		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EYFS	*Development Matters*	Be able to take a photography with a camera or tablet. Be able to search the internet. Be able to play game on the interactive whiteboard. Be able to explore old typewriter or other mechanical toys. Be able to use a Beebot. Be able to discuss a video that has been watched. Be able to discuss music listened to and describe how it makes them feel.					

NC References:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs

NC References:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical system; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Programming and Coding

Knowledge

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MOVING A ROBOT **Using Beebots** Understand what we use robots for and why robots do what they do. Understand that robots are machines that can do tasks. Understand what each of the buttons on the robot means: - X = clear - Go - Arrows = direction Understand that different words can mean different commands eg: 'walk' will mean continuous movement, but 'step' can be used to prevent encountering an obstacle. Understand that the same instruction can be used many times. Understand that left and right commands turn the robot equal amounts. Understand the term 'algorithm' – a precise set of instructions that can be turned into a code. **PROGRAMMING ANIMATIONS** **Using ScratchJr** Understand what a sprite is. Understand icons such as: - HOME - QUESTION MARK - FILL Understand blocks used for making the sprite move: - MOVE UP - MOVE DOWN - MOVE LEFT - MOVE RIGHT - TURN RIGHT - TURN LEFT - START - END	**ROBOT ALGORITHMS** Understand instructions that can and cannot be enacted by another learner. Understand that robots need to be given clear instructions to perform as required. Understand that instructions need to be clear, precise and feasible. Understand that a robot cannot speak and can only follow instructions. **Using Floor Robots** Understand that algorithms can contain the same instructions but the order in which they are used can change the outcomes. Understand that following an algorithm or program is known as 'code tracing'. Understand that at the start square on the mat they have created, the robot needs to be facing the correct way. Understand that if the robot does not move to where they predicted, they must clear the memory (X). Understand the term 'debugging' is to reflect on what has gone wrong to try and fix the problem. **PROGRAMMING QUIZZES** Understand the different levels of abstraction: - Code - Running the code - Design Understand that programs need to be started with an event. Recap on how to use ScratchJr and using	**SEQUENCING SOUNDS** **Using Scratch** Understand that Scratch is a more complex programme than ScratchJr, allowing them to use more complex algorithms. Understand that there are different stage attributes in Scratch: - Code - Backdrops - Sounds Understand that the sprites have different elements: - The picture - The name - The blocks that control them Understand the design and code levels of a project – levels of abstraction. Understand the term 'sequence'. Understand how to convert an algorithm (precise set of instructions) into code for giving instructions. **EVENTS AND ACTIONS IN PROGRAMMING** **Using Scratch** Understand how you control movement in computer games: - Controller - Keyboard - Moving, shaking or tilting a device. Understand that SENSING blocks can be used as a way of triggering movement on Scratch. Understand the code snippets that can be used to trigger movement: - R - U - D - C	**REPETITION IN SHAPES** **Using Scratch** Understand how to use the code blocks in Scratch. Understand the term 'infinite' – blocks that will repeat forever. Understand the difference between a count-controlled loop and infinite loop. Understand the role of the GREEN FLAG in starting events and they can start more than one event at the same time. Understand that there are different types of repeats and how to implement loops. Understand how to use 'story' letter sprites. Understand that each animation starts with an EVENT block. Understand the repeated actions of the sprites: - Change costume - Wait - Move - If on edge, bounce Understand the function of each block in a code snippet. **REPETITION IN GAMES** **Using Logo:** Understand how to program the turtle on Logo to: - Move backwards - Move forwards - Turn right - Turn left Understand that RT means right turn and LT means left turn. Understand that the number after the turns means the degrees it will turn. Understand that the higher the number after	**SELECTION IN PHYSICAL COMPUTING** **Using a Crumble Controller:** Understand what a Crumble controller is– a 'microcontroller' (programmable device that can control outputs and respond to inputs). Understand how to connect a Crumble controller to a battery box, a Sparkle and a computer. Understand that a Sparkle is a multi-colour LED. Understand how to write programs for the Crumble controller. Understand how electrical components are connected. Understand the term repetition and how infinite loops work. Understand how more than one component can be connected to a Crumble controller. Understand how count-controlled loops can be used in programs. Understand output devices used when designing a sequence. Understand the differences between how switches are used in simple circuits and circuits connected to a microcontroller. Understand conditions in programs and that they can only be true or false. Understand how DO UNTIL loops are used to repeatedly carry out actions, and when these actions will be stopped. Understand how conditions and actions are used in selection. Understand how they are using selection in their algorithms by identifying conditions and actions. Understand why repetition is required when using selection.	**VARIABLES IN GAMES** **Using Scratch:** Understand variables in programming. Understand that a variable is something that can be set and changed throughout the running of a program. Understand how to use the VARIABLE block. Understand that variables can only hold a single value at a time. Understand how to use variables in terms of 'show', 'time', and 'lives' in their project. Use the OPERATORS block and understand how this effects the action when it is added to the IF THEN block. Understand all four levels of abstraction. Understand the concept of program flow. **SENSING MOVEMENT** **Using MakeCode:** Understand what a micro:bit is as an input, process and output device – a tiny computer that runs programs created in the environment MakeCode. Understand the similarities and differences between MakeCode and Scratch. Understand the purpose of the accelerator to sense movements. Understand the different blocks used in Make Code: - INPUT - LOGIC Understand the difference between 'comparison operators' (<>=) and 'logical operators' (and/or)

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Skills		- GROW - SHRINK - SPEED - STOP Understand that different blocks have different colours: - MOVE = blue - START = yellow - END = red Understand that blocks can be joined together like a jigsaw. Understand that animations can be looped. Understand that a range of blocks can be used to create programmes. Understand that blocks have numbers underneath to show duration.	blocks to start a program. **Using ScratchJr** Understand that when we follow a sequence of commands there is an outcome. Understand which blocks to use to fulfil a given design. Understand the blocks used for adding animations to a sprite: - SAY Understand that there are different ways to start programs using different blocks: - GREEN FLAG - START ON TAP - GO TO PAGE - CHANGE BACKGROUND Understand the sequence of code blocks needed to make specific actions occur.	- Click on sprite. Understand the blocks that can be used to create events: - ERASE ALL - PEN UP - PEN DOWN - SET PEN COLOUR TO - CHANGE PEN SIZE BY (1) - CHANGE PEN SIZE BY (-1) Understand the terms 'bug' and 'debug'.	the command, the longer the line drawn. Understand that 'CS' stands for 'clear screen'. Understand that you can combine a few commands together to make a continuous line that is not just straight. Understand that: - PU = PEN UP - PD = PEN DOWN Understand that the order of the commands in the code is important to create the effect you desire. Understand the term 'repeat' to be able to use the REPEAT command. Understand the term 'trace code' as part of predicting what the code effect will be. Understand that when we use repetition in programming this in known as 'looping'. Understand that when the loop command is used, the turtle will continue to draw over the same shape but may end in a different position. Understand the structure of a count-controlled loop. Understand the term 'procedure' – a named code snippet that can be run multiple times. Understand that by creating a procedure, this saves time when creating a project. Understand that the computer can only follow what has been programmed and the procedure name is irrelevant. Understand a range of debugging strategies to improve their work.	Understand selection by applying it to real-life examples. Understand how their project will reach the requirements of the task. Understand how selection will be used in the projects of the other learners. Understand how to write and debug programs that are implementations of algorithms. **SELECTION IN QUIZZES** **Using Scratch:** Understand that a set of 'conditions' are statements that need to be met for a set of actions to be carried out. Understand that the blocks available in Scratch all conditions to be used in programs. Understand how to modify the conditions in a program and identify when a program is using selection. Understand how conditions are used to control the flow od actions in selection. Understand some of the ways that conditions can be used in programs and the impact of meeting a condition. Understand why infinite loops need to be used with selection. Understand how a condition and the outcome are linked in selection. Understand the outcome of a program in relation to the condition. Understand that an algorithm with a branching structure can be used to represent selection. Understand how a program can branch when a condition is or is not met. Understand how selection directs the flow of action in a program.	
		MOVING A ROBOT **Using Beebots** Be able to use visual clues that the buttons provide to make predictions about the robots direction of travel. Be able to relate the movement of a robot to the command button. Be able to act out an instruction given and give instructions.	**ROBOT ALGORITHMS** Be able to follow instructions to create a drawing. Be able to select appropriate instructions and issue those clearly to another learner to follow. Be able to instruct two or three appropriate instructions at a time. **Using Floor Robots** Be able to create four different algorithms	**SEQUENCING SOUNDS** **Using Scratch** Be able to explain the three main areas of Scratch: - Blocks palette - Code area - Stage with sprite Be able effectively place and run blocks, and add and delete sprites. Be able to use sprites on the stage and add new backdrops.	**REPETITION IN SHAPES** Be able to write a list of instructions for an everyday task, correctly identifying which parts are repeated. **Using Scratch** Be able to use their knowledge of programming to create code sequences using Scratch blocks. Be able to rearrange blocks of code into the correct sequence to make a triangle, and create	**SELECTION IN PHYSICAL COMPUTING** **Using a Crumble Controller:** Be able to modify programs that control an LED. Be able to identify and fix bugs in a program. Be able to connect a Sparkle and a motor to the Crumble controller. Be able to write programs to control the output components.	**VARIABLES IN GAMES** **Using Scratch:** Be able to relate real-world experiences of variables to a simple project, identifying what is changing and how it changes. Be able to demonstrate that they can design and code a simple project that includes a variable for 'score'. Be able to identify the name and value of a variable. Be able to choose suitable names for variables.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Be able to give five instructions to each other. Be able to command a floor robot using a forwards and backwards command. Be able to 'step' through forwards and backwards commands in a given program and predict where a robot will move to. Be able to apply knowledge of a robots movements to input commands to move a robot to a given square. Be able to identify routes and point out squares that will be travelled over. Be able to identify appropriate command cards and place them on a route identified. Be able to plan programs for a selected route. Be able to test their programs and address any bugs they find. **PROGRAMMING ANIMATIONS** **Using ScratchJr** Be able to start a new project. Be able to make a sprite move right, left, up and down. Predict which blocks will make something happen on the screen. Make comparisons between ScratchJr and Beebots. Be able to add a background. Be able to join blocks together using Start and End blocks. Be able to use algorithms to create a simple program using the blocks. Use algorithms to create programs to direct the sprite. Be able to change programs using fewer blocks and understand why changes happen when values are changed. Be able to add, delete and change sprites for more appropriate programs.	using only commands provided: - Forwards - Forwards - Left turn - Right turn Be able to enter their algorithms as programs on the floor robot and record where the robot stops after it has executed each program. Be able to move a 'paper-bot' according to the algorithms and identify the outcome of each. Be able to enter algorithms as programs on a floor robot and compare their predictions. Be able to follow a randomly produced program and predict the outcome. Be able to create six pictures related to a theme and draw them in suitable squares on a mat. Be able to plan and test two algorithms to move the robot between selected squares. Be able to add suitable obstacles to their mats in suitable squares. Be able to select a start and end square on their mat. Be able to identify bugs in given algorithms. Be able to combine to given programs into one larger program. **PROGRAMMING QUIZZES** Be able to identify the start of a sequence in real-life situations eg: starting of the school day. **Using ScratchJr** Be able to predict the outcome of a small program. Be able to match blocks that produce the same and different outcomes. Be able to sue the Start on tap and Go to page blocks successfully. Be able to sequence blocks to create working programs. Be able to understand given algorithms.	Be able to add multiple sprites and move them in different ways. Be able to relate a movement on screen to a block on Scratch. Be able to effectively create a plan for a project (unscaffolded). Be able to translate their design into a project. Be able to successfully delete and add sprites. Be able to successfully follow a plan. Be able to read two sets of code and make comparisons between them. Be able to effectively recall real-world examples of sequences. Be able to effectively identify events and movements in a completed project. Be able to create a design and translate it into a project. Be able to describe the outcome of a project. Be able to tell the difference between whether the order of the blocks in one sequence is important, and which is not. Be able to translate a simple algorithm into code. Be able to choose an appropriate event block for a chord to combine sounds. Be able to read a snippet of a code to predict what the outcome of it will be. Be able to validate their prediction by running the code. **EVENTS AND ACTIONS IN PROGRAMMING** Be able to follow a set of instructions to change the appearance of a sprite and add backdrops. Be able to name sprites to help them apply algorithms. Be able to translate an element of design into code. **Using Scratch**	different shapes using given code snippets. Be able to read the code snippet and predict where the drawing will stop, based on their understanding of the loop structure. Be able to choose the correct Scratch block to change a count-controlled loop into an infinite loop. Be able to modify a code in a Scratch project. Be able to choose the most suitable loop for the purpose. Be able to read a code snippet and identify what will be repeated. Be able to design an animation to include two or more loops running at the same time. Be able to program an animation based on their designs. Be able to reflect on their programs, considering how well they work. Be able to make connections between the design and the code. Be able to modify code for loops in a Scratch project. Be able to complete code based on the design. Be able to reuse code for a new sprite. Be able to explain the effects of their changes. Be able to identify different elements of a game and comment on why they are successful. Be able to use ideas from a given project to create their own designs and algorithms. Be able to explain the effects of their changes to a partner and make necessary adjustments. Be able to translate their own designs and algorithms into code. Be able to carry out the actions: - Show - Wait - Go to random position - Hide Be able to reflect on the steps involved in building their project.	Be able to use count-controlled loops in programs and be able to change the number of times the commands are repeated. Be able to write programs and implement their design. Be able to connect a push switch. Be able to modify programs that use an input as a condition to stop a loop. Be able to use selection when creating a code to carry out a set of actions when a condition is met, rather than stopped. Be able to read code and describe what the output from a given code will be. Be able to meet the requirements of the given task through detailed designs. Be able to write algorithms that meet the requirements of the task. Be able to evaluate others' understanding of how they met the requirements of the task. **SELECTION IN QUIZZES** **Using Scratch:** Be able to modify programs that use conditions. Be able to construct programs that use selection in the structure. Be able to design a program that shows how a program will branch based on the response of to a question. Be able to construct programs that use selection to direct the flow of the program. Be able to construct a program that asks questions and uses selection to control the outcomes. Be able to implement their algorithms as a program. Be able to test their programs against their designs and identify where improvements may be needed.	Be able to create and change variables in their project. Be able to apply their previous experience of Scratch to display variables in a different way. Be able to identify potential variables that could be added to improve a game. Be able to read code to make predictions and test predictions by running the code. Be able to choose and compare values to set and change variables. Be able to predict what will happen when a variable is updated more than once. Be able to use the value of a variable elsewhere in a program. Be able to use clear artwork for their project. Be able to make good design choices and adapt an existing example of an algorithm to represent those design choices. Be able to apply program flow to their own algorithms. Be able to identify variables in an unfamiliar project. Be able to add artwork to their project based on their designs. Be able to create a game starting from the 'code' level of abstraction. Be able to identify how their own projects can be improved. Be able to use a new variable to extend their games. Be able to share a project in Scratch and constructively evaluate another project. **SENSING MOVEMENT** **Using MakeCode:** Be able to identify similarities and differences between MakeCode and others they have experienced. Be able to test their program on an emulator. Be able to use external hardware by transferring their program onto a micro:bit. Be able to relate conditions to real-world situations. Be able to use variables to select the flow of a program. Be able to demonstrate the flow of a program. Be able to create a program featuring selection, which updates a variable. Be able to experiment with different inputs. Be able to display a variable in a program and explain that, when

		Knowledge, Skills and Understanding for Computing				
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Be able to design artwork for own programming project.	Be able to understand a given design. Be able to choose artwork for their projects. Be able to program a quiz question using their designs and create algorithms for their quizzes eg: if the frog is clicked it says 'no'. Be able to check whether their designs match their projects. Be able to use code snippets to adapt their programs and improve by adding additional features. Be able to save their work successfully.	Be able to establish events which lead to actions in an existing project and identify missing actions and events. Be able to design algorithms for new code snippets to change the movement in a project and then implement these changes. Be able to choose an appropriate sprite and, if necessary, resize it to fit a maze. Be able to translate an algorithm into code. Be able to adapt a code snippet by duplicating it and changing the event and direction. Be able to apply prior learning to program their sprites to move. Be able to add the PEN DOWN block to draw lines. Be able to identify flaws in their project and apply the skills in the screen recording to recentre their sprite. Be able to set up their own project, copying existing code. Be able to predict the function of a block. Be able to choose the appropriate block to recreate a given effect. Be able complete a design template focusing on their choice of events. Be able to identify the differences between the design and the program to identify how the bugs can be fixed. Be able to improve the set up of their projects by utilising new blocks, and planning to incorporate them into their own projects. Be able to effectively complete a design relating to a maze-based challenge. Be able to effectively translate their designs into projects. Be able to systematically test their projects and, if necessary, debug their projects.	**REPETITION IN GAMES** **Using Logo:** Be able to use basic Logo commands accurately. Be able to change the values in commands. Be able to read code, and plan and write commands to draw a digit. Be able to spot syntax errors in Logo commands. Be able to understand what is meant by a 90 degree turn. Be able to create a successful algorithm. Be able to use their algorithm to create a code in Logo. Be able to spot repetition in real-life patterns eg: when brushing your teeth. Be able to identify the effect of changing the count in a loop. Be able to trace code and make a prediction from a code snippet. Be able to modify given code for a range of shapes. Be able to program code snippets in Logo to create different shapes. Be able to break a real-life activity into chunks of actions. Be able to modify given code to create their own procedures. Be able to plan and program a pattern calling their procedure. Be able to match code designs with a pattern. Be able to create a design using a given format including count-controlled loops. Be able to use their design to create a program. Be able to debug their program to develop it.		used, the value of the variable remains the same. Be able to explain the importance of order in 'else, if' statements. Be able use a comparison operator in 'if, then' statement. Be able to modify a program to achieve a different outcome. Be able to identify what variable/s they will need for their program. Be able to create their algorithm to match a given task. Be able to design their own program flow. Be able to implement their algorithms as code independently. Be able to use a range of approaches to test and debug their code. Be able to improve the function of a step counter. Be able to improve the function of a step counter. Be able to reflect on how well they have met the given task.

		Knowledge, Skills and Understanding for Computing					
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

<table>
<tr><td rowspan="3">Technology in our lives</td><td colspan="7">

NC References:

- recognise common uses of information technology beyond school

NC References:

- understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and opportunities they offer for communication and collaboration

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<tr><td rowspan="1">*Knowledge*</td>
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TECHNOLOGY AROUND US

Understand which items can be defined technology.

Understand how different technology can help us.

Understand that some devices may look different but perform the same function.

Understand that a keyboard can be used for writing on the computer.

Understand the importance of naming files sensibly when saving them in order to locate them again.

Understand what the cursor is and where they can find it.

Understand the different images on the **Paintz** program:
- Save
- Open
- Text

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INFORMATION TECHNOLOGY AROUND US

Understand devices that can be described as information technology (IT):
- Computers: PCs, laptops, tablets
- Things made to work with computers: scanners, barcode scanners, printers, smart speakers

Understand that technology continues to develop rapidly and some devices may fit into multiple categories.

Understand commonality between computers and how they can be controlled.

Understand where technology can be found in shops and how it can be used:
- Barcode scanner
- Bank card (chip and pin)

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CONNECTING COMPUTERS

Understand what inputs, processes and outputs are in relation to digital devices.

Understand that not everything electrical is digital – a digital device processes information digitally.

Understand the relationships between inputs, processes and outputs for existing digital devices.

Understand the differences between digital devices and on-digital tools.

Understand connections and how information can flow through connections.

Understand the functions of a switch in a network – a device that enables multiple devices on a network to be connected.

Understand how information flows around a network through a switch.

Understand the function of a server.

Understand that there are wireless connections in networks.

Understand the roles of a switch, server and wireless access point in a network.

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THE INTERNET

Understand what the internet is.

Understand what a router is and how it is used – a router literally 'routes' messages to their destination.

Understand the difference between a website and a webpage.

Understand what is meant by a domain name.

Understand the different parts of a web browser:
- Address bar
- Forward/back buttons
- Refresh button
- Tabs
- Main view

Understand that Google is not needed to access the World Wide Web – a common misconception.

Understand the different parts of a website:
- Logo or title
- Links to other websites/pages
- A video
- A picture
- Text

Understand the term 'content creation' – users creating their own content eg: music.

Understand who owns the content on the World Wide Web.

Understand the term 'fake news'.

Understand that some people may share content that is false to:
- Make money,
- Be popular,
- Gain power,
- By mistake.

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SYSTEMS AND SEARCHING

Understand what a 'system' is – a number of things (parts, components, people) that work together to complete or perform a task.

Understand the different steps that make up a system.

Understand sensors in a computer system and how these systems affect who use them.

Understand a range of search engines.

Understand the benefits to indexing.

Understand the term 'search engine optimisation' – applied to websites to rank then as highly as possible.

Understand how advertising is a significant source of income for search engines.

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COMMUNICATION AND COLLABORATION

Understand the term 'protocol' – an agreed way of doing something.

Understand the role of Domain Name Server (DNS) is – every website address is known as its domain name and every domain is hosted somewhere on the web.

Understand data packets and their role in sending data across the internet.

Understand the term 'packets' – small parts of data shared between digital devices.

Understand the benefits and limitations of different technological solutions to a problem.

Understand the term 'remixing' – view and change other people's work.

Understand why it can be good to share their work for others to see, as well as acknowledging that not all work is shared in this way.

Understand a variety of different forms of communication.

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<tr><td rowspan="1">*Skills*</td>
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Be able to identify technology within their school/classroom:
- Desktop computer
- Laptop
- Mobile phone
- Camera
- Tablet

Be able to identify different parts of a computer:
- Screen
- Keyboard

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Be able to identify some of the uses of computers:
- Write
- Type
- Paint
- Play games

Be able to recognise that computers are part of IT.

Be able to identify whether an object is IT.

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Be able to identify digital devices:
- Computer
- Laptop
- Beebot
- Mobile phone
- Games station

Be able to identify inputs, processes and outputs.

Be able to apply knowledge of inputs, processes and outputs

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Be able to describe what the internet is.

Be able to describe the key parts of a network and enact a message being passed around a network.

Be able to explain the role of routers in creating the internet – a connected network of networks.

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Be able to explain the different input and output components of a talking teddy.

Be able to answer questions on a process – Amazon locker.

Be able to break a larger process down into small steps.

Be able to recognise the impact of computer systems on humans.

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Be able to explain different methods of communication and their understanding of 'protocol'.

Be able to relate addresses in a physical sense, through postal addresses, with addresses on networks.

Be able to relate IP addresses by explaining the function of a Domain Name Server (DNS).

Be able to enact the process of a packet moving around the

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Knowledge, Skills and Understanding for Computing

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		- Mouse/Trackpad - Base unit Be able to turn on and log into a computer. Be able to use a mouse to click and drag objects on a screen. Be able to explain what each part of a computer does. Be able to use double click to open a browser/program. **Using Paintz** Be able to create a simple picture using a mouse: - Change background colour - Create shapes and lines - Correct mistakes using the eraser function - Insert a shape/line Be able to type their name using the keyboard. Be able to save a file in a given location. Be able to locate and open their saved file. Be able to use the arrow keys to move the cursor and backspace to delete letters. Be able to highlight text on the screen.	Be able to identify examples of IT in school. Be able to identify the purpose of different examples of IT. Be able to identify examples of IT in the world around them. Be able to identify where examples of IT are usually found. Be able to talk about the uses of different examples of IT. Be able to demonstrate how IT devices work together. Be able to recognise the benefits of using IT. Be able to identify different uses for IT. Be able to say what different rules they have to follow when using IT. Be able to identify that they make choices when using IT. Be able to use IT for different purposes.	to create their own IPO machine. Be able to classify input and output devices. Be able to evaluate the digital devices they invent and the explanations of how their inventions work in relations to inputs, processes and outputs. Be able to identify the capabilities of digital devices: - Take a picture. - Play a game. - Write a story. - Make a phone call. - Send a message. Be able to articulate the differences between producing art digitally and non-digitally and explain which they prefer. Be able to examine how different programs can be used on a digital device. Be able to feedback on different methods of sharing information: - Telling someone directly. - Asking someone to tell them etc. Be able to explain the benefits of a computer network. Be able to identify real-world network devices – school network. Be able to explain how different components are connected with one another in a computer network.	Be able to explain the need for network security. Be able to relate different routes possible to routing the World Wide Web. Be able to explain that the World Wide Web is part of the internet. Be able to explain the difference between a website and a webpage. Be able to deduce the origin of websites from the domain name and appreciate that websites are hosted all over the world. Be able to identify devices which can be used to access the World Wide Web. Be able to explain the advantages and disadvantages of anyone being able to add content to the World Wide Web. + Easy for people to add content. + Sharing of knowledge + Accessible for everyone - Nothing everything is accurate. - Quality of content will vary. Be able to explain that some websites enable content creation, discuss the limitations of these websites. Be able to identify images which have been edited to convey something which is not real. Be able to explain why some information on the World Wide Web may not be accurate. Be able to explain why inaccurate or false information is shared on the World Wide Web. Be able to explain how information can spread quickly online and the implications of this.	Be able to write an accurate set of instructions and give peer-to-peer feedback. Be able to refine a search using logic or prior knowledge. Be able to compare results from different search engines and draw conclusions from those comparisons. Be able to explain exponential growth of the World Wide Web to the need for search engines. Be able to create their own index and relate this to the way that search engines use indices. Be able to use typical features of a webpage in their own designs. Be able to decide which other webpages to link to. Be able to apply principles of search engine optimisation to improve their own webpages. Be able to recall the definitions of 'selection' and 'page rank'. Be able to explain searching from three perspectives in the search process. Be able to use logical thinking skills. Be able to differentiate between online and offline interactions. Be able to associate advertising seen in the offline world with that of the online world.	internet and their reflection on the task. Be able to apply the principles of transferring data packets to a variety of media. Be able to demonstrate their ability to find online content (text and images) to use on their slides for a fact file about a country, and arrange them effectively. Be able to reflect on the challenges of collaborating online. Be able to build on someone's work and make it do more than it did originally. Be able to demonstrate what remixing is and how it is a different approach to collaboration. Be able to identify what communication is and the ways in which we can communicate. Be able to recognise knowledge of internet communication methods. Be able to justify their choices of communication methods. Be able to categorise different forms of communication according to the criteria given. Be able to apply methods of communication to choose the most appropriate methods and justify their choices.

Creating Media, sound and motion

NC References: - use technology purposefully to create, organise, store, manipulate and retrieve digital content.			**NC References:** - select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals			

Knowledge

DIGITAL PAINTING	DIGITAL PHOTOGRAPHY	STOP-FRAME ANIMATIONS	AUDIO PRODUCTION	VIDEO PRODUCTION	WEBPAGE CREATION
Using Paintz: Understand what the different freehand tools do in the painting program. Understand and have an awareness of the	Understand the difference between photographs and illustrations, both in how they look and how they were created.	**Using iMotion app:** Understand the term 'animation' and that an animation is made up of a sequence of still images and can be	**Using Audacity:** Understand the difference between audio input and audio output devices. Understand what makes a good voice recording:	Understand what a video is and refine this definition – the recording, reproducing or broadcasting of moving visual images. Understand the filming techniques: - Close up	Understand that websites are created using HTML code and what this is used for. Understand that HTML stands for Hypertext Markup Language.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
tools used for digital painting: - Paintbrush - Pencil - Eraser - Paint pot - Spray can - Undo tool Understand which tools would be appropriate to use. Understand how different pictures are made and what clues they use to recognise this. **DIGITAL WRITING** Understand that text can be created on a computer. Understand what a word processor can be used for. Understand the use of CAPS LOCK. Understand some of the toolbar buttons they have learnt about so far. Understand how to remove changes using the UNDO button. Understand how to change the look of their text and think about what tool they have used to make these changes.	Understand that there are a range of devices which capture photos and that some of those devices just do one thing and that others have other roles too. Understand the terms 'portrait' and 'landscape'. Understand the three key concepts of photography composition: - Positioning - Framing - Detail Understand how to use the autofocus feature on the camera device. Understand how to enable a flash. **Using Pixlr:** Understand how to find a stock photo and use the 'adjust' tool to change its colour. Understand that it can be hard to tell which images are real so they should always ask themselves 'is it real?' **DIGITAL MUSIC** Understand that music creates an emotional response. **Using Chrome Music Lab:** Understand how music can be used in different ways. Understand how music is made up of a series of notes. These notes can be in patterns. Understand rhythm and melody.	created using many different mediums. Understand how an animation works. Understand the term 'stop frame' – animations made up of a sequence of frames. Understand the term 'onion skinning' – starting at the bottom of the sheet when creating each part of a sequence so you can see where the previous stick person was drawn. Understand the difference between on screen animations and flip-book style animations. Understand the word 'consistency' when using onion skinning to create small changes between frames. Understand what is meant by a 'high-quality' animation. Understand how to remove frames within their animation. **Introduce iMovie:** Understand what is meant by multimedia: - Music - Titles - Text - Pictures - Credits Understand the impact that multimedia has when added to videos. Understand how to move their videos into iMovie. **DESKTOP PUBLISHING** Understand the terms 'text' and 'images' and which is best for communicating. Understand different signs: - Pedestrian crossing - Danger, electrical hazard - No overtaking - Roadworks - One way - Customs Understand the advantages and disadvantages of using text, images or both to convey messages, Understand that some signs are easier to understand than others. Understand what is meant by 'desktop	- Having a clear voice. - Avoiding filler words such as 'um' and 'ah'. - Not coughing or sneezing. - One person speaking at a time. - Not too near or too far from the microphone. - No background noise. - Not playing or fiddling with the microphone or anything around it. Understand copyright and the implications of unauthorised copying. Understand how to record, review and delete using Audacity. Understand how to mute an existing track and add another recording. Understand how to use the 'Time Shift' tool in Audacity when aligning sounds. Understand what a podcast is. Understand the process of exporting their project to be able to play it on different devices. **PHOTO EDITING** **Using an editing program:** Understand the term 'composition' – the way that something is put together or arranged. Understand what photo editing is. Understand that editing means 'making changes and reviewing'. Understand the differences between different photos: - Filters - Cropping - Replicates - Rotated - Straightened Understand the degrees that photos can be rotated. Understand how cropping can change the topic of an image. Understand the effect that changes on an image can have. Understand how to edit images using colour and light. Understand how to use the cloning tool to repeat a part of an image.	- Mid-range - Long shot - Moving subject - Side by side - High angle - Low angle - Normal angle - Static camera - Zoom - Pan and tilt Understand each section of a storyboard: - Image indicating what the scene will look like. - Description of the filming techniques used. - A script. **Using an editing software:** Understand the process of exporting a video to be able to edit. **INTRODUCTION TO VECTOR GRAPHICS** **Using Google Drawings:** Understand what is meant by vector drawings – a type of computer graphic that is used to design logos. Understand that vector drawings are made using a computer and are made up of lines and shapes. Understand that each shape that is used in vector drawings are known as objects. Understand that you can move, resize, rotate, duplicate and change the colour of the objects. Understand how to use the tools: - Zoom - Fit Understand the process of layering when creating a vector drawing. Understand that although grouped objects act as a single object, they are still a collection of individual objects that can be manipulated.	Understand the difference between browsers, websites and web pages. Understand the media and navigation features used on websites. Understand the terms 'audience' and 'purpose'. Understand the terms 'fair use' and 'copyright'. Understand what is acceptable and unacceptable when using pictures they find online. Understand when changes need to be made to their web page. Understand the terms 'breadcrumb trail' and navigation'. Understand navigation paths – helps the used to keep track of where they have been on the website. Understand that links can be made to external websites. Understand the implications of linking to other people's work online. **3D MODELLING** **Using Tinkercad:** Understand the three key parts of Tinkercad: - View tools - Workplane - Shape Understand that the perspective you view objects from will influence their position relative to each other, even though the objects are not being moved. Understand what 'handles' are and that a number of handles will appear when a shape is selected. Understand how to rotate, duplicate and group 3D objects.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				publishing' – method of using page layout software to create documents that include both text and images to communicate messages or information. Understand the history of desktop publishing. **Using Adobe Spark:** Understand how to use the keyboard to add text. Understand the tools used for changing font size, colour, and type. Understand the use of: - Shift - Backspace - Return Understand the term 'template', 'page orientation', 'landscape' and 'portrait'. Understand magazine cover layouts. Understand what 'placeholders' are – boxes that hold the place of text or images that you want to add to your document. Understand the benefits of desktop publishing to people in a range of jobs. Understand how desktop publishing compares to handwritten methods.	Understand what 'retouching' an image means – focusing on a small part of the image and (nearly always) removing it to enhance how the photo looks. Understand that you can combine effects to edit and improve an image. Understand the different between 'made up' and 'real' images.		
	Skills	**DIGITAL PAINTING** **Using Paintz:** Be able to share their experiences and model to others what the different tools in the painting program do. Be able to use the tools they have experienced to create a picture. Be able to use the tools modelled to create their own digital painting. Be able to self-assess their own painting. Be able to use the tools used in the unit to recreate the work of a chosen artist. Be able to demonstrate their use of paint tools and make choices regarding the best tools to use. Be able to reflect on the tools that they have used and how effective they were.	**DIGITAL PHOTOGRAPHY** Be able to take photographs of a variety of objects. Be able to share opinions on their own photographs and explain to others why they like them. Be able to correctly order the steps required to take a good photo. Be able to capture photos in both portrait and landscape format. Be able to say whether their photographs look better in portrait or landscape format and explain why this is. Be able to identify which photographs haven't been taken well, and can suggest where the photographer may have gone wrong. Be able to compose and capture good photographs.	**STOP-FRAME ANIMATIONS** Be able to break a sequence of movements into several different images. Be able to make a flip-book animation. **Using the iMotion App:** Be able to predict what a sequence would look like animated. Be able to create stop-frame animation. Be able to develop characters, settings, and plots for an animation. Be able to create a simple storyboard with a fixed number of characters and settings. Be able to spot changes in consistency in animations. Be able to create their own animations and evaluate the quality of their animations.	**AUDIO PRODUCTION** **Using Audacity:** Be able to record their voices and delete recordings. Be able to make a good audio recording. Be able to select and delete audio from a recording. Be able to align several audio tracks so that the recordings plan in a sequence. Be able to make more engaging recording by importuning sound, aligning it, and setting the volume of tracks. Be able to save their work as a project. Be able to create a plan for a podcast showing awareness of how to engage listeners. Be able to reflect on the quality of their work in line with their plan.	**VIDEO PRODUCTION** Be able to describe a video, focussing on how the video was made and not just the content. Be able to identify the composition differences between different sections of a video. Be able to compare more than one video, looking for similarities and differences. Be able to identify the key features of their recording device. Be able to use filming techniques introduced: - Close up - Mid-range - Long shot - Moving subject - Side by side - High angle - Low angle - Normal angle Be able to match the filming technique to the purpose. Be able to identify the filming techniques in a filmed video.	**WEBPAGE CREATION** Be able to explore a website. Be able to look at the code of websites. Be able to name the audience and purpose for their own web page. Be able to design their own web page on paper using common web page (Google sites) features. Be able to name common web page features: - Header - Website name - Logo - Text - Images Be able to gain access to pictures online. Be able to explain fair use and copyright. Be able to find copyright-free images from selected sources and save them to their web pages. Be able to retain information needed for them to create their own Google Site web page.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Be able to demonstrate their independent use f brush size, style, colour, and undo tools. Be able to share and discuss their work. Be able to compare the painting process on a computer and paper. Be able to describe their likes and dislikes with regards to using computers or paint on paper as a medium for their paintings. Be able to explain their preferred medium of painting. **DIGITAL WRITING** Be able to recognise and use keys on a computer keyboard. Be able to use the keyboard to write text. Be able to use the SPACE bar and ENTER keys. Be able to use BACKSPACE key to remove text and be able to use the mouse to move the text cursor. Be able to add capital letters. Be able to use BOLD, ITALIC and UNDERLINE from the toolbar. Be able to select text through double-clicking and format the highlighted text. Be able to change the font of writing. Be able to use the formatting tools they have learnt so far. Be able to compare writing on paper and writing on a computer and think about how these are the same and different. Be able to reflect on their experience using a computer to write and whether they like writing on paper or a computer best. Be able to justify their reasoning.	Be able to identify what they need to do next time to capture a better quality of photo, and use this to retake one of their photos successfully. Be able to sort poor-quality images from good-quality images and say why some are poorer quality. Be able to find out where the best light levels are for producing good-quality photographs. Be able to say what the best lighting source is for a photo they retake. Be able to use the autofocus tool to make an object in a photo stand out. **Using Pixlr:** Be able to use the photo editing software to change the colour effect of an image. Be able to save their edited image with an appropriate file name. Be able to apply a colour effect with another effect to create a new image. Be able to create their own photo. Be able to identify which images are real and which have been changed. **DIGITAL MUSIC** Be able to identify descriptive and emotive words to compare two different pieces of music by the same composer. Be able to explain how music can make them feel using descriptive and emotive language. Be able to talk about the potential of music causing emotional or imaginative response. **Using Chrome Music Lab:** Be able to create patterns and translate symbolic representation played by music. Be able to further develop the concept of patterns in music. Be able to compare creating music on a computer with using physical instruments.	Be able to suggest ways to improve a selection of animations, including their own and another learner's, in order to improve them. **Introduce iMovie:** Be able to demonstrate an awareness of the types of media added into videos. Be able to create a video on iMovie from their animations. Be able to add multimedia to their films. Be able to explain the impact of adding other media to their project. **DESKTOP PUBLISHING** **Using Adobe Spark:** Be able to change font sizes, colour, and type. Be able to type age-appropriate punctuation and rearrange content on the page. Be able to create their own template for a magazine cover using placeholders. Be able to find and open work previously created. Be able to copy and paste from one file to another and delete content when needed. Be able to add and delete images. Be able to match the layout of text to it's purpose and choose a layout for a suitable purpose. Be able to name the benefits of a certain type of layout: - Poster - Postcard - Newspaper	Be able to use the editing and aligning tools to produce a recording which matches their plan. Be able to reopen a saved project and add audio into it. Be able to set the volume of different audio tracks so that they work together as a whole. Be able to export their project to that it can be played on different devices. Be able to evaluate podcast quality and suggest improvements. Be able to act on feedback to improve their podcast. **PHOTO EDITING** **Using an editing program:** Be able to recognise when an image needs rotating. Be able to recognise the main topic of a photo and how that can be changed. Be able to suggest ways in which an image could be improved by photo editing. Be able to choose and add effects to an image. Be able to explain how their choices fit the scenarios given. Be able to recognise a range of editing tools by their outcomes. Be able to use tools to select, copy and paste. Be able to work with two images. Be able to show informed opinions about when it is and isn't appropriate to edit images. Be able to break down an idea into parts to select source images. Be able to use appropriate tools for combining images. Be able to use appropriate tools to make improvement to their image. Be able to use and position text to complete their image.	Be able to identify which filming techniques would be most useful for certain situations. Be able to use a storyboard to film a short video. Be able to evaluate the effectiveness of their video. Be able to choose an appropriate theme for the scale of their video. Be able to create their own storyboard for their video. Be able to film each section of content for their video using their storyboard. Be able to collaborate to record and, if necessary, reshoot a video. **Using an editing software:** Be able to export their video content to a computer and retrieve files to be able to edit them. Be able to identify issues which would require a reshoot and which could be fixed through editing. Be able to edit and improve their videos by removing and trimming. Be able to reorder clips to match the sequence in their storyboard. Be able to evaluate how their edits have improved their video. **INTRODUCTION TO VECTOR GRAPHICS** **Using Google Drawings:** Be able to create a picture using physical shapes. Be able to create digital shapes and lines. Be able to select and change the colour of shapes and lines. Be able to discuss how vector drawings are different from paper-based drawings. Be able to recognise that shapes are used in vector drawings and that the order in which these shapes are drawn is important. Be able to create their own vector drawing using the rectangle and the circle tools, and duplicating shapes. Be able to recognise where shapes have been rotated. Be able to move, resize, and rotate objects. Be able to copy and paste to duplicate their objects.	Be able to preview their web page as it would look on a range of devices: - Computer - Tablet - Laptop Be able to make changes needed to their web page to improve the appearance across the different devices. Be able to record their navigation paths. Be able to create an organised website design. Be able to create subpages and working hyperlinks. Be able to add external links to their web page. Be able to evaluate the user experience of their own and someone else's website. **3D MODELLING** **Using Tinkercad:** Be able to place shapes on the workplane. Be able to move objects on the workplane and use the view tool to check the position of objects. Be able to use handles to resize objects, identifying which handle is the most appropriate to use for combinations of width, depth and height. Be able to lift, lower, resize and move objects to position them accurately. Be able to change the viewing perspective to make positioning easier. Be able to recolour objects. Be able to use rotate handles in three dimensions. Be able to lift and lower shapes back onto the workplane. Be able to use grouping to combine objects and modify them with a single action. Be able to use measurements to resize objects. Be able to accurately size placeholders to make hole sin 3D shapes. Be able to purposefully duplicate, resize and combine 3D objects to make a meaningful object. Be able to identify 3D shapes in a 3D model produced on a computer. Be able to identify 3D shapes in real-world buildings. Be able to plan their own building designs featuring shapes they have identified in real-world buildings. Be able to translate a paper-based design into a computer 3D model.

		Knowledge, Skills and Understanding for Computing				
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Be able the change the pitch and duration of notes using a computer. Be able to create a piece of music on a given theme. Be able to use a computer to explore musical patterns. Be able to save music using a digital device. Be able to plan ideas in order to write their own musical compositions using a digital device. Be able to further develop their ideas on a computer. Be able to retrieve work and evaluate it. Be able to edit and improve their work based on their own evaluations and their partners comments.			Be able to use the zoom tool to move and place objects on a canvas. Be able to explain how the alignment and resize guides can help them. Be able to modify objects to create a new image. Be able to recognise how an object has been ordered within a vector graphic. Be able to use layering to modify an existing vector drawing. Be able to utilise their own vector drawing by utilising the use of layering. Be able to copy part of a drawing by selecting multiple objects and grouping them together. Be able to ungroup objects, make changes to the objects, and regroup them. Be able to reuse and manipulate a group of objects to create a vector drawing. Be able to create a vector drawing of a given object. Be able to reflect on the skills they have used to create vector drawings. Be able to recognise the difference between a vector drawing and a drawing created in a paint program.	Be able to suggest improvements to their own and a partner's model. Be able to make improvements to their own model.

NC References:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content

NC References:

- use search technologies effectively, appreciate how results are selected and ranked, and can be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals

Data and Information

Knowledge

GROUPING DATA	**PICTOGRAMS**	**BRANCHING DATABASES**	**DATA LOGGING**	**FLAT-FILE DATABASES**	**INTRODUCTION TO SPREADSHEETS**
Understand that objects are labelled using the objects name. Understand that a group of objects are labelled with a group name. Understand that an object can belong to more than one group. Understand that computers are not intelligent and required human input to perform tasks. Understand that objects can be different but in the same group eg: different makes of cars can be labelled as 'cars'. Understand that labels are given to images of objects so that computers are able to find what humans are looking for.	Understand that data can be collected in different ways. Understand how a tally chart helps to count objects in multiples of five. Understand what a pictogram is. Understand how to input data into the chosen software for creating a pictogram. Understand the reasons for using a pictogram for representing data: - Data is easy to read. Understand how computers help us when making pictograms: - More efficient. - Easier to read and understand.	Understand what is meant by yes/no questions. Understand what a 'branching database' is – 'branching' refers to the tree structure of a branching database. **Using j2data Branch:** Understand the components of this program to be able to create a branching database: - Sort - OK - Play Understand why the order of questions in branching databases is important.	Understand that the term 'data' is information, usually numerical, that is collected and stored in a form suitable for processing. Understand that the term 'data set' is a collection of related information, usually linked to one subject or time frame. Understand different tables that are available to answer questions. Understand that a data logger is a digital device that can collect data over time. Understand that input devices allow data to be entered into a computer. Understand that a sensor is a type of input designed to allow computers capture data	Understand the terms 'database' and 'record'. **Using j2data:** Understand that each record contains 'fields'. Understand fields and records within a database. Understand the terms 'group', 'search' and 'sort' when organising fields. Understand the role of 'AND' in narrowing a search. Understand the role of 'OR' in a search. Understand which chart types are most suitable for answering questions.	Understand the terms 'database' and 'record'. **Using Spreadsheet software:** Understand that each cell has a unique cell reference. Understand which data items can be used within a calculation in a spreadsheet. Understand that when they use formulas with cell references, the outputs are reliant on the data that has been input. Understand complex processes that can be completed in spreadsheets: - Calculating averages - Finding the sum of multiple cells - Counting a number of objects Understand how to: - Budget per person. - Work out the total budget. - Find a quantity. - Find a subtotal.

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
							Knowledge, Skills and Understanding for Computing

Knowledge, Skills and Understanding for Computing

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Understand that images on computers need lots of different property labels. Understand the term 'data set' to describe a collection if related data. Understand that when describing more than one group, they can use comparing words to describe them. Understand comparative language and use this to compare groups of objects. Understand that you can answer questions by sorting objects into groups.	Understand the term 'attribute' (the property of an object) and how objects can be grouped by attribute. Understand how attributes can be used to describe people. **Using Just 2 Data: Chart:** Understand there are different preferences for presenting/analysing data.		from the physical environment. Understand how to use a data logger effectively. Understand that data loggers capture data at given intervals. Understand that each capture of data is known as a 'data point'. Understand how to access datafiles stored on the school network. Understand how to download data from the data logger.		Understand when to use a table and when to use a chart.

Skills

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Be able to match an object to a predefined group. Be able to count a number of assorted objects, as well as some from a large group. Be able to classify objects and count the groups. Be able to describe an object using different descriptive words, understanding that the descriptive words relate to properties of an object. Be able to identify properties of an object using colours and 2D shapes. Be able to find objects with similar properties. Be able to use properties to separate a collection of objects into groups. Be able to recognise what property the objects have been grouped by. Be able to group different shapes and describe groups of 2D shapes. Be able to describe groups of objects and record how many are in each group. Be able to compare different groups of objects. Be able to group a number of objects in order to answer a question. Be able to demonstrate how they have grouped the objects and	Be able to create a tally chart and represent a tally count as a total. Be able to compare totals in a tally chart and answer questions. Be able to match tally charts to a corresponding set of data. Be able to create a manual pictogram as a group and to retrieve simple information. **Using Just 2 Easy: Pictogram:** Be able to enter data into a computer to create a pictogram. Be able to answer simple questions based on data. Be able to use a tally chart to create a pictogram. Be able to explain what a pictogram shows. Be able to distinguish between true and false statements relating to a pictogram. Be able to organise data using a common attribute. Be able to identify the attribute used to group objects. Be able to use a range of attribute to describe people. Be able to create their own question and gather the relevant data. Be able to create a customised pictogram to represent their data.	Be able to use yes/no questions to find an object in a group. Be able to suggest ways to separate objects into two groups. Be able to write their own yes/no questions to separate objects into two group. Be able to create a yes/no questions related to an attribute. Be able to select an appropriate attribute to split a group of objects in more than one way. Be able to organise objects into groups using given objects and questions. Be able to organise objects into a tree structure. **Using j2data Branch:** Be able to identify objects by using a branching database. Be able to create yes/no questions to group objects they have chosen. Be able to follow a branching database. Be able to create yes/no questions using a given attribute. Be able to compare the efficiency of different branching databases and explain which is quicker to follow. Be able to recognise the attribute a question is referring to.	Be able to identify which table to use to answer given questions. Be able to think of questions related to light, temperature, or sound levels in the classroom. Be able to identify which questions can and can't be answered from a set of collected data. Be able to identify data that can be collected over time and suggest time periods over which that data is collected. Be able to identify the inputs and outputs on a data logger. Be able to collect and accurately record readings from a data logger. Be able to capture and review data recorded using the data logger connected to a computer. Be able to follow the video and log data at the given interval. Be able to identify each recorded piece of data as a data point recorded at a set interval. Be able to predict how changeable the data that they are collecting will be. Be able to use the filtering tool on a spreadsheet. Be able to access and review the data file provided. Be able to answer questions using tools with the data logger software.	Be able to accurately complete and sort records. Be able to create questions to sort records and use records to answer given questions. Be able to reflect on manual sorting and group of records in a database and consider its effectiveness. **Using j2Data:** Be able to navigate and sort a computer database. Be able to search a computer data base by field. Be able to critically compare paper and computer databases. Be able to manually sort records based on their attributes. Be able to find answers to questions by sorting records in a computer database. Be able to use 'AND' and 'OR' in searches to generate their own questions. Be able to crate a chart to answer a question, and to explain why they have chosen a specific chart type. Be able to generate their own chart titles. Be able to identify fields within a database from experiences with real-world databases. Be able to search real-life databases and sue the 'sort' and 'filter' tools within the search. Be able to ask questions about the data and refine a search. Be able to compare data and present findings to others.	**Using Spreadsheet software:** Be able to record data without guidance. Be able to organise their data into a given structure. Be able to enter data into a spreadsheet. Be able to recognise data items and that there are different types of data items. Be able to recognise different data formats. Be able to create and apply formatting to a data set. Be able to construct and use formulas successfully. Be able to complete calculations using addition, subtraction, multiplication and division in formulas. Be able to apply formulas to a range of cells and use the duplicate function to apply a formula to multiple cells. Be able to apply appropriate formulas to a large data set. Be able to make sensible choices about their event and explain why data should be organised. Be able to create an organised spreadsheet to plan their event and use formulas to calculate totals. Be bale to summarise data collected to determine if they have answered the given question. Be able to create a chart. Be able to use a chart to show the answer to questions.

		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
		whether this has allowed them to answer the questions.	Be able to come up with a conclusion based on the data collected. **Using Just 2 Data: Chart:** Be able to create a block diagram from a tally chart. Be able to share and discuss their data with a partner.	Be able to write questions about attributes. Be able to divide objects by attributes. Be able to arrange objects in the structure of a branching database. Be able to independently create a branching database based on a plan they have made using the information on dinosaurs. Be able to use a branching database as an identification tool. Be able to suggest real-world uses for branching databases.	Be able to think of questions related to light, temperature or sound changing over time. Be able to identify a suitable location and set up for their data logging experiment. Be able to test key aspects of their data logging plan and identify any potential issues. Be able to access and review their collected data. Be able to answer questions using tools within the data logger. Be able to draw conclusions more broadly from their data.		
E-Safety		**NC References:** - use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.		**NC References:** - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour, identify a range of ways to report concerns about content and contact NB: E-Safety is predominantly covered in the RSHE curriculum; however, it is also discussed throughout the units within the Teach Computing curriculum.			
	Knowledge	Understand and explain the reason for rules: - To stay safe - To make sure we are all happy - So that we can learn - To help us be good people	**Using Just 2 Data: Chart:** Understand the importance of thinking carefully before sharing data and understanding it is OK to say no to sharing data.				Understand that it is not OK to share someone else's work without their permission. Understand the implications to linking with external websites.
	Skills	Be able to list rules they know of in the school setting. Be able to list rules for using computer technology safely.	Be able to explain how rules can keep them safe when using information technology.		Be able to explain what can and cannot be shared on the World Wide Web. Be able to explain the rules for using and sharing content on the World Wide Web. Be able to explain rules for sharing things in a real-world context.		Be able to explain what they should consider before they choose how to communicate on the internet. Be able to explain the school procedures if they find inappropriate content online.