*** Bold indicated knowledge**

Computing- End Points				
Computing Strands				
	Computing Systems and Networks Autumn 1 (Y1-6)	**Creating Media Autumn 2 and Summer 1 (Y1-6)**	**Programming Spring 1 and Summer 2 (Y1-6)**	**Data and Information Spring 2 (Y1-6)**
Link to pillars of progression	**Information technology**	**Digital Literacy**	**Computer science**	**Information technology**
	Endpoints to be taught across the year within specific topics/books or through provision			
Nursery	**Know that a device can be turned on an off** e.g. Turn an ipad on and off **Know how to interact with a touch capable device with support e.g ipad** **Know that information can be retrieved from digital devices and the internet.** Show an interest in technological toys with knobs or pulleys e.g. cameras, mobile phones and tablets.	**Know how to use a simple app to create marks e.g. glow and draw** **Know how to hold the ipad safely when taking a photograph or video.**	**Know what cause and effect is** through exploring a range of materials e.g. explore a string puppet, making toys work by pressing parts and lifting flaps **Know that a robot can move** and demonstrate moving a floor robot .	
Reception	**Know how to log onto an ipad and navigate specific applications** and demonstrate this **Know different purposes of technologies e.g. phone, microphone, video camera** Use a range of hardware including an ipad, computer and laptop, beebots, camera, microphone, phone, CD player, bluetooth speaker **Know how to use the internet with adult supervision to find and retrieve information of interest to them.** **Know how to retrieve content of interest to them e.g. recall trips and past events**	Create content using a digital device such as video recording, stories and digital drawing. Handle the device effectively for the given purpose.	**Know how to move a robot forward, backward, left and right** and demonstrate this	**Know how to use a given app to collect data** to inform discussions.
Y1	**Technology Around Us**	**Digital Painting and Writing**	**Moving a Robot and Programming Animations**	**Grouping Data**
	Know what technology is and how it helps, giving examples. **Know that choices are made when using technology and to explain why rules are needed.** Use a mouse in different ways and to use the keyboard to type and edit text.	**Digital Painting:** **Know basic tools e.g. a camera, a paint app create an image.** **Know that the following tools can be used to create an image** and apply these in their work: - **brush tool** **- shape tool** **- line tool** **- undo button** **Know that people around me can view my screen to see my work.**	**Know what a given command does and to match it with an outcome** and apply this in their work. **Know how to run a command** and to run a program on a device. **Know that a program is a set of commands a computer can run** and to build a sequence of commands in steps and begin to combine them within a program.	**Know that information can be presented in different ways** **Know that objects can be counted** and to identify attributes of an object in order to group them and to describe a group of objects. Collect simple data and add to a table or graph

		Digital Writing: **Know that a keyboard is used to enter text into a computer** and apply this in their work, altering the appearance of the text. **Know that the shift key changes the output of a key** **Know that information on a computer can be stored and shared** and demonstrate this.		
Y2	**Information Technology Around Us**	**Digital Photography and Making Music**	**Robot Algorithms and an Introduction to Quizzes**	**Pictograms**
	Know different types and features of information technology and how they are used. **Know how rules for using information technology can help us and keep us safe and recognise that choices are made whilst using information technology.** **Know how information technology benefits us.**	**Digital Photography:** **Know that some digital devices can capture images using a camera and understand how to navigate the camera application** **Know how to:** **-**capture a photo -hold a device safely -focus, zoom and review photographs -delete photographs **Know when to choose a landscape or portrait photograph and that all photos can be changed through editing** and apply this to their work by cropping or recolouring. **Know the features of a good photograph.** **Know that some images are not real.** **Making Music:** **Know a computer can be used to create a piece of music for a purpose.** **Know that there are patterns in music and consider how different musical sequences create different effects.**	**Know that a series of instructions is a sequence and can be issued before enacted** and to apply this to their work **Know how logical reasoning can be used to predict the outcome of a program** and to trace a sequence to form this prediction and test it. Create and debug a program that they have written	**Know how a computer program can be used to present information in different ways e.g. tally chart and pictograms** and demonstrate this in their work. Use a computer to view data in different formats **Know objects that have been grouped by attribute and construct a comparison question** and use a computer to answer the question. Use pictograms to answer single attribute questions.
Y3	**Connecting Computers**	**Stop Frame Animations and Desktop Publishing**	**Sequence in Music and Events and Actions**	**Branching Databases**
	Know what an input is and that a process acts on the input and demonstrate this using a digital device. **Know that an output is produced by the process and identify how changing the process can affect the output** and demonstrate this using a digital device. **Know that a digital device is made up of several parts** and explain the role of the switch, server and wireless access points. **Know how devices in a network are connected and that they are made up of a number of components.** **Know how information is passed through multiple connections and identify the**	**Stop Frame Animations:** **Know that an animation is made up of a sequence of images which can be drawn or captured** and be able to capture a series of images and move a subject between captures. **Know the relationship between frames and motion** **Know the terms composition, stage and capture area.** **Know that a capturing device needs to be in a fixed position.** **Know how to fix mistakes in captured images** and play a sequence of images back to review and remove images to improve an animation **Desktop Publishing:** **Know landscape and portrait as page orientations.**	**Know that a program starts because of an input** **Know what a sequence is and a program includes sequences of commands and that this is the process** and demonstrate this in their work by building a sequence, combining and ordering commands. **Know that the order of commands can affect a program's output.** **Know that different sequences can achieve the same output and different outputs** and create a sequence of commands to produce a given outcome.	**Know questions with yes/no answers and data that can be collected to answer questions** and create questions with yes/no answers. **Know an attribute to separate objects into similar sized groups.** **Know how to use two levels of branching databases using AND** and retrieve information from different levels of the branching databases **Know the information shown in a pictogram with a branching database.**

	benefits of computer networks.	**Know how different font styles and effects are used for particular purposes.** **Know that DTP pages can be structured with placeholders.** **Know the following features used to publish:** **-**add images -manage layout -shift to add capital letters -return key to create paragraphs		
Y4	**The Internet**	**Audio Editing and Photo Editing**	**Repetition in Shapes and Repetition in Games**	**Data Logging**
	Know how networks are connected to each other. **Know how information can be shared via the World Wide Web and that this is part of the internet and explain the benefits** and demonstrate how to access it. **Know that the global interconnection of networks is the internet.** **Know the need for security on the internet .** **Know the reliability of content and the consequences if unreliable content.**	**Audio Editing:** **Know where the microphone and speaker are on the device.** **Know how to record sounds, edit audio and use controls on a device and to** use this to begin and stop recording. **Know how to locate a recorded audio and select a section of an audio to apply effects.** **Photo Editing:** **Know how to use a computer to manipulate images and demonstrate this by:** -changing the composition -arranging, cutting and cropping part of an image -adding effects, changing colours and applying filters. -making additions by drawing, adding text and adding an element.	**Know what 'repeat' means and that repetition is included within sequences.** **Know that we can use a loop command in a program to repeat instructions.** **Know patterns and loops within a sequence and program.** **Know that there are count controlled loops and indefinite loops and explain their purpose** and use them within their work. **Know when to use a loop and when not to** and plan a program using appropriate loops. **Know the importance of instruction order in a loop.**	**Know how to use a digital device to collect data automatically.** **Know that sensors are input devices and can be used for data collection.** **Know that a data logger captures data points from sensors over time** and be able to choose how often to automatically collect data samples. Export information in different formats in a table and graph.
Y5	**Sharing Information**	**Video Editing and Vector Drawing**	**Selection in Physical Computing and Selection in Quizzes**	**Flat-file Databases**
	Know that computers can be part of a system in an electronic device and can be connected together to form systems. **Know input, output and process in larger computer systems and how information is transferred using agreed protocols.** **Know that data is transferred in packets** **Know the role of computer systems in our lives and that connection between computers allows us to access shared stored files.**	**Video Editing:** **Know video as moving pictures combined with audio** **Know that video can be captured automatically** **Know the features of a good video and how a video can be improved.** Be able to: -plan a video production using a storyboard -use a recording device -pan left and right, up and down -focus, zoom and compose -locate a video captured on a device -select a section of a video and apply effects, delete sections, crop and split sections. **Vector Drawing:** **Know that an image comprises of separate objects** **Know that objects are layered and that vector images can be coloured without impact on quality**	**Know that a condition can only be true or false** **Know that a count controlled loop contains conditions** **Know a condition controlled loop with a count controlled loop and explain that a condition controlled loop will only stop when a condition is met** and create a condition controlled loop using: -an 'if...then..' statement to start an action. -an 'if...then...else...' statement to produce given outcomes. **Know that selection can be used to branch the flow of a program** and use selection to switch the program flow in one of two ways. **Know that a loop can be used to repeatedly check whether a condition has been met.**	**Know that a computer program can be used to organise data** and design a structure for a flat file database **Know that tools can be used to select data to answer questions e.g. ordering and filter tools** and apply this in my work **Know how 'AND' and 'OR' can be used to refine data selection.**To choose multiple criteria to search data to answer a given question. choose which attribute to sort data by to answer a given question

		Be able to: -create graphical objects ib a computer screen -add or remove objects -select a shape type -drag out an object -select, duplicate and delete -Combine objects by grouping and changing layers.		
Y6	**Communication**	**Web Page Creation and 3D Modeling**	**Variables in Games and Sensing**	**Introduction to Spreadsheets**
	Know why search engines exist and how they create indexes and compare results from different search engines **Know how search results are selected** and explain that search terms need to be carefully chosen **Know the role of web crawlers** **Know that ranking narrows down the search results returned from the index and that search results are ordered (ranking).** **Know limitations of search engines.**	**Web Page Creation:** **Know the relationship between HTML and visual display.** **Know that web pages can contain different media types** **Know components of a web page layout** and apply this to their work by -create blank web page -add text to a webpage -altering style of text -embed media -add web pages -insert hyperlinks **Know how to review the ownership and use of images (copyright)** **Know the need for a navigation path** **3D Modeling:** **Know that 3D objects consist of length, width and height.** **Know that structures can be broken down into a collection of 3D objects.** **Know the similarities and difference between real life 3D and virtual 3D** Create a 3D object in a 3D space and be able to -reposition objects -rotate objects -resize and recolour objects -use an object as a placeholder -recognise the role of scale.	**Know variable as something that is changeable and give examples** **Know a program variable as a placeholder in memory for a single value** and experiment with the value of an existing variable. **Know that a variable has a name and a value and this can be updated, but there is only one value at one time.** **Know that variables can hold numbers or letters.** **Know the importance of setting up a variable at the start of a program** and ro decide where in a program to set a variable **Know that the name of a variable needs to be unique and is meaningless to the computer.**	**Know that objects and artefacts can be described using data** **Know that there are different software tools to work with data** **Know that formulas can be used to produce calculated data** and data can be calculated using different operations. Apply formulas to data including duplication. **Know why data should be organised** Recognise that changing inputs also changes outputs