Computing skills progression document 2024

EYFS Computing skills	Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
An EYFS computing expert needs to understand: • To use simple equipment in the classroom • To talk about how they, use the internet at home and what it is. • To know who they can go to if they see something online that worries them • To know that not all websites are suitable for children. • Recognise which personal information they should keep safe from strangers. • To use the technology around them such as the listening area and hand held cameras. • To have experience of using the IWB including busy things/phonics games. • Paint online with different colours and brushes -Create shapes online	Pupils should be taught about: • 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 • 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.	Pupils should be taught about: • 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 • 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.

Year	Unit title and skills	Objectives / knowledge	Questions that children will answer	Vocabulary -	
				Previous:	New:
N and R: EYFS Framework and Development Matters					
N	**Autumn 1 – Digital Literacy** **This term, the children should be able to…** Recognise technology that is used at home and in school.	**This term, the children should learn…** I can identify some simple examples of my personal information (my name, birthday, age, where I live etc..). I can identify people I trust in the network around me.		**Previous:**	**New:** Choices Create Internet
	Autumn 2 - Digital Literacy **This term, the children should be able to…** Understand what a computer is and the different uses of computers i.e., learning, communicating, finding information, playing games etc.	**This term, the children should learn…** I can identify some simple examples of my personal information (my name, birthday, age, where I live etc..). I can identify people I trust in the network around me.		**Previous:**	**New:** Choices Create Internet
	Spring 1 – Computer Science **This term, the children should be able to …** Anticipates repeated sounds, sights and actions – eg. When ad adult demonstrates an action toy several times.	**This term, the children should learn…** Plays with a range of materials to learn cause and effect eg. – makes a string puppet using string to suspend the puppet. Uses pipes, funnels and other tools to carry out/ transport water from one place to another. Give commands/instructions e.g., forward, backwards, go, stop, when using simple software/hardware		**Previous:**	**New:** On Off Switch

	Spring 2 - Computer Science **This term, the children should be able to…** Operates mechanical toys eg. – turns the knob on a windup toy and pulls back on a friction car.	**This term, children should learn…** Plays with a range of materials to learn cause and effect eg. – makes a string puppet using string to suspend the puppet. Uses pipes, funnels and other tools to carry out/ transport water from one place to another. Give commands/instructions e.g., forward, backwards, go, stop, when using simple software/hardware		**Previous:**	**New:** On Off Switch
	Summer 1 – Information Technology **This term, the children should be able to…** Shows interest in toys with buttons, flaps and simple mechanisms and begins to learn to operate them.	**This term, the children should learn…** Can investigate touch capable technology. Experience simple apps and software and use these to present ideas – eg. – draw a picture, record a sound etc..		**Previous:**	**New:** Buttons Collect Command Computer Count Equipment Keyboard Keys Monitor Mouse
	Summer 2 – Information Technology **This term, the children should be able to…** Seeks to acquire basic skills in turning on and operating some digital equipment.	**This term, the children should learn…** Can investigate touch capable technology. Experience simple apps and software and use these to present ideas – eg. – draw a picture, record a sound etc..		**Previous:**	**New:** Buttons Collect Command Computer Count Equipment Keyboard Keys Monitor Mouse
R	**Autumn 1 - Digital Literacy** **This term, the children should be able to…** Develops digital literacy skills by being able to access, understand and interact with a range of technologies.	**This term, the children should learn…** I can give simple examples of rules when staying safe online. I can give examples of devices in my home that might be connected to the internet I can give examples of when I should ask permission to do something online and explain why this is important.		**Previous:** Choices Create Internet	**New:** information Share Technology Website
	Autumn 2 - Digital Literacy **This term, the children should be able to…** I can recognise some ways in which technology might be used to communicate with people I know.	**This term, the children should learn…** I can give simple examples of rules when staying safe online. I can give examples of devices in my home that might be connected to the internet I can give examples of when I should ask permission to do something online and explain why this is important.		**Previous:** Choices Create Internet	**New:** information Share Technology Website
	Spring 1 – Computer Science **This term, the children should be able to …** Completes a simple program on electronic devices such as bee bot or a coding app.	**This term, the children should learn…** Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Knows that information can be retrieved from digital devices and the internet,		**Previous:** On Off Switch	**New:** Backwards Forward Instruction Sound Moving
	Spring 2 - Computer Science **This term, the children should be able to…** Shows an interest in technological toys with knobs, pulleys, real objects such as cameras and touchscreen devices such as mobile phones and tablets.	**This term, children should learn…** Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Knows that information can be retrieved from digital devices and the internet,		**Previous:** On Off Switch	**New:** Backwards Forward Instruction Sound Moving
	Summer 1 - Information Technology **This term, the children should be able to…** Can use the internet with adult supervision to find and retrieve information of interest to them.	**This term, the children should learn…** Uses IT hardware to interact with age-appropriate apps. Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet		**Previous:** Buttons Collect Command Computer	**New:** Movement Organise Phone Camera

		(double tap, swipe) Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Manage a device by correctly closing websites or apps and safely turning on and off. Knows how to operate simple equipment eg. – turn on the interactive board, use a remote control.		Count Equipment Keyboard Keys Monitor Mouse	Remote Set of photos Type
	Summer 2 – Information Technology **This term, the children should be able to…** Can create content such as video recording, stories and drawing pictures on a screen.	**This term, the children should learn…** Uses IT hardware to interact with age-appropriate apps. Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet (double tap, swipe) Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Manage a device by correctly closing websites or apps and safely turning on and off. Knows how to operate simple equipment eg. – turn on the interactive board, use a remote control.		**Previous:** Buttons Collect Command Computer Count Equipment Keyboard Keys Monitor Mouse	**New:** Movement Organise Phone Camera Remote Set of photos Type

Years 1-6: National Curriculum supplemented by National Centre for Computing Education

Year	Unit title and skills	Objectives / knowledge	Questions that children will answer	Vocabulary -	
				Previous:	**New:**
1	**AUTUMN 1 - Computing systems and networks – Technology around us** **NC:** - Recognise common uses of information technology beyond school **This term, the children should be able to…** • Recognising technology in school and using it responsibly.	**This term, the children should know:** 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	How do we input information and commands into a computer?	**Previous:**	**New:** technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.
	AUTUMN 2 - Creating media – Digital painting **NC:** - Use technology purposefully to create, organise, store, manipulate, and retrieve digital content **This term, the children should be able to…** • Choosing appropriate tools in a program to create art, and making comparisons with working non digitally.	**This term, the children should know:** 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	How do artists use computers to create artwork pieces?	**Previous:**	**New:** paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers
	Spring 1 - Programming A – Moving a robot **NC:** - Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. **This term, the children should be able to…** • Writing short algorithms and programs for floor robots, and predicting program outcomes.	**This term, the children should know:** 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	How do we find and correct mistakes and errors in our programming?	**Previous:**	**New:** Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.
	Spring 2 - Data and information – Grouping data **NC:** - 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	**This term, the children should know:** 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	How do we keep ourselves safe online?	**Previous:**	**New:** object, label, group, search, image, property, colour, size, shape, value, data set, more, less,

	the internet or other online technologies. **This term, the children should be able to…** • Exploring object labels, then using them to sort and group objects by properties.				most, fewest, least, the same
	Summer 1 - Creating media – Digital writing **NC:** - Use logical reasoning to predict the behaviour of simple programs **This term, the children should be able to…** • Using a computer to create and format text, before comparing to writing non-digitally.	**This term, the children should know:** 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	How do we change the look of our writing?	**Previous:**	**New:** 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, writing.
	Summer 2 - Programming B - Programming animations **NC:** - Create and debug simple programs **This term, the children should be able to…** • Designing and programming the movement of a character on screen to tell stories.	**This term, the children should know:** 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	Is it easier to create art on a computer?	**Previous:**	**New:** ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.
Year	**Unit title and skills**	**Objectives / knowledge**	**Questions that children will answer**	**Vocabulary -**	
				Previous:	**New:**
2	**AUTUMN 1 - Computing systems and networks – IT around us** **NC:** - Recognise common uses of information technology beyond school **This term, the children should be able to…** • Identifying IT and how its responsible use improves our world in school and beyond.	**This term, the children should know:** 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	How do different kinds of computer help us?	**Previous:**	**New:** Information technology (IT), computer, barcode, scanner/scan
	AUTUMN 2 - Creating media – Digital photography **NC:** - Use logical reasoning to predict the behaviour of simple programs **This term, the children should be able to…** • Capturing and changing digital photographs for different purposes.	**This term, the children should know:** 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	Is it better to do art on a computer?	**Previous:**	**New:** device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,
	Spring 1 - Programming A – Robot algorithms **NC:** - Understand what algorithms are, how they are implemented as programs on digital	**This term, the children should know:** To describe a series of instructions as a sequence	How do we give instructions to a computer?	**Previous:**	**New:** instruction, sequence clear, unambiguous, algorithm, program, order, prediction,

	devices, and that programs execute by following precise and unambiguous instructions. **This term, the children should be able to…** • Creating and debugging programs, and using logical reasoning to make predictions.	To explain what happens when we change the order of instructions To use logical reasoning to predict the outcome of a program To explain that programming projects can have code and artwork To design an algorithm To create and debug a program that I have written			artwork, design, route, mat, debugging, decomposition
	Spring 2 - Data and information – Pictograms **NC:** - 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. **This term, the children should be able to…** • Collecting data in tally charts and using attributes to organise and present data on a computer.	**This term, the children should know:** To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons To recognise that people can be described by attributes To explain that we can present information using a computer	What is the best way of showing the result of a survey?	**Previous:**	**New:** more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing
	Summer 1 - Creating media - Digital music **NC:** - Use technology purposefully to create, organise, store, manipulate, and retrieve digital content **This term, the children should be able to…** • Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	**This term, the children should know:** 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	Can a computer replace a physical instrument?	**Previous:**	**New:** music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.
	Summer 2 - Programming B - Programming quizzes **NC:** - Create and debug simple programs **This term, the children should be able to…** • Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.	**This term, the children should know:** 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	Who should we share information with online?	**Previous:**	**New:** sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.

Year	**Unit title and skills**	**Objectives / knowledge**	**Questions that children will answer**	**Vocabulary -**	
				Previous:	**New:**
3	**AUTUMN 1 – Computing systems and networks – Connecting computers** **NC:** - 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 **This term, the children should be able to…**	**This term, the children should know:** 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	Should we always trust everything we see or hear online?	**Previous:**	**New:** digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets

	• Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks	To recognise the physical components of a network			
	AUTUMN 2 - Creating media - Stop-frame animation **NC:** - 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 **This term, the children should be able to…** • Capturing and editing digital still images to produce a stop frame animation that tells a story	**This term, the children should know:** 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	Have computers made designing comic strips simpler? Do you think that comics created on a computer show as much skill as hand-drawn comics?	**Previous:**	**New:** animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.
	Spring 1 - Programming A - Sequencing sounds **NC:** - use sequence, selection, and repetition in programs; work with variables and various forms of input and output **This term, the children should be able to…** • Creating sequences in a block-based programming language to make music.	**This term, the children should know:** 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	How have digital technologies impacted musicians?	**Previous:**	**New:** 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.
	Spring 2 - Data and information – Branching databases **NC:** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **This term, the children should be able to…** • Building and using branching databases to group objects using yes/no questions.	**This term, the children should know:** To create questions with yes/no answers To identify the attributes needed to collect data about an object To create a branching database To explain why it is helpful for a database to be well structured To plan the structure of a branching database To independently create an identification tool	How can we make a program more efficient using looping tools? How can databases help us to answer questions and find information?	**Previous:**	**New:** attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.
	Summer 1 - Creating media – Desktop publishing **NC:** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **This term, the children should be able to…** • Creating documents and modifying text, images and page layouts for a specific purpose.	**This term, the children should know:** 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	How can computers help us to design?	**Previous:**	**New:** text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.
	Summer 2 - Programming B - Events and actions in programs **NC:** - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	**This term, the children should know:** 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	How do designers create landscapes for computer games?	**Previous:**	**New:** motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug,

	This term, the children should be able to… • Writing algorithms and programs that use a range of events to trigger sequences of actions.				actions.
Year	**Unit title and skills**	**Objectives / knowledge**	**Questions that children will answer**	**Vocabulary -**	
				Previous:	**New:**
4	**AUTUMN 1 – Computing systems and networks – The Internet** **NC:** - 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 **This term, the children should be able to…** • Recognising that the internet is a network of networks including the WWW, and why we should evaluate online content.	**This term, the children should know:** 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	What is inside our computers? How do they work?	**Previous:**	**New:** 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
	AUTUMN 2 - Creating media - Audio production **NC:** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **This term, the children should be able to…** • Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	**This term, the children should know:** To identify that sound can be recorded -To explain that audio recordings can be edited To recognise the different parts of creating a podcast project To apply audio editing skills independently To combine audio to enhance my podcast project To evaluate the effective use of audio	How do computers help us create and save audio?	**Previous:**	**New:** audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.
	Spring 1 - Programming A – Repetition in shapes **NC:** - 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 **This term, the children should be able to…** • Using a text-based programming language to explore count-controlled loops when drawing shapes.	**This term, the children should know:** To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given outcome To decompose a task into small steps To create a program that uses count-controlled loops to produce a given outcome	Why do you need to be careful when writing a program, and how can using a loop help you make a pattern?	**Previous:**	**New:** Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure
	Spring 2 - Data and information – Data logging **NC:** - use sequence, selection, and repetition in programs; work with variables and various forms of input and output **This term, the children should be able to…** • Recognising how and why data is collected	**This term, the children should know:** 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	How can a data logger help you answer questions?	**Previous:**	**New:** data, table, layout, input device, sensor, logger, logging, data point, interval,

	over time, before using data loggers to carry out an investigation,	To recognise how a computer can help us analyse data To identify the data needed to answer questions To use data from sensors to answer questions			analyse, dataset, import, export, logged, collection, review, conclusion.
	Summer 1 - Creating media – Photo editing **NC:** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **This term, the children should be able to…** • Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled,	**This term, the children should know:** To explain that the composition of digital images can be changed To explain that colours can be changed in digital images To explain how cloning can be used in photo editing To explain that images can be combined To combine images for a purpose To evaluate how changes can improve an image	How can you change and improve a digital image?	**Previous:**	**New:** 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.
	Summer 2 - Programming B – Repetition in games **NC:** - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **This term, the children should be able to…** • Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	**This term, the children should know:** 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	What is the difference between a count-controlled loop and an infinite loop?	**Previous:**	**New:** 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.

Year	**<u>Unit title and skills</u>**	**Objectives / knowledge**	**Questions that children will answer**	**<u>Vocabulary -</u>**	
				Previous:	**New:**
5	**AUTUMN 1 – Computing systems and networks - Systems and searching** **NC:** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **This term, the children should be able to…** • Recognising IT systems in the world and how some can enable searching on the internet.	**This term, the children should know:** To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To experiment with search engines 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	How does the internet work?	**Previous:**	**New:** 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.

	AUTUMN 2 - Creating media - Video production **NC:** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **This term, the children should be able to…** • Planning, capturing, and editing video to produce a short film.	**This term, the children should know:** 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	How can you make a video better when recording and editing?	**Previous:**	**New:** 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.
	Spring 1 - Programming A – Selection in physical computing **NC:** - use sequence, selection, and repetition in programs; work with variables and various forms of input and output **This term, the children should be able to…** • Exploring conditions and selection using a programmable microcontroller.	**This term, the children should know:** 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	How can a loop help control a circuit in a project?	**Previous:**	**New:** 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
	Spring 2 - Data and information – Flat-file databases **NC:** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **This term, the children should be able to…** • Using a database to order data and create charts to answer questions.	**This term, the children should know:** To use a form to record information To compare paper and computer-based databases To outline how you can answer questions by grouping and then sorting data To explain that tools can be used to select specific data To explain that computer programs can be used to compare data visually To use a real-world database to answer questions	What are spreadsheets and databases, and why are they used all over the world?	**Previous:**	**New:** database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.
	Summer 1 - Creating media – Introduction to vector graphics **NC:** - 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 **This term, the children should be able to…** • Creating images in a drawing program by using layers and groups of objects.	**This term, the children should know:** To identify that drawing tools can be used to produce different outcomes To create a vector drawing by combining shapes To use tools to achieve a desired effect To recognise that vector drawings consist of layers To group objects to make them easier to work with To apply what I have learned about vector drawings	How can combining shapes help you create a vector drawing?	**Previous:**	**New:** vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection

	Summer 2 - Programming B – Selection in quizzes **NC:** - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **This term, the children should be able to…** • Exploring selection in programming to design and code an interactive quiz.	**This term, the children should know:** 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	Do people use the internet more on laptops or phones, and how does this affect how content is created and shared?	**Previous:**	**New:** Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator
Year	**Unit title and skills**	**Objectives / knowledge**	**Questions that children will answer**	**Vocabulary -**	
				Previous:	**New:**
6	**AUTUMN 1 – Computing systems and networks - Communication and collaboration** **NC:** - 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 **This term, the children should be able to…** • Exploring how data is transferred by working collaboratively online.	**This term, the children should know:** To explain the importance of internet addresses To recognise how data is transferred across the internet To explain how sharing information online can help people to work together To evaluate different ways of working together online To recognise how we communicate using technology To evaluate different methods of online communication	How does the internet help people work together and share information?	**Previous:**	**New:** 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, oneway, two-way, one-to-one, one-to-many
	AUTUMN 2 - Creating media – Web page creation **NC:** - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content **This term, the children should be able to…** • Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.	**This term, the children should know:** 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	How were the earliest videogames created?	**Previous:**	**New:** 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.
	Spring 1 - Programming A – Variables in games **NC:** - use sequence, selection, and repetition in	**This term, the children should know:** To define a 'variable' as something that is changeable To explain why a variable is used in a program	What is a variable, and why is it important in a program?	**Previous:**	**New:** variable, change, name, value, set, design, event,

	programs; work with variables and various forms of input and output **This term, the children should be able to…** • Exploring variables when designing and coding a game.	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			algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare
	Spring 2 - Data and information – Spreadsheets **NC:** - 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 **This term, the children should be able to…** • Answering questions by using spreadsheets to organise and calculate data.	**This term, the children should know:** To create a data set in a spreadsheet To build a data set in a spreadsheet To explain that formulas can be used to produce calculated data To apply formulas to data To create a spreadsheet to plan an event To choose suitable ways to present data	How can you use formulas in a spreadsheet to help plan an event?	**Previous:**	**New:** 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.
	Summer 1 - Creating media – 3D Modelling **NC:** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. **This term, the children should be able to…** • Planning, developing, and evaluation 3D computer models of physical objects.	**This term, the children should know:** To recognise that you can work in three dimensions on a computer To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model To create a 3D model for a given purpose To plan my own model To create my own digital 3D model	What can you do to create and change a 3D model on a computer?	**Previous:**	**New:** TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.
	Summer 2 - Programming B - Sensing movement **NC:** - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs **This term, the children should be able to…** • Designing and coding a project that captures inputs from physical devices.	**This term, the children should know:** 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 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	How do you use user inputs to control a program on a device?	**Previous:**	**New:** 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.