

Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims

Computing is no longer included within EYFS framework. However, various media are used to assist development within the EYFS areas and online safety will also be taught. This also ensures a secure foundation for learning in computing and supports with the progression of skills.

The National Curriculum for Computing aims to ensure that all pupils:

- 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

Key stage 1

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

Progression of skills	EYFS	Year 1	Year 1 Golden Words	Year 2	Year 2 Golden Words	End of KS1 expectations National Curriculum Links
Online Safety	<p>To know that not all websites are suitable for children.</p> <p>To talk about how they use the internet at home and what it is.</p> <p>To know who they can go to if they see something online that worries them.</p> <p>Recognise which personal</p>	<p>To learn the SMART rules for internet safety.</p> <p>To choose the correct safe search filter when using a search engine.</p> <p>To recognise which personal information they should keep safe from strangers and who to tell if asked.</p>	<p>SMART Online Private Trusted Danger Accept</p>	<p>To recall the SMART rules for internet safety. Begin to identify possible dangers online;</p> <p>To use a website safely to search for information and identify keywords that will give age appropriate search results;</p> <p>To know what 'digital footprint' means and that people can use the information they put online;</p>	<p>Digital footprint Trail E-safety Online Website Social media Content Advert Post Public Safe Keyword Search engine Internet Appropriate Secure Cyberbullying</p>	<p>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</p>

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Skills**

Computing – Progression of

	information they should keep safe from strangers.	To identify rules to keep us safe and healthy when we are using technology in and beyond the home and give examples of some of these rules.		To Identify websites suitable for their age and know when to ask an adult for advice To Identify unkind online behaviour and know what to do if this happens.		
<u>Computer Systems and Networks</u>	To discuss technology at school and at home and what they can be used for.	To recognise technology in school and using it responsibly. 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 a keyboard to edit text.	Technology Computer Mouse Keyboard Screen Double-click typing Click and drag Edit Safe	To recognise the uses and features of information technology. To identify uses of information technology in school and beyond To explain how information technology helps us.	Information Technology Computer Identify Sort Purpose Rules	recognise common uses of information technology beyond school

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Skills

Computing – Progression of

		To create rules for using technology sensibly.		To recognise that choices are made when using information technology.		
<u>Creating Media</u>	<p>To use various media, non-digitally to present ideas. To become familiar with using digital devices (such as cameras) safely to explore media.</p> <p>To begin to use software (such as a paint program) on the smart board.</p>	<p>To describe what different free hand tools do.</p> <p>To use the shape tool and the line tool.</p> <p>To make careful choices when painting a digital picture.</p> <p>To explain why particular tools were used.</p> <p>To compare painting a picture on screen to painting a picture on paper.</p>	<p>Tool Paintbrush Erase Paint Program Draw Fill tool Undo tool Line tool Marks Shape tool Create Colour Brush style Brush size Word Processor Keys Keyboard Mouse Text Space key Backspace Capital Double space</p>	<p>To use a digital device to take a photograph.</p> <p>To use tools to change an image.</p> <p>To make choices when taking a photograph.</p> <p>To describe what makes a good photograph.</p> <p>To describe how photographs can be improved.</p>	<p>Photograph Portrait Landscape Device Image Digital, Digital camera, Digital Photo Capture Photographer Flash Editing Lighting Colour Adjust Framing Subject Focus Filter Music Rhythm Pattern Pitch</p>	<p>use technology purposefully to create, organise, store, manipulate and retrieve digital content recognise common uses of information technology beyond school</p>

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Skills

Computing – Progression of

		<p>To use a computer to create and format text.</p> <p>To add and remove text on a computer.</p> <p>To explain why particular tools were used.</p> <p>To make comparisons with working non-digitally.</p>	<p>Toolbar Bold, italic, underline Caps Lock Clicking and dragging Cursor Undo, Redo Format</p>	<p>To be able to capture and change digital photographs for different purposes.</p> <p>To use a computer as a tool to explore rhythms and melodies.</p> <p>To use a computer to create a musical composition.</p> <p>To create music for a purpose.</p> <p>To review and refine musical compositions.</p>	<p>Sequence Retrieve Pulse Tempo Notes Open Edit</p>	
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				To be able to save and retrieve digital content.		
Programming	<p>To follow instructions with more than one step.</p> <p>To become familiar with Beebots in continuous provision and through maths lessons.</p>	<p>To explain what a given command will do.</p> <p>To act out a given word.</p> <p>To combine commands to make a sequence.</p> <p>To be able to plan a simple program.</p> <p>To be able to write short algorithms and programs for floor robots.</p> <p>To find more than one solution to a problem.</p>	<p>Floor robot Bee -bots Direction Instructions Command Sequence Predict Outcome Plan Solution Run De-bug Algorithm Program Route Commands Sprite Tools ScatchJr Series Blocks Value Instructions Test Joining Run Reset</p>	<p>To describe a series of instructions as a sequence.</p> <p>To explain what happens when we change the order of instructions.</p> <p>To know what an algorithm is.</p> <p>To design an algorithm.</p> <p>To create and debug programs</p>	<p>Instruction Sequence Order Algorithms Floor robot Bee – Bot Predict Outcome Program Code Design Plan Test Debug Route Mat Decomposition Command Run Start Outcome Sprite Blocks Evaluate</p>	<p>understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</p> <p>create and debug simple programs</p> <p>use logical reasoning to predict the behaviour of simple programs</p>

		<p>To be able to predicting program outcomes.</p> <p>To be able to choose a command for a given purpose.</p> <p>To identify the effect of changing a value.</p> <p>To design the parts of a project.</p>		<p>To use logical reasoning to predict the outcome of a program.</p> <p>To explain that programming projects can have code and artwork</p> <p>To explain that a sequence of commands has a start and an outcome.</p> <p>To change a given design.</p> <p>To create a program using a given design.</p> <p>To design algorithms and programs that use events to trigger</p>		
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				<p>the sequence of code to make an interactive quiz.</p> <p>To explain how a project can be improved.</p>		
<p><u>Data and Information</u></p>	<p>To collect information through questionnaires and surveys and present in various ways (e.g. tally charts, pictograms)</p>	<p>To label objects and identify objects that can be counted.</p> <p>To describe objects in different ways.</p> <p>To count objects with the same properties.</p> <p>To compare groups of objects.</p> <p>To answer questions about groups of objects.</p>	<p>Count Group Label Describe Property Record Similar Compare Search Image Value Data Set 2D Shapes</p>	<p>To recognise that we can count and compare objects using tally charts.</p> <p>To recognise that objects can be represented as pictures.</p> <p>To create a pictogram.</p> <p>To select objects by attributes and make comparisons.</p>	<p>Compare Tally chart Record Organise Represent Data Pictogram Group Create Present Share Collect Total Count Attribute</p>	<p>use technology purposefully to create, organise, store, manipulate and retrieve digital content</p>

		To use object labels to sort and group objects by properties.		To explain how we can present information using a computer. To save and retrieve a file.		
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Highlighted sections indicate skills needed to be at the expected standard.