Computing and Online Safety Progression Document

Nursery- Year 6

Early Learning Goals	**Understanding the World: Computational Thinking/Technology** -to recognise that a range of technology is used in places such as homes and schools. -to select and use technology for particular purposes. **Personal, Social and Emotional Development: Managing Self ELG** - be confident to try new activities and show independence, resilience and perseverance in the face of a challenge. - explain the reasons for rules, know right from wrong and try to behave accordingly. **Expressive Arts and Design: Creating with Materials ELG** - safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
KS1 National Curriculum	Pupils should be taught to: - 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 - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.
KS2 National Curriculum	Pupils should be taught to: - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; 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 - understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration - use search technologies effectively, appreciate how results are selected and ranked, and 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, including collecting, analysing, evaluating and presenting data and information - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Computer Science			
EYFS	**KS1**	**LKS2**	**UKS2**
Computational Thinking			
Can follow simple oral algorithms Can spot simple patterns Can sequence simple familiar tasks	Can explain an algorithm is a set of instructions to complete a task (C). 1.7 (aut 1/ spring ½ Autumn 2 Know that a computer program turns an algorithm into code and plan an algorithm so it will work when I make it into code (C1.7 (aut 1/spr 1/2) Autumn 2	Can turn a real-life situation to solve into an algorithm, using a design that shows how I can accomplish this in code (C). 4.1, 4.5 We are learning to input simple instructions in 2Logo. 4.5 We are learning to use 2Logo to create letter shapes. 4.5 We are learning to use the Repeat command in 2Logo to create shapes. 4.5 We are learning to use and build procedures in 2Logo. 4.5 I can design an algorithm carefully, thinking about what I want it to do and how I can turn it into code including some repetition (C). 3.1 Aut To understand how to use the repeat command.	Can turn a complex programming task (real-life problems) into an algorithm. (C) (5.1 - Autumn 1 – A) We are learning to program a **simulation**. (in the context of traffic lights)
Programming (Coding)			
Can use a mouse, touch screen or appropriate access device to target and select options on screen. Can input a simple sequence of commands to control a digital device with support (Bee Bot).	Can work out what is wrong when the steps are out of order in instructions and know when my code is incorrect (C). 2.1 (spr 1)/2 Autumn 2 Can design a simple program using 2Code that achieves a purpose (C). 1.7 (spr 1/2) Autumn 2 Can find and correct some errors in my code (program) (C). (spr 1/2) Autumn 2	Can identify an error in my program and fix it. (C) 4.1 Can use timers within my program designs more accurately to create repetition effects. (C) 3.1 Aut1 To be able to select the right type of timer for a purpose. Can use selection (decision) in my programming. For example, using an 'if statement' for a question being asked and the program takes one of two paths. (C) 4.1	Can test and debug my programs as I work and identify the important aspects of a programming task (**abstraction**). (C) (Autumn 1 – 5.1 - A) We are learning to understand **decomposition** and **abstraction** Can **decompose** important aspects of a programming task in a logical way, identifying appropriate coding structures that would work. (C) (Autumn 1 – 5.1 - A) We are learning to understand **decomposition** and **abstraction**.

	Can make good guesses and say what will happen in a program (C). (spr 1/2) Autumn 2 Can spot something in a program that has an action or effect (does something) (C). 1.7 (spr 1/2) Autumn 2	Can use variables within my program and know how to change the value of variables. (C) 4.1 Can use the user inputs and output features within my program, such as 'Print to screen'. (C) Can identify errors in my code by using different methods, such as steeping through lines of code and fixing them. (C) 3.1 Aut 1 To use coding knowledge to create a range of programs. Can read programs that contain several steps and predict the outcomes with increasing accuracy. (C) 4.5 We are learning to use the Repeat command in 2Logo to create shapes. 4.5 3.1 Aut To understand how to use the repeat command.	I can translate algorithms that include sequence, selection and repetition into code and nest these structures within each other. (C) (5.1 - Autumn 2 A) We are learning to **simplify** code. We are learning to program a **simulation**. Can organise my code carefully and test and debug my program as I work on it and use logical methods to identify a cause of a bug. (C) (5.1 - Autumn 2 A) We are learning to **simplify** code. Can use logical methods to identify a specific line of code that is causing a problem in my program and attempt a fix. (C) (6.1 - Autumn 2 B) •We are learning to use **flowcharts** to **test** and **debug** a program. Can use inputs and outputs within my coded programs such as sound, movement and buttons and represent the state of an object (C) (5/6.1 - Autumn 1/2 A) •We are learning to understand functions and how to use friction in code. 5.1 •We are learning to understand what the different **variable types** are. 5.1 •We are learning to **use text variables** and **concatenation.** 5.1

			We are learning to use **functions** and understand why they are useful. 6.1 We are learning to design a playable game with a **timer** and a **score.6.1** We are learning to understand how **user input** can be used in a program. 6.1 Can interpret (understand) a program in parts and can make logical attempts to put the separate parts together in an algorithm to explain the program as a whole. (C) (6.1 - Autumn 2 B) We are learning to understand how **2Code** can be used to make a text-based adventure game.
Computers and Networks (KS2 Only)			
		Know the main component parts of hardware which allow computers to join and form a network. (OS) I can use email such as 2Email to respond to others appropriately and attach files. 3.5 Sum To think about different methods of communication. To open and respond to an email using an address book. To learn how to use email safely. To add an attachment to an email. To explore a simulated email scenario.	I know the importance of computer networks and how they help solve problems and enhance communication and can explain the difference between the internet and the World Wide Web (OS) Understand the main dangers that can be perpetuated via computer networks. (OS) Can explain what personal information is and know strategies for keeping this safe. (OS)

		Understand that network and communication components can be found in many different devices which allow them to join the internet.	

Information Technology			
EYFS	**KS1**	**LKS2**	**UKS2**
Can take a photograph and use it in an app. Can use a painting app and explore the paint and brush tool. Can record my voice over a picture and record sounds/voices in storytelling and explanations. Can move and resize images with my fingers or mouse. Can create a simple animation to tell a story including more than one character. Know the difference between photography and video. Can record and play a film and watch these films back. Can record sounds with different resources.	Know how to sort sound, pictures and text to organise data. (aut 1/ spr 1/ spr 2/ sum 1/ sum 2) Know how to and can find data using specific searches. (sum 2) (aut 1) Can use several programs to organise information. (sum 2) Can name, save and find my work.(all terms) Can add sound, pictures (photos) and text to a program. (aut 1/ spr 1/ spr 2/ sum 1/ sum 2) Spring 1 Can change (and include and create my own) content on a file such as text, sound and images. (aut 1/ spr 1/ spr 2/ sum 1/ sum 2) (Aut 1) (Spring 1)	Can collect data and input it into software. 4.3 Can analyse data using features within software to help such as (spreadsheets). 4.3 Can present data and information using different software. 4.3 3.9 Can carry out searches to find digital content on a range of online systems, and understand the purpose of a search engine and the main features within it. 4.7 Can look at information on a webpage and make predictions about the accuracy of information contained within it. 4.7 Can consider what the most appropriate software to use when given a task by my teacher and can review solutions that	Know, that to search precisely using a search engine, I can add additional words, remove words or use filters to get better results. Can explain in detail how accurate and reliable a webpage and its content is. Can make appropriate improvements to digital work and can compare a range of digital content sources and rate them in terms of content quality and accuracy. Can comment on how successful a digital solution is that I have created and consider the intended audience carefully when I design and make digital content. Can work collaboratively with others creating solutions to problems using appropriate software.

Can find ways to change your voice (tube, tin can, shouting to create an echo). Can animate a simple image to speak in role. Can create a simple animation to tell a story including more than one character.	Can edit digital data such as data in music composition software (sum 1)	others have created, using a checklist of criteria. Can create and improve my solutions to a problem based on feedback. Can work collaboratively to create content and solutions. Can create purposeful (appropriate) content and share this using a variety of applications such as: 2Blog, 2Email and Display Boards. 4:6	Can use collaborative modes to work with others and share it; design and create my own online blogs. 6.4 Summer 1 B Can use criteria to evaluate the quality of my own and others digital solutions, suggesting refinements. 6.4 Summer 1 B
Spreadsheet Spotlight			
Can identify a chart. Can sort physical objects, take a picture and discuss what I have done. Can present simple data on a digital device.	Know what a spreadsheet program looks like. Can enter data into spreadsheet cells and Know to copy and paste. Can collect data and produce a graph. Know how to add clipart to cells. Know how to use control tools: lock, move cell, speak and count to make a counting machine. Can use the totalling tools and can the equals tool to check calculations.	Know the symbols more than, less than and equal to, to compare values. Can collect data and produce a variety of graphs. 4.3 Can use the advanced mode of 2Calculate to learn about cell references. Can format cells as currency, percentage, decimal to different decimal places or fraction. 4.3 Can use the formula wizard to calculate averages. 4.3 Can combine tools to make spreadsheet activities such as timed times tables tests. 4.3	Can use formulae within a spreadsheet to convert measurements of length and distance. Spring 1 B (5.3) Can use the count tool to answer hypotheses about common letters in use. Spring 1 B (5.3) Can use a spreadsheet to model a real-life problem such as: to investigate the probability of the results of throwing many dice. Spring 2 B 6.3 Can use formulae to calculate area and perimeter of shapes. Spring 1 B (5.3) Can create formulae that use text variables. Spring 1 B (5.3)

		Can use a spreadsheet to model a real-life situation. 4.3 Can add a formula to a cell to automatically make a calculation in that cell. 4.3	Can use a spreadsheet to calculate the discount and final prices in a sale. Spring 2 B (6.3) Can use a spreadsheet to plan how to spend pocket money and the effect of saving money. Spring 2 B (6.3) Can use a spreadsheet to plan a school charity day to maximise the money donated to charity. Spring 2 B (6.3)

Word Processing (Adapted for CTPS/non Purple Mash objectives)			
Can turn on/off digital equipment. *Can play on a touch screen game and use computers/keyboards/mouse in role play.* *Can type letters strings with increasing confidence using a keyboard and tablet.* *Can dictate short, clear sentences into a digital device.*	*Can confidently type words quickly and correctly on a digital device and use caps locks for capital letters.((all terms)* *Can use the space bar (only once between words) to make space, the delete button to delete letters/words and use touch to navigate to words/letters to edit. (all terms)* *Can make a new line using enter/return. (summer 2)* *Can dictate (longer passages) into a digital device more accurately and with punctuation. (summer 2)*	*Can use index fingers on keyboard home keys (f/j), use left fingers for a/s/ d/f/g, and use right fingers for h/j/k/l. 3.4* *Can edit the style and effect of my text (including changing font sizes) and images to make my document more engaging and eye-catching. For example, borders and shadows.* *Can use text shortcuts (confidently and regularly) such as cut, copy and paste to quickly duplicate and delete to organise text.*	*Can start to apply other useful effects to my documents such as hyperlinks.* 6.4 Summer 1 B– Linked to blogging *Can import sounds to accompany and enhance the text in my document.* *Can organise and reorganise text on screen to suit a purpose and publish my documents online regularly.* 6.4 Summer 1 B– linked to blogging *Can confidently choose the best application to demonstrate my learning.*

	Can copy and paste images and text (summer 2) *Can add images alongside text in a word processed document. (summer 2)*	*Use spell check and thesaurus including through Siri and other technology* *Can combine digital images from different sources, objects, and text to make a final piece of a variety of tasks: posters, documents, eBooks, scripts, leaflets.*	

Digital Literacy (Incorporates Online Safety)			
EYFS	**KS1**	**LKS2**	**UKS2**
Can say what technology is. Can say what examples of technology are in school. Can say what examples of technology are at home. Know that a chair uses old technology and a smart phone uses new technology. Can keep my login information safe. Can save my work in a safe place such as 'My Work' folder.	Can find information I need using a search engine. (on Purple Mash) (sum 2) (aut 1) Know the consequences of not searching online safely. *(all terms)* Can share work and communicate electronically. *(all terms)* Can report unkind behaviour and things that upset me online, to a trusted adult. *(all terms)* Can see where technology is used at school such as in the office or canteen. Understand that my creations such as programs in 2Code, need similar skills to the adult world. e.g. The program used for collecting money for school trips. (spr 2)	Can create a secure password and understand the online safety rules we learn at school. (3.2 - Spring – A) Can explain the importance of having a secure password and not sharing it with others. (3.2 - Spring – A) Can explain the negative consequences of not keeping passwords safe and secure. (3.2 - Spring – A) Understand the importance of keeping safe online and behaving respectfully when using different online technologies and online services safely. 4.2 L1 Know they have a right to privacy both on and offline. 4.2 L2 Can use communication tools such as 2Email respectfully and use good etiquette. 3.5 To learn how to use email safely Know that wellbeing can be affected by how I use technology. 4.2 L2 Can report (with ease) unacceptable content and contact online in more than one way to a trusted adult and know immediate strategies to keep safe. 4.2 L2	Understand the online safety rules taught at school. (6.2 - Autumn 2 B) Can demonstrate safe and respectful use of a range of different technologies and online services. (5.2 - Spring 1 – A) We are learning to understanding the impact that sharing digital content can have. Know my right, and the right of others, to have personal privacy and know the value of protecting my privacy. (5.2 - Spring 1 – A) We are learning to know how to maintain secure passwords. We are learning to understand how to reference sources in their work. Know how to not let my mental wellbeing or others be affected by use of online technologies and services. (6.2 - Autumn 2 B) Can identify more discrete inappropriate behaviours online. For example, someone who may be trying to groom me or someone else. (5.2 - Spring 1 – A) We are learning to understand reliability through using different methods of communication.

			Can use critical thinking to help me stay safe online. (6.2 - Autumn 2 B)