content, links, files, use, download,

	Paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool, Henri Matisse, Wassily Kandinsky, feelings, colour, brush style, George Seurat, Pointillism, prefer, dislike, like Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, route, program Object, label, group, search, image, colour, shape, property, value, data set, less, most, fewest, the same Word processor, keyboard, keys, letters, Microsoft Word, letters, numbers, space, backspace, text cursor, toolbar, bold, italic, underline, undo, font, toolbar ScratchJr, Bee-Bot, command, sprite,	portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject, matter, flash, focus, background, foreground, editing, filter, pixel, changed, real Instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, artwork, design, route, mat, debugging More than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, data, tally chart, compare, count, explain, attribute, group, same, different, most popular, least popular Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, create, open, edit Sequence, command, program, run, program, start, predict, blocks, actions, sprite, modify, match, debug, features,	sequence, image, photograph, setting, character, events, onion skinning, consistency, delete, frame, media, import, transition Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, event, task, design, code, run the code, order, note, chord, algorithm, bug, debug Attribute, value, questions, table, objects, branching databases, objects, equal, even, separate, order, organise, j2data, selecting, pictogram, information, decision tree, questions Text, images, advantages, disadvantages, communicate, font, style, template, desktop publishing, copy, paste, layout, purpose, benefits Motion, event, sprite, algorithm, logic, move, resize, algorithm, extension block, pen up, set up, design, action,	sharing, ownership, permission, accurate, honest, adverts Audio, record, playback, microphone, speaker, headphones, input, output, start, stop, podcast, save, file, selection, edit, mixing, time shift, export, MP3, evaluate, feedback Program, turtle, commands, code, snippet, algorithm, design, debug, logo commands, pattern, repeat, repetition, count-controlled loop, value, decompose, procedure Data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, import, export, logged, collection, analyse, review, conclusion Image, edit, arrange, select, digital, crop, undo, save, search, copyright, composition, save, pixels, rotate, flip, adjustments, effects, colours, hue/saturation, sepia,

	compare, programming, programming area, block, joining, start, program, background, delete, reset, algorithm, predict, effect, change, value, block, instructions, appropriate, design	evaluate	debugging, errors, setup, test	version, illustrator, clone, recolour, magic wand, sharpen, brighten, fake, real, composite, background, foreground, retouch, paste, alter, publication, elements, original, font style, border, layer Scratch, programming, sprite, blocks, code, loop, repeat, value, forever, infinite loop, count-controlled loop, animate, costume, event block, duplicate, modify, debug, refine, evaluate, algorithm