

## Long Term Plan Computing

### Year 1



#### Aims and Intentions.

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

#### The children will:

- 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

Term	Unit	Overview	Knowledge	Skills	Assessment
Autumn 1	Technology Around Us	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.	To explain that technology is something that can help us To identify examples of technology To explain how examples of technology help us To recognise that a computer is an example of technology To recognise that choices are made when using technology To explain why rules are needed when using technology	To choose a piece of technology to do a job To recognise that some technology can be used in different ways To identify the main parts of a computer To use a mouse in different ways To use a keyboard to type To use the keyboard to edit text To show how to use technology safely	Can the children explain that technology is something that can help us? Can the children identify examples of technology? Can the children explain how examples of technology help us? Can the children recognise that a computer is an example of technology? Can the children recognise that choices are made when using technology?

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Autumn 2	Creating Media-Digital Painting	Learners will 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. The unit concludes with learners considering their preferences when painting with and without the use of digital devices.	To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting	To create a picture using freehand tools To use shape and line tools when precision is needed	Can the children explain why different freehand tools do? Can the children use the shape tool and the line tools?
		Vocabulary Paint program, tool, paintbrush, erase, fill, undo, Piet Mondrian, primary colours, shape tools, line tool, fill tool, undo tool, Henri Matisse, Wassily Kandinsky, feelings, colour, brush style, George Seurat, Pointillism, prefer, dislike, like	a digital picture 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	To use a range of paint colours To use the fill tool to colour an enclosed area To use the undo button to correct a mistake To combine a range of tools to create a piece of artwork	Can the children make careful choices when painting a digital picture? Can the children explain why they chose the tools they used? Can the children use a computer on their own to paint a picture? Can the children compare painting a picture on a computer and on paper?

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<p>Spring 1</p>	<p>Programming A - Moving a robot</p>	<p>Learners will be introduced 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 command for the floor robot does, and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming, and builds knowledge in a structured manner. Learners are also introduced to the early stages of program design through the introduction of algorithms.</p>	<p>To enact a given word                  To recall words that can be enacted                  To predict the outcome of a command on a device                  To list which commands can be used on a given device                  To explain what a given command does                  To match a command to an outcome                  To recognise how to run a command (press a button)                  To choose a command for a given purpose                  To understand that a program is a set of commands a computer can run                  To recall that a series of instructions can be issued before they are enacted                  To build a sequence of commands in steps                  To combine commands in a program</p>	<p>To choose a series of words that can be enacted as a program                  To choose a series of commands that can be run as a program                  To run a program on a device</p>	<p>Can the children enact a given word?                  Can the children predict the outcome of a command on a device?                  Can the children list which commands can be used on a given device?                  Can children explain what a given command does?                  Can children match a command to an outcome?                  Can children recognise how to run a command (press a button)?                  Can children choose a command for a given purpose                  Can children understand that a program is a set of commands a computer can run?                  Can children recall that a series of instructions can be issued before they are enacted?                  Can children build a sequence of commands in steps?                  Can children combine commands in a program?</p>
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		<p>Vocabulary                  Forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, route, program</p>	
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Spring 2	Data and information - grouping data	<p>This unit introduces pupils to data and information. They will begin by using labels to put objects into groups, and labelling these groups. Pupils will demonstrate that they can count a small number of objects, before and after the objects are grouped. They 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</p>	<p>To identify some attributes of an object                  To collect simple data                  To show that collected data can be counted                  To describe the properties of an object                  To choose an attribute to group objects by                  To group objects to answer questions                  To explain that objects can be grouped by similarities (attribute)                  To describe a group of objects (based on commonality)</p>	<p>To identify that objects can be counted                  To recognise that information can be presented                  To recognise that information can be presented in different ways</p>	<p>Can children identify some attributes of an object?                  Can children collect simple data?                  Can children show that collected data can be counted?                  Can children describe the properties of an object?                  Can children choose an attribute to group objects by?                  Can children group objects to answer questions?                  Can children explain that objects can be grouped by similarities (attribute)?                  Can children describe a group of objects (based on commonality)?</p>
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		objects into different groups to answer questions about data.			
		Vocabulary Object, label, group, search, image, colour, shape, property, value, data set, less, most, fewest, the same			

Summer 1	Creating media - Digital writing	Learners will develop their understanding of the various aspects of using a computer to create and manipulate text. They 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	To recognise that a keyboard is used to enter text into a computer To recognise that the Shift key changes the output of a key To recognise that text can be changed To recognise that the appearance of text can be changed To consider the impact of choices made	To use letter, number, and Space keys to enter text into a computer To use punctuation and special characters To select text To use the Backspace key to remove text To position the text cursor in a chosen location To use Undo To choose options to achieve a desired effect To change the appearance of text on a compute	Can the children recognise that a keyboard is used to enter text into a computer? Can the children recognise that the Shift key changes the output of a key? Can the children recognise that text can be changed? Can the children recognise that the appearance of text can be changed?
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		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			
		Vocabulary Word processor, keyboard, keys, letters, Microsoft Word, letters, numbers, space, backspace, text cursor, toolbar, bold, italic, underline, undo, font, toolbar			

Summer 2	Programming B - Introduction to animation	This unit introduces learners to on-screen programming through ScratchJr. Learners will explore the way a project looks by investigating sprites and backgrounds. They will use programming	To enact a given word To recall words that can be enacted To predict the outcome of a command on a device To list that commands can be used on a given device To explain what a given command does To match a command to an outcome To recognise how to run a command (press a button) To choose a command for a given purpose To understand that a program is a set of commands a computer can run	To choose a series of words that can be enacted as a program To choose a series of commands that can be run as a program To run a program on a device	Can the children enact a given word? Can the children recall words that can be enacted? Can the children predict the outcome of a command on a device? Can the children list commands can be used on a given device? Can the children explain what a given command does? Can children match a command to an outcome?
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		<p>blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.</p>	<p>To recall that a series of instructions can be issued before they are enacted To build a sequence of commands in steps</p>		<p>Can children recognise how to run a command (press a button)? Can children choose a command for a given purpose? Can children understand that a program is a set of commands a computer can run? Can children recall that a series of instructions can be issued before they are enacted? Can children build a sequence of commands in steps?</p>
		<p>Vocabulary ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start, program, background, delete, reset, algorithm, predict, effect, change, value, block, instructions, appropriate, design</p>			
<p>Enrichment Internet safety week Remote learning at home learning using the internet Anti-bullying week (keeping safe online opportunities)</p>					