Progression of Knowledge in Computing

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
E-safety	○ I can recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who makes them feel sad, uncomfortable, embarrassed or upset. ○ I can identify rules that help keep us safe and healthy in and beyond the home when using technology ○ I know that work I create belongs to me. ○	I can give examples of how I (might) use technology to communicate with people I know. I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel. I can talk about how to use the internet as a way of finding information online. I can identify some simple examples of my personal information (e.g. name, my address, etc) I can describe who would be trustworthy to share this information with; I can explain why they are trusted.	● To explain why rules are needed when using technology ● To recognise that my work can be printed and shared ● Know who to speak to If something happens that makes me feel sad, worried, uncomfortable or frightened. ● I know to treat others kindly online. ● I know what information is personal and how I can use passwords to protect my information. ● I know that work I create on a computer belongs to me ● I can think about who can see what I type.	● To say how rules for using information technology can help us ● To show how to use information technology safely ● To give simple examples of why some information should not be shared ● I know that pictures of people belong to them and should not be shared without their permission. ● I know that images can be altered and are not alays true.	● Understand why a strong password is important. ● I can explain the difference between a 'belief', an 'opinion' and a 'fact. ● I can describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. ● I can demonstrate how to use key phrases in search engines to gather accurate information online. ● I can explain what autocomplete is and how to choose the best suggestion. ● I can explain what is meant by the term 'identity'. ● I can explain how people can represent themselves in different ways online. ● I can explain ways in which someone might change their identity depending on what they are doing online and why.	● To evaluate the reliability of content and the consequences of unreliable content ● I can discuss why a network needs protecting ● I can explain that not everything on the World Wide Web is true ● I can explain why some information I find online may not be honest, accurate, or legal ● I can explain why I need to think carefully before I share or reshare content ● To understand the positive and negative impacts of altering an image. ● Understanding that some images are copyrighted and knowing what that means. ● Reflect on the best way to search to find reliable information and images. ● I can explain what is meant by fake news ● I can explain how my online identity can be different to my offline identity ● I can describe positive ways for someone to interact with others online. ● I can explain that others online can pretend to be someone else, including my friends, and can suggest reasons why they might do this.	● To recognise what information is safe to share online and what needs to be kept private. ● To understand what privacy settings are and why they are important. ● Consider who is an online friend and who is not. ● Consider the difference between online friends and real life friends. ● Recognise unacceptable online behaviour and know who to go to for help. ● I can demonstrate how to make responsible choices about having an online identity, depending on context. ● I can demonstrate how to support others (including those who are having difficulties) online. ● I can describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying.	● To consider the ownership and use of images (copyright) ● I can complete a web search to find specific information ● I can refine my search ● I can compare results from different search engines ● I know what to do if a site is inappropriate. ● I can explain the ways in which anyone can develop a positive online reputation. ● I can explain what a digital personality is. ● I can explain strategies anyone can use to protect their 'digital personality' and online reputation. ● I can explain how online anonymity can protect online reputation.

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Computing Systems and Networks								
	• I can access a range of games and programmes on the computer. • I ask an adult for help if something goes wrong when I am on the computer.	• I know I need a password and login to access the computer. • I know some activities and games are on the internet. • I know to ask an adult for help if something goes wrong when I am using the computer.	• To explain how examples of technology help us • To recognise that some technology can be used in different ways • To explain that information (work) on a computer can be saved	• To recognise different types of computers used in school and beyond • Understand that digital devices can be controlled and programmed using a sequence of instructions / algorithms. • I understand how computers help us.	• To explain that a computer system takes an input, processes it and produces an output. • Explain how computer systems change the way that we work. • Recognise that computers can be connected together into a network. • Explain the role of a switch, server and wireless access point in our school network. • Explain how a network can allow us to share information.	• To describe how networks connect to other networks and the global example of this is the internet. • To recognise that the World Wide Web is part of the internet • To explain that the World Wide Web comprises of websites and web pages • To explain how the content of the World Wide Web is created, owned, and shared by people • To explain the benefits and limitations of the World Wide Web	• To understand that computers can be connected together to form systems • To recognise input, process, and output in larger computer systems • To recognise how information is transferred across the internet • To recognise that connections between computers allow us to work together • To explain that the internet allows different media to be shared • To recognise that internet collaborations can be public or private	• To recognise that there are a number of search engines and compare the results from different search engines • To explain that search terms need to be chosen carefully • To explain why search engines create indexes, and that they are different for each search engine • To explain that ranking narrows down the search results returned from the index. • To explain why the order of results is important, and to whom • To identify that results from search engines can include adverts, and that the adverts can be targeted
Creating Media	• To use simple paint programmes to create effects. • Know that clicking a button can cause an effect. • Start to use the mouse with more control to create the effects I want.	• Start to control the mouse with more accuracy. • Use the mouse to make choices about colour, brush size, etc. • Start to use the keyboard to type my name.	• To use basic tools to create an image • To recognise that tools can be changed to produce different outcomes	• To take a photograph on a digital device. • To recognise features of 'good' photographs • Change the composition, layout and lighting of a photograph and use filters to edit the appearance of a photograph • To recognise that some images are not accurate • To identify that there are patterns in music • To consider how different musical sequences create different effects • Create music for different purposes.	• To know that an animation is made up of a series of images. • To plan an animation using a storyboard. • To review and edit your animation as you work to make improvements.	• To record sound digitally. • Know how to find the microphone and how to start and stop recording. • Locate the sound file you have recorded. • To edit an audio recording. • To save and export an audio file. • To recognise that digital images can be manipulated for different purposes. • To change the composition of an image by cropping, rotating, etc. • To adjust colours, apply filters and retouch an image. • To recognise that not all images are real .	• To identify that a vector drawing comprises separate objects • To select one object or multiple objects to group, ungroup, resize, move, modify or delete. • To explain how alignment and size guides can help create a more consistent drawing • To combine options to achieve a desired effect • Use a video device to record video - explore different types of shots, pan, zoom, etc. • Play back and evaluate video. • Edit recorded video - splitting, cropping, deleting or applying effects.	• To create 3D graphical objects on a computer screen • To alter the view of the 3D space • Modify objects in £D space - recolour, resize, reposition and rotate. • To recognise the similarities and differences between real-life 3D and virtual 3D •

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Data and Information	● Start to count information presented on a computer.	● Use a computer with support to present simple information.	● **Pictograms** ● To explain that objects can be grouped by similarities (attribute) ● To collect and count data. ● To recognise that information can be presented in different ways	● **Pictograms and block graphs** ● To enter data onto a computer ● Use a computer to present data in different ways. ● Use data presented on a computer to answer questions. ● To construct (complete) a given comparison question	● **Branching Databases** ● To investigate questions with yes/no answers ● To select an attribute to separate objects into two similarly sized groups ● To use and construct a branching database ● To compare the information shown in a pictogram with a branching database	**Dataloggers** ● To suggest questions that can be answered using a given data set ● To identify that sensors are input devices ● To use a digital device to collect data automatically ● To explain that a data logger captures 'data points' from sensors over time ● To use a computer program to sort data by one attribute ● To present data in graph form and as a table.	**Flat File Databases** ● To explain that a computer program can be used to organise data ● To explain that tools can be used to select data to answer questions ● To outline how ordering data allows us to answer some questions ● To outline how operands can be used to filter data ● To outline how 'AND' and 'OR' can be used to refine data selection ● To select an appropriate graph to visually compare data	● To propose simple, relevant questions that can be answered using data ● To explain that computers deal with different data types in different ways ● To explain that formulas can be used to produce calculated data ● To recognise that changing inputs also changes outputs ● To choose suitable ways to represent data
Programming	● Recognise that controls and buttons cause effects to happen.	● Start to use buttons and controllable toys with more control.	● To predict the outcome of a command on a device ● To understand that a program is a set of commands a computer can run ● To combine commands in a program	● To choose a series of commands that can be run as a program ● To use logical reasoning to predict the outcome of a program ● To create and debug a program that I have written ● To explain what happens when we change the order of instructions	● To identify that a program includes sequences of commands ● To know a programme starts because of an input. ● To combine commands in a program ● To explain that the order of commands can affect a program's output ● To create a sequence of commands to produce a given outcome	● To relate what 'repeat' means ● To explain that we can use a loop command in a program to repeat instructions ● To identify patterns in a sequence ● To explain that you can program a loop to stop after a specific number of times ● To identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' ● To plan a program that includes appropriate loops to produce a given outcome	● To control a simple circuit connected to a computer ● To write a program that includes count-controlled loops ● To explain that a loop can stop when a condition is met: IF command ● I can use selection (an 'if...then...' statement) to direct the flow of a program ● ● I can identify a real-world example of a condition starting an action ● Test and debug a programme	● To explain that a variable is something that we can use in a program, eg 'score' ● To identify a variable in an existing program ● To define the way that a variable is changed ● To use a variable in a conditional statement to control the flow of a program

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Creating Content								
• see creating media	• see creating media	• To use a mouse in different ways • To use a keyboard to type • To use the shift, backspace and space keys. • To use the keyboard to edit text • To change the appearance of text on a computer	• Understand my work can be saved, retrieved, edited and shared.	• To consider how different layouts can suit different purposes • To organise text and image placeholders in a page layout • To recognise how different font styles and effects are used for particular purposes • To add, move, resize and rotate images • To consider the benefits of using a Desktop publishing application	• See creating media	• See creating media	• To recognise that a website is a set of hyperlinked web pages • To recognise that webpages are written by people. • To recognise the relationship between HTML and visual display • To recognise the implications of linking to content owned by others • To recognise components of a web page layout • To set the style of text on a web page • To embed media on a webpage. • To recognise the need to preview pages (different screens / devices) • To insert hyperlinks between pages