		EYFS	Y1	Y2
Information Technology	**Computing Systems & Networks**	I know that: • a range of technology is used in places such as homes and schools	I know that: • technology can help us in everyday life • **a computer has different parts which do different things** • a keyboard allows me to type • **my work can be saved and retrieved at a later time**	I know that: • **information technology can be used in different ways** • information technology benefits us
		I know how: • **to use computers/keyboards/mouse in role play**	I know how: • to identify technology • to identify a computer and its main parts • to use a mouse in different ways • **to use a keyboard to type and edit text on a computer**	I know how: • **IT devices work together** • IT devices in school are used • **IT is used in familiar settings e.g. school, home, shops**
	Creating Media	I know that: • technology is used for particular purposes	I know that: • I can use paint tools to draw a picture • different paint tools do different jobs • pictures can be made in different ways • **pictures on a computer are different to those on paper** • **I can use a computer to write** • Word processors enable us to build, edit, and print documents • I can change the appearance of my text • I must choose tools carefully to enhance my writing	I know that: • **that some digital devices can capture images using a camera** • photographs can be saved and viewed later • light can have an effect on a photograph • **photographs can be changed after they have been taken** • some images are not accurate • **computers can be used to play sounds of different instruments** • the same pattern can be represented in different ways
		I know how: • to type letters with increasing confidence using a keyboard and tablet. • **to dictate short, clear sentences into a digital device** • to record my voice over a picture. • to create a simple digital collage • **to move and resize images with my fingers or mouse.** • to animate a simple image to speak in role	I know how: • to describe what different freehand tools do • to use the shape and line tools • to make careful choices when painting a digital picture • **to use a computer on my own to paint a picture** • to make comparisons between pictures on a computer and on paper • **to use a computer to write** • to change the look of text on a computer • to compare typing on a computer to writing on paper	I know how: • **to take photographs in both landscape and portrait format** • **to view photographs on a digital device** • to hold the camera still to take a clear photograph • to use zoom to change the composition of a photograph • to use filters to edit the appearance of a photograph • to improve a photograph by retaking it

		• to create a simple animation to tell a story including more than one character		• to experiment with musical patterns and sounds on a computer • **to use a computer to compose a rhythm and a melody** • to use a computer to play the same music in different ways (e.g. tempo) • to evaluate and improve a musical composition created on a computer
	Data & Information	I know that: • information can be retrieved from computers	I know that: • objects can be grouped by their properties • **computers are not intelligent, and require input from humans to perform tasks** • **grouping objects can help me answer a question**	I know that: • **we can present information using a computer** • a computer can be used to answer comparison questions • we can present information using a computer • **a tally chart can be used to collect data**
		I know how: • to identify a chart • **to sort physical objects, take a picture, and discuss what I have done** • to present simple data on a digital device	I know how: • to label object • to count objects with the same properties • **to compare groups of objects** • to answer questions about groups of objects	I know how: • **to enter data onto a computer** • to use a computer to view data in different formats • **to use pictograms to answer single-attribute questions** • to compare objects that have been grouped by attribute
Computer Science	Programming	I know that: • **some toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images**	I know that: • **computers are controlled by instructions** • algorithms are sets of instructions • **computers need clear, precise instructions** • **instructions must be given in sequence** • an error in code is called a bug • **a series of commands can be joined together** • **changing a value will change the outcome** • **each sprite has its own instructions**	I know that: • a series of instructions is a sequence • you can predict the outcome of a program • **a series of instructions can be issued before they are enacted** • **changing the order of instructions will have an effect on the program**
		I know how: • **to follow simple oral algorithms** • **to spot simple patterns** • to sequence simple familiar tasks	I know how: • to explain what a given command will do • to combine four direction commands to make sequences • **to plan a simple program** • to find more than one solution to a problem	I know how: • to choose a series of words that can be enacted as a sequence • **to choose a series of instructions that can be run as a program** • trace a sequence to make a prediction

		• to input a simple sequence of commands to control a digital device with support (BeeBot)	• **to use commands to move a sprite** • to create an algorithm and use this to create a program • **to test the program I have created** • to debug my program	• **to create and run a program on a device** • to debug a program that I have written • to explain what happens when we change the order of instructions • to test a prediction by running the sequence
Digital Literacy		• I know that: • I can tell a trusted adult if something worries me online	I know how: • **to use technology safely** • to name my work so that others know it belongs to me • **to get help from an adult if I am unsure or upset by something online**	I know how: • **to use different forms of information technology safely, in a range of different environments** • to make responsible choices when using IT • **to recognise things that may make me feel upset online.** • to get help from an adult if I am upset by something online
		I know how: • **to use technology safely** • **to stay safe online**	I know that: • **rules are needed when using technology** • it is as important to stay safe online as it is in "real life" • **the work I create belongs to me** • some people online might make me feel upset or embarrassed • it is important to be responsible and considerate online • I shouldn't share anything without asking an adult first • **my information is private**	I know that: • rules can help keep them safe when using IT • **online content may belong to other people** • there are rules for using technology in different places • **some information should not be shared and why**

		Y3	Y4	Y5	Y6
Information Technology	**Computing Systems & Networks**	I know that: • an input is a device through which information enters a system. • a process acts on the inputs • **an output is produced by the process** • **changing the process can affect the output** • a digital device is made up of several parts • **devices in a network can be connected to each other**	I know that: • **the World Wide Web is part of the internet** • **the global interconnection of networks is the internet** • different types of content/media that can be added, created, and shared on the World Wide Web • **the content of the World Wide Web is created, owned, and shared by people** • the internet enables us to view the World Wide Web • **the World Wide Web comprises of websites and web pages** • the current limitations of World Wide Web media	I know that: • **a system is a set of interconnected parts which work together** • **computers can be connected together to form IT systems** • data can be transferred between IT systems • search engines are examples of large IT systems • **different search terms produce different results** • the order of results is important and to whom • search engines make money by selling targeted advertising space • there are limitations of search engines	I know that: • **there are a number of search engines** • an index has a purpose • search engines create indexes, and that they are different for each search engine • **ranking narrows down the search results returned from the index, which makes it more useful** • ranking is determined by rules, and that different search engines use different rules • the order of results is important, and to whom • that some information is not searchable • **technology offers opportunities for communication** • search engines make money by selling advertising space • **results from search engines can include adverts, and that the adverts can be targeted** • communicating through the internet can be public or private
		I know how: • **to identify input and output devices** • a computer system accepts an input and processes it to produce an output • **a computer network can be used to share information** • to explain the role of a switch, server, and wireless access point in a network • networks can be connected to other networks	I know how: • networks connect to other networks • **information can be shared via the World Wide Web** • **to access the World Wide Web** • **to evaluate the reliability of content and the consequences of unreliable content** • to explain the benefits of the World Wide Web	I know how: • to recognise inputs, processes, and outputs in large IT systems • **to describe the input and output of a search engine** • to explain why search engines create indices, and that they are different for each search engine • search results are selected • **ranking is determined by rules, and that different search engines use different rules**	I know how: • to compare the results from different search engines • **to demonstrate that different search terms produce different results** • to examine the role of the searcher, search engine, and content creator in the searching process • **to decide what I should / should not share** • **to choose an appropriate method of internet communication for a given purpose**

| Creating Media | I know that:

• **an animation is made up of a sequence of images**
• a capturing device needs to be in a fixed position
• **smaller movements create a smoother animation**
• adding other media into an animation can enhance it
• **a project must be exported so it can be shared**
• **text and images can be used together to convey information**
• different layouts can suit different purposes
• desktop publishing pages can be structured with placeholders
• **different font styles and effects are used for particular purposes** | I know that:

• **sound can be recorded**
• an input device is needed to record sound
• output devices are needed to play audio
• **recorded audio can be stored on a computer**
• sound can be represented visually as a waveform
• audio can be layered so that multiple sounds can be played at the same time
• **digital images can be manipulated**
• images can be changed for different purposes
• **not all images are real** | I know that:

• **a vector drawing comprises separate objects**
• **each object in a drawing is in its own layer**
• vector images can be scaled without impact on quality
• objects can be modified in groups
• alignment and size guides can help create a more consistent drawing
• the features of video is a visual media format
• filming techniques can be used to create different effects
• there are limitations of editing video on a recording device
• **that videos can be edited on a recording device or on a computer**
• videos can be improved through and reshooting or editing
• I need to regularly review and reflect on a video project
• **projects need to be exported to be shared** | I know that:

• **3D models can be created on a computer**
• **a 3D environment can be viewed from different perspectives**
• **digital tools can be used to manipulate 3D objects**
• placeholders can create holes in 3D objects
• artefacts can be broken down into a collection of 3D objects
• **there is a relationship between HTML and visual display**
• **web pages can contain different media types**
• a website is a set of hyperlinked web pages
• there is a need to preview pages (different screens / devices)
• **there are implications of linking to content owned by others** |
| | I know how:

• **to plan an animation using a storyboard**
• **to set up a work area understanding what will be captured**
• to use the onion skinning tool to review subject position
• to review a captured sequence of frames as an animation
• **to remove frames to improve an animation** | I know how:

• **to record sound using a computer**
• **to import audio into a project**
• to delete a section of audio
• to change the volume of tracks in a project
• to consider the results of editing choices made
• **to use a computer to (further) manipulate images** | I know how:

• **to add an object to a vector drawing**
• to select one object or multiple objects
• **to move objects between the layers of a drawing**
• to duplicate objects using copy and paste
• to delete, modify and reposition objects
• to group and ungroup selected objects | I know how:

• to position 3D shapes relative to one another
• **to use digital tools to modify 3D objects**
• **to combine objects to create a 3D digital artefact**
• to use digital tools to accurately size 3D objects
• **to construct a 3D model which reflects a real world object**
• to review an existing website (navigation bars, header) |

		• **to add media to an animation** • to review a completed project • to organise text and image placeholders in a page layout • to add and edit text to a placeholder • to choose fonts and apply effects to text • **to add, remove, move, resize and rotate images**	• to change the composition of an image • **to use the most appropriate tool for a particular purpose** • to apply a change globally • to apply changes locally • to make additions • to consider the impact of changes made on the quality of the image	• to combine options to achieve a desired effect • to consider the impact of choices made • to create a vector drawing for a given purpose • **to use different camera angles** • to use pan, tilt and zoom • to explain the purpose of a storyboard • to determine what scenes will convey your idea • **to combine filming techniques for a given purpose** • to identify features of a video recording device or application • to decide what changes I will make when editing • **to use split, trim and crop to edit a video**	• **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 embed media in a web page** • to add web pages to a website • to preview a web page (different screen sizes) • to insert hyperlinks between pages • to insert hyperlinks to another site
	Data & Information	I know that: • **a branching database is an identification tool** • **a data set can be structured using yes/no questions** • a well-structured branching database will enable me to identify objects using fewer questions • **branching databases have "real-world" applications**	I know that: • **questions that can be answered using a table of data** • sensors are input devices • **a sensor can be used as an input device for data collection** • a data logger captures 'data points' from sensors over time	I know that: • **a computer program can be used to organise data** • tools can be used to select data to answer questions • operands can be used to filter data • **ordering data allows us to answer some questions** • '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	I know that: • **questions can be answered using spreadsheet data** • here 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 cell's value automatically updates when the value in a linked cell is changed
		I know how: • **to create questions with yes/no answers** • to choose questions that will divide objects into evenly sized subgroups	I know how: • **to use a digital device to collect data automatically** • to choose how often to automatically collect data samples	I know how: • **to navigate a flat-file database** • to design a structure for a flat-file database • **to choose which attribute to sort data by to answer a given question**	I know how: • the data type determines how a spreadsheet can process the data • **to calculate data using a formula for each operation** • to use functions to create new data

		- to choose questions that will divide objects into evenly sized subgroups **to retrieve information from different levels of the branching database** - to relate two levels of a branching database using AND	**to use a set of logged data to find information** **to export information in different formats**	- to choose which attribute and value to search by to answer a given question (operands) - to choose multiple criteria to search data to answer a given question (AND and OR) **to select an appropriate graph to visually compare data** **to choose suitable ways to present information to other people**	**to use existing cells within a formula** **to choose suitable ways to present spreadsheet data**
Computer Science	Programming	I know that: - programs start because of an input **a program includes a sequence of commands** - the sequence of a program in a process - the order of commands affect a program's output **different sequences can achieve the same output or different outputs**	I know that: **repetition in a program means that lines of code will be run multiple times** - we can use a loop command in a program to repeat instructions - in programming there are indefinite loops and count-controlled loops - an indefinite loop will run until the program is stopped - you can program a loop to stop after a specific number of times **the instruction order in a loop is important** - all tools enable more than one process to be run at once	I know that: **a condition can only be true or false** - repetition in a program means that lines of code will be run multiple times **a condition-controlled loop will stop when a condition is met** - 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 - the instruction order in 'if...then...else...' statements is important	I know that: **a 'variable' is something that is changeable** - a variable can be used in a program, e.g. 'score' - a program variable can be defined 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 - the value of a variable can be updated - variables can hold numbers (integers) or letters (strings) **a variable can be set as a constant (fixed value)** - it is important to set up a variable at the start of a program (initialisation) **that 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
		I know how: to build a sequence of commands and combine them in a program	I know how: to list an everyday task as a set of instructions including repetition	I know how: to create a condition-controlled loop	I know how: to identify a variable in an existing program

	• to order commands in a program • **to create a sequence of commands to produce a given outcome**	• **to use an indefinite loop to produce a given outcome** • to use a count-controlled loop to produce a given outcome • to justify when to use a loop and when not to • **to plan a program that includes appropriate loops to produce a given outcome** • to recognise tools that enable more than one process to be run at the same time • to create two or more sequences that run at the same time	• **to use a condition in an 'if...then...' statement to start an action** • **to use selection to switch the program flow in one of two ways** • to use a condition in an 'if...then...else...' statement to produce given outcomes	• **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 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**
Digital Literacy	I know that: • people with similar interests can get together online • **there are technology specific forms of communication** • I can represent myself in different ways online	I know that: • **information about a person may have been created, copied or shared by others** • my identity online may be different to real life • lots of people sharing the same opinion doesn't make it true • it important to have a healthy balance when using technology	I know that: • I can make positive contributions to an online community • some people online may wish to harm others • there are helpline services that can help me • it is important to be sceptical • **misinformation can be shared across many sites by accident and on purpose**	I know that: • **I may encounter influence, manipulation and persuasion online** • there are a range of ways to report bullying • **what I am posting online is creating an online reputation that others will use to form an opinion about me**
	I know how: • what I say online may hurt others • **to be careful who I trust online** • to explain what identity is.	I know how: • other people can find information about me online • what I post affects someone else's reputation • **to analyse information and differentiate between opinion, belief and fact**	I know how: • information online can be used by others to make judgements • to recognise when someone is hurt or angry online • **to block abusive users**	I know how: • impulsive communications online may cause problems • to support others online • **to build a positive online reputation** • **to save evidence of online bullying** • media shapes ideas about self-image and identity