Whitmore Primary School & Nursery Computing Progression Document

	KS1		LKS2		UKS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	*I can use computers more purposefully* *I know passwords are important for security and to keep us safe* *I know that sorting objects into various given categories can help to locate information* *I can choose how to sort objects, including sorting other children into groups* *I am beginning to sort independently using my own categories* *I know that using yes/no questions to find an answer is known as a branching database* *I can ask and answer yes/no questions to create a branching database*	*I recognise different forms of technology* *I can explain the role of computers in the world around me* *I can describe and digitally draw items that humans need and explain how astronauts' survival needs are met aboard the ISS* *I can read the correct temperature on a thermometer* *I can design a display showing everything that needs to be monitored by sensors on the ISS* *I can explain how space exploration can benefit life on Earth* *I can read data to identify whether a planet might be habitable*	*I can make comparisons between different types of computer* *I can write an email using positive language, with an awareness of how it will make the recipient feel* *I recognise unkind behaviour online and know how to report it and offer advice to victims of cyberbullying* *I recognise when an email may be fake and explain how I know* *I can describe the purpose of a trailer* *I can create a storyboard for a book trailer* *I can evaluate my own and others' trailers*	*I understand the need to be thoughtful when working on a collaborative document* *I understand how to resolve conflicts when disagreements arise* *I can plan a survey for Microsoft Form with a range of different questions types that will provide different types of answer* *I can search the web efficiently to find temperatures of different cities and record this accurately* *I can design a weather station that gathers and records sensor data, explaining how it works and the units of measurement it would use* *I can design an automated machine that uses selection to respond to sensor data* *I can search for and record weather forecast information in a spreadsheet* *I can explain how my data has been collected*	*I can explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information* *I can suggest that things online aren't always true and recognise what to check for* *I can explain why keywords are important and what TASK stands for, and use these strategies to search effectively* *I recognise the terms 'copyright' and 'fair use'* *I can make parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank* *I can identify some types of data the Mars Rover could collect (for example, photos)* *I can explain how the Mars Rover transmits the data back to Earth and the challenges involved*	*I can explain that codes can be used for a number of different reasons and decode messages* *I can explain why people needed to build electronic thinking machines to solve cipher codes* *I can explain the importance of historical figures and their contribution towards computer science* *I can explain how infrared can be used to transmit a Boolean type signal* *I can present data I have collected as an answer to a question and recognise the value of analysing real-time data* *I can analyse and evaluate transport data and consider how this provides a useful service to commuters* *I can demonstrate a clear understanding of my device and how it affected modern computers* *I can include well-researched information with an understanding of the reliability of my sources* *I can describe all of the features that we'd expect a computer to have including RAM, ROM, hard drive and processor, but of a higher specification than currently available*

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	KS1		LKS2		UKS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	*I know that being able to follow and give simple instructions is important in computing* *I am able to follow and give simple instructions to a game or activity* *I understand that it is important for instructions to be in the right order* *I understand why a set of instructions may have gone wrong* *I am beginning to make corrections in instructions that may have gone wrong* *I can explain what inputs and outputs are* *I can explain what an algorithm is* *I can write clear algorithms* *I can follow an algorithm* *I can decompose a design into steps* *I can identify bugs in an algorithm and say how to fix them* *I can write an achievable algorithm*	*I can explain that technology follows instructions* *I can design an invention which includes inputs and outputs* *I can create an algorithm that addresses all plants' needs* *I recognise cause and effect when pressing buttons on a Bee-Bot* *I can discuss and demonstrate how the Bee-Bot works* *I can record video, ensuring everyone is in the shot* *I can give several clear instructions in sequence* *I can program a Bee-Bot to reach a destination* *I can identify and correct mistakes in my programming* *I can decompose a game to predict the algorithms* *I can give a definition for 'decomposition'* *I can write clear and precise algorithms* *I can create algorithms to solve problems* *I can use loops in my algorithms to make my code more efficient* *I can explain what abstraction is* *I can explore a new application independently* *I can explain what the blocks on Scratch Jr do and use them for a purpose* *I can recognise a loop in coding and why it is useful* *I can use a code to create an animation of an animal moving and create an algorithm* *I can program code to run 'on tap'* *I can explain the role of the blocks in a program I have created*	*I recognise inputs and outputs and that the computer sends and receives information* *I can explain what an algorithm is* *I can explain what some of the blocks do in Scratch* *I can explain what a loop is and include one in my program* *I can suggest possible additions to an existing program by remixing code* *I recognise where something on screen is controlled by code* *I can use a systematic approach to find bugs* *I understand the definitions of decomposition and algorithm and how they are used to create accurate code*	*I understand what the different code blocks do and* *I understand the terms pattern recognition and abstraction, and how they help to solve a problem* *I can create a Scratch program which draws a square and at least one other shape* *I understand how computational thinking can help to solve problems* *I can apply computational thinking to problems I face* *I can create a simple game*	*I can read any number in binary, up to eight bits* *I can identify input, processing and output on the Mars Rovers* *I can grasp the concept of binary addition* *I can relate binary signals (Boolean) to a simple character-based language, ASCII* *I can iterate ideas, testing and changing throughout the lesson* *I can correct my own simple mistakes* *I can include a repeat and explain its function to enhance music* *I can code a piece of music that combines a variety of structures* *I can use loops in my programming* *I recognise that programming music is a way to apply my skills* *I can clip blocks together and predict what will happen* *I can make connections with previous programming interfaces I've used, e.g., Scratch* *I can create my own images to make the animation and recognise the difference between 'on start' and 'forever'* *I recognise blocks I've used previously, identifying inputs and outputs used and make predictions about how variables work* *I can choose appropriate blocks to complete the program and attempt the challenges independently* *I can break a program down into smaller steps, suggesting appropriate blocks and match the algorithm to*	*I can iterate ideas, testing and changing them throughout the lesson, and explain what my program does* *I can use nested loops in my designs, explaining why I need two repeats* *I can alter the house drawing using Python commands and use comments to show a level of understanding around what my code does* *I can use loops in Python and explain what the parts of a loop do* *I recognise that computers can choose random numbers* *I can decompose a program into an algorithm and modify a program to personalise it*

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	EYFS	KS1		LKS2		UKS2	
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology	*I understand what a computer keyboard is and recognise some letters and numbers* *I know that a mouse can be used to click, drag and create simple drawings* *I know that to use a computer I need to log in to it and then log out and the end of my session*	*I can drag, drop, click and control a cursor using a mouse* *I can use software tools to create art on the computer* *I can use a computer and mouse to click, drag, fill, select, add backgrounds, text, layers, shapes and clipart* *I can log in and navigate around a computer* *I know how to create a branching database* *I can plan a pictorial story using photographic images in sequence* *I can explain how to take clear photos* *I can take photos using a device* *I can edit photos by cropping, filtering and resizing and organise images on the page, orientating where necessary* *I can search for and import images from the internet*	*I can name some computer peripherals and their functions* *I recognise that buttons cause effects*	*I can explain that the parts of a laptop work together* *I can explain the purpose of each part of a computer* *I can make suggestions as to what the memory inside a computer is for* *I recognise that a network is two or more devices connected and its purpose and identify key components that make up the school's network* *I can explain the difference between wired and wireless connections* *I understand the role of the server in a network when requesting a website and recognise that files are saved on a server* *I recognise that routers connect to send information* *I understand that data is broken into packets* *I can identify parts of a website's journey to reach my computer* *I can log in and out of email* *I can edit and send a simple email with a subject plus 'To' and 'From' in the body of the text* *I can type in the email address correctly and send the email* *I can add an attachment to an email* *I consider camera angles when taking photos or videos* *I can import videos and photos into film editing software* *I can incorporate transitions between images including adding text to a video*	*I can use comments to suggest changes to a document* *I can create a Microsoft Form with a range of different question types that will provide different types of answer, e.g. text, multiple choice or numerical values* *I can export data to a spreadsheet, highlighting data, using conditional formatting and calculating averages and sums of numbers* *I can create a video which includes weather forecast information* *I can create a Sway with a title, image and a completed first header section* *I can create a clear plan for my web page and begin to create it* *I can create a professional-looking web page with useful information and a clear style* *I can create a webpage which is easy for the user to read and find information from* *I can refer back to my checklist to ensure I include a range of features* *I can create a web page with clear sections and with a range of features in*	*I can combine text and images in a poster* *I can create a toy with simple images and a single movement* *I can create a short stop motion with small changes between images* *I can think of a simple story idea for my animation and then decompose it into smaller parts to create a storyboard with simple characters* *I can make small changes to the models to ensure a smooth animation and delete unnecessary frames* *I can add effects such as extending parts and titles* *I can provide helpful feedback to other groups about their animations*	*I can explain how to ensure a password is secure and how this works* *I can create a simple website with information about Bletchley Park* *I can present information about my historical figure in an interesting and engaging manner* *I can take real-time data and enter it effectively into a spreadsheet* *I can explain how RFID works, recall a use of RFID chips, and type formulas into spreadsheets* *I understand why barcodes and QR codes were created then create (and scan) my own QR code using a QR code generator website* *I can explain how to record sounds and add in sound effects over the top* *I can produce a simple radio play with some special effects and simple edits which demonstrate an understanding of how to use the software* *I can create a document that includes correct date information and facts about the computers and how they made a difference*

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	KS1		LKS2		UKS2	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
E-Safety	*I can explain what to do if something makes me uncomfortable online* *I can discuss what the internet is and how it can be used* *I recognise that the internet may affect mood or emotions* *I recognise how internet use can affect and upset others* *I can identify which information is appropriate to share and post online and which is not* *I know what to do if I feel unsafe or worried online – tell a trusted adult* *I know that people I do not know on the internet (online) are strangers and are not always who they say they are*	*I can explain what is meant by online information and what information is safe to be shared online* *I can explain why we need passwords and what makes a strong password* *I understand that I need to ask permission before sharing content online and explain why* *I understand that I have the right to deny my permission to information about me being shared online* *I can say who I can ask for help with online worries* *I can use some strategies to work out if online information is reliable or not*	*I can differentiate between fact, opinion and belief online* *I can explain how to deal with upsetting online content* *I know how to support others who may have encountered upsetting content* *I can recognise that digital devices communicate with each other to share personal information* *I can explain what social media platforms are used for* *I recognise why social media platforms are age-restricted*	*I can describe how to search over multiple platforms and be aware of the accuracy of the results presented* *I can describe some of the methods used to persuade people to buy online* *I can explain the difference between fact, opinion and belief and recognise these online* *I can explain what a bot is and give examples of different bots* *I can explain some positive and negative distractions of using technology* *I can suggest small strategies for reducing the time spent on technology*	*I understand that passwords need to be strong and that apps require some form of password* *I can recognise some types of online communication and know who to go to if I need help with any communication matters online* *I can search for simple information about a person, such as their birthday or key life moments* *I know what bullying is and that it can occur both online and in the real world* *I recognise when health and well-being are being affected in either a positive or negative way through online use* *I can offer some advice and tips to combat the negative effects of online use*	*I can discuss various issues online that can leave children feeling sad, frightened, worried or uncomfortable and can describe numerous ways to get help, including how sharing online can have both positive and negative impacts* *I am aware of how to seek consent from others before sharing material online and describe how content can still be shared online even if it is set to private* *I can explain what a digital reputation is and what it can consist of* *I understand the importance of capturing evidence of online bullying and demonstrate some of these methods on the devices used at school* *I can describe ways to manage passwords and strategies to add extra security, such as two-factor authentication and explain what to do if passwords are shared, lost or stolen* *I can describe strategies to identify scams and ways to increase my privacy settings and understand why it is important to keep my software updated*

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Computing Vocabulary

KS1		LKS2		UKS2	
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Column – *a set of information (data) all of the same type; it goes up and down the screen* **Row** – *a set of information about the same thing; it goes across the screen* **Graph** – *a picture that is made using different pieces of information* **Instruction** – *a set of commands or directions about how to do something* **Direction** – *one part of an instruction* **Program** - *a set of instructions for a computer* **Feelings** – *emotions we have (happy, sad, etc.)* **Online** – *using the internet* **Appropriate** – *things that are meant for children to see and do* **Click** – *press the button on a mouse to choose something* **Cursor** – *the arrow (or other shape) that appears on screen and moves when you move the mouse* **Drag** – *move something around the screen* **Debug** – *to fix the errors in code* **Algorithm** – *a clear set of instructions to carry out a task* **Output** – *information (or data) that is sent by the computer to an output device such as a printer or speakers* **Background** – *the part of a picture that provides the setting for the main objects* **Editing** – *changing an image in any way* **Save** – *keep the changes you have made*	**Desktop** – *a tower computer that stays in one place and needs a keyboard, monitor and mouse* **Technology** – *using scientific knowledge to help us make new devices and tools* **Digital** – *using (or relating to) computer technology* **Code** – *words, numbers and symbols that make a computer language* **Predict** – *to make a guess about what will happen* **Inputting** – *putting information or code into a computer* **Consent** – *when you agree to something* **Permission** – *when you are allowed to do something* **Reliable** – *can be trusted* **Abstraction** – *picking out the important information* **Decompose** – *breaking a problem or code into smaller parts* **Key features** – *the most important parts of something* **Data** – *information used for a specific purpose or investigation* **Sensor** – *a tool or device that is designed to monitor, detect and respond to changes* **Interpret** – *to look at data and understand what it means* **Sequence** – *a set order or pattern for something to follow* **Blocks** – *instructions in Scratch Jr that you can use to 'build' code* **Loop** – *a repeated sequence of instructions*	**World Wide Web** – *an information system on the internet that allows us to find information by clicking on links* **Wi-Fi** – *a wireless network connection that allows devices to connect without cables* **Network** – *multiple devices connected over the internet (or a local connection) to share files and information* **Internet** – *a global computer network* **Email** – *electronic mail which allows us to send messages and documents over a network* **Subject bar** – *where you type what your email is about; similar to a title* **Compose** – *thinking about and writing an email* **Attachment** – *a function that lets you add files to an email before sending it* **Accurate** – *true and correct* **Digital devices** – *devices that have computers inside to work* **Age restrictions** – *where only people older than a certain age are allowed to do something* **Transition** – *visual effects that can be applied to occur in-between digital media* **Import** – *to put another file into software so it can be edited and manipulated* **Trailer** – *a short film or sound file used to advertise something* **Graphics** – *use of visuals to communicate, promote, or explain something* **Hard drive** – *an internal or external device that can store information such as files, documents, images and programs* **Memory** – *what computers use to store and recall information* **Storage** – *where computers store information* **Repetition** – *when a loop is run over and over again* **Animation** – *bringing concepts to life through moving pictures or photographs (e.g. cartoons)* **Application** – *a purpose that something is used for* **Tinker** – *to explore and play with something to find its key functions*	**Collaboration** – *working with others to achieve a specific goal* **Format** – *the way something is arranged or set out* **Contribution** – *an idea that you add to a discussion or project* **Numerical data** – *information in the form of numbers* **Broadcast** – *messages that one sprite tells to another sprite* **Conditional** – *when the computer decides what to do based on the user's choices* **Parameters** – *a value that is used to control a function and the outputs* **Variables** – *a container or holder for information that can change (e.g. numbers or text)* **Trustworthy** - *can be trusted to give you accurate information* **Bot** – *a computer program (like Alexa) that can act like a living thing; sometimes known as a chatbot* **Implications** – *conclusions that can be inferred without being explicitly stated* **Screen time** – *how much time you spend looking at a screen* **Satellite** – *something that orbits the Earth, Moon, or somewhere else to gather information* **Forecast** – *predicting what might happen as a result of something in the future* **Weather** – *the current condition of the weather around the world* **Presenter** – *a person who delivers information to other people* **Embed** – *put media files (video, music, etc.) into a web page or other document* **Hyperlinks** – *a link used in a web page or document to direct you to another website or file* **Web page** – *a hypertext page that can be viewed through a web browser* **Web browser** – *a piece of software that allows you to access the internet and view web pages* **Computational thinking** – *a method of tackling a complex problem to create a solution which both computers and humans can understand* **Logical thinking** – *using ways to reach a factual, achievable conclusion* **Pattern recognition** – *identifying similarities and recurrences in data*	**Copyright** – *the exclusive rights given to the creators of film, music and other media to publish, perform, etc.* **Deceive** – *to convince someone that a lie is the truth* **Index** – *how a computer saves information about previous searches to make results quicker next time they are accessed* **Rank** – *how web pages are sorted to give the user the most suitable results at the top of the list; the first result can be considered 'rank one'* **Web crawler** – *a program that uses keywords to search the WWW in logical and systematic wat to find the most suitable results for the user* **Beat** – *the basic unit of time (or pulse) of a piece of music* **Command** – *an instruction given to a computer or software to make it perform a specific task* **Mind map** – *a way of organising ideas to help plan a task* **Tutorials** – *a way to help people learn how to do something* **Soundtrack** - *music that is played during a film or game to enhance the experience* **Opinion** – *something that someone thinks that may or may not be true* **Trusted adult** – *an adult who can help you if you are upset or unsure about something* **Contribution** – *an idea you add to a discussion or project* **Well-being** – *the state of mind, health and happiness* **Health** – *the mental and physical condition of a living thing* **Still images** – *images that do not move, such as photographs* **Decomposition** – *breaking a complex task into smaller parts* **Onion skinning** – *a way of seeing the previous frame to help create the next frame in an animation* **Storyboard** – *a sequence of sketches to show what will be included within an animation or video* **Model** – *to use computers to simulate and study complex systems* **Binary** – *a code used in computers based around the values of 0 and 1* **Communicate** – *to move information from one place to another* **Data transmission** – *the movement of information from one or more places to one another* **Radio signal** – *a radio wave that is sent or received somewhere* **Transmit** – *to send a communication signal* **Bluetooth** – *a way for devices to connect together wirelessly* **Load** – *to open a file or program* **Pairing** – *to link two devices together (e.g. a phone and a speaker* **Systematic** – *to do something in an ordered way to achieve a specific goal* **USB** – *a type of connection that allows power and data to be exchanged between many types of electronics*	**Phishing** – *where someone tries to trick you into giving them your information* **Malware** – *software that can steal and send your personal information* **Two-factor authentication** – *a security process where users provide two different ways to show who they are* **Digital personality** – *the person that companies, organisations and other people can see based on someone's digital footprint* **Barcode** – *a machine readable code of lines and numbers, printed on an item and then scanned to identify the item and information about it* **Infrared** – *the red section of the electromagnetic spectrum which is invisible to our eyes but can be used to transmit information* **Proximity** - *closeness* **RFID** – *Radio Frequency Identification is a device that uses radio signals to check where something or someone is* **Transmission** – *when something is passed or sent to another place* **Background music** – *a secondary sound that is not the focus because there is a primary sound* **Hardware** – *the physical parts of a computer* **Operating systems** - *software that supports a computer's basic functions such as controlling peripherals* **Processor** – *the brain of the computer that processes all the data from input and output devices and runs the programs on the computer* **Sound** – *noises such as music or voices* **Acrostic code** – *a type of code where the first letter of each word, line or paragraph spells out a message when put together* **Cipher** – *information that is written in a secret way, also known as a code* **Combination** – *two or more things put together* **Contribute** - *an idea you give to a discussion or project* **Scrambled** - *mixed up* **Import** – *to pull another file into software to edit or manipulate it* **Indentation** – in programming, indentation is used to define a block of code **Random** – *an unpredictable sequence* **Remix** – *something that has been changed to create a variation of the original* **Shape** – *a geometric figure, like a square or triangle*