



## Long Term Plan Computing Year 2

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	Computing systems and networks - IT around us	Learners will develop their understanding of technology and how it can help them in their everyday lives. 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.	<ul style="list-style-type: none"> <li>To recognise different types of computers used in school</li> <li>To identify that a computer is a part of information technology</li> <li>To recognise the features of information technology</li> <li>To say how rules for using information technology can help us</li> <li>To talk about uses of information technology</li> <li>To explain how information technology benefits us</li> <li>To recognise that choices are made when using information technology</li> </ul>	<ul style="list-style-type: none"> <li>To describe some uses of computers</li> <li>To identify information technology in school</li> <li>To identify information technology beyond school</li> <li>To show how to use information technology safely</li> </ul>	<ul style="list-style-type: none"> <li>Can the children describe some uses of computers?</li> <li>Can the children identify information technology in school?</li> <li>Can the children identify information technology beyond school?</li> <li>Can the children show how to use information technology safely?</li> </ul>



Long Term Plan Computing  
Year 2

		Vocabulary			
Autumn 2	Creating media -	Information technology Learners will learn to recognise that	(IT), computer, barcode, scanner/scan To recognise that some digital devices can capture images using a camera	To capture a digital image To take photographs in both landscape and portrait format	Can children capture a digital image?
	Digital photography	different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.  It is recommended that you use digital cameras to take photographs in these lessons, so that learners can experience a range of devices. However, tablets or other devices with cameras will also work. This unit uses screenshots from the website <a href="https://pixlr.com/x/">https://pixlr.com/x/</a> , but you could also use the Pixlr app if you're using tablets.	To talk about how to take a photograph To recognise that photographs can be saved and viewed later To make choices when composing my photograph To recognise features of 'good' photographs To identify how a photograph could be improved To identify how a photograph could be improved To explain the effect of light on a photograph To recognise that photographs can be change after they have been taken To recognise that some images are not accurate	To view photographs on a digital device To decide which photographs to keep To hold the camera still to take a clear photograph To use zoom to change the composition of a photograph To consider lighting before taking a photograph To use filters to edit the appearance of a photograph To improve a photograph by retaking it	Can children take photographs in both landscape and portrait format? Can children view photographs on a digital device? Can children decide which photographs to keep? Can children hold the camera still to take a clear photograph? Can children use zoom to change the composition of a photograph? Can children consider lighting before taking a photograph? Can children use filters to edit the appearance of a photograph? Can children improve a photograph by retaking it?



Long Term Plan Computing  
Year 2

		<p>Vocabulary          Device, camera, photograph, capture, image, digital, landscape, portrait, horizontal, vertical, field of view, narrow, wide, format, framing, focal point, subject, matter, flash, focus, background, foreground, editing, filter, Pixl, changed, real</p>	
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Spring 1	Programming A - Robot algorithms	<p>This unit develops learners' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Learners will use given commands in different orders to investigate how the order affects the outcome. They 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.</p>	<p>To describe that a series of instructions is a sequence          To explain what happens when we change the order of instructions          To recall that a series of instructions can be issued before they are enacted          To recognise that you can predict the outcome of a program</p>	<p>To choose a series of words that can be enacted as a sequence          To choose a series of instructions that can be run as a program          To create a program          To trace a sequence to make a prediction          To run a program on a device          To debug a program that I have written</p>	<p>Can children choose a series of words that can be enacted as a sequence?          Can children choose a series of instructions that can be run as a program?          Can children create a program?          Can the children trace a sequence to make a prediction?          Can the children run a program on a device?          Can the children debug a program that I have written?</p>
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Long Term Plan Computing  
Year 2

		Vocabulary Instruction, sequence, clear, unambiguous, algorithm, program, order, commands, prediction, artwork, design, route, mat, debugging	
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Spring 2	Data and information - Pictograms	Learners will begin to understand what the term data means and how data 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. During this unit of work learners will use <a href="#">j2e pictogram</a> tool which can be accessed online using a desktop, laptop or tablet computer. An alternative could be used instead.	To use a tally chart to collect data To compare objects that have been grouped by attribute To suggest appropriate headings for tally charts and pictograms To construct (complete) a given comparison question, To use a computer program to present information in different ways To explain that we can present information using a computer To give simple examples of why some information should not be shared	To show I can enter data onto a computer To recognise that people, animals and objects can be described by attributes To use a computer to view data in different formats To use a computer to answer comparison questions (graphs, tables)	Can children show how to can enter data onto a computer? Can children recognise that people, animals and objects can be described by attributes? Can children use a computer to view data in different formats? Can children use a computer to answer comparison questions (graphs, tables)?
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Long Term Plan Computing  
Year 2

		<p>Vocabulary More than, less than, most, least, organise, data, object, tally chart, votes, total, pictogram, enter, data, tally chart, compare, count, explain, attribute, group, same, different, most popular, least popular</p>	
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Summer 1	Creating media - Making music	<p>In this unit, 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.</p>	<p>To use a computer to create a piece of music To listen to music To say how music can make us think and feel To recognise that music is made by humans To describe how music can be used in different ways To identify that there are patterns in music To show how music is made from a series of notes To create music for a purpose To consider how different musical sequences create different effects To review and refine our computer work</p>	<p>To recognise that information on a computer can be stored To explain that information (work) on a computer can be saved To explain that stored information (work) can be retrieved, edited, and resaved To recognise that my work can be shared between devices To recognise that people around me can view my screen to see my work To recognise that my work can be printed and shared</p>	<p>Can children recognise that information on a computer can be stored ? Can children explain that information (work) on a computer can be saved? Can children explain that stored information (work) can be retrieved, edited, and resaved? Can children recognise that my work can be shared between devices? Can children recognise that people around then can view their screen to see their work? Do children recognise that their work can be printed and shared?</p>
		<p>Vocabulary Music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, notes, instrument, create, open, edit</p>			



Long Term Plan Computing  
Year 2

<p>Summer 2</p>	<p>Programming B - An introduction to quizzes</p>	<p>This unit initially recaps on learning from the Year 1 ScratchJr unit 'Programming B - Programming animations'. 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.</p>	<p>To describe a series of instructions as a 'sequence' To recall that a series of instructions can be issued before they are enacted To use logical reasoning to predict the outcome of a program</p>	<p>To choose a series of words that can be enacted as a sequence To run a program on a device To explain what happens when we change the order of instructions To choose a series of commands that can be run as a program To trace a sequence to make a prediction To test a prediction by running the sequence To create and debug a program that I have written To run a program on a device</p>	<p>Can children choose a series of words that can be enacted as a sequence? Can children run a program on a device? Can children explain what happens when they change the order of instructions? Can children choose a series of commands that can be run as a program? Can children trace a sequence to make a prediction? Can children test a prediction by running the sequence? Can children create and debug a program that they have written? Can children run a program on a device?</p>
		<p>Vocabulary Sequence, command, program, run, program, start, predict, blocks, actions, sprite, modify, match, debug, features, evaluate</p>			
<p>Enrichment Internet safety week Remote learning at home learning using the internet Anti-bullying week (keeping safe online opportunities)</p>					