Medium Term Computing 2024 -2025

		Teach computing unit	Vocabulary	Objectives	Success Criteria	National curriculum links and subject links
KS1	Autumn 1	Spike - Lego Education: Great adventures: Lessons 1-4	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	To break down (decompose) the problem into smaller steps To describe a sequence of code To demonstrate a sequence of code To - describe cause and effect in relation to their program Demonstrate a repeated action To test and modify a program To describe cause and effect in a program To identify the main character in the story To participate in collaborative conversations	- I can understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions - I can create and debug simple programs	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 Use logical reasoning to predict the behaviour of simple programs **Links to D&T and Art**
	Autumn 2	Year 1 - Creating media Digital painting	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	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 To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper	- I can choose appropriate shapes - I can create a picture in the style of an artist - make appropriate colour choices - I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I can know that different paint tools do different jobs - I can change the colour and brush sizes - I can make dots of colour on the page - use dots of colour to create a picture in the style of an artist on my own - I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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. **Links to art and Christmas**
LKS2	Autumn 1	Year 3 - Computing systems and networks – Connecting computers	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	To explain how digital 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	- I can explain that digital devices accept inputs - I can explain that digital devices produce outputs - I can follow a process - I can classify input and output devices - I can describe a simple process - I can design a digital device - I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and non-digital tools - I can suggest differences between using digital devices and non-digital tools - I can discuss why we need a network switch - I can explain how messages are passed through multiple connections - I can recognise different connections - I can demonstrate how information can be passed between devices - I can explain the role of a switch, server, and wireless access point in a network - I can recognise that a computer network is made up of a number of devices - I can identify how devices in a network are connected together - I can identify networked devices around me - I can identify the benefits of computer networks	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Autumn 2	Year 3 - Creating media – Animation Stop-frame animation	animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.	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 and carefully To review and improve an animation To evaluate the impact of adding other media to an animation	- I can create an effective flip book—style animation - I can draw a sequence of pictures - I can explain how an animation/flip book works - I can create an effective stop-frame animation - I can explain why little changes are needed for each frame - I can predict what an animation will look like - I can break down a story into settings, characters and events - I can create a storyboard - I can describe an animation that is achievable on screen - I can evaluate the quality of my animation - I can review a sequence of frames to check my work - I can use onion skinning to help me make small changes between frames - I can evaluate another learner's animation - I can explain ways to make my animation better - I can improve my animation based on feedback - I can add other media to my animation - I can evaluate my final film - I can explain why I added other media to my animation	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 errors in algorithms and programs **Links to history, D&T, art**
UKS2	Autumn 1	Year 5 - Computing systems and networks – Sharing information	system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking.	To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To recognise how information is transferred over the internet To explain how sharing information online lets people in different places work together To contribute to a shared project online To evaluate different ways of working together online	- I can describe that a computer system features inputs, processes, and outputs - I can explain that computer systems communicate with other devices - I can explain that systems are built using a number of parts" "- I can explain the benefits of a given computer system - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system" "- I can explain that data is transferred over networks in packets - I can explain that networked digital devices have unique addresses - I can recognise that data is transferred using agreed methods" "- I can explain that the internet allows different media to be shared - I can recognise that connected digital devices can allow us to access shared files stored online - I can send information over the internet in different ways" "- I can compare working online with working offline - I can make thoughtful suggestions on my group's work - I can suggest strategies to ensure successful group work" "- I can explain how the internet enables effective collaboration - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private"	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Autumn 2	Year 5 - Creating media – Video editing	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.	To explain what makes a video effective To identify digital devices that can record video To capture video using a range of techniques To create a storyboard To identify that video can be improved through reshooting and editing To consider the impact of the choices made when making and sharing a video	- I can compare features in different videos - I can explain that video is a visual media format - I can identify features of videos - I can experiment with different camera angles - I can identify and find features on a digital video recording device - I can make use of a microphone - I can capture video using a range of filming techniques - I can review how effective my video is - I can suggest filming techniques for a given purpose - I can create and save video content - I can decide which filming techniques I will use - I can outline the scenes of my video - I can explain how to improve a video by reshooting and editing - I can select the correct tools to make edits to my video - I can store, retrieve, and export my recording to a computer - I can evaluate my video and share my opinions - I can make edits to my video and improve the final outcome - I can recognise that my choices when making a video will impact on the quality of the final outcome	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 errors in algorithms and programs **Links to history, D&T, art**
KS1	Spring 1	Year 1 Programming - Programming animations	Scratch Jr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.	-To choose a command for a given purpose -To show that a series 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	- I can compare different programming tools - I can find which commands to move a sprite - I can use commands to move a sprite" - I can run my program - I can use a Start block in a program - I can use more than one block by joining them together - I can change the value - I can find blocks that have numbers - I can say what happens when I change a value - I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite - I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move - I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites that match my design	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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. 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

	Spring 2	Year 1 – Data & Information Grouping data	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	-To label objects -To identify that objects can be counted -To describe objects in different ways -To count objects with the same properties -To compare groups of objects -To answer questions about groups of objects	- I can describe objects using labels - I can identify the label for a group of objects - I can match objects to groups - I can count a group of objects - I can count objects - I can group objects - I can describe an object - I can describe a property of an object - I can find objects with similar properties - I can count how many objects share a property - I can group objects in more than one way - I can group similar objects - I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group - I can compare groups of objects - I can decide how to group objects to answer a question - I can record and share what I have found"	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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.
LKS2	Spring 1	Lego Education – Amazing Amusement Park	programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.	Brainstorm to generate ideas Improve and refine a prototype Gather information about others' needs or wants Change a solution to meet a want or need Modify an existing solution to make it work properly Apply the engineering design process in order to solve a problem Practise helping a story character Describe key ideas or details from a text	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	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 errors in algorithms and programs

	Spring 2	Year 3 - Data and information – Branching databases	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.	To create questions with yes/no answers To identify the object attributes needed to collect relevant data To create a branching database To explain why it is helpful for a database to be well structured To identify objects using a branching database To compare the information shown in a pictogram with a branching database	- I can create two groups of objects separated by one attribute - I can investigate questions with yes/no answers - I can make up a yes/no question about a collection of objects - I can arrange objects into a tree structure - I can create a group of objects within an existing group - I can select an attribute to separate objects into groups - I can group objects using my own yes/no questions - I can prove my branching database works - I can select objects to arrange in a branching database - I can compare two branching database structures - I can create yes/no questions using given attributes - I can explain that questions need to be ordered carefully to split objects into similarly sized groups - I can create questions and apply them to a tree structure - I can select a theme and choose a variety of objects - I can use my branching database to answer questions - I can compare two ways of presenting information - I can explain what a branching database tells me - I can explain what a pictogram tells me	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
UKS2	Spring 1	Year 5 - Programming A – Selection in physical computing	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	To control a simple circuit connected to a computer To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met To explain that a loop can be used to repeatedly check whether a condition has been met To design a physical project that includes selection To create a program that controls a physical computing project	- I can create a simple circuit and connect it to a microcontroller - I can explain what an infinite loop does - I can program a microcontroller to make an LED switch on - I can connect more than one output component to a microcontroller - I can design sequences that use count-controlled loops - I can use a count-controlled loop to control outputs - I can design a conditional loop - I can explain that a condition is either true or - I can program a microcontroller to respond to an input - I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if…then…' statement) to direct the flow of a program - I can create a detailed drawing of my project - I can describe what my project will do - I can identify a real-world example of a condition starting an action - I can test and debug my project - I can use selection to produce an intended outcome - I can write an algorithm that describes what my model will do	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 errors in algorithms and programs

	Spring 2	Year 5 - Data and information – Flat-file databases	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	To use a form to record information To compare paper and computer-based databases To outline how grouping and then sorting data allows us to answer questions To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To apply my knowledge of a database to ask and answer real-world questions	- I can create multiple questions about the same field - I can explain how information can be recorded - I can order, sort, and group my data cards - I can choose which field to sort data by to answer a given question - I can explain what a 'field' and a 'record' is in a database - I can navigate a flat-file database to compare different views of information - I can combine grouping and sorting to answer more specific questions - I can explain how information can be grouped - I can group information to answer questions - I can choose multiple criteria to answer a given question - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection - I can explain the benefits of using a computer to create graphs - I can refine a chart by selecting a particular filter - I can select an appropriate chart to visually compare data - I can ask questions that will need more than one field to answer - I can present my findings to a group - I can refine a search in a real-world context	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
KS1	Summer 1	Year 1 – Creating Media - Digital writing	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing,	-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 typing on a computer to writing on paper	- I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard - I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys - I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters - I can change the font - I can select all of the text by clicking and dragging - I can select a word by double-clicking - I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes - I can explain the differences between typing and writing - I can make changes to text on a computer - I can say why I prefer typing or writing	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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.

	Summer 2	Year 1 - Computing systems and networks Technology around us	Information technology (IT), computer, barcode, scanner/scan	-To identify technology -To identify a computer and its main parts -To use a mouse in different ways -To use a keyboard to type on a computer -To use the keyboard to edit text -To create rules for using technology responsibly	- explain how these technology examples help us - explain technology as something that helps us - locate examples of technology in the classroom - name the main parts of a computer - switch on and log into a computer - use a mouse to click and drag - click and drag to make objects on a screen - use a mouse to create a picture - use a mouse to open a program - save my work to a file - say what a keyboard is for - type my name on a computer - delete letters - open my work from a file - use the arrow keys to move the cursor" - discuss how we benefit from these rules - give examples of some of these rules - identify rules to keep us safe and healthy when we are using technology in and beyond the home	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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.
LKS2	Summer 1	Year 3 - Creating media – Desktop publishing	text, images, advantages, disadvantages communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	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 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	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

	Summer 2	Year 3 - Programming B – Events and actions	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.	To explain how a sprite moves in an existing project 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	- I can choose which keys to use for actions and explain my choices - I can explain the relationship between an event and an action - I can identify a way to improve a program - I can choose a character for my project - I can choose a suitable size for a character in a maze - I can program movement - I can choose blocks to set up my program - I can consider the real world when making design choices - I can use a programming extension - I can build more sequences of commands to make my design work - I can choose suitable keys to turn on additional features - I can identify additional features (from a given set of blocks) - I can match a piece of code to an outcome - I can modify a program using a design - I can test a program against a given design - I can evaluate my project - I can implement my design - I can make design choices and justify them	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 errors in algorithms and programs
UKS2	Summer 1	Spike Lego Education: Happy Traveller	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	Decompose problems into smaller parts Solve problems by developing a sequence Describe their decisions when creating a program Program using sequences and loops Test programs to determine whether they meet a specific need Identify and fix errors (test and debug) Apply computational thinking in order to solve a problem Recount an experience using relevant facts and descriptive details	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	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 errors in algorithms and programs
	Summer 2	Year 5 - Programming B – Selection in quizzes	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator	To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome To explain how selection directs the flow of a program To design a program which uses selection To create a program which uses selection To evaluate my program	- I can identify conditions in a program - I can modify a condition in a program - I can recall how conditions are used in selection - I can create a program with different outcomes using selection - I can identify the condition and outcomes in an 'if... then… else...' statement - I can use selection in an infinite loop to check a condition - I can design the flow of a program which contains 'if… then… else - I can explain that program flow can branch according to a condition - I can show that a condition can direct program flow in one of two ways - I can identify the outcome of user input in an algorithm - I can outline a given task - I can use a design format to outline my project - I can implement my algorithm to create the first section of my program - I can share my program with others - I can test my program - I can extend my program further - I can identify the setup code I need in my program - I can identify ways the program could be improved	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 errors in algorithms and programs

Medium Term Computing 2025 -2026

		Teach Computing Unit	Vocabulary	Objectives	Success Criteria	National Curriculum Links and Subject Links
KS1	Autumn 1	Year 2 - Computing systems and networks IT around us	Information technology (IT), computer, barcode, scanner/ scan	-To recognise the uses and features of information technology -To identify the uses of information technology in the school -To identify information technology beyond school -To explain how information technology helps us -To explain how to use information technology safely -To recognise that choices are made when using information technology	- I can describe some uses of computers - I can identify examples of computers - I can identify that a computer is a part of IT - I can identify examples of IT - I can identify that some IT can be used in more than one way - I can sort school IT by what it's used for - I can find examples of information technology - I can sort IT by where it is found - I can talk about uses of information technology - I can demonstrate how IT devices work together - I can recognise common types of technology - I can say why we use IT - I can list different uses of information technology - I can say how rules can help keep me safe - I can talk about different rules for using IT - I can explain the need to use IT in different ways - I can identify the choices that I make when using IT - I can use IT for different types of activities	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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.
	Autumn 2	Year 2 – Creating Media Digital photography	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	-To use a digital device to take a photograph -To make choices when taking a photograph -To describe what makes a good photograph -To decide how photographs can be improved -To use tools to change an image -To recognise that photos can be changed	- I can explain what I did to capture a digital photo - I can recognise what devices can be used to take photographs - I can talk about how to take a photograph - I can explain the process of taking a good photograph - I can explain why a photo looks better in portrait or landscape format - I can take photos in both landscape and portrait format - I can discuss how to take a good photograph - I can identify what is wrong with a photograph - I can improve a photograph by retaking it - I can experiment with different light sources - I can explain why a picture may be unclear - I can explore the effect that light has on a photo - I can explain my choices - I can recognise that images can be changed - I can use a tool to achieve a desired effect" - I can apply a range of photography skills to capture a photo - I can identify which photos are real and which have been changed - I can recognise which photos have been changed	Use technology purposefully to create, organise, store, manipulate and retrieve digital content 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.

LKS2	Autumn 1	Year 4 - Computing systems and networks – The Internet	internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	To describe how networks physically 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 (WWW) To describe how content can be added and accessed on the World Wide Web (WWW) To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content	- I can demonstrate how information is shared across the internet - I can describe the internet as a network of networks - I can discuss why a network needs protecting - I can describe networked devices and how they connect - I can explain that the internet is used to provide many services - I can recognise that the World Wide Web contains websites and web pages - I can describe how to access websites on the WWW - I can describe where websites are stored when uploaded to the WWW - I can explain the types of media that can be shared on the WWW - I can explain that internet services can be used to create content online - I can explain what media can be found on websites - I can recognise that I can add content to the WWW - I can explain that there are rules to protect content - I can explain that websites and their content are created by people - I can suggest who owns the content on websites - I can explain that not everything on the World Wide Web is true - I can explain why I need to think carefully before I share or reshare content - I can explain why some information I find online may not be honest, accurate, or legal	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	Autumn 2	Year 3 - Programming A – Sequence sounds	Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.	To explore a new programming environment To identify that commands have an outcome 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	- I can explain that objects in Scratch have attributes (linked to) - I can identify the objects in a Scratch project (sprites, backdrops) - I can recognise that commands in Scratch are represented as blocks - I can choose a word which describes an on-screen action for my plan - I can create a program following a design - I can identify that each sprite is controlled by the commands I choose - I can create a sequence of connected commands - I can explain that the objects in my project will respond exactly to the code - I can start a program in different ways - I can combine sound commands - I can explain what a sequence is - I can order notes into a sequence - I can build a sequence of commands - I can decide the actions for each sprite in a program - I can make design choices for my artwork - I can identify and name the objects I will need for a project - I can implement my algorithm as code - I can relate a task description to a design	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 errors in algorithms and programs

UKS2	Autumn 1	Year 6 - Computing systems and networks – Communication	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many.	To identify how to use a search engine To describe how search engines select results To explain how search results are ranked To recognise why the order of results is important, and to whom To recognise how we communicate using technology To evaluate different methods of online communication	- I can compare results from different search engines - I can complete a web search to find specific information - I can refine my search - I can explain why we need tools to find things online - I can recognise the role of web crawlers in creating an index - I can relate a search term to the search engine's index - I can explain that a search engine follows rules to rank relevant pages - I can explain that search results are ordered - I can suggest some of the criteria that a search engine checks to decide on the order of results - I can describe some of the ways that search results can be influenced - I can explain how search engines make money - I can recognise some of the limitations of search engines - I can choose methods of communication to suit particular purposes - I can explain the different ways in which people communicate - I can identify that there are a variety of ways of communicating over the internet - I can compare different methods of communicating on the internet - I can decide when I should and should not share - I can explain that communication on the internet may not be private	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	Autumn 2	Year 6 - Creating media – Web page creation	website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed.	To review an existing website and consider its structure To plan the features of a web page To consider the ownership and use of images (copyright) To recognise the need to preview pages To outline the need for a navigation path To recognise the implications of linking to content owned by other people	- I can discuss the different types of media used on websites - I can explore a website - I know that websites are written in HTML - I can draw a web page layout that suits my purpose - I can recognise the common features of a web page - I can suggest media to include on my page - I can describe what is meant by the term 'fair use' - I can find copyright-free images - I can say why I should use copyright-free images - I can add content to my own web page - I can evaluate what my web page looks like on different devices and suggest/make edits - I can preview what my web page looks like - I can describe why navigation paths are useful - I can explain what a navigation path is - I can make multiple web pages and link them using hyperlinks - I can create hyperlinks to link to other people's work - I can evaluate the user experience of a website - I can explain the implication of linking to content owned by others	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

KS1	Spring 1	Year 2 – Programming Robot algorithms	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	-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	- I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device - I can follow an instruction - I can give directions - I can recall words that can be acted out - I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place - I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands - I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do - I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place	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 Use logical reasoning to predict the behaviour of simple programs
	Spring 2	Lego Education: Great Adventures Second	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	Brainstorm to generate ideas Improve and refine a prototype Gather information about others' needs or wants Change a solution to meet a want or need Modify an existing solution to make it work properly Apply the engineering design process in order to solve a problem Practise helping a story character Describe key ideas or details from a text	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	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 Use logical reasoning to predict the behaviour of simple programs **Curriculum Links: History (Explorers), D&T and Science**
LKS2	Spring 1	Lego Education: Crazy Carnival Games	programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.	Describe how energy is transferred Predict how energy will move from one place to another Describe the relationship between energy and force Identify the connection between an object's speed and its energy Describe how interactions between two objects can impact the energy of an object Predict outcomes of the changes in energy that occur when objects collide Apply their existing scientific knowledge of energy transfer and collision to solving a problem Engage effectively in a range of collaborative discussions	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	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 errors in algorithms and programs

	Spring 2	Year 4 - Data and information – Data logging	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	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 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	- I can choose a data set to answer a given question - I can identify data that can be gathered over time - I can suggest questions that can be answered using a given data set - I can explain that sensors are input devices - I can identify that data from sensors can be recorded - I can use data from a sensor to answer a given question - I can identify a suitable place to collect data - I can identify the intervals used to collect data - I can talk about the data that I have captured - I can import a data set - I can use a computer program to sort data - I can use a computer to view data in different ways - I can plan how to collect data using a data logger - I can propose a question that can be answered using logged data - I can use a data logger to collect data - I can draw conclusions from the data that I have collected - I can explain the benefits of using a data logger - I can interpret data that has been collected using a data logger	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
UKS2	Spring 1	Programming A – Variables in games	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	To define a 'variable' as something that is changeable To explain why a variable is used in a program To choose how to improve a game by using variables To design a project that builds on a given example To use my design to create a project To evaluate my project	- I can explain that the way that a variable changes can be defined - I can identify examples of information that is variable - I can identify that variables can hold numbers or letters - I can explain that a variable has a name and a value - I can identify a program variable as a placeholder in memory for a single value - I can recognise that the value of a variable can be changed - I can decide where in a program to change a variable - I can make use of an event in a program to set a variable - I can recognise that the value of a variable can be used by a program" - I can choose the artwork for my project - I can create algorithms for my project - I can explain my design choices - I can choose a name that identifies the role of a variable - I can create the artwork for my project - I can test the code that I have written - I can extend my game further using more variables - I can identify ways that my game could be improved - I can share my game with others	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 errors in algorithms and programs

	Spring 2	Year 6 - Data and information – Spreadsheets	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.	To identify questions which can be answered using data To explain that objects can be described using data To explain that formulas can be used to produce calculated data To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data	- I can answer questions from an existing data set - I can ask simple relevant questions which can be answered using data - I can explain the relevance of data headings - I can apply an appropriate number format to a cell - I can build a data set in a spreadsheet application - I can explain what an item of data is - I can construct a formula in a spreadsheet - I can explain the relevance of a cell's data type - I can identify that changing inputs changes outputs - I can apply a formula to multiple cells by duplicating it - I can create a formula which includes a range of cells - I can recognise that data can be calculated using different operations - I can apply a formula to calculate the data I need to answer questions - I can explain why data should be organised - I can use a spreadsheet to answer questions - I can produce a graph - I can suggest when to use a table or graph - I can use a graph to show the answer to questions	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
KS1	Summer 1	Year 2 – Creating Media- Digital Music	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	-To say how music can make us feel -To identify that there are patterns in music -To experiment with sound using a computer -To use a computer to create a musical pattern -To create music for a purpose -To review and refine our computer work	-I can create a rhythm pattern - I can explain that music is created and played by humans - I can play an instrument following a rhythm pattern" -I can connect images with sounds - I can relate an idea to a piece of music - I can use a computer to experiment with pitch" -I can explain how my music can be played in different ways - I can identify that music is a sequence of notes - I can refine my musical pattern on a computer" -I can add a sequence of notes to my rhythm - I can create a rhythm which represents an animal I've chosen - I can create my animal's rhythm on a computer" -I can explain how I changed my work - I can listen to music and describe how it makes me feel - I can review my work"	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 Use logical reasoning to predict the behaviour of simple programs
	Summer 2	Year 2 – Programming - Programming quizzes	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.	-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	-I can identify that a program needs to be started - I can identify the start of a sequence - I can show how to run my program -I can change the outcome of a sequence of commands - I can match two sequences with the same outcome - I can predict the outcome of a sequence of commands -I can build the sequences of blocks I need - I can decide which blocks to use to meet the design - I can work out the actions of a sprite in an algorithm -I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design -I can build sequences of blocks to match my design - I can choose the images for my own design - I can create an algorithm -I can compare my project to my design - I can debug my program - I can improve my project by adding features	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 Use logical reasoning to predict the behaviour of simple programs

LKS2	Summer 1	Year 4 - Creating media – Photo editing	image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	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	- I can explain the effect that editing can have on an image - I can explore how images can be changed in real life - I can identify changes that we can make to an image - I can change the composition of an image by selecting parts of it - I can consider why someone might want to change the composition of an image - I can explain what has changed in an edited image - I can choose effects to make my image fit a scenario - I can explain why my choices fit a scenario - I can talk about changes made to images - I can choose appropriate tools to retouch an image - I can give examples of positive and negative effects that retouching can have on an image - I can identify how an image has been retouched" - I can combine parts of images to create new images - I can sort images into 'fake' or 'real' and explain my choices - I can talk about fake images around me - I can compare the original image with my completed publication - I can consider the effect of adding other elements to my work - I can evaluate the impact of my publication on others through feedback	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 Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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 Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
	Summer 2	Year 4 - Programming B – Repetition in games	Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.	To develop the use of 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 that 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	- I can list an everyday task as a set of instructions including repetition - I can modify a snippet of code to create a given outcome - I can predict the outcome of a snippet of code - I can choose when to use a count-controlled and an infinite loop - I can modify loops to produce a given outcome - I can recognise that some programming languages enable more than one process to be run at once - I can choose which action will be repeated for each object - I can evaluate the effectiveness of the repeated sequences used in my program - I can explain what the outcome of the repeated action should be - I can explain the effect of my changes - I can identify which parts of a loop can be changed - I can re-use existing code snippets on new sprites - I can develop my own design explaining what my project will do - I can evaluate the use of repetition in a project - I can select key parts of a given project to use in my own design - I can build a program that follows my design - I can evaluate the steps I followed when building my project - I can refine the algorithm in my design	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 errors in algorithms and programs

UKS2	Summer 1	Lego Education: Quirky Creations	programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate.	Define and understand a given problem Brainstorm and iterate a solution to meet a specific need Create a possible solution to a problem that has constraints Define success criteria to help evaluate a solution Identify the failure points of a model or program Refine a prototype as part of a cyclical design process Use the design process to improve an existing object Explore the benefits of automated solutions Engage effectively in a range of collaborative discussions	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 errors in algorithms and programs	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 errors in algorithms and programs
	Summer 2	Year 6 - Programming B – Sensing	Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.	To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use an conditional statement to compare a variable to a value To design a project that uses inputs and outputs on a controllable device To develop a program to use inputs and outputs on a controllable device	- I can apply my knowledge of programming to a new environment - I can test my program on an emulator - I can transfer my program to a controllable device - I can determine the flow of a program using selection - I can identify examples of conditions in the real world - I can use a variable in an if, then, else statement to select the flow of a program - I can experiment with different physical inputs - I can explain that if you read a variable, the value remains - I can use a condition to change a variable - I can explain the importance of the order of conditions in else, if statements - I can modify a program to achieve a different outcome - I can use an operand (e.g. <>=) in an if, then statement - I can decide what variables to include in a project - I can design the algorithm for my project - I can design the program flow for my project - I can create a program based on my design - I can test my program against my design - I can use a range of approaches to find and fix bugs	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 errors in algorithms and programs