Computing

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology	Computing Systems and Networks Mouse control, Logging in, typing. Need ICT suite	✓ I can identify what technology is, including examples, and how it can help us. ✓ I can identify the basic parts of a computer, e.g. mouse, keyboard, screen. ✓ I can log on to the school computer / unlock the school tablet with support. ✓ I can use suitable input devices (mouse, keyboard, touchscreen). ICT Suite	✓ I can explain what information technology (IT) is, giving examples (including computers) ✓ I can talk about different uses for IT and that some can be used in more than one way.	✓ I can explain how digital devices function (inputs and outputs). ✓ I can identify input and output devices. ✓ I can give examples of how digital devices can change the way we work. ✓ I can explain how a computer network can be used to share information. I can recognise that a computer network is made up of multiple devices, including a switch, server and a wireless access point.	✓ I know that the internet is a network of networks and it is not the same as the World Wide Web. ✓ I can describe how networks physically connect to other networks. ✓ I recognise that the World Wide Web contains many websites/web pages. ✓ I can explain how websites can be shared via the World Wide Web and how they are stored when this is done. ✓ I can describe how content can be added to the World Wide Web. ✓ I recognise that content on the World Wide Web is created by people. ✓ I can suggest who owns the content on some websites and that there are rules to protect content. I recognise that not everything on the internet is true.	✓ I can explain that computers can be connected together to form systems. ✓ I recognise the role of computer systems in our lives, including the human elements and the benefits of a given system. ✓ I can use a search engine efficiently. ✓ I can describe how search engines use web crawlers and an index to select results. ✓ I know that search engines follow rules to rank results and give some examples of what that criteria might include. I recognise some of the limitations of search engines.	✓ I know that every device connected to the internet has an IP address. ✓ I can describe how computers use IP addresses to access websites. ✓ I know that data is transferred over networks and across the internet in data packets. ✓ I know that files can be shared online in a way which is collaborative. ✓ I know that the internet allows different media to be shared. ✓ I recognise that working together on the internet can be public or private and the benefits of both. ✓ I recognise different ways of using technology to communicate and can choose the most appropriate method for a particular purpose.

							I can evaluate different methods of communication, recognising that communication on the internet may not be private.

Digital Literacy	Creating Media	Digital Painting ✓ I can select basic tools/options to change the appearance of digital content, e.g. filter on an image / font / size of paintbrush. ✓ I can combine media (with support) to present information, e.g. text and images. ✓ I can justify my choices when creating/editing media. ICT Suite Digital Writing ✓ I can identify and find keys on a keyboard. I can use the toolbar in a word processor to change what text looks like. ICT SUITE	Digital Photography ✓ I can capture and explain how to take a good photo using an iPad. ✓ I can take photos in both landscape and portrait and why I might choose to. ✓ I recognise how lighting affects a photo and why an image might be unclear. ✓ I recognise that images can be changed and make some of these changes myself. ✓ I can identify which photos are real and which have been changed Digital Music ✓ I can use a computer to experiment with pitch (of sounds). I can refine musical patterns on a computer.	Stop-frame Animatiojn ✓ I can explain that animation is a sequence of drawings or photographs. ✓ I can create an effective stop-frame animation. ✓ I know what onion skinning is. ✓ I can plan, create and evaluate a stop-frame animation. Desktop Publishing ✓ I can change the font, style and colour of text in a desktop publisher (e.g. Google Docs). ✓ I recognise the advantages and disadvantages of using pictures with text. ✓ I can change the layout of the page to best suit a particular purpose. ✓ I can copy and paste text and images. ✓ I can identify the benefits of desktop publishing in the real world.	Audio Production ✓ I can identify input and output devices used to record and play sound. ✓ I know audio recordings can be edited. ✓ I know what soundwaves look like in an audio recording and can use them to help me edit my recordings. ✓ I can plan a podcast, including combining sounds to make it more engaging. ✓ I can follow my plan to create a podcast, including editing recordings, combining sounds and reviewing the quality. ✓ I can explain the difference between saving and exporting an audio file. ✓ I can evaluate mine and my peers' work. Photo Editing ✓ I can rotate and crop and image. ✓ I can change the colour effects on an image and explain the impact of changing the colours in an image. ✓ I can explain how cloning can be used in photo editing to add or remove parts.	Video Production ✓ I can identify features of a good video. ✓ I can use a digital device to record a video, considering these features. ✓ I can capture videos using a range of techniques, e.g. static camera, pan and tilt and zoom. ✓ I can plan a video using a storyboard. ✓ I can store, retrieve and export my video recording on an iPad. ✓ I know how to improve my video through reshooting and editing. ✓ I can consider the impact of the choices made when creating and sharing a video. Vector Graphics ✓ I know that vector drawings are made using shapes and how they differ from paper-based drawings. ✓ I can create a vector drawing by combining, moving, resizing and rotating shapes. ✓ I can use tools (e.g. zoom) to help me achieve a desired effect. ✓ I recognise that each added object creates a new layer in a vector drawing.	Webpage Creation ICT SUITE ✓ I can evaluate an existing website, considering structure and the media used. ✓ I know that websites are written in HTML. ✓ I can plan the features of my own webpage. ✓ I recognise the need to use copyright-free images. ✓ I know what the term 'fair use' means. ✓ I can add content to my own web page and preview what it looks like. ✓ I can evaluate how my webpage looks on different devices. ✓ I know what a navigation path is and describe why they are useful. ✓ I can create multiple webpages and link them using hyperlinks. ✓ I recognise the implications of linking to content owned by other people. 3D Modelling ✓ I recognise that you can work in 3D on a computer. ✓ I know that digital 3D shapes can be modified. ✓ I can resize, lift/lower and recolour 3D objects in my project.

					✓ I recognise that images can be combined. ✓ I can combine images for a purpose. ✓ I can evaluate how changes can improve an image. I can combine text and my image.	✓ I can group objects together. I can evaluate the skills I used and why.	✓ I can group 3D objects in my project. ✓ I can create a 3D model for a given purpose, e.g. accurate sizing and using placeholders to create holes. I can plan, create and evaluate my own 3D model.

Information Technology	Data and Information	Grouping Data ✓ I can describe objects using labels. ✓ I can find objects with similar properties. ✓ I can answer questions about groups of objects. ✓ I can decide how to group objects to answer a question. I can record and share what I have found. ICT SUITE	Data and information I can enter data into a computer, viewing it in different formats. ✓ I can use pictograms to answer simple questions. ✓ I can explain information shown in a pictogram. I can collect and present data on a topic ICT SUITE	Data logging/ information ✓ I can create closed questions (yes/no answers) ✓ I can identify attributes needed to collect data about an object. ✓ I can create a simple branching database for a objects (using an online database tool) and test it to check it works. ✓ I understand why it is helpful for a database to be well structured. ✓ I can independently plan the structure of, create and test a branching database. I can suggest real-world uses for branching databases. ICT SUITE	Data logging/ information I can explain that data gathered over time can answer questions. ✓ I can identify data which can be gathered over time. ✓ I can use a digital device to collect data automatically. ✓ I can explain what data can be collected and automatically recorded using sensors. ✓ I understand that 'data points' can be collected. ✓ I recognise that data loggers/data logging software collect data at given points (data points). ✓ I recognise how technology can help us analyse data, e.g. by finding averages. ✓ I recognise that there are different ways to view data. ✓ I can identify the data needed to answer questions and use a data logging software (Arduino SJ) to collect that data. ✓ I can interpret data that has been collected by a data logging software to draw conclusions. I can explain the benefits of using a data logging software.	Databases I know what a database is. ✓ I can compare paper and computer-based databases. ✓ I know what a 'field' and a 'record' is in a database. ✓ I know what a flat-file database is. ✓ I understand and know how to answer questions by grouping and/or sorting data. ✓ I can explain how tools such as 'AND'/'OR' can be used to refine and select specific data. ✓ I know that programs can be used to compare data visually using charts/graphs. I can use a real-world database to answer questions. ICT SUITE	Data/ spreadsheets I can collect data and enter it into a spreadsheet. ✓ I know what an item of data is. ✓ I can choose and apply an appropriate format to a cell. ✓ I know what formulas can be used to produce calculated data. ✓ I can apply formulas to data. ✓ I know that changing inputs will change outputs in my formula(s). ✓ I can use a spreadsheet to answer questions. ✓ I can apply a formula to calculate the data needed to answer questions. ✓ I can us a program to present data in different ways (e.g. producing charts/graphs and/or tables). I can interpret data in a chart/graph to answer questions. ICT SUITE

					ICT SUITE		

Computer Science	Programming	<u>Moving a robot</u> ✓ I can create a simple program e.g. to control a floor robot. ✓ I can predict the outcome of a simple algorithm or program. ✓ I can explain what an algorithm is and create one. ✓ I can debug an error in a simple algorithm/program e.g. for a floor robot. <u>Programming animations</u> ✓ I can compare programming tools (e.g. floor robots and ScratchJr). ✓ I can create and run a program on ScratchJr. ✓ I can explain that each sprite has its own instructions.	<u>Robot Algorithms</u> ✓ I can use algorithms to program a sequence on a floor robot. ✓ I can predict the outcome of a sequence. ✓ I can create an algorithm to meet a goal. ✓ I can test and debug my program. ✓ I can plan algorithms for different parts of a task (decomposition). <u>Programming Quizzes</u> ✓ I can predict the outcome of a sequence of commands. ✓ I can create a program on ScratchJr using a given design ✓ I can design and create my own program. I can evaluate and improve my program (including debugging).	<u>Sequencing Sounds</u> ✓ I can identify objects in a Scratch project ✓ I recognise that commands in Scratch are represented as blocks. ✓ I can create a program in Scratch by following a design. ✓ I can start a program in different ways. ✓ I know that objects will respond exactly to the code. ✓ I can explain what a sequence is. ✓ I can order notes into a sequence. ✓ I can implement my algorithm as code. <u>Events and Actions in Progams</u> ✓ I can create a program to move a sprite in four directions ✓ I can use extension features in Scratch (e.g. the Pen tool) ✓ I can identify and fix bugs in a program. I can design, create and evaluate a maze-based challenge. ICT SUITE	<u>Repetition in Shapes</u> ✓ I can create a program using the text-based language: Logo. ✓ I recognise the importance of accuracy when programming. ✓ I can test my algorithm in Logo. ✓ I can explain what 'repeat' means. ✓ I can use a count-controlled loop to produce a given outcome. ✓ I can predict the outcome of a program which contains a count-controlled loop. ✓ I can decompose a task into smaller steps. ✓ I can identify 'chunks' of actions in the real world. ✓ I can use a procedure in a program and understand the benefits of using one. ✓ I can design, create and debug a program that uses count-controlled loops to produce a given outcome. <u>Repetition in Games</u> ✓ I can apply my knowledge of count-controlled loops in Scratch. ✓ I know what an infinite loop is and when to use one	<u>Selection in Physical Computing</u> ✓ I can create a simple circuit and connect it to a microcontroller. ✓ I can program a microcontroller to make the LED switch on. ✓ I can apply my knowledge of infinite loops from Year 4 to my program(s). ✓ I can use my knowledge of count-controlled loops from Year 4 to control outputs on a microcontroller. ✓ I know that a loop can stop when a condition is met (conditional loop). ✓ I can identify a condition and an action in my project. ✓ I can use selection (IF…THEN statements) to direct the flow of a program and identify real-world examples of when this happens. ✓ I can design, create and debug a physical project which includes selection. ✓ ICT SUITE <u>Selection in Quizzes</u> ✓ I can design a program that contains an 'IF…THEN…ELSE' selection statement.	<u>Variables in Games</u> ✓ I know that a variable is something that is changeable. ✓ I know that variables can hold numbers or letters. ✓ I know that a variable has a name and value. ✓ I can choose how to improve a game by using variables. ✓ I can design, create, debug and evaluate a project that builds on a given examples and uses at least one variable. <u>Sensing</u> ✓ I can apply my knowledge of programming to a new environment (micro:bit). ✓ I can create a program to run on a controllable device. ✓ I can apply my knowledge of selection from Year 5 to use it in a new environment. ✓ I can apply my knowledge of variables when experimenting with different physical inputs. ✓ I can use a conditional statement to compare a variable to a value. I can design, develop and debug a program that uses inputs and

					instead of a count-controlled loop. ✓ I can develop a design that includes two or more loops which run at the same time. ✓ I can design, develop, debug and evaluate a project that includes repetition. ✓ ICT SUITE	✓ I design, create and debug a program which uses selection to create an interactive quiz. ✓ I can evaluate my program and identify the next steps to improving it. ICT SUITE	outputs on a controllable device. ICT SUITE