	Rec	1	2	3	4	5	6
Computing systems and networks	Knowledge I know that computers are a form of technology. I know that certain devices are forms of technology. Skills I can use a mouse to move a cursor. I can use a keyboard to type letters.	Knowledge I know that technology is something that is man- made that can help us. I know what a mouse and keyboard are and what they do. I know that a mouse can be clicked and dragged across a screen. I know how technology can be used inside of school. Skills I can use a mouse to drag and drop an object on screen. I can click and drag a mouse across a screen to create an	Knowledge I know that information technology is anything that is a computer, has a computer inside or works with a computer. I know how information technology is used in different ways in the local area and in the home. I know that a barcode contains a code that can be read very quickly by a computer. Skills . I can use a barcode to look up the price of different items in a shop. I can list ways to	Knowledge I know that digital devices involve an input, process and output. I know the main inputs and outputs for a range of common digital devices. I know that computer networks can be used to share information. I know the role of a switch, server, and wireless access point in a network. I know which network devices are around me in school and at home. Skills	Knowledge I know that the internet is a network of networks. I know that the World Wide Web is part of the internet that contains websites and web pages. I know that websites on the World Wide Web are accessed by using a Browser. I know that anyone can add content to the World Wide Web. Skills I can use a tracerouter tool to find out the route a webpage travels when I	Knowledge I know the five main parts of a computer system. I know how the main parts of a computer system work together to achieve tasks. I know that internet protocols such as IP address and packets can be used to transfer data in large computer systems. I know that connected digital devices can allow us to access shared files stored online. Skills I can describe how the parts of a computer system	Knowledge I know that search terms are used in search engines to find specific information on the internet. I know that search engines use bots to index the World Wide Web. I know that search engines use 'selection' and 'page rank' to order search results. I know that that there are a variety of ways of communicating effectively and responsibly over the internet. Skills

		image. I can type my name and other words into a Text Box using a keyboard. I can type sentences into more than one text box. .	take a digital photograph safely and responsibly	I can follow an input, process, output process. I can demonstrate how information can be passed between devices on a wireless network. I can demonstrate how devices in a network are connected with one another	access it. I can create media which can be added to a website on the World Wide Web.	for a shopping locker work together. I can send information over the internet in different ways when working collaboratively. I can compare working online with working offline.	I can refine a web search and compare results from different search engines. I can relate a search term to the search engine's index. I can explain how search engines make money.
Creating Media - Digital Images	Knowledge I know that I can use the computer to mark make. Skills I can use paint tools to mark make on a device.	Knowledge I know that paint tools make marks and draw lines. I know the function of the shape and line tools. I know that colour, size and thickness of a paint tool can be changed. Skills I can use paint	Knowledge I know how that a range of devices can be used to capture a digital image. I know that format, composition and light can be used to effect of a digital photograph. . I know that a digital image can be changed using	Knowledge I know that digital animations are made with a sequence of still digital images. I know that small changes between frames are needed for a stop frame animation. I know that a stop frame animation can be organised in sequence using a storyboard.	Knowledge I know some reason why digital images are changed or edited. I know how some digital images can be changed or edited using composition tools, colour tools and light tools. I know that parts of two different images can be combined to make a fake image	Knowledge I know that vector drawings do not lose resolution when scaled and are made using lines and shapes. I know that each element added to a vector drawing is an 'object'. I know that each added object creates a new layer in a vector drawing.	Knowledge I know how computer software can be used to model 3D shapes from the real world. I know that a digital 3D object can be modified by resizing, lifting or changing colour. I know where the rotate, position and duplicate tools are and how

		tools to draw a picture on a device..	simple software tools such as cropping and filters..	I know that media and effects (such as music and text) can be used to improve a digital stop frame animation.	using the clone stamp tool.	.	to use them to manipulate 3D objects.
		I can use shape and line tools to recreate Mondrian's artwork.	Skills		I know that adding other elements to an image can improve my work.	I know parts of a vector drawing can be copied by grouping and duplicating several objects.	I know that a placeholder shape can be used to create a hole in a 3D object.
		I can select from a variety of tools to recreate Matisse's artwork.	. I can use a digital device to take a photograph.	Skills	Skills	Skills	
		I can identify the differences between digital images and non-digital images. .	I can take digital photos in both portrait and landscape formats, experiment with object composition and use different light sources.	I can use onion skinning to make small changes between frames.	I can change the composition of an image by selecting parts of it.	I can move, resize, colour, rotate and copy objects to create a vector drawing.	Skills
				I can create an effective 2D stop-frame animation using digital images.	I can choose effects to make my image fit a scenario.	I can change the order of layers in a vector drawing.	I can select, move, and delete a digital 3D shape.
			I can use simple digital tools such as cropping and filters to manipulate a digital photograph.	I can add digital audio and digital text into a stop frame animation	I can choose appropriate tools to retouch an image using the clone stamp tool.	I can group objects to create a single vector drawing.	I can rotate position and duplicate 3D objects in relation to each other.
			I can identify photographs that have been digitally altered.		I can combine parts of two different images to create new images using the clone stamp tool.		I can use 3D shapes as placeholders.
							I can use software to create a digital 3D model of a photo frame that fits a given design criteria.
Creating Media - Audio/Video/Publishing		Knowledge I know that objects can be	Knowledge I know that data can be used to	Knowledge I know that two groups of objects	Knowledge I know that a data set can answer a	Knowledge: I know that information can	Knowledge I know that a spreadsheet can

		put into groups. I know that grouping objects can help data be counted. I know that an object can be labelled according to its properties. I know that similar objects can have more than one property that can be the same or different. I know that comparing objects means finding what is the same and what is different. I know that questions can be used to find groups of objects or objects within groups. Skills I can describe a property of an	make a pictogram on a computer. I know what an attribute is. I know that a common attribute can be used to group objects. I know that it is important to choose a suitable attribute to compare things. I know that computers can be used to present data in different ways. Skills I can add data on to a computer to make a pictogram. I can create a pictogram to arrange objects by an attribute. I can collect suitable data to answer a	can be separated with a yes/no question. I know that attributes can be used to separate objects into branching groups. I know that objects can be put into a branching database using computer software. I know that questions in a tree structure need to be carefully organised. I know that pictograms and branching databases show information in different ways. Skills I can group objects using my own yes/no	given question. I know that sensors on a data logger are devices that can input data. I know that a data logger can record different types of data. I know that data sets can be imported to a computer to view, analyse and organise. I know that logged data can be interpreted to answer specific questions. Skills . I can use data from a sensor to answer a given question. I can set appropriate intervals on a data logger to collect data.	be recorded in fields. I know what a field and a record is in a database. I know how information can be grouped to answer questions. I know how 'AND' and 'OR' can be used to refine data selection. I know that a chart can be refined by selecting a particular filter. I know that some questions will need more than one field to answer them. Skills I can create multiple questions about the same field e.g. true or false, more than or less	be used to structure data. I know that a cell in a spreadsheet can be formatted for different types of data. I know which data types can be used in calculations. I know that data can be calculated using different operations. I know why data needs to be organised in a spreadsheet. I know the benefits of both tables and charts and can choose which is best for different scenarios. Skills I can choose an appropriate format for a cell in a spreadsheet.

		object using a label. I can group similar objects in more than one way. I can decide how to group objects to answer a question	question. I can present data in different graphical formats using a computer	questions. I can create yes/no questions using given attributes. I can use my branching database to answer questions. I can compare the differences between pictograms and branching databases	I can draw conclusions from the data that I have collected using a data logger.	than. I can choose which field and value are required to answer a given question. I can select an appropriate chart to visually compare data. I can refine a search in a real-world context.	I can construct a formula in a spreadsheet. I can create a formula which includes a range of cells. I can apply a formula to calculate the data I need to answer questions. I can use a chart to show the answer to questions.
Data & Information		Knowledge I know that objects can be put into groups. I know that grouping objects can help data be counted. I know that an object can be labelled according to its properties. I know that	Knowledge I know that data can be used to make a pictogram on a computer. I know what an attribute is. I know that a common attribute can be used to group objects. I know that it is important to	Knowledge I know that two groups of objects can be separated with a yes/no question. I know that attributes can be used to separate objects into branching groups. I know that objects can be	Knowledge I know that a data set can answer a given question. I know that sensors on a data logger are devices that can input data. I know that a data logger can record different types of data.	Knowledge I know that information can be recorded in fields. I know what a field and a record is in a database. I know how information can be grouped to answer questions.	Knowledge I know that a spreadsheet can be used to structure data. I know that a cell in a spreadsheet can be formatted for different types of data. I know which data types can be used in calculations.

		similar objects can have more than one property that can be the same or different. I know that comparing objects means finding what is the same and what is different. I know that questions can be used to find groups of objects or objects within groups. Skills I can describe a property of an object using a label. I can group similar objects in more than one way. I can decide how to group objects to answer a question	choose a suitable attribute to compare things. I know that computers can be used to present data in different ways. Skills I can add data on to a computer to make a pictogram. I can create a pictogram to arrange objects by an attribute. I can collect suitable data to answer a question. I can present data in different graphical formats using a computer.	put into a branching database using computer software. I know that questions in a tree structure need to be carefully organised. I know that pictograms and branching databases show information in different ways. Skills I can group objects using my own yes/no questions. I can create yes/no questions using given attributes. I can use my branching database to answer questions. I can compare the differences	I know that data sets can be imported to a computer to view, analyse and organise. I know that logged data can be interpreted to answer specific questions. Skills . I can use data from a sensor to answer a given question. I can set appropriate intervals on a data logger to collect data. I can draw conclusions from the data that I have collected using a data logger.	I know how 'AND' and 'OR' can be used to refine data selection. I know that a chart can be refined by selecting a particular filter. I know that some questions will need more than one field to answer them. Skills I can create multiple questions about the same field e.g. true or false, more than or less than. I can choose which field and value are required to answer a given question. I can select an appropriate chart to visually compare data. I can refine a	I know that data can be calculated using different operations. I know why data needs to be organised in a spreadsheet. I know the benefits of both tables and charts and can choose which is best for different scenarios. Skills I can choose an appropriate format for a cell in a spreadsheet. I can construct a formula in a spreadsheet. I can create a formula which includes a range of cells. I can apply a formula to calculate the data I need to answer questions.

				between pictograms and branching databases		search in a real-world context.	I can use a chart to show the answer to questions.
Programming A	Knowledge I know that floor robots can be controlled. I know locational language (e.g. above, beside, under) Skill I can make a floor robot move.	Knowledge I know that an outcome is the result of a command. I know that commands need to be in order for them to have the right outcome. I know that different sequences of commands can start from the same place. I know that a floor robot can be controlled with left, right, forwards and backwards commands. I know that when a program does not work I have to debug it.	Knowledge I know that an algorithm is a set of commands in order. I know that the same instructions can be used to make different algorithms. I know that predicting the outcome of an algorithm can help to make sure the instructions and sequence is accurate. I know that design in programming includes artefacts such as artwork as well as code and algorithms. I know how to create an algorithm to meet	Knowledge I know the different objects in a Scratch project and their attributes. I know that program design is used to plan algorithms. I know that a program can be started in different ways. I know what a sequence of commands is and why it is sometimes, but not always, important. I know that a task description relates to the design of the algorithm.	Knowledge I know that I can change the effect of a 'Forward' or 'Turn' command in Logo by changing its value. I know that Logo commands can be used to write algorithms. I know that a count-controlled loop can be used to create shorter sections of a program. I know that tracing code is a way to predict the outcome of an algorithm. I know that a procedure is a small section of a program that	Knowledge: I know what an infinite loop does in a program. I know that a count-controlled loop can be used to control a physical output (e.g. a motor) I know that a condition in a conditional loop is either true or false. I know that a condition being met in a 'if… then' statement' can start an action. Skills I can program a microcontroller to	Knowledge I know some examples of information that is variable. I know that a variable has a name and a value. I know that I can use an event in a program to set a variable. I know how to choose a name that identifies the role of a variable. Skills I can use variables to create a simulation of a scoreboard in a

		I know that more than one program can solve the same problem in different ways. Skills I can predict the outcome of a command on a device. I can experiment with turn and move commands to move a robot. I can choose the order of commands in a sequence. I can use two different programs to get to the same place with a floor robot.	a goal. I know how to plan algorithms for different parts of a task. Skills . I can use an algorithm to program a sequence using a floor robot. I can use my algorithm to create a program that achieves an outcome I have been given. I know how to plan algorithms for different parts of a task.	Skills I can create a program following a design. I can create a sequence of connected commands. I can apply the concept of design to write a program to create a digital musical instrument.	performs a specific task. I know that a program can be developed by debugging it. Skills I can write an algorithm using Logo commands to draw a letter. I can use a count-controlled loop to draw shapes using Logo. I can predict the outcome of a program containing a count- controlled loop by code-tracing. I can repeatedly call a procedure in a program to create a pattern using shapes. I can design, make and debug a program using Logo.	make an LED switch on. I can design a conditional loop. I can use selection (an 'if…then…' statement) to direct the flow of a program. I can use selection to produce an intended outcome.	computer game.

Programming B		Knowledge	Knowledge	Knowledge	Knowledge	Knowledge:	Knowledge
		I know that commands can move an object.	I know that a program needs to be started for it to begin.	I know what an action and an event is.	I know what a count controlled loop is.	I know how 'if… conditions' are used to control the flow of actions in a program.	I know some examples of conditions in the real world that can be used as a variable.
		I know that more than one programming block can be joined together.	I know that a sequence of commands has an outcome.	I know what program extensions are and how to use them.	I know what an infinite loop is.	I know that an 'if… then… else….' statement can be used for selection.	I know that a condition can be used to change a variable.
		I know that some programming blocks have numbers.	I know that I can predict the actions of a sprite by looking at an algorithm.	I know what a pen block is and how it can be used.	I know which parts of a loop can be changed.		I know that the order of conditions in if, else, then statements affects the sequence of a programme.
		I know that I can add programming blocks to an algorithm			Skills	I know how the 'if… then... else…' structure can be used to identify two responses to a	
		Skills	Skills	Skills	I can create a snippet of code with a count-controlled loop.	binary question (one with a 'yes or no' answer).	
		I can create an algorithm for more than one sprite in a project.	I can change the outcome of a sequence of commands.	I can use program extensions to set up my program.	I can choose when to use a count- controlled and an infinite loop.	Skills	Skills
			I can predict the actions of a sprite in an algorithm.	I can build more sequences of commands to make my program design work.	I can use repetition to create a simple animation.	I can modify a condition in a program.	I can use a variable in an 'if, then, else' statement to select the flow of a program.
			I can create an algorithm to create a quiz.	I can design and create my own project to move a sprite around a maze with a pen trail to show where it has	I can use repetition when designing code for a computer game.	I can use an 'if… then… else….' statement in an infinite loop to check a	I can use a condition to change a variable.
			I can debug my program.				

| | | | | | been. | | condition.

I can design the flow of a program which contains 'if… then... else…'

I can use selection to control the outcomes in an interactive quiz. | I can use an operand (e.g. <>=) in an if, then statement.

I can write a program to control a micro:bit using sequence, repetition, selection and variables |

Font Arial 11 pls
You can add more rows if you need to break down a strand

Key
bold= KPI