Computing Progression Map

Term	Topic	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn Term	**Computing Systems and Networks**	-Refers to technology in their play (role play with phone, computer, till etc.)	-Shows an interest in technology in the environment -Refers to technology in their play (role play with phone, computer, till etc.) -Interacts with simple computer software and hardware -Knows that information can be retrieved from computers	**Technology around us** -Explains technology as something that helps us - Locates examples of technology in the classroom -Identifies a computer and its main parts -Uses a mouse to click and drag -Uses a keyboard to type and edit text -Saves work on a computer -Gives examples of rules for using technology responsibly	**IT around us** -Identifies that a computer is a part of Information Technology -Identifies Information technology and its use at home, in school and beyond. -Explains how Information Technology helps people -Recognises how to use Information Technology responsibly -Says how rules and guidelines help you -Opens a file on a computer	**Connecting Computers** -Explains that digital devices accept inputs and produce outputs -Identifies input and output devices -Designs a digital device -Recognises similarities and differences between digital and non-digital devices -Explains how a computer network can be used to share information -Understands the role of a network switch -Recognises that a computer network is made up of a number of devices	**The Internet** - Describes how networks physically connect to other networks - Outlines how websites can be shared via the World Wide Web (WWW) - Evaluates the consequences of unreliable content	**Sharing Information** - Explains that computers can be connected together to form systems - Recognises the role of computer systems in our lives - Recognises how information is transferred over the internet - Contributes to a shared project online	**Internet Communication** - Recalls how to use a search engine - Demonstrates that different search terms produce different results - Explains that search terms need to be chosen carefully - Explains the role of web crawlers - Explains how ranking is determined by rules, and that different search engines use different rules - Evaluates different methods of online communication

Computing Progression Map

	Creating Media								
		-Records their voice	**CLC workshop** -uses a paint program to create a simple picture -adds their name to their work using a text tool -Records their voice	**Digital painting** -Describes what different free hand painting tools do -Uses paint tools to draw a picture -Creates a picture in the style of an artist -Makes careful choices about the tools and colours to make a digital picture -Knows that different paint tools do different jobs -Knows the difference between painting on paper and on a computer	**Digital Photography** -Knows what devices are used to take photographs -Sorts devices into old and new -Uses a digital device to take landscape and portrait photographs -Describes what makes a good photograph -Discusses how photographs can be improved -Experiments with different light sources -Focuses on an object being photographed -Recognises images that are real and that have been changed	**Animation** -Explains that an animation is a sequence of drawings or photographs -Creates an effective stop frame animation -Predicts what an animation will look like -Plans an animation -Creates a story board (setting, characters, events) -Identifies the need to work consistently and carefully when creating an animation -Reviews and improves an animation	**Audio editing** - Recognises that sound can be digitally recorded - Recognises that some digital devices have microphones - Recognises that recorded audio is stored as a file - Understands that audio can be edited and altered - Understands that sound can be layered - Considers the results of editing choices made	**3D modelling – Purple Mash** - Explores the different viewpoints 2Design and Make whilst designing a building - Adapts one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form - explore how to edit the polygon 3D models to design a 3D model for a purpose - refine and print a model	**3D modelling** - to recognise that 3D objects comprise length, width and height (depth) - recognise the differences when working in 3D compared with 2D - recognise that structures can be broken down into collection of 3D objects - recognise the similarities and differences between real-life 3D and virtual 3D

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Term	Topic	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Spring Term	**Creating Media**	**Digital Photography** -Uses i-pads and cameras to experiment with taking photos	**Digital Photography** -Uses i-pads and cameras to experiment with taking photos -Makes predictions -Identifies patterns -Follows a set of instructions to make a model -Creates a sequence of steps (algorithm) to make a model -Follows instructions for a simple set of movements	**Digital Writing** -Finds keys on a keyboard -Opens a word processor -Adds and removes text on a computer -Identifies the toolbar and use bold, italic and underline -Types capital letters -Changes the font -Uses letter, number and space keys -Explains what tool they used to change the text -Compares writing on a computer with writing on paper	**Making Music** -Describes how music makes us feel -Identifies simple differences in pieces of music -Identifies that there are patterns in music -Creates a rhythm pattern -Connects images with sounds -Uses a computer to experiment with pitch and duration -Identifies that music is a sequence of notes -Uses a computer to create a musical pattern using three notes -Creates music for a purpose	**Desktop Publishing** -Recognises that text and images can communicate messages clearly -Knows that text and layout can be edited -Changes the font, size and colours for a purpose -Chooses appropriate page settings (template, orientation) -Creates a template for a particular purpose -Adds content to a desktop publishing publication -Chooses suitable layouts for a given purpose -Explains the benefits of using desktop publishing	**Photo editing** - explain that digital images can be changed - change the composition of an image - describe how images can be changed for different uses - make good choices when selecting different tools - recognising that not all images are real - evaluating how changes can improve an image	**Video editing** - recognising video as moving pictures, which can include audio - identify digital devices that can record video - capturing video using a digital device - capturing video using a digital device - recognising the features of an effective video - identifying that video can be improved and editing - considering the impact of the choices made when making and sharing a video	**Web page creation** - reviewing an existing website and consider its structure - planning the features of a web page - considering the ownership and use of images (copyright) - recognising the need to preview pages - outlining the need for navigation path - recognising the implications of linking to content owned by other people

Computing Progression Map

	Data and information	Map Programs	Map Programs	Grouping data	Pictograms	Branching databases	Data and Data loggers	Data and Flat file databases	Spreadsheets
		-Draws a simple map	-Looks at maps of the local area on Google maps -Identifies features on a map -Draws a simple map	-Describes objects using labels -Matches objects to groups -Identifies that objects can be counted in groups -Describes a property of an object -Finds objects with similar properties -Groups objects in more than one ways -Compares groups of objects -Answers questions about groups of objects	-Recognises that we can compare and count objects using a tally chart -Records data in a tally chart -Uses a pictogram to answer simple questions about objects -Uses a tally chart to create a pictogram -Creates a pictogram to arrange objects by an attribute -Recognises that people can be described by attributes -Draws conclusions from a pictogram and shares what they have found	-Creates questions with yes/no answers -Arranges objects into a tree structure -Selects an attribute to separate objects -Creates a branching database -Selects objects to arrange in a branching database -Uses a branching database to answer questions -Explains why it is helpful for a database to be well structured -Compares the information shown in a pictogram with a branching database	- explaining the data gathered over time can be used to answer questions - using a digital device to collect data automatically - explaining that a data logger collects 'data points' from sensors over time - using data collected over a long duration to find information - identifying the data needed to answer questions - using collected data to answer questions	- Use a form to record information - compare paper and computer-based databases - outline how grouping and then sorting data allows us to answer questions - explain that tools can be used to select specific data - explain that computer programs can be used to compare data visually - apply my knowledge of a database to ask and answer real-world questions	- identify questions which can be answered using data - explain that objects can be described using data - explain that formula can be used to produce calculated data - apply formulas to data, including duplicating - create a spreadsheet to plan an event - choose suitable ways to present data

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Summer Term	**Programming A**	**Programmable Toys** -Explores programmable toys	**Programmable Toys** -Compares programmable toys to old mechanical toys	**Moving a robot** -Explains what a given command will do -Matches a command to an outcome -Runs a command on a device -Follows an instruction -Gives directions -Combines forwards and backwards demands to make a sequence -Starts a sequence from the same place -Combines four direction commands to make a sequence - Plans and debugs a simple program -Explains what their program should do	**Robot algorithms** -Follows instructions given by someone else -Gives clear and unambiguous instructions -Creates different algorithms for a range of sequences -Explains what happens when they change the order of instructions -Uses logical reasoning to predict the outcome of a program -Understands that programming projects can have artwork and code -Uses an algorithm to create a program -Plans algorithms and puts together the different parts of a program -Tests and debugs each part of a program they have created	**Sequence in music** -Identifies the objects in a Scratch project and their attributes -Recognises that commands are represented as blocks -Creates a program following a design -Identifies that each sprite is controlled by a command -Explains that a program has a start -Creates a sequence of connected commands -Changes the appearance of their project -Makes design choices for their artwork -Combines sound commands -Orders notes into a sequence	**Repetition in shapes** - identifying that accuracy in programming is important - creating a program in a text-based language - explaining what 'repeat' means - modifying a count-controlled loop to produce a given outcome - decompose a program into parts - creating a program that uses count-controlled loops to produce a given outcome	**Selection in physical computing** - control a simple circuit connected to a computer - write a program that includes count-controlled loops - explain that a loop can stop when a condition is met, eg number of times - conclude that a loop can be used to repeatedly check whether a condition has been met - design a physical project that includes selection - create a controllable system that includes selection	**Variables in games** - define a variable as something that is changeable - explain why a variable is used in a program - choose how to improve a game by using variables - design a project that builds on a given example - use their design to create a project - evaluate their project

Computing Progression Map

	Programming B	CLC workshop	CLC workshop	Introduction to animation	Introduction to quizzes	Events and actions	Repetition in games	Selection in quizzes	Sensing
		Uses programmable toys	-Shows an interest in technology controlled toys -understands that pressing specific buttons causes the robot to move -Debugs and begins to correct mistakes -Gestures where the robot needs to go -Begins to combine buttons -understands that some buttons will perform opposite movements -develops a simple algorithm including turns	-Chooses a command for a given purpose -Uses commands to move a sprite -Uses a start block in a program -Uses more than one block by joining them together -Finds blocks with numbers and says what happens if they change a value -Explains that each sprite has its own instruction -Creates an algorithm for each sprite -Adds programming blocks based on their algorithm -Tests the program they have created	-Understands that a sequence of commands has a start -Identifies the start of a sequence -Changes the outcome of a sequence of commands -Matches two sequences with the same outcome -Predicts the outcome of a sequence of commands -Creates a program using a given design -Describes the actions of a sprite in an algorithm -Changes a given design (background, character) -Creates a program using their own design -Debugs a program	-Explains how a sprite moves in an existing project -Chooses which keys to use for an action and explains their choices -Creates a program to move a sprite in four directions -Adapts a program to a new context -Chooses blocks for a program -Uses programming extensions -Chooses suitable keys to turn on additional features -Identifies and fixes bugs in a program -Matches a piece of code to an outcome -Tests a program against a given design	- developing the use of count-controlled loops in a different programming environment - explaining that in programming there are infinite loops and count controlled loops - developing a design which includes two or more loops which run at the same time - modify an infinite loop in a given program - design a project that includes repetition - create a project that includes repetition	- explain how selection is used in computer programs - relate that a conditional statement connects a condition to an outcome - explain how a selection directs the flow of a program - design a program which uses selection - create a program which uses selection - evaluate their project	- create a program to run on a controllable device - explain that selection can control the flow of a program - update a variable with a user input - use an conditional statement to compare a variable to a value - design a project that uses inputs and outputs on a controllable device - develop a program to use inputs and outputs on a controllable device