



Computing Curriculum Map

The Teach Computing Scheme of Work is used to support our planning and teaching of Computing at Cuffley School. Across EYFS, KS1 and KS2, the children will participate in Internet Safety Day to ensure that they are using technology safely and respectfully.

The National Curriculum aims for Key Stage 1 and Key Stage 2 are:

- To understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- To analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- To evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- To be responsible, competent, confident and creative users of information and communication technology.

Nursery	<p>Curriculum content (Development Matters):</p> <p>The following areas of learning are interlinked with the Computing curriculum:</p> <p>Personal, Social and Emotional Development</p> <ul style="list-style-type: none">• Select and use activities and resources, with help, when needed.• Develop their sense of responsibility and membership of a community <p>Expressive Arts and Design</p> <ul style="list-style-type: none">• Draw with increasing complexity and detail• Use drawing to represent ideas like movement or loud noises• Create closed shapes with continuous lines and begin to use these shapes to represent objects <p>Understanding the World</p> <ul style="list-style-type: none">• Talk about what they see using a wide vocabulary• Explore how things work
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	Autumn	Spring	Summer
	<p>Technology in the Environment</p> <p>In this unit, pupils begin to understand that a range of technology is used around them (both at school and at home). They are able to select and use technology for particular purposes. This includes using iPads to scan QR codes.</p>	<p>Digital Art</p> <p>This unit enables pupils to explore the ways we use technology to draw. Using the iPads, they will begin to develop an understanding of a range of tools used for digital paintings before creating their own.</p>	<p>Using Technology to Record</p> <p>In this unit, pupils will explore the different ways in which images and videos can be captured and viewed. This includes using iPads to capture and record videos in the Forest School area.</p>

Reception	<p>Curriculum content (Development Matters [DM] & Early Learning Goals [ELG]):</p> <p>The following areas of learning are interlinked with the Computing curriculum:</p> <p>Communication and Language</p> <ul style="list-style-type: none"> Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions [ELG] <p>Speaking</p> <ul style="list-style-type: none"> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary [ELG] Offer explanations for why things might happen, making use of recently introduced vocabulary [ELG] <p>Fine Motor Skills</p> <ul style="list-style-type: none"> Begin to show accuracy and care when drawing [ELG] <p>Literacy</p> <ul style="list-style-type: none"> Write (<i>type</i>) some or all of their name [DM] <p>Expressive Arts and Design</p> <ul style="list-style-type: none"> Explore, use and refine a variety of artistic effects to express their ideas and feelings [DM] Return to and build on their previous learning, refining ideas and developing their ability to represent them [DM] Share their creations, explaining the process they have used [ELG]
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	Autumn	Spring	Summer
	<p>Technology in the Environment</p> <p>In this unit, pupils build upon their understanding of technology and its use around them (both at school and at home). They are able to select and use technology for particular purposes. They are able to select and use technology for particular purposes. This includes using iPads to scan QR codes and using the interactive whiteboard in the classroom.</p>	<p>Creating Media - Digital Writing and Painting</p> <p>This unit enables pupils to explore the ways we use technology to write and draw. Using the iPads, they will begin to develop their knowledge of the keyboard. This includes typing their name. They will build on their understanding of using a range of tools used for digital paintings before creating their own.</p>	<p>Moving a Robot</p> <p>In this unit, pupils begin to build the early foundation for programming through the investigation of technology and digital toys in the classroom. They will begin to use simple programming language to play with and control simple onscreen and physical devices. This includes the use of BeeBots.</p>

Key Stage 1	Curriculum content (National Curriculum):					
	<ul style="list-style-type: none"> To understand what algorithms are; how they are implemented as programs on digital devices and that programs execute by following precise and unambiguous instructions To create and debug simple programs use logical reasoning to predict the behaviour of simple programs To use technology purposefully to create, organise, store, manipulate and retrieve digital content To recognise common uses of information technology beyond school To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies 					
Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Computer Systems and Networks – Technology Around Us	Creating Media – Digital Painting	Programming A – Moving a Robot	Data and Information – Grouping Data	Creating media – Digital Writing	Programming B – Programming Animations

	<p>This unit develops an understanding of technology and how it can help in everyday life. Pupils will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. They will also start to consider how to use technology responsibly.</p>	<p>This unit develops an understanding of a range of tools used for digital painting. This will enable pupils to create their own digital paintings while gaining inspiration from a range of artists' work. They will consider their preferences while painting with or without digital devices.</p>	<p>This unit introduces early programming concepts. Pupils will explore using individual commands. They will identify the commands for a floor robot and predict the outcome of programs. They will be introduced to the early stages of program design through the introduction of algorithms.</p>	<p>This unit is an introduction to data and information. It focuses on assigning data with different labels in order to demonstrate how computers are able to group and present data. Pupils will also log on to the computers to open and save their documents.</p>	<p>This unit develops an understanding of the various aspects of using a computer to create and manipulate text. They will become more familiar with using a keyboard and mouse to enter and remove text. They will consider how to change the look of their text using a computer.</p>	<p>This unit introduces on-screen programming through ScratchJr. Pupils will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. They will be introduced to the early stages of program design through the introduction of algorithms.</p>
Assessment:	Technology Around Us	Digital Painting	Moving a Robot	Grouping Data	Digital Writing	Programming Animations



Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Computing Systems and Networks – IT Around Us</p> <p>In this unit, pupils will develop their understanding of what information technology (IT) is. They will discuss where they have seen IT in school and beyond. They will investigate how IT improves our world and learn about the importance of using IT responsibly.</p>	<p>Creating Media – Digital Photography</p> <p>In this unit, pupils will learn to recognise that different devices can be used to capture photographs through capturing, editing and improving their own photos. They will use this knowledge to recognise that images they see may not be real.</p>	<p>Programming A – Robot Algorithms</p> <p>This unit develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. They will learn how to use commands in different orders and design their own algorithms to test and debug.</p>	<p>Data and Information – Pictograms</p> <p>This unit introduces pupils to the term 'data' and how it can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data in the form of pictograms and block diagrams. They will use the data to answer questions.</p>	<p>Creating Media – Digital Music</p> <p>In this unit, pupils will explore how music makes them think and feel. They will create and use patterns to make music with percussion instruments and digital tools. They will compare creating music digitally and non-digitally.</p>	<p>Programming B - Programming Quizzes</p> <p>In this unit, pupils begin to understand that sequences of commands have an outcome. They use and modify designs to create their own quiz questions in ScratchJr using blocks of code. They will evaluate and improve their programming projects.</p>
Assessment:	IT Around Us	Digital Photography	Robot Algorithms	Pictograms	Digital Music	Programming Quizzes

Key Stage 2	Curriculum content (National Curriculum): <ul style="list-style-type: none"> • To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • To use sequence, selection, and repetition in programs; work with variables and various forms of input and output • To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • To understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • To use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content • To 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, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • To use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact 					
Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p style="text-align: center;">Computing Systems and Networks – Connecting Computers</p> <p>In this unit, pupils will develop their understanding of digital devices, initially focusing on inputs, processes and outputs. They will compare digital and non-digital devices before exploring computer</p>	<p style="text-align: center;">Creating Media – Stop-Frame Animation</p> <p>In this unit, pupils use a range of techniques to create a stop-frame animation using iPads. They will apply the skills they have gained to create a story-based animation, which they will add other types of media to (such as</p>	<p style="text-align: center;">Programming A - Sequencing Sounds</p> <p>This unit explores the concept of sequencing in programming through Scratch. Pupils will be introduced to a selection of motion, sound and event blocks, which they will use to create their own programs using</p>	<p style="text-align: center;">Data and Information – Branching Databases</p> <p>In this unit, pupils will develop their understanding of what branching a database is and how to create one. Using yes/no questions, they will gain an understanding of what ‘attributes’ are and how to use them to sort</p>	<p style="text-align: center;">Creating Media – Desktop Publishing</p> <p>In this unit, pupils will become familiar with the terms ‘text’ and ‘images’, ‘templates’, ‘orientation’ and ‘placeholders’. Using desktop publishing software, they will consider font sizes, colour and</p>	<p style="text-align: center;">Programming B - Events and Actions in Programs</p> <p>This unit explores the links between events and actions whilst consolidating sequencing. Pupils will use Scratch to choose an appropriately sized ‘sprite’ and move it in four directions. Using pen blocks, pupils</p>



	networks. They will begin to understand the benefits of connecting devices in a network.	music and text).	sequences.	groups of objects. Pupils will create physical and on-screen branching databases while considering real-world applications.	type to edit and improve existing documents. They will create their own template before evaluating how desktop publishing is used.	are introduced to programming extensions. They will also explore drawing lines and coding their own maze-tracing program.
Assessment:	Connecting Computers	Stop-Frame Animation	Sequencing Sounds	Branching Databases	Desktop Publishing	Sequence - Events and actions

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Computing Systems and Networks – The Internet</p> <p>In this unit, pupils will explore the internet as a network, which needs to be kept secure. They will learn that the World Wide Web is part of the internet through exploring it themselves. They will evaluate online content through deciding how accurate it is</p>	<p>Creating Media – Audio Production</p> <p>In this unit, pupils will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. They will discuss copyright implications before producing a podcast (which includes editing their work, adding</p>	<p>Programming A – Repetition in Shapes</p> <p>This unit explores repetition and loops within programming. Pupils will create programs by planning, modifying and testing commands to create shapes and patterns. They will use Logo (a text-based programming language).</p>	<p>Data and Information – Data Logging</p> <p>In this unit, pupils will consider how and why data is collected over time. They will explore how computers use sensors. Pupils will collect and access data captured over long periods of time, focusing on data points, data sets, and logging intervals. They will</p>	<p>Creating Media – Photo Editing</p> <p>In this unit, pupils will develop their understanding of how digital images can be changed and edited. They will explore how they can be resaved and reused. Pupils will consider the impact that editing images can have and evaluate the effectiveness of their choices.</p>	<p>Programming B – Repetition in Games</p> <p>This unit explores repetition in programming using Scratch. Pupils will look at the difference between count-controlled and infinite loops before modifying existing animations and games using repetition. They will design and create a game,</p>



	and considering consequences of false information.	multiple tracks and saving the audio files) and evaluate their work.		use data loggers to collect the data needed to answer their questions.		which uses repetition.
Assessment:	The Internet	Audio Production	Repetition in Shapes	Data Logging	Photo Editing	Repetition in Games

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Computing Systems and Networks - Systems and Searching</p> <p>In this unit, pupils will develop their understanding of computer systems and how information is transferred between systems and devices. Pupils will consider small-scale systems as well as large-scale systems. They will explore the input, output and process aspects of different real-world</p>	<p>Creating Media - Video Production</p> <p>This unit provides pupils with the opportunity to create short videos in groups. They will develop the skills of capturing, editing and manipulating video through active learning and investigating the use of devices and software. Pupils will reflect and assess their progress in creating a video.</p>	<p>Programming A – Selection in Physical Computing</p> <p>In this unit, pupils will use physical computing (Crumble Controllers) to explore the concept of selection in programming. They will learn how to connect and program components (including output devices such as LEDs and motors). Pupils are introduced to</p>	<p>Data and Information – Flat-File Databases</p> <p>This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They will use a real-life database to answer a question and present their work to others.</p>	<p>Creating Media – Introduction to Vector Graphics</p> <p>In this unit, pupils start to create vector drawings using Google Drawings. They learn how to use different drawing tools to help them create images (using shapes and lines). Pupils layer their objects before grouping and duplicating them.</p>	<p>Programming B – Selection in Quizzes</p> <p>In this unit, pupils develop their knowledge of selection by revisiting how conditions can be used in programs. They represent this understanding in algorithms and then by constructing programs using Scratch. They use their knowledge of writing programs and using selection to control</p>



	systems.		'conditions', 'repetition' and 'selection'.			outcomes to design a quiz.
Assessment:	Systems and Searching	Video Production	Selection in Physical Computing	Flat-File Databases	Introduction to Vector Graphics	Selection in Quizzes

Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Computing Systems and Networks – Communication and Collaboration</p> <p>In this unit, pupils explore how data is transferred over the internet. They will look at how the internet facilitates online communication and collaboration before completing shared projects online and evaluating different methods of communication. Pupils will learn how to</p>	<p>Creating Media – Web Page Creation</p> <p>This unit introduces pupils to the creation of websites for a chosen purpose. They will identify what makes a good web page before using this information to design and evaluate their own website (using Google Sites). Pupils will consider copyright and the fair use of</p>	<p>Programming A – Variables in Games</p> <p>This unit explores the concept of variables in programming through games in Scratch. They will learn the term 'variables' before using them to create a simulation. They will modify variables in an existing project before focusing on designing their own games on</p>	<p>Data and Information - Introduction to Spreadsheets</p> <p>This unit introduces learners to spreadsheets. They will organise data into columns and rows while learning the importance of formatting data to support calculations. They will be introduced to formulas and begin to understand how they are used to</p>	<p>Creating Media – 3D Modelling</p> <p>In this unit, pupils will develop their understanding of using a computer to produce 3D models. Pupils will familiarise themselves with working in a 3D space, moving, resizing and duplicating objects. Pupils will explore the benefits of grouping and ungrouping 3D</p>	<p>Programming B - Sensing Movement</p> <p>This unit combines the elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – 'Programming A'). Pupils will utilise a physical device (the micro:bit).</p>



	communicate responsibly by considering what should and should not be shared on the internet.	media, the aesthetics of the site and navigation paths.	Scratch.	produce calculated data. They will produce their own spreadsheets to plan an event.	objects before planning, developing and evaluating their own 3D model.	They will use a simple program to build in and test before transferring it to their micro:bit.
Assessment:	Communication and Collaboration	Web Page Creation	Variables in Games	Introduction to Spreadsheets	Introduction to Spreadsheets	Sensing Movement