Computing Curriculum Progression Map

	Autumn Term		Spring Term		Summer Term	
	Computer Systems and Networks	Data and information	Programming A	Creating Media	Programming B	Creating Media
EYFS	Technology Around Us Recognising what technology is and what technology we have at home and in school	Grouping Data Recognising that things can be labelled, grouped and compared.	Programming Knowing that things can be labelled, grouped and compared.	Creating media Making simple marks on a device, using a painting tool. 2Paint a picture and/or http://paintz.app Recording sounds and speech using a microphone and device.	Programming Ordering and sequencing a range of things including stories.	Creating media Knowing and using some letters on a keyboard. Knowing how to take photographs using a device.
Year 1	Technology Around Us Recognising technology in school and using it responsibly http://paintz.app	Grouping Data Exploring object labels, then using them to sort and group objects by properties Google Docs	Moving a Robot Writing short algorithms and programs for floor robots and predicting program outcomes Bee-Bots	Digital Painting Choosing appropriate tools in a program to create art and making comparisons with working non-digitally	Programming Animations Designing and programming the movement of a character on screen to tell stories Scratch junior app iPad and Chrome	Digital Writing Using a computer to create and format text before comparing to writing non-digitally Google docs

				http://paintz.app		
Year 2	Information Technology Around Us Identifying IT and how its responsible use improves our world in school and beyond	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer JIT5 (j2e.com)	Robot Algorithms Creating and debugging programs and using logical reasoning to make predictions Bee-Bots	Digital Photography Capturing and changing digital photographs for different purposes iPad photo app using edit function	Programming Quizzes Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz Scratch junior app iPad and Chrome extension	Making Music Using a computer as a tool to explore rhythms and melodies before creating a musical composition Chrome Music Lab Chrome Music Lab (chromeexperiments.com)
Year 3	Connecting Computers Identifying that digital devices have inputs, processes and outputs and how devices can be connected to make networks http://paintz.app	Pictograms Collecting data in tally charts and using attributes to organise and present data on a computer JIT5 (j2e.com)	Sequencing Sounds Creating sequences in a block-based programming language to make music Scratch - Imagine, Program, Share (mit.edu)	Stop-frame Animation Capturing and editing digital still images to produce a stop-frame animation that tells a story iPad Stop motion studio	Events and Actions in Programs Writing algorithms and programs that use a range of events to trigger sequences of actions Scratch - Imagine, Program, Share (mit.edu)	Desktop Publishing Creating documents by modifying text, images and page layouts for a specific purpose Microsoft Publisher
Year 4	The Internet Recognising the internet as a	Data Logging Recognising how and why data is collected	Repetition in Shapes Using a text- based	Audio Production Capturing and editing audio to	Repetition in Games Using a clock-based programming language	Photo Editing Manipulating digital images and reflecting on

	network of networks including the WWW and why we should evaluate online content	over time, before using data loggers to carry out an investigation Data loggers or Arduino Science Journal iPad app	programming language to explore count-controlled loops when drawing shapes FMS Logo or Turtle Academy Playground	produce a podcast, ensuring that copyright is considered Audacity	to explore count-controlled and infinite loops when creating a game https://scratch.mit.edu/	the impact of changes and whether the required purpose is fulfilled paint.net
Year 5	Systems and Searching Recognising IT systems around us and how they allow us to search the internet	Flat-file Database Using a database to order data and create charts to answer questions https://www.j2e.com/database/	Selection in Physical Computing Exploring conditions and selection using a programmable microcontroller Crumbles	Video Production Planning, capturing and editing video to produce a short film Google drawing Chrome books Or Microsoft Word laptops	Selection in Quizzes Exploring selection in programming to design and code an interactive quiz Scratch online Scratch - Imagine, Program, Share (mit.edu)	Vector Drawings Creating images in a drawing program by using layers and groups of objects iPad Video editing iMovie
Year 6	Communication and Collaboration Identifying and exploring how data is transferred and	Introduction to Spreadsheets Answering questions by using spreadsheets to organise and calculate data	Variables in Games Exploring variables when designing and coding a game	Webpage Creation Designing and creating webpages, giving consideration to copyright ,	Sensing Designing and coding a project that captures inputs from a physical device Micro bits	3D Modelling Planning, developing and evaluating 3D computer models physical Chromebooks/laptops

| | information is shred online

Microsoft PowerPoint | Microsoft Excel laptops or Google Sheets chrome books | Scratch - Imagine, Program, Share (mit.edu) | aesthetics and navigation

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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
NC objectives		• 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.		• 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			

Autumn 1 Computer Systems and Networks	Technology Around Us (Computer systems and algorithms)	Technology Around Us (Computer systems and algorithms)	Information Technology Around Us (Networks and computing systems)	Connecting Computers (Networks and computing systems)	The internet (Networks and safety and security)	Sharing Information (Networks and effective use of tools)	Internet Communication (Networks and effective use of tools)
	-Pupils know the different types of technology. -Pupils know the main parts of a computer (keyboard, screen, mouse, trackpad). Pupils know how to control a cursor using a mouse/trackpad.	-Pupils know and can identify different types of technology. -Pupils know the main parts of a computer (on/off switch, mouse/trackpad to click and drag). - Pupils know how to use a mouse/trackpad in different ways (open a program	-Pupils know the uses of information technology in school and beyond. - Pupils know how information technology helps us. -Pupils know how to use information technology safely. - Pupils know that choices are made when using information technology.	- -Pupils know how digital devices function, using input and output. - Pupils know the physical components of a network and that a computer network is made up of multiple devices. - Pupils know how digital devices can change the way we work.	-Pupils know how networks physically connect to other networks. -Pupils know how networked devices make up the internet. -Pupils know how websites can be shared via the World Wide Web (WWW). -Pupils know how content can be added and accessed	-Pupils know and can explain that computers can be connected together to form systems, and that these feature inputs, outputs and processes. -Pupils know the role of computer systems in our lives. -Pupils know how to use search engines. - Pupils know how search engines select results.	-Pupils know the importance of internet addresses and know how these are used to access websites. - Pupils know how data is transferred across the internet. - Pupils know how sharing information online can help people to work together and can evaluate different

		and create a picture). -Pupils know how to use a **keyboard** to type on a **computer** and move the **cursor** and **delete** letters. -Pupils know how to use the **keyboard** to edit text. -Pupils know how to use **technology** responsibly.		-Pupils know how a **computer network** can be used to share information. -Pupils know how **digital devices** can be connected.	on the **World Wide Web (WWW).** -Pupils know how the content of the **WWW** is created by people. -Pupils know that there are rules to protect content on the **WWW.** -Pupils know that not everything on the **WWW** is true, and why it may not be honest, accurate or legal.	-Pupils know how search results are ranked and recognise why the order of results is important, and to whom. ways of working together **online.** -Pupils know how we communicate using **technology** and can evaluate different methods of **online** communication. -Pupils know how to access shared **files** stored **online.**

Autumn 2 Data and Information	Grouping Data	Grouping Data (Data and information and algorithms)	Pictograms (Data and information and effective use of tools)	Branching Databases (Data and information and effective use of tools)	Data logging (Computer systems and data and information)	Flat-file database (Data and information and effective use of tools)	Introduction to Spreadsheets (effective use of tools and data and information)
	-Pupils know that things can be **grouped, comparing** and spotting similarities and differences, beginning to work out **rules**. -Pupils know that objects can be **labelled.**	-Pupils know objects can be **labelled** - Pupils know that objects can be counted. -Pupils know that we ca**n** describe objects in different ways. -Pupils know they can count objects with the same **properties.** -Pupils know they ca**n** **compare** groups of objects. -Pupils know they can **group** objects and answer questions about these groups.	-Pupils know how to describe the **properties** of an object, count and compare them. Pupils know how to count and **compare** objects using **tally charts.** -Pupils know that objects can be **represented** as pictures. -Pupils know how to create a **pictogram.** -Pupils know how to select objects by **attribute** and make **comparisons.** - Pupils know that people can be described by **attributes.** -Pupils know how to explain that we can **present information** using a **computer.**	-Pupils know how to create questions with yes/no answers. -Pupils know how to identify the **attributes** needed to **collect data** about an object. -Pupils know how to create a **branching database.** -Pupils know how to explain why it is helpful for a **database** to be well structured. -Pupils know how to plan the structure of a **branching database.** -Pupils know how to independently create an identification tool.	-Pupils know that **data** gathered over time can be used to answer questions. - Pupils know how to use a **digital device** to collect **data** automatically. - Pupils know that a **data logger** collects **'data points'** from **sensors** over time. - Pupils know how to view and sort data. - Pupils know how a computer can help us **analyse data.** - Pupils know how to identify the **data** needed to answer questions. -Pupils know how to use data from **sensors** to answer questions.	-Pupils know how to use a form to record information. -Pupils know how to compare paper and **computer-based databases.** -Pupils know how to navigate a **flat fil database** to compare information - Pupils know how you can answer questions by grouping and then sorting **data.** -Pupils know how **'and** and **or'** can be used to **refine data.** Pupils know how **filters** can **refine data** and **charts** - Pupils know that tools can be used to select specific **data.**	-Pupils know how to create a **data set** in a **spreadsheet.** - Pupils know the inputs and outputs in a spreadsheet. - Pupils know how to build a **data set** in a **spreadsheet.** -Pupils know that **formulas** and operations can be used to **calculated data.** -Pupils know how to apply **formulas** to **data.** -Pupils know how to create a **spreadsheet** to plan an event. -Pupils know to choose suitable ways to **present data.**

						-Pupils know that **computer programs** can be used to **compare data** visually. -Pupils know how to use a **real-world database** to answer questions.	

Spring 1 Programming A	Programming	Moving a Robot (Algorithms and programming)	Robot algorithms (Algorithms and programming)	Sequencing Sounds (Programming and design and development)	Repetition in Shapes (Algorithms and programming)	Selection in Physical Computing (Programming and computing systems)	Variables in Games (Programming and design and development)
	-Pupils know that things can be **grouped, comparing** and spotting similarities and differences, beginning to work out **rules**. -Pupils know that objects can be **labelled.** -	-Pupils know what a given **command** will do, predicting and matching it to an **outcome**. -Pupils know how to combine forwards and backwards **commands** to predict and make a **sequence.** -Pupils know how to use left and right **commands** to move a **robot.** -Pupils know how to combine four direction **commands** to make **sequences.** -To know how to plan a simple **program** and **debug** the **program,** knowing what it should do. -Pupils know how to find more than one solution to a problem.	-Pupils know how to describe a series of **instructions** to create a **sequence.** -Pupils know how to explain what happens when we change the order of instructions. -Pupils know how to **program** and predict a sequence for a **floor robot.** - Pupils know that programming projects can have **code** and artwork - Pupils know how to design an **algorithm.** -Pupils know how to create and **debug** a program that has been created.	-Pupils know how to use the programming environment of **Scratch.** -Pupils know that commands in **Scratch** are represented in **blocks** have an outcome. -Pupils know how to create a **program** using a design and **sequence.** -Pupils know that sprites are controlled by **commands.** -Pupils know that a **sequence** of **commands** can have an order. -Pupils know how to create a project from a task description using **sprites** controlled by movement **commands** and sound **commands**.	-Pupils know that accuracy in **programming** is important. -Pupils know how to create a **program** on a computer by typing in **commands** in a **text-based** language. -Pupils know how to write an **algorithm** to achieve an outcome. -Pupils know what '**repeat**' means. - Pupils know how to write a **code** and change the **value** of a **command.** - Pupils know how to use and modify a **count-controlled loop, knowing which values to change** to produce a given outcome. -	-Pupils know how to control a simple **circuit** and connect it to a **microcontroller controlling** an **LED.** -Pupils know what an **infinite loop** does. -Pupils know how to connect more than one **output device** to a **microcontroller.** Pupils know how to write a **program** that includes **countcontrolled loops** and that these control the output**.** -Pupils know that a **loop** can stop when a **condition** is met. - Pupils know that a **loop** can be used to repeatedly	-Pupils know that a **variable** is used in a program and these can hold a number of letters, knowing that they have names and **values.** -Pupils know that **program variables** can hold the place of a single **variable**. -Pupils know that events in a **program** can set **variables.** - Pupils know how to improve a game by using **variables.** -Pupils know how to design a project that builds on a given example. -Pupils know how to use a design to create a project. - Pupils know how to evaluate their project.

				- Pupils know how to change the	Pupils know how to decompose a task into small steps. -Pupils know how to use a procedure in a program and	check whether a **condition** has been met and that if it has can start an action. - Pupils know that a **condition (if, then)**	

				appearance of a project.	develop the program by **debugging** it.	can **control** a **program**. -Pupils know how to design a physical project that includes **selection.** -Pupils know how to create a **program** that controls a **physical computing project.** -Pupils know how to test and **debug** the project.	

Spring 2 Creating Media (Graphics)	Creating media	Digital Painting (Effective use of tools and creating media)	Digital Photography (Effective use of tools and creating media)				Web Page Creation (Creating media and design and development)
	-Pupils know to make simple marks on a **device**, using a **painting tool.**	-Pupils know what the different freehand **paint tools** do. -Pupils know how to use the **shape tool** and the **line tool.** -Pupils know how to change the colour and brush sizes. -Pupils knows how to make careful choices when painting a **digital picture** in the style of an artist. -Pupils know which tools to choose and use. -Pupils know how to use a **computer** to paint a picture. -Pupils know how to compare painting a picture on a **computer** and on paper.	-Pupils know which **digital device** to use to capture a **digital photo.** -Pupils know how to use a **digital devic**e to take a **photograph** in either portrait or landscape. -Pupils know how to make choices when taking a **photograph.** -Pupils know what makes a good **photograph.** -Pupils know how **photographs** can be improved. -Pupils know how to use **tools** to change an **image** -Pupils know that **photos** can be changed				Pupils know the different types of **media** used on **websites.** -Pupils know that websites are written in **HTML.** -Pupils know how to review an existing **website** and consider its structure. -Pupils know the common features of a **web page.** -Pupils know about the **ownership** and use of images **(copyright).** -Pupils know the term fair use and can find **copyright free images.** -Pupils know how to add content to a **webpage** and preview it. -Pupils know that there is a need for a

							navigation path and can link **webpages** using **hyperlinks.** - Pupils know the implications of linking to content owned by other people.

Spring 2 Creating Media (Video)	Creating media			Stop-frame Animation		Video Production	
	-Pupils know how to take **photographs** using a **device**.			(Effective use of tools and creating media)		(Effective use of tools and creating media)	
				-Pupils know that **animation** is a sequence of drawings or photographs. -Pupils know how to relate **animated movement** with a sequence of images. -Pupils know how to plan an **animation**. -Pupils know how to create a flip-book style **animation,** explaining how it works. -Pupils know how to work consistently and carefully. -Pupils know how to review and improve an **animation**. -Pupils know how to evaluate the impact of adding other **media** to an **animation.**		-Pupils know what makes a video effective. -Pupils know which digital devices can record video. -Pupils know the features on a **digital video recording device,** including a **microphone.** -Pupils know how to capture **video** using a range of techniques. -Pupils know how to create a storyboard. -Pupils know that **video** can be improved through **reshooting** and **editing** and know which **tools** to use. -Pupils know the impact of the choices made when making and sharing a video. -Pupils know how to save, retrieve and export video content.	

Spring 2					Audio Production		

Creating Media (Audio)					(Effective use of tools and creating media) -Pupils know that **sound** can be **recorded.** -Pupils know that **input** and **output** devices are used to **record** and **play sound.** -Pupils know how to use a **computer** to **record audio.** -Pupils know that **audio recordings** can be **edited/trimmed** and **saved** as an **editable document.** -Pupils know how to combine **audio** to enhance their **podcast** project. -Pupils know how to evaluate the effective use of **audio.**		

Summer 1 Programming B	Programming Pupils know how to **order** and **sequence,** including for stories. -Pupils know that problems can be broken down in to **steps.**	**Programming Animations** (Programming and design and development) -Pupils know how to choose a **command** for a given purpose (move a **sprite**). -Pupils know that a series of commands (**blocks**) can be joined together to create an **algorithm.** -Pupils know how to **run** and **test** a **program** using a **start** block. -Pupils know the effect of changing a **value** of a **block.**	**Programming Quizzes** (Programming and design and development) -Pupils know that a sequence of **commands** has a start and know how to run a **program.** -Pupils know that a sequence of **commands** has an outcome and the outcome can be changed. -Pupils know how to create a **program** using a given design, creating **algorithms**	**Events and Actions in Programs** (Programming and design and development) -Pupils know how a **sprite** moves in an existing project using **blocks.** -Pupils know how to **program** movement using a sequence of **commands** and create a program to move a **sprite** in four directions. -Pupils know how to adapt a **program** to a new context using	**Repetition in Games** (Programming and design and development) -Pupils know how to use **countcontrolled** and **infinite loops** in a different programming environment. -Pupils know that in programming there are infinite loops and countcontrolled loops. -Pupils know how to develop a design that includes two or more loops which	**Selection in Quizzes** (Algorithms and programming) -Pupils know how **selection** is used in **computer programs** and how **conditions** are used. -Pupils know that a conditional statement connects a **condition** to an outcome. -Pupils know how to use **selection** in an **infinite loop** to check a **condition.**	**Sensing Movement** (Programming and computing systems) -Pupils know how to create a **program** to run on a **controllable device** and test the **program** on an **emulator.** -Pupils know that **programs** can be **transferred** to a **controllable device.** -Pupils know that **if, then** and **else statements** can be used to control the flow of a **program,**

		-Pupils know that each **sprite** has its own instructions and how to add and **delete** more than 1 **sprite**. -Pupils know how to design the parts of a project. -Pupils know how to use algorithms to create a program and test what has been created.	for a **sprite's** actions using a sequence of blocks. -Pupils know how to change a given design. -Pupils know how to create a **program** using their own design. -Pupils know how improve their project by adding features and **debugging.**	program extensions and **blocks**. -Pupils know how to develop a **program** by adding features from a given set of **blocks** and choose suitable **keys** to turn on additional features. -Pupils know how to fix **bugs** in a **program**. -Pupils know how to design and create a maze-based challenge.	run at the same time and know that more than one **process** can **run** at once. -Pupils know how to modify an **infinite loop** in a given **program**. -Pupils know how to design a **project** that includes repetition. -Pupils know how to evaluate the steps they followed when building their **project**. -Pupils know how to use existing **code** on new **sprites.**	-Pupils know the **condition** and outcomes in an 'if… then… else…' statement. -Pupils know how **selection** directs the flow of a **program** and it can branch according to a **condition**. -Pupils know how to design a **program** that uses **selection** and identify the outcome of user input in an **algorithm.** -Pupils know how to create a **program** that uses selection and implement an **algorithm** to create the first section of my **program**. -Pupils know how to evaluate their **program.**	knowing the importance of the order of these. -Pupils know how to update a **variable** with a user **input** and that **conditions** can be used to change **variables**. -Pupils know how to use a **conditional statement** to compare a **variable** to a value and use **operands (<>=)** in an if, then statement. -Pupils know how to design a project that uses **inputs** and **outputs** on a **controllable device.** -Pupils know how to develop a **program** to use **inputs** and **outputs** on a **controllable device** and use a range of approaches to find and **fix bugs.**

Summer 2 Creating Media (Text)	Creating media -Pupils know some letters on a keyboard.	Digital Writing (Effective use of tools and creating media) -Pupils know how use a computer to write using a word processing. -Pupils know and find keys (space, back space, letters and numbers) on a keyboard. -Pupils know how to add and remove text on a computer. Pupils know that the look of text can be		Desktop Publishing (Effective use of tools and creating media) -Pupils know how text and images convey information. -Pupils know the difference between text and images and the advantages and disadvantages of using text and images. -Pupils know that text and layout can be edited (font style, size, and			

		changed on a **computer.** -Pupils know how to type a capital letter using **caps lock.** -Pupils know what the **tool bar** is and how to use **bold, italic,** and **underline.** -Pupils know how to make careful choices when changing **text** by **double-clicking** and dragging to select. -Pupils know how to change the **font.** -Pupils know how to improve their writing and can explain why they used the **tools** that they chose. Pupils know how to use **'Undo'** to remove changes. -Pupils know the similarities and difference between writing on paper and on a **computer** and can say why they		**colours** for a given purpose). -Pupils know how to choose the appropriate page settings (**templates, 'page orientation,' placeholders**). - Pupils know how to add content to a **desktop publishing publication.** - Pupils know how different layouts can suit different purposes and choose a suitable layout for a given purpose. -Pupils know the benefits of **desktop publishing** and can compare work made on **desktop publishing** to work created by hand.			

		prefer typing or writing.					

Summer 2 Creating Media (Graphics)					Photo Editing (Effective use of tools and creating media)	Introduction to Vector Graphics (Effective use of tools and creating media)	3D Modelling (Effective use of tools and creating media)
					-Pupils know that the composition of **digital images** can be changed by **rotating, cropping** an **image** and **changing colours.**	-**Pupils know** that **drawing tools** can be used to produce different outcomes and that **vector drawings** are made	-Pupils know that you can work in three dimensions on a **computer** and add 3D shapes to a project.

| | | | | | -**Pupils know** how **cloning** and **colour effects** can be used in photo editing. -Pupils know that images can be **combined** using **tools** to **select** and **copy** part of an image. -Pupils know how to **combine** images for a purpose. -Pupils know how changes can improve an image. | using shapes or **objects.** -Pupils know how to create a **vector drawing** by combining **shapes, resizing, rotating and duplicating objects.** -Pupils know which **tools** to use to achieve a desired effect and improve consistency including **zoom, alignment grids** and **resize handles.** -Pupils recognise that **vector drawings** consist of layers and how to add a new **layer**, change the **order** of **layers**. -Pupils know how to **group** and **ungroup objects** to make them easier to work with by **copying** part of a drawing and **duplicating** several objects -**Pupils know how to** apply what they have learned about | -Pupils can move 3D shapes relative to one another. -Pupils know that digital 3D objects can be modified by **resizing, lifting, lowering** and **recolouring** a 3D object. -Pupils know that objects and models can be **combined, grouped, rotated** and **duplicated** in a 3D model. -Pupils know how to create a 3D model for a given purpose. -Pupils know how to accurately **size** the 3D objects |

						vector drawings to create a **vector drawing** for a specific purpose and reflect on the skills they have used and why they have used them.	and show that **placeholders** can create holes in 3D objects. - Pupils know how to plan and create their own 3D model and explain how it could be

							improved and modified.

| Summer 2 Creating Media (Audio) | Creating media

Pupils know how to **record sounds** and speech using a **microphone** and **device**. | | **Making digital music**
(Creating media and design and development)

-Pupils know how music can make us feel and identify simple differences in pieces of music. -Pupils know that there are patterns in music and can follow and create a rhythm patterns. -Pupils know how to change **pitch** using a **computer** and using images to create sounds.
-Pupils know how to use a **computer** to create a **musical pattern** using sequences of notes. -Pupils know how create music/rhythm for a purpose. -Pupils know how to review and refine their **computer** work and explain how they changed it. | | | | |