Computing Skills Progression Map

DILS Progression of skills – Computing

EYFS	Term 1:1	Term 1:2	Term 2:1	Term 2:2	Term 3:1	Term 3:2
Art, design and technology		Children talk about processes when exploring their own creativity. They use recording devices and create digital images and animation.				
Construction		Children play phonics games on devices. They record sound effects for storytelling and use CDs and other sound technologies.				
Fine motor		Children develop mouse skills and fine motor skills through using controls on technology devices.				
Graphics		Children use apps and software to create graphics. They develop typing skills and print their work. They develop their computing vocabulary.				
Investigation		Children use technology to collect data and present information.				
Music		Children make sounds and music using technology. They develop vocabulary to describe sounds.				
Role play		Children incorporate technology into their role play e.g. cash till. They use instructional language and explore programmable devices (eg. Programmable robots)				
Small world area		Children use sound devices to record and play back appropriate sounds to enhance imaginative play. They explore digital toys and programmable devices, using instructional language and programming sequences.				

	Year 1	Year 2	Year 3	Year 4
Computing Systems and Networks	**Technology around us** *Progresses students' knowledge and understanding of technology and how they interact with it in school. Learners will build their knowledge of parts of a computer and develop the basic skills needed to effectively use a computer keyboard and mouse.* Learners will develop their understanding of technology and how it can help us. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Learners will also consider how to use technology responsibly.	**IT around us** *Progresses students' knowledge and understanding of technology and how they interact with it beyond school. Learners will also build on their knowledge of using technology safely and responsibly and begin to consider the implications of the choices that they make.* Learners will look at information technology at school and beyond, in settings such as shops, hospitals, and libraries. Learners will investigate how information technology improves our world, and they will learn about using information technology responsibly.	**Connecting computers** *Progresses students' knowledge and understanding of technology by focussing on digital and non-digital devices and introducing the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks.* Learners develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They also compare digital and non-digital devices. Following this, learners are introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. Learners will discover the benefits of connecting devices in a network.	**The internet** *Progresses students' knowledge and understanding of networks in Year 3. In Year 5, they will continue to develop their knowledge and understanding of computing systems and online collaborative working.* Learners will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and be given opportunities to explore the World Wide Web for themselves to learn about who owns content and what they can access, add, and create. Finally they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.

Creating Media	Digital painting	Digital photography	Animation	Audio editing
	Learners develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. Learners will consider their preferences when painting with the use of digital devices.	Learners will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. They will use this knowledge to recognise that images they see may not be real.	*Progresses students' knowledge and understanding of using digital devices to create media, exploring how they can create stop frame animations.* Learners will use a range of techniques to create a stop frame animation using tablets. Next, they will apply those skills to create a story-based animation. Learners add other types of media to their animation, such as music and text.	*Progresses students' knowledge and understanding of creating media, by focusing on the recording and editing of sound to produce a podcast.* Learners will initially examine devices capable of recording digital audio, which will include identifying the input device (microphone) and output devices (speaker or headphones) if available. Learners will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use software to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Learners will evaluate their work and give feedback to their peers.

Creating Media	Digital writing	Making music	Desktop publishing	Photo editing
	Progresses students' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. Learners will develop their ability to find and use the keys on a keyboard in order to create digital content. Learners are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes. Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. Learners will become more familiar with using a keyboard and mouse to enter and remove text. Learners will also consider how to change the look of their text, and will be able to justify their reasoning in making these changes. Finally, learners will consider the differences between using a computer to create text, and writing text on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.	*Progresses students' knowledge through listening to music and considering how music can affect how we think and feel. Learners will then purposefully create rhythm patterns and music.* Learners will be using a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.	*Progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.* Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	*Progresses students' skills through editing digital images and considering the impact that editing can have on an image. Learners will also consider how editing can be used appropriately for different scenarios, and create and evaluate 'fake' images, combining all of their new skills* Learners will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have and evaluate the effectiveness of their choices.

Data and Information	***Grouping data***	**Pictograms**	**Branching databases**	**Data logging**
	Introduce pupils to data and information. Children will be introduced to the concept of labelling and grouping objects based on their properties. Pupils will develop their understanding that objects can be given labels, which is fundamental to their future learning concerning databases and spreadsheets. In addition, pupils will begin to improve their ability to use dragging and dropping skills on a device. Children focus on assigning data (images) with different labels in order to demonstrate how computers are able to group and present data. Pupils will begin by using labels to put objects into groups, and labelling these groups. They will demonstrate that they can count a small number of objects, before and after the objects are grouped. Pupils will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.	*Progresses students' knowledge and understanding of grouping data.* Introduces the learners to the term 'data'. Learners will begin to understand what data means and how this can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Learners will use the data presented to answer questions.	*Progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units: Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.* Become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Learners will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.	*Progresses pupils' knowledge and understanding of data and how it can be collected over time to answer questions. Introductions to the idea of automatic data collection.* Pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.

Programming A	**Moving a robot** *Progresses students' knowledge and understanding of giving and following instructions. It moves from giving instructions to each other to giving instructions to a robot by programming it.* Introduces learners to early programming concepts. Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. Learners are also introduced to the early stages of program design through the introduction of algorithms.	**Robot algorithms** *Progresses students' knowledge and understanding of algorithms and how they are implemented as programs on digital devices. Pupils will spend time looking at how the order of commands affects outcomes. Pupils will use this knowledge and logical reasoning to trace programs and predict outcomes.* Develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome. Pupils will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.	**Sequence in music** *Progresses pupils' concept of sequencing in programming through Scratch.* Begins with an introduction to the programming environment, which will be new to most learners. They will be introduced to a selection of motion, sound, and event blocks which they will use to create their own programs, featuring sequences. The final project is to make a representation of a piano. Learners also apply stages of program design through this unit.	**Repetition in shapes** *Progresses students' knowledge and understanding of programming. It progresses from the sequence of commands in a program to using count-controlled loops. Pupils will create algorithms and then implement those algorithms as code.* Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language.

Programming B	**Introduction to animation** *Progresses students' knowledge and understanding programming and follows on from 'Programming A – Moving a robot' where children will have learned to program a floor robot using instructions.* Introduce learners to on screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify and create programs. Learners are also introduced to the early stages of program design through the introduction of algorithms**.**	**An introduction to quizzes** Learners begin to understand that sequences of commands have an outcome and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr and realise these designs in ScratchJr using blocks of code. Finally, learners evaluate their work and make improvements to their programming projects.	**Events and actions** *Explores the links between events and actions, whilst consolidating prior learning relating to sequencing.* Learners will begin by moving a sprite in four directions (up, down, left and right). They will then explore movement within the context of a maze, using design to choose an appropriately sized sprite. In addition, introduces programming extensions, using pen blocks. Learners are given the opportunity to draw lines with sprites and change the size and colour of lines. Learners will design and code their own maze tracing program.	**Repetition in games** Learners can discover similarities between two environments. Learners look at the difference between count-controlled and infinite loops, and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.