




Year 1 Computing Curriculum

	Autumn 1	Autumn 2
Curriculum focus	Keeping safe and exploring technology 	Exploring digital sounds
Computing Strand	Digital Literacy	Information Technology
Curriculum links	recognise common uses of information technology beyond school 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.	use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school
Prior learning	This unit gives important early lessons on keeping safe online, beginning to explore where we find technology and how it works in the world around us. We hope this builds on what students do in the Early Years, where they are likely to explore a range of control equipment and have early conversations and stories about being safe when using electronic devices and going online.	This is a really creative unit that begins to show students the many ways we can create and edit multimedia content on digital devices. The content focuses on music and sound, but also looks at how that can be paired with imagery. It should build on exploring sound and music with instruments in Early Years, but show them some interesting and unique ways to create music digitally.
Key vocabulary	<ul style="list-style-type: none"> Control - using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it. Digital citizen - someone who uses technology responsibly to learn, create, and participate. Digital media - information that comes to us through the internet, often through a tablet, smartphone, or laptop. Internet - the global collection of computer networks and their connections, all using shared protocols (TCP/IP) to communicate. Media - all of the ways that large groups of people get and share information (TV, books, internet, newspapers, phones, etc). Media balance - using media in a way that feels healthy and in balance with other life activities (family, friends, school, hobbies, etc). Media choices - time spent watching, listening to, reading, or creating media. Network - A network consists of multiple devices that communicate with one another. Online - using a digital device to visit a website or app that makes use of the internet. 	<ul style="list-style-type: none"> Digital - Any signals or data that can be expressed by using the digits 0 and 1 (binary code). Digital content - any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video, or virtual environments, and combinations of these (i.e. multimedia). Edit - To change, add or remove elements in a piece of work (usually to improve it). Evaluation - Making judgements Layer - In sound or video terminology, layering is the stacking of media elements in a project timeline to enable playback of multiple elements simultaneously. Online - using a digital device to visit a website or app that makes use of the internet. Save - To store a piece of work in a computer's memory so that it can be recalled at a later time. Timeline - a graphical representation of a period of time. Used in video and sound editing to order and arrange the separate elements of a project.

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	<ul style="list-style-type: none"> • Private information - information about you that can be used to identify you because it is unique to you (e.g. your full name or your address) • Server - A server is a computer that serves up information to other computers on a network. • World Wide Web - a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically. 	
<p>Substantive concepts</p>	<ul style="list-style-type: none"> • Know when and why to take breaks from device time. • Consider the feelings of people around them, even when engaged in fun online activities. • Discover that the internet can be used to visit faraway places and learn new things. • Compare how staying safe online is similar to staying safe in the real world. • Explain rules for traveling safely on the internet. • To recognise common uses of technology in the home • To understand what the internet is • To recognise devices that can be connected to the internet • To understand how shops might use technology • To explain how technology can help people • To explore control technology devices • To explain how a control device works • To compare different types of control devices 	<ul style="list-style-type: none"> • Explore making simple sounds • Explore a range of electronic music and sound devices and software. • To combine layers of sound to compose a simple tune with a beat. • Explore a range of electronic music and sound devices and software. • Explore a range of electronic music and sound devices and software. • To combine layers of sound to compose a simple tune with a beat. • Explore a range of electronic music and sound devices and software. • To combine layers of sound to compose a simple tune with a beat. • Create images to accompany a soundtrack. • Import sound files to create multimedia pages. • To create a soundtrack that matches the mood of an image • Understand that sound can be recorded digitally • Understand that sound can be edited digitally
<p>What comes next?</p>	<p>The digital literacy content in this unit will be built upon in our Year 2 unit Keep Safe and Create, where they will recap and go deeper into how to stay safe online. This will continue in even more depth with our Digital Literacy and online safety units for Year 3, Year 4, Year 5, and Year 6.</p> <p>The IT content in this unit will be built upon in our Year 2 unit Finding and presenting information, where they will find out more about web searching. Later, in Key Stage 2, they will go into more depth about gathering and using data, how search engines really work, what makes computers work, and what the internet is in our units Databases, Searching the web, What is a computer? and Inside the internet.</p>	<p>Our scheme of work contains a wide range of units that cover different ways of creating and editing multimedia digital artifacts. Students revisit creating and editing sound to a much deeper level in our Key Stage 2 unit; Manipulating Sound. They will also be able to revisit and apply some of the skills learned in this unit, to our other Year 1 units; Making Multimedia Stories and An introduction to digital art.</p> <p>In Year 2 they will explore text and images in Writing in different styles, animation in An introduction to animation, and then further multimedia units in KS2 with Digital Imagery: Patterns in nature, 3D Design, Building collaborative websites, Creating Instructional videos, and Manipulating images.</p>

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	Spring 1	Spring 2
Curriculum focus	Making multimedia stories	Action Algorithms!
Strand	Information Technology	Computing Science
Curriculum links	Use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school	<ul style="list-style-type: none"> • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions • create and debug simple programs
Prior learning	This unit gives students another creative opportunity to select and combine multimedia elements of text, images, animation and sound in projects. It also puts a strong focus on keyboard skills and beginning to type with two hands, which are vital key skills for their future learning. It should build upon a rich background of enjoying stories in Early Years, where they may have listened to	This unit focuses on what algorithms are and how we can create precise sequences of instructions in different contexts. It supports all of the future computer science learning that the students will experience and should begin to give them an understanding of how computers and other devices can be programmed to produce specific outcomes. It should build on sequencing and sorting activities in Early Years.
Key vocabulary	<ul style="list-style-type: none"> • Alter - to change the way something looks, sometimes using a computer or other digital tools • Animation - Combining a series of still images to give the illusion of movement when the images are shown as a sequence • Digital content - any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video, or virtual environments, and combinations of these (i.e. multimedia). • Edit - To change, add or remove elements in a piece of work (usually to improve it). • Format (text) - Text formatting refers to the attributes of text other than the actual text itself. For example: bold, italics, underlining, colour, and size, are all formatting attributes of text. • Import - A computing command that usually means allowing a user to bring in a file, or part of a file into another application so they can be combined. For example, an image could be imported into presentation slides, or art software to use as a background. • Media - all of the ways that large groups of people get and share information (TV, books, internet, newspapers, phones, etc). • Multimedia - Content that uses a combination of different 	<ul style="list-style-type: none"> • Algorithm - an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem. • Command - a step or line of programming. • Condition - a programming rule to dictate when something in a program will happen. Sometimes referred to as an If-Then statement, because IF a condition is met, THEN an action is performed. • Control - using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it. • Debug - to detect and correct the errors in a computer program. • Decomposition - Breaking a problem down into smaller parts (a computational thinking concept) • Execute - to follow a series of instructions. The computer or robot follows the instructions in order to complete the program. • Logic - Predicting and analysing. Computational logic is used to allow a program to decide what to do and when. For example you may write code that says: "When the user clicks this button, perform this calculation." • Logical reasoning - a systematic approach to solving problems or deducing information using a set of universally applicable

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	<p>content forms such as text, audio, images, animations, video and interactive content.</p> <ul style="list-style-type: none"> ● Save - To store a piece of work in a computer's memory so that it can be recalled at a later time. 	<p>and totally reliable rules.</p> <ul style="list-style-type: none"> ● Program - (verb) To give a series of instructions to a machine so that it will perform a task automatically ● Repetition (Also referred to as a 'Loop') - a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped. ● Selection - 'when things happen' - A programming construct in which the instructions that are executed are determined by whether a particular condition is met. ● Sequence - to place programming instructions in order, with each executed one after the other.
<p>Substantive concepts</p>	<ul style="list-style-type: none"> ● Begin to use two hands for typing ● Name parts of a computer ● Add text to a text box ● Begin to use two hands for typing ● Add text to a text box ● Make simple changes to selected text, e.g. colour, style and size. ● Add a picture to a picture box ● Use drawing tools effectively (e.g. make use of tools such as fill or shape tools). ● Add animation effects to a page ● Make simple changes to selected text, e.g. colour, style and size. ● Continue to develop correct use of the keyboard, including the space bar, backspace, delete, shift (for capital letters - not caps lock) and enter keys. ● Be able to select and listen to a sound from a bank of pre-recorded sounds. ● Select or record sounds to add to work. ● Continue to develop correct use of the keyboard, including the space bar, backspace, delete, shift (for capital letters - not caps lock) and enter keys. ● Use drawing tools effectively (e.g. make use of tools such as fill or shape tools). ● Make simple changes to selected text, e.g. colour, style and size. ● Add animation effects to individual objects on a page. ● Add navigation buttons to a presentation 	<ul style="list-style-type: none"> ● To know what an algorithm is ● To write an algorithm ● To use an algorithm ● To improve an algorithm ● To write an algorithm for a recipe ● To understand and explain debugging ● To be able to debug an algorithm ● To write an algorithm for sharing ● To spot patterns in algorithms ● To write an algorithm for an action sequence ● To understand that computers follow programming languages or 'code' ● To write an algorithm for a dance routine ● To give clear, unambiguous instructions

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What comes next?


Students revisit combining text, images and other multimedia to a much deeper level in our Key Stage 2 units; **Communication and collaboration** and **Building collaborative websites**. They will also be able to revisit and apply some of the skills learned in this unit, to our other Year 1 unit **An introduction to digital art**.

In Year 2 they will explore text and images in **Writing in different styles**, animation in **An introduction to animation**, and then further multimedia units in KS2 with **Digital Imagery: Patterns in nature**, **3D Design**, **Manipulating Sound**, **Creating Instructional videos**, and **Manipulating images**.

The unit is followed up by a practical programming unit in Year 1; **Programming direction** where they will get the chance to create and debug simple algorithms using digital devices and programs. In Year 2 they will take this a little further while learning two new programming languages in **Programming with Scratch Jr** and **Programming with Logo**.

In Key stage 2 they will continue their coding journey and learn about coding concepts such as sequence, selection, repetition in programs, working with variables and various forms of input and output. Our units **Animation with Scratch**, **Getting started with Kodu**, **Programming Scratch maze games**, **Kodu sports**, **Building retro games - pick a project** all support this learning, as do **LEGO robotics** and **Getting started with the BBC micro:bit**, while also adding in the ability to control physical devices with code.

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	Summer 1	Summer 2
Curriculum focus	Introduction to digital art	Programming direction
Strand	Information Technology	Computing Science
Curriculum links	<ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school 	<ul style="list-style-type: none"> understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions create and debug simple programs
Prior learning	<p>This unit gives students the chance to explore a range of key digital art design skills and tools. It should build on experimentation with drawing simple pictures in Early Years, both on paper and using digital devices. It supports the development of mouse skills, which will be a vital key skill for their future learning.</p>	<p>This unit focuses on algorithms, planning and debugging precise sequences of instructions for directions. It supports all of the future computer science learning that the students will experience and should begin to give them an understanding of how computers and other devices can be programmed to produce specific outcomes. It should build on sequencing and sorting activities and any opportunities they have had to experiment with control devices in Early Years. It also builds on the activities and vocabulary from the Year 1 unit Action algorithms.</p>
Key vocabulary	<ul style="list-style-type: none"> Alter - to change the way something looks, sometimes using a computer or other digital tools Edit - To change, add or remove elements in a piece of work (usually to improve it) Evaluation - Making judgements (a computational thinking concept) Flood fill - a graphic drawing tool that colours a contained area with colour with a single click, usually represented by a tin of paint tipping over. Multimedia - Content that uses a combination of different content forms such as text, audio, images, animations, video and interactive content. Online - using a digital device to visit a website or app that makes use of the internet. Save - To store a piece of work in a computer's memory so that it can be recalled at a later time. Software - computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web-based services. 	<ul style="list-style-type: none"> Algorithm - an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective. A set of instructions for achieving a goal or solving a problem. Block - a 'chunk' of programming or a particular graphic block or piece found in a graphical programming language such as Scratch. Blocks linked together are called a script in Scratch. Command - a step or line of programming. Control - using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it. Debug - to detect and correct the errors in a computer program. Decomposition - Breaking a problem down into smaller parts (a computational thinking concept) Edit - To change, add or remove elements in a piece of work (usually to improve it). Execute - to follow a series of instructions. The computer or robot follows the instructions in order to complete the program. Logic - Predicting and analysing. Computational logic is used to allow a program to decide what to do and when. For example you may write code that says: "When the user clicks this button, perform this calculation."

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		<ul style="list-style-type: none"> ● Logical reasoning - a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules. ● Program - (verb) To give a series of instructions to a machine so that it will perform a task automatically ● Repetition (Also referred to as a 'Loop') - a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped. ● Save - To store a piece of work in a computer's memory so that it can be recalled at a later time. ● Sequence - to place programming instructions in order, with each executed one after the other.
<p>Substantive concepts</p>	<ul style="list-style-type: none"> ● Look at the differences between a computer art and paper based art ● Use different tools to create a simple picture ● Understand there are a variety of tools in a paint package, each for a different purpose. ● Talk about your use of a graphics package and your choices of tools. ● Compare two similar paint packages. ● Use shape, line and colour to create a artistic style called Impressionism. ● Use different tools in a digital paint package for good effect. ● Talk about your use of a graphics package and your choices of tools. ● Use shape, line and colour to create a artistic style called Pointillism. ● Use different tools in a digital paint package for good effect. ● Talk about your use of a graphics package and your choices of tools. ● Use shape, line and colour to create an artistic style called modern art. ● Use different tools in a digital paint package for good effect. ● Talk about your use of a graphics package and your choices of tools. ● Use shape, line and colour to create an artistic style called street art. 	<ul style="list-style-type: none"> ● Understand what an algorithm is ● Give clear unambiguous instructions ● Make predictions when giving instructions ● Create algorithms for directions ● Debug simple programs ● Create algorithms for directions including turning ● Begin to create algorithms with a written programming language

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	<ul style="list-style-type: none">• Use different tools in a digital paint package for good effect.• Talk about your use of a graphics package and your choices of tools.	
<p>What comes next?</p>	<p>Students revisit a focus on digital art and design skills to a much deeper level in our Key Stage 2 units; Digital Imagery: Patterns in nature, 3D Design and Manipulating images.</p> <p>They will also be able to revisit and apply many of the skills learned in this unit to our Year 2 units Writing in different styles and An introduction to animation, and then other multimedia units in KS2 with Manipulating Sound and Creating Instructional videos. Some of our coding units also make use of digital art and design skills as children design elements of objects or backgrounds in their projects.</p>	<p>The unit is followed up in Year 2 with control and programming units Programming with Scratch Jr and Programming with Logo. Both take different approaches to creating algorithms, from block-based sequences to simple written instructions.</p> <p>In Key stage 2 they will continue their coding journey and learn about coding concepts such as sequence, selection, repetition in programs, working with variables and various forms of input and output. Our units Animation with Scratch, Getting started with Kodu, Programming Scratch maze games, Kodu sports, Building retro games - pick a project all support this learning, as do LEGO robotics and Getting started with the BBC micro:bit, while also adding in the ability to control physical devices with code.</p>