

Medium Term Plan – Computing – Year 1 Autumn 1: **COMPUTING SYSTEMS AND NETWORKS – Technology around us**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	• N/A	• Mouse • Keyboard • Key • Edit • Text • Delete • Space bar • Return • File • Digital • Save • Technology • Screen • Track pad • Double click • Typing	Technology in our classroom
Learning in this unit Resources PaintZ.app	<u>I know</u> • To identify technology • To identify a computer and its main parts • To use a mouse in different ways • To use a keyboard to type on a computer • To use the keyboard to edit text • To create rules for using technology responsibly		Learners will become familiar with the term ‘technology’. They will classify what is and what is not technology in their school and/or classroom. Learners will demonstrate their understanding of how technology helps us in different ways.
			Using technology
			Learners will get to know the main parts of a desktop or laptop computer. They will practise turning on and logging in to a computer. The learners will apply their knowledge of the different parts of a computer to complete a mouse-based task.
			Developing mouse skills
			Learners will be building on the mouse skills they were introduced to in Lesson 2. Learners will review images of a computer to explain what each part does. They will develop an understanding that different computers use different mice, but they perform the same function. They will use the mouse to open a program and create a simple picture.
			Using a computer keyboard
			Learners will begin to use the computer keyboard for a purpose. They should understand that writing on a keyboard is called typing and will begin to demonstrate their ability to write their name. Learners will then save their work using the save icon and understand that this icon is used in lots of different programs.
			Developing keyboard skills
			Learners will begin by opening a file they have previously created. They will demonstrate their ability to use a keyboard to edit text, by writing a sentence and then deleting letters. They will also use the keyboard arrow keys to move the text cursor in their textbox.
			Using a computer responsibly
			Learners will be introduced to the concept of using computers safely, within the context of a school setting. They will explore why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely.

Medium Term Plan – Computing – Year 1 Autumn 2: **CREATING MEDIA – Digital painting**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	- Learners should be familiar with: - How to switch their device on - Username - Password - Basic keyboard and mouse skills	- Paint program - Tool - Paintbrush tool - Erase - Shape tools - Line tool - Fill tool - Undo tool - Style - Size	How can we paint using computers? This lesson introduces learners to the freehand tools available for digital painting. They make marks on a screen and explain which tools they used and use the paint tools to draw a picture.
			Using shapes and lines
			This lesson introduces learners to the line and shape tools and revisits the fill and undo tools used for digital painting. Learners create their own digital painting in the style of Piet Mondrian.
			Making careful choices
			This lesson introduces learners to a range of shape tools, allowing them to create a painting in the style of Henri Matisse
Learning in this unit	- To describe what different freehand tools do - To use the shape tool and the line tools - To make careful choices when painting a digital picture		Why did I choose that?
Resources Microsoft Paint	- To explain why I chose the tools I used - To use a computer on my own to paint a picture - To compare painting a picture on a computer and on paper		This lesson increases learners' understanding of the available paint tools and encourages them to select the best tools to create a digital painting in the style of Wassily Kandinsky.
			Painting all by myself
			Learners select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of George Seurat.
			Comparing computer art and painting
			Learners compare their preferences when creating paintings on computers and on paper.

Medium Term Plan – Computing – Year 1 Spring 1: **PROGRAMMING A – Moving a robot**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	• Give a series of commands • Understand directions • Give instructions that are clear	•Forwards •Backwards •Turn •Clear •Go •Commands •Instructions •Directions •Left •Right •Plan •Algorithm •Program •Route	Buttons
Learning in this unit	• To explain what a given command will do • To act out a given word • To combine forwards and backwards commands to make a sequence • To combine four direction commands to make sequences • To plan a simple program • To find more than one solution to a problem		This lesson introduces the learners to floor robots. Learners will talk about what the buttons might do and then try the buttons out. Time will be spent linking an outcome to a button press. Learners will consider the direction command buttons, as well as buttons to clear memory and run programs.
Resources BeeBot			Directions
			During this lesson, learners will think about the language used to give directions and how precise it needs to be. Learners will also work with a partner, giving and following instructions. This real-world activity should, at suitable points during this lesson, be related to the floor robot that was introduced in the last lesson.
			Forwards and backwards
			In this lesson, learners will focus on programming the floor robot to move forwards and backwards. They will see that the robot moves forwards and backwards a fixed distance. This highlights the idea that robots follow a clear (fixed) command in a precise and repeatable way. Learners will think about starting the robot from the same place each time. Using the same start position with fixed commands will allow learners to predict what a program will do.
			Four directions
			In this lesson, learners will use left and right turn commands along with forwards and backwards commands. Doing this will allow learners to develop slightly more complex programs. Learners will create their programs in this lesson through trial and error before moving onto planning out their programs in the next lesson. In the last activity, learners will predict where given programs will move the robot. Learners will make their predictions by ‘stepping through’ the commands and matching the program steps to movements
			Getting there
			In this lesson, learners will decide what their program will do. They will then create their program and test it on the robot. Where needed, learners will also debug their programs.
			6 Routes
			This lesson encourages learners to plan their routes before they start to write their programs. The activities also introduce the concept of there being more than one way to solve a problem. This concept applies to a lot of programming activities: the same outcome can be achieved through a number of different approaches, and there isn’t necessarily a ‘right’ way. The lesson also introduces the idea of program design, in which learners need to plan what they want their program to achieve before they start programming.

Medium Term Plan – Computing – Year 1 Spring 2: **DATA AND INFORMATION – Grouping data**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	• Characteristics of objects and people	• Object • Label	Label and match
Learning in this unit Resources Google Slides	• To label objects • To identify that objects can be counted • To describe objects in different ways • To count objects with the same properties • To compare groups of objects • To answer questions about groups of objects	• Group • Search • Image • Property • Colour • Size • Shape • Value • Data set • More/most • Less/fewest • Same	Learners will begin to understand that objects have many different labels that can be used to put them into groups. They will name different objects and begin to experiment with placing them into different groups. Learners will also label a group of objects, and begin to understand that an object can fit into more than one group depending on the context.
			Group and count
			Learners will begin to think about grouping objects based on what the objects are. They will demonstrate the ability to count a small number of objects before they group them, and will then begin to show that they can count groups of objects with the same label. Learners will also begin to learn that computers are not intelligent, and require input from humans to perform tasks
			Describe an object
			Learners will begin to understand that objects can be described in many different ways. They will identify the properties of objects and begin to understand that properties can be used to group objects; for example, objects can be grouped by colour or size. Finally, learners will demonstrate their ability to find objects with similar properties and begin to understand the reason that we need to give labels to images on a computer
			Making different groups
			Learners will classify objects based on their properties. They will group objects that have similar properties, and will be able to explain how they have grouped these. Learners will begin to group a number of the same objects in different ways, and will demonstrate their ability to count these different groups
			Comparing groups
			Learners will choose how they want to group different objects by properties. They will begin to compare and describe groups of objects, then they will record the number of objects in each group
			Answering questions
			Learners will decide how to group objects to answer questions. They will compare their groups by thinking about how they are similar or different, and they will record what they find. They will then share what they have found with their peers.

Medium Term Plan – Computing – Year 1 Summer 1: **CREATING MEDIA – Digital writing**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	- Find and use the keys on a keyboard - Be able to open and save files	- Word processor - Keyboard - Keys - Letters - Numbers - Space - Backspace - Text - Cursor - Capital letters - Toolbar - Bold - Italic - Underline - Mouse - Select - Font - Undo	Exploring the keyboard
			In this lesson, the learners will familiarise themselves with a word processor and think about how they might use this application in the future. The learners will also be identifying and finding keys, before adding text to their page by pressing keys on a keyboard. Adding and removing text In this lesson, learners will continue to familiarise themselves with word processors and how they can interact with the computer using a keyboard. The learners will focus on adding text and will explore more of the keys found on a keyboard. Finally, they will begin to use the backspace button to remove text from the computer.
			Exploring the toolbar In this lesson, learners will begin to explore the different tools that can be used in word processors to change the look of the text. Learners will use the Caps Lock key to add capital letters to their writing and will begin thinking about how to use this successfully. The learners will match simple descriptions with the key that they relate to. Finally, learners will begin exploring the different buttons available on the toolbar in more detail, and use these to change their own text.
Learning in this unit Resources Google Docs	- To use a computer to write - To add and remove text on a computer - To identify that the look of text can be changed on a computer - To make careful choices when changing text - To explain why I used the tools that I chose - To compare typing on a computer to writing on paper		Making changes to text In this lesson, learners will begin to understand when it is best to change the look of their text and which tool will achieve the most appropriate outcome. The learners will begin to use their mouse cursor to select text to enable them to make more efficient changes. They will explore the different fonts available to them and change the font for their lost toy poster.
			Explaining my choices In this lesson, learners will begin to justify their use of certain tools when changing text. The learners will decide whether the changes that they have made have improved their writing and will begin to use 'undo' to remove changes. They will begin to consolidate their ability to select text using the cursor, through double-clicking and clicking and dragging. The learners will be able to explain what tool from the toolbar they have used to change their writing.
			Pencil or keyboard In this lesson, learners will make comparisons between using a computer for writing and writing on paper. The learners will discuss how the two methods are the same and different, and think of examples to explain this. They will demonstrate making changes to writing using a computer to compare the two methods. Finally, the learners will begin to explain which they liked best, and think about which method would be the best method to use in different situations.

Medium Term Plan – Computing – Year 1 Summer 2: **PROGRAMMING B – Programming animations**

Length of unit - 6 Sessions (2 sessions taught per week)

	Disciplinary and Substantive Knowledge	Vocabulary	Learning Sequence
Pre-learning	Create a series of commands An algorithm is a set of instructions Understand directions, Know that programs can go wrong, Know what to do if a program goes wrong	- ScratchJr - Bee-Bot - Command - Sprite - Compare - Program - Block - Joining - Start block - Run - Background - Delete - Reset - Algorithm - Predict - Effect - Change - Value - Instructions - Design	Comparing tools
			During this lesson learners will become accustomed to the ScratchJr programming environment. They will discover that they can move characters on-screen using commands, and compare ScratchJr to the Bee-Bots used in the previous unit.
			Joining blocks During this lesson learners will discover that blocks can be joined together in ScratchJr. They will use a Start block to run their programs. They will also learn additional skills such as adding backgrounds and deleting sprites. Learners will follow given algorithms to create simple programs
			Make a change During this lesson learners will discover that some blocks in ScratchJr have numbers underneath them. They will learn how to change these values and identify the effect on a block of changing a value.
Learning in this unit Resources Scratch JR	- To choose a command for a given purpose - To show that a series of commands can be joined together - To identify the effect of changing a value - To explain that each sprite has its own instructions - To design the parts of a project - To use my algorithm to create a program		Adding sprites During this lesson learners will be taught how to add and delete sprites in ScratchJr. They will discover that each sprite has its own programming area, and learn how to add programming blocks to give instructions to each of the sprites.
			Project design During this lesson learners will choose appropriate backgrounds and sprites for a 'Space race' project. They will decide how each sprite will move, and create an algorithm based on the blocks available in ScratchJr that reflects this.
			Following my design During this lesson learners will use their project designs from the previous lesson to create their projects on-screen in ScratchJr. They will use their project design, including algorithms created in the previous lesson, to make programs for each of their rocket sprites. They will test whether their algorithms are effective when their programs are run