Farnworth CE Primary School
Curriculum Map
Computing

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Computer Science – Coding** We are treasure hunters Pupils learn: • that a programmable robot can be controlled by inputting a sequence of instructions • to develop and record sequences of instructions as an algorithm • to program a robot to follow their algorithm • to debug programs • to predict how their programs will work.	**Information Technology – Creativity** We are digital artists Pupils learn: • how to select and set brushes and colours • to create artwork in a range of styles on iPads • to use the undo function if they make mistakes, and to encourage experimentation • to use multiple layers in their art • to transform layers • to paint on top of photographs.	**Digital Literacy – Online Safety** We are publishers Pupils learn to: • plan a small multimedia eBook • choose and import images • record audio commentary • add and format titles and other text • think carefully about protecting their privacy • respect other people's copyright • revise and improve their work.	**Computer Science – Computational Thinking** We are TV chefs Pupils learn to: • break down a process into simple, clear steps (an algorithm) • use different features of a video camera • use a video camera to capture moving images • edit a video to include an audio commentary • develop collaboration skills • discuss their work and think about how it could be improved.	**Information Technology – Media** We are rhythmic Pupils learn to: • record audio on an iPad • program sprites to playback recorded audio in ScratchJr • program ScratchJr to create repeating rhythms using recorded audio • explore different effects that can be applied to audio • create a repeating percussion pattern using a virtual drum machine • experiment with a range of virtual instruments.	**Information Technology – Data** We are detectives Pupils learn: • how data can be structured as records with fields for information • how data can be organised into groups and subgroups • how data can be structured as a tree • how data can be organised into a table • how data in a table can be filtered and searched.

Year 2	**Computer Science – Coding** We Are Astronauts Pupils learn to: ● plan a sequence of instructions to move sprites in ScratchJr ● create, test and debug programs for sprites in ScratchJr ● work with input and output in ScratchJr ● use repetition in their programs ● design costumes for sprites.	**Computer Science – Computational Thinking** We Are Game Testers Pupils learn to: ● observe and describe carefully what happens in computer games ● use logical reasoning to make predictions of what a program will do and test these predictions ● think critically about computer games and their use ● create sequences of instructions for a virtual robot to solve a problem ● work out strategies for playing a game well ● be aware of how to use games safely and in balance with other activities.	**Information Technology – Media** We Are Photographers Pupils learn to: ● consider the technical and artistic merits of photographs ● use the iPad camera app ● take digital photographs ● review, reject or pick the images they take ● edit and enhance their photographs	**Digital Literacy – Online Safety** We Are Safe Researchers Pupils learn to: ● develop collaboration skills through working as part of a group ● develop research skills through searching for information on the Internet ● think through privacy implications of their use of search engines ● be more discerning in evaluating online information ● improve note-taking skills through the use of mind mapping ● develop presentation skills through creating and delivering a short multimedia presentation.	**Information Technology – Media** We Are Animators Pupils learn to: ● understand how animation works ● use storyboards to plan an animation ● create their own original characters, props and backgrounds for an animation ● film, review and edit a stop-motion animation ● record audio to accompany their animation ● provide constructively critical feedback to their peers.	**Information Technology – Data** We Are Zoologists Pupils learn to: ● sort and classify a group of items by answering questions ● collect data using tick charts or tally charts ● take, edit and enhance photographs ● use Google Sheets or Microsoft Excel to produce basic charts ● record information on a digital map ● summarise what they have learned in a presentation.

Year 3	**Computer Science – Coding** We are programmers Pupils learn to: ● plan and create an algorithm for an animated scene in the form of a storyboard ● write a program in Scratch to create the animation, including characters, dialogue, costumes, backdrops and sound ● review their animation programs and correct mistakes.	**Computer Science – Computational Thinking** We Are bug fixers Pupils learn to: ● develop a number of strategies for finding errors in programs ● build up resilience and strategies for problem solving ● increase their knowledge and understanding of Scratch ● recognise a number of common types of bugs in software.	**Information Technology – Media** We are presenters Pupils learn to: ● develop their web-based research skills ● structure, prepare and deliver a talk about a given topic or subtopic studied in another curriculum area ● record a piece to camera ● edit a movie using static images and green screen footage ● give constructive, critical feedback on recorded presentations.	**Digital Literacy – Online Safety** We are who we are Pupils learn to: ● create a number of structured presentations ● narrate presentations ● consider issues of trust and privacy when sharing information.	**Information Technology – Media** We are co-authors Pupils learn to: ● understand the conventions for collaborative online work, particularly in wikis ● be aware of their responsibilities when editing other people's work ● become familiar with Wikipedia, including potential problems associated with its use ● practise research skills ● write for a target audience using a wiki tool ● develop collaboration skills ● develop proofreading skills.	**Information Technology – Data** We are opinion pollsters Pupils learn to: ● understand some elements of survey design ● understand some ethical and legal aspects of online data collection ● use the Internet to facilitate data collection ● use charts to analyse data ● interpret results.
Year 4	**Computer Science – Coding** We are software Developers Pupils learn to: ● develop an educational computer game using selection and repetition	**Computer Science – Coding** We are makers Pupils learn: ● about the input – process – output model of computation ● about the inputs and outputs available	**Information Technology – Media** We are musicians Pupils learn to: ● create a repeating percussion rhythm ● play music using virtual instruments	**Digital Literacy – Online Safety** We are bloggers Pupils learn to: ● become familiar with blogs as a medium and a genre of writing	**Computer Science – Coding** We are artists Pupils learn to: ● develop an appreciation of the links between geometry and art	**Information Technology – Data** We are Meteorologists Pupils learn to: ● understand different measurement

	• understand and use variables • start to debug computer programs • recognise the importance of user interface design, including consideration of input and output.	on a BBC micro:bit • to program using the MakeCode blockbased environment • to test and debug programs they write, using an on-screen simulator and the micro:bit • how to convert and transfer a program written on screen to the micro:bit.	• compose or edit tunes using the piano roll (pitch and duration) tool • perform electronic music using prerecorded loops, and create their own loops • create a multi-track composition or performance using multiple instruments • give feedback to others on their compositions and performances.	• create a sequence of blog posts on a theme • incorporate additional media • comment on the posts of others • develop a critical, reflective view of a range of media, including text.	• become familiar with the tools and techniques of a vector graphics package • develop an understanding of turtle graphics • experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers • develop some awareness of computer generated art.	techniques for weather – both analogue and digital • use computer-based data logging to automate the recording of some weather data • use spreadsheets to create charts • analyse data, explore inconsistencies in data and make predictions • practise using presentation and video software.
Year 5	**Information Technology – Media** We are adventure gamers Pupils learn: • how to plan a non-linear presentation • to create text as part of a presentation • to add and edit images in a presentation	**Computer Science – Coding** We are game developers Pupils learn to: • create original artwork and sound for a game • design and create a computer program for a computer game, which uses sequence, selection, repetition and	**Digital Literacy – Online Safety** We are web developers Pupils learn: • the name and function of components making up the school's network • how information is passed between	**Computer Science – Computational Thinking** We are cryptographers Pupils learn to: • be familiar with semaphore and Morse code • understand the need for private	**Information Technology – Media** We are architects Pupils learn to: • understand the work of architects, designers and engineers working in 3-D • develop familiarity with a simple CAD	**Information Technology – Media** We are VR designers Pupils learn to: • explore real-world and imagined locations in VR (if possible) • create 360° photosphere images • link physical objects to digital content

	• to use hyperlinks for navigation between the slides of a presentation • to record and add audio narration to a presentation • to use commenting tools to give feedback on a presentation.	variables • detect and correct errors in their computer game • use iterative development techniques (making and testing a series of small changes) to improve their game.	the components that make up the Internet • what the source code for a web page looks like, and how it can be edited • how a website can be structured • how to add content to a web page.	information to be encrypted • encrypt and decrypt messages in simple ciphers • appreciate the need to use complex passwords and to keep them secure • have some understanding of how encryption works on the Internet.	(computer-aided design) tool • develop spatial awareness by exploring and experimenting with a 3-D virtual environment • develop greater aesthetic awareness.	using QR codes • create their own VR scene • program objects and interactions in VR.
Year 6	**Computer Science – Coding** We are toy makers Pupils learn: • how computers use stored programs to connect input to output • how to generate and evaluate designs in response to a brief • to plan a complex project by decomposing it into smaller parts • to work with physical components of a system • how to design and write a program for an embedded system	**Computer Science – Computational Thinking** We are computational thinkers Pupils learn to: • develop the ability to reason logically about algorithms • understand how some key algorithms can be expressed as programs • understand that some algorithms are more efficient than others for the same problem • understand common algorithms for searching and sorting a list.	**Information Technology – Media** We are advertisers Pupils learn to: • think critically about how video is used to promote a cause • storyboard an effective advert for a cause • work collaboratively to shoot original footage and source additional content • acknowledge intellectual property rights	**Information Technology – Media** We are publishers Pupils learn to: • manage or contribute to large collaborative projects, facilitated using online tools • write and review content • source digital media while demonstrating safe, respectful and responsible use • design and produce a high-quality print document.	**Digital Literacy – Online Safety** We are connected Pupils learn: • about appropriate rules or guidelines for a civil online discussion • how search results are selected and ranked • how to argue their point effectively, supporting their views with sources • how to counter someone else's argument while showing respect and tolerance	**Computer Science – Coding** We are AI developers Pupils learn: • how decision trees can be trained automatically to classify data • how speech recognition works • how a neural net recognises images • to train a neural net to classify images • to train a machine learning system to identify sentiments • to consider some ethical principles in

	● to use criteria to provide others with feedback on their work.		● work collaboratively to edit the assembled content to make an effective advert.		● how to judge the reliability of an online source ● some strategies for dealing with online bullying.	designing AI systems.