Computing Progression Map

		Computing Systems and networks	Creating media	Programming A	Data and information	Programming B
Preschool	Knowledge	Technology can be used to help us (beginning to understand) Devices/equipment can be used for different purposes, e.g. take photos, draw pictures, play music. They should ask for help when needed on a device				
	skills	Explore simple technology independently and with adult support, using age appropriate programmes/apps. Asking for help when needed using a device.				
Reception	Knowledge	Computers can help us.	Computers can be used to create media. Eg. art, music, photos, videos.	Objects can be controlled. Know directional words: forwards; backwards; left; right	Computers can help us.	Objects can be controlled. Know directional words: forwards; backwards; left; right
	skills	Help adults operate equipment around the school. Become independent using and operating simple equipment.	To explore creating different media on a device. Eg. art, music, photos, videos.	Understand that instructions will lead to an outcome Use directional words: forwards; backwards; left; right Use a floor robot (Beebot)	Information can be stored onto a computer.	Understand that instructions will lead to an outcome Use directional words: forwards; backwards; left; right Use a floor robot (Beebot)

				Talk about the movement Explore different approaches		Talk about the movement Explore different approaches
Year 1	Knowledge	Technology is something that can help us and how so. A computer is an example of technology. Choices are made when using technology Rules are needed when using technology	Different freehand tools do different things Computers can be used to create art A tool can be adjusted to suit my need and to know when it is appropriate to use each tool Choices made have an impact. There differences between painting using a computer with painting using brushes	Words that can be enacted A command has a set outcome. A program is a set of commands that a computer can run A series of instructions can be issued before they are enacted	Objects can be counted Information can be presented in different ways	Words can be enacted A command has a set outcome. You press a button to run a command A program is a set of commands a computer can run A series of instructions can be issued before they are enacted
	Skills	To recognise that some technology can be used in different ways and to choose	To create a picture using freehand tools To use shape and	To enact a given word To predict the outcome of a	To collect simple data and show that it can be counted To group objects	To predict the outcome of a command on a device

		accordingly To identify the main parts of a computer To use a mouse in different ways To use a keyboard to type and to edit text To show how to use technology safely	line tools when precision is needed To use a range of paint colours To use the fill tool to colour an enclosed area To use the undo button to correct a mistake To combine a range of tools to create a piece of artwork	command on a device To list which commands can be used on a given device To run a command on a floor robot To choose a command for a given purpose To build and combine a sequence of commands in steps to run a programme on a device	by a chosen attribute to answer questions To describe a group of objects (based on commonality)	To list that commands can be used on a given device To choose a series of commands that can enacted and be run as a program To run a program on a device
Year 2	Knowledge	Different types of computers are used in school There are different features of information technology and they have different features	Digital devices can take photographs To know the features of a good photograph and how they could be improved Photographs can be changed after	A series of instructions is a sequence Know what happens when we change the order of instructions A series of instructions can be	Some information should not be shared A computer program can be used to present information in different ways	A series of instructions can be issued before they are enacted A series of instructions is called a ‘sequence’

		There are rules of information technology and they can benefit us Choices are made when using information technology	they have been taken Photographs may may not be accurate	issued before they are enacted You can predict the outcome of a program		
	skills	To identify information technology beyond school To show how to use information technology safely	To know how to take and save a photo To explain the effect of light on a photo To capture a digital image To take photographs in both landscape and portrait format To use filters to edit the appearance of a photograph To consider lighting before taking a	To choose a series of words or phrases that can be enacted as a sequence To create and run a programme on a device To trace a sequence to make a prediction To debug a program that I have written	To compare objects that have been grouped by attribute To use a computer to answer comparison questions (graphs, tables) To use pictograms to answer single-attribute questions To know how to construct (complete) a given comparison question To use a computer to view and input	To use logical reasoning to predict the outcome of a program To choose a series of words or phrases that can be enacted as a sequence To run a program on a device To trace a sequence to make a prediction To create and debug a program that I have written To test a prediction

			photograph To use zoom to change the composition of a photograph To hold the camera still to take a clear photograph To view photographs on a digital device and decide which ones to keep To improve a photograph by retaking it		data in different formats To recognise that people, animals and objects can be described by attributes	by running the sequence
Year 3	Knowledge	Information can be shared through multiple connections There are benefits of computer networks A network is made up of a number of components	Know the benefits of using a DTP application Different font styles and effects are used for particular purposes DTP pages can be structured with placeholders	Different sequences can achieve different or the same output The order of commands can affect a program's output The sequence of a program is a process	Know real-world applications for branching databases A well-structured branching database will enable you to identify objects using fewer questions	Different sequences can achieve different or the same output The order of commands can affect a program's output The sequence of a program is a process

		Devices in a network are connected to one another A computer system can change the way that we work Know what an input is Processes act on inputs to produce an output Changing the process can affect the output	Different layouts can suit different purposes Landscape and portrait are two different page orientations Text and images can be used together to convey information	Know what a sequence is A programme includes a sequence of commands Programs start because of an input	A data set can be structured using yes/no questions A branching database is an identification tool	Know what a sequence is A programme includes a sequence of commands Programs start because of an input
	skills	To identify inputs and outputs devices To explain that a computer systems accepts inputs and processes it to produce an output To explain how a computer network can be used to	To review a document To review a document To edit and add text in a placeholder To add and remove images to and from	To create a sequence of commands to produce a given outcome To build, order and combine commands in a program	To create questions with yes/no answers To choose questions that will divide objects into evenly sized subgroups To repeatedly create subgroups of objects	To create a sequence of commands to produce a given outcome To order commands in a program To build, combine and order commands in a

		share information To explain the role of a switch, server and wireless access point in a network To identify network devices To explain how networks can be connected to other networks	placeholders Tomove, resize and rotate images To organise text and image placeholders in a page layout To show that page orientation can be changed		To retrieve information from different levels of the branching database To relate two levels of a branching database using AND	program
Year 4	Knowledge	The global interconnection of networks is the internet There is a need for security when on the internet To know how information can be shared via the World Wide Web The internet enables us to view the World Wide	Digital images can be changed and manipulated for different purposes Know the most appropriate tool for a particular purpose Know the impact of changes made on the quality of the image	Know what 'repeat' means You can use a loop command in a program to repeat instructions To know that in programming there are indefinite loops and count-controlled loops An indefinite loop will run until the	Questions that can be answered using a table of data Data can be logged over time Sensors are input devices and can be used as an input device for data collection A data logger captures 'data points' from sensors over time	Know what 'repeat' means You can use a loop command in a program to repeat instructions To know that in programming there are indefinite loops and count-controlled loops An indefinite loop will run until the

		Web and it contains websites and web pages Know how the content of the World Wide Web is created, owned, and shared by people There are benefits of the World Wide Web		program is stopped and you can program a loop to stop after a specific number of times Know when to use a loop and when not to There is an importance of instruction order in a loop Not all tools enable more than one process to be run at once		program is stopped and you can program a loop to stop after a specific number of times Know when to use a loop and when not to There ia an importance of instruction order in a loop Not all tools enable more than one process to be run at once
	skills	To describe how networks connect to other networks To describe how to access the world wide web and its current limitations To describe the types of content/media that can be added,	To use an application to add to the composition of a digital image To use an application to change the whole or part of a digital image To use clone, copy, and paste to	To list an everyday task as a set of instructions including repetition To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a	To use a digital device to collect data automatically To choose how often to automatically collect data samples To use a set of logged data to find information	To list an everyday task as a set of instructions including repetition To use an indefinite loop to produce a given outcome To use a count-controlled loop to produce a

		created, and shared on the World Wide Web To evaluate the reliability of content and the consequences of unreliable content	change the composition of a digital image To use cloning to retouch a digital image To select part of a digital image To apply filters and effects to a digital image To adjust colours of a digital image To change the composition of a digital image by rotating, cropping and flipping	given outcome To plan a program that includes appropriate loops to produce a given outcome To create two or more sequences that run at the same time	To use a computer program to sort data by one attribute To export information in different formats	given outcome To plan a program that includes appropriate loops to produce a given outcome To create two or more sequences that run at the same time
Year 5	Knowledge	A system is a set of interconnected parts which work together Computers can be connected together to form IT systems Data can be	A vector drawing comprises separate objects Each object in a drawing is in its own layer Vector images can be scaled without	A condition can only be true or false A count-controlled loop contains a condition A condition-controlle	A computer program can be used to organise data Tools can be used to select data to answer questions Ordering data	A condition can only be true or false A count-controlled loop contains a condition A condition-controlle

		transferred between IT systems Know the role of a particular IT system in their lives Search engines are examples of large IT systems Search engines create indices, and they are different for each search engine Know the role of web crawlers in creating an index Know how ranking is determined by rules, and that different search engines use different rules The order of results is important and to different people	impact on quality Objects can be modified in groups Alignment and size guides can help create a more consistent drawing	d loop will stop when a condition is met When a condition is met, a loop will complete a cycle before it stops Selection can be used to branch the flow of a program A loop can be used to repeatedly check whether a condition has been met Know the importance of instruction order in 'if...then...else...' statements	allows us to answer some questions Operands can be used to filter data Know how 'AND' and 'OR' can be used to refine data selection Computer programs can be used to compare data visually We present information to communicate a message	d loop will stop when a condition is me When a condition is met a loop will complete a cycle before it stops Selection can be used to branch the flow of a program A loop can be used to repeatedly check whether a condition has been met Know the importance of instruction order in 'if... then... else...' statements

		Search engines make money by selling targeted advertising space				
	skills	To recognise inputs, processes, and outputs in large IT systems To describe the input and output of a search engine To demonstrate that different search terms produce different results To explain how search results are selected To explain that ranking orders search results to make them more useful To identify some of the limitations of search engines	To select or delete one object or choices made multiple objects on a vector drawing To move objects between the layers of a drawing To duplicate objects using copy and paste To modify and reposition objects To group and ungroup selected objects To combine options to achieve a desired effect To create a vector drawing for a	To compare a count-controlled loop with a condition-controlled loop To create a condition-controlled loop To use a condition in an 'if...then…' statement to start an action To explain that selection can be used to branch the flow of a program To use selection to switch the program flow in one of two ways To use a condition in an 'if...then...else…'	To choose different ways to view data To choose which attribute and value to search by to answer a given question (operands) To ask questions that need more than one attribute to answer To choose which attribute to sort data by to answer a given question To choose multiple criteria to search data to answer a given question (AND and OR) To select an appropriate graph	To choose a condition to use in a program To compare a count controlled loop with a condition-controlled loop To create a condition-controlled loop To use a condition in an 'if... then…' statement to start an action To use selection to switch program flow To use 'if... then... else…' to switch program flow in one of two ways

		To evaluate the results of search terms	given purpose	statement to produce given outcomes	to visually compare data To choose suitable ways to present information to other people	
Year 6	Knowledge	Data is transferred across networks using agreed protocols (methods) and in packets Connections between computers allow access to shared stored files, and allows people in different places to work together There are opportunities that technology offers for communication and collaboration Know which types of media can be shared through the internet	There is a relationship between HTML and visual display Web pages can contain different media types Web pages are written by people A website is a set of hyperlinked web pages Know components of a web page layout There is ownership and use of images (copyright) There is a need to	'variable' is something that is changeable Know examples of information that is variable, for example, a football score during a match A variable can be used in a program, eg 'score' A program variable as a placeholder in memory for a single value A variable has a name and a value The value of a variable can be used by a program	Questions can be answered using spreadsheet data Know what an item of data is in a spreadsheet The data type determines how a spreadsheet can process the data There are different software tools to work with data Formulas can be used to produce calculated data Cells can be linked Data should be organised in a spreadsheet	A 'variable' as something that is changeable Know examples of information that is variable, for example, a football score during a match A variable can be used in a program, eg 'score' To know a program variable as a placeholder in memory for a single value A variable has a name and a value The value of a variable can be

		Communicating and collaboration using the internet can be public or private	preview pages (different screens / devices) There is a need for a navigation path There are implications of linking to content owned by others	The value of a variable can be updated Variables can hold numbers (integers) or letters (strings) Variables can be changed A variable can be set as a constant (fixed value) There is an importance of setting up a variable at the start of a program (initialisation) There is only one value for a variable at any one time If you change the value of a variable, you cannot access the previous value (cannot undo) If you read a	A cell's value automatically updates when the value in a linked cell is changed	used by a program To know that the value of a variable can be updated Variables can hold numbers (integers) or letters (strings) Know a variable can be changed A variable can be set as a constant (fixed value) Setting up a variable at the start of a program (initialisation) is important There is only one value for a variable at any one time If you change the value of a variable, you cannot access the previous value (cannot undo) If you read a

				variable, the value remains The name of a variable is meaningless to the computer The name of a variable needs to be unique		variable, the value remains The name of a variable is meaningless to the computer The name of a variable needs to be unique
	Skills	To outline and evaluate methods of communicating and collaborating using the internet, and to choose for given purposes To decide what you should and should not share online	To review an existing website (navigation bars, header) To create a new blank web page To add text to a web page To set the style of text on a web page To change the appearance of text To embed media in a web page To add web pages	To identify a variable in an existing program To experiment with the value of an existing variable To choose a name that identifies the role of a variable to make it easier for humans to understand it To decide where in a program to set a variable To update a variable with a user input	To calculate data using a formula for each operation To use functions to create new data To use existing cells within a formula To choose suitable ways to present spreadsheet data To evaluate results in comparison to the question asked	To identify a variable in an existing program To experiment with the value of an existing variable To choose a name that identifies the role of a variable to make it more usable (to humans) To decide where in a program to set a variable To update a variable with a user input

			to a website To preview a web page (different screen sizes) To insert hyperlinks between pages To insert hyperlinks to another site	To use an event in a program to update a variable To use a variable in a conditional statement to control the flow of a program To use the same variable in more than one location in a program		To use an event in a program to update a variable To use a variable in a conditional statement to control the flow of a program To use the same variable in more than one location in a program