



## Long Term Computing Plan

<p><b>Strand</b></p>	<p><b>Computer Science</b></p> <p>The national curriculum for computing aims to ensure all pupils:</p> <ul style="list-style-type: none"> <li>- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.</li> <li>- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.</li> </ul>	<p><b>Digital Literacy</b></p> <p>The national curriculum for computing aims to ensure all pupils:</p> <ul style="list-style-type: none"> <li>- are responsible, competent, confident and creative users of information and communication technology.</li> </ul>	<p><b>Information Technology</b></p> <p>The national curriculum for computing aims to ensure all pupils:</p> <ul style="list-style-type: none"> <li>- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.</li> </ul>
----------------------	---	--	---

<p><b>EYFS</b></p>	<ul style="list-style-type: none"> <li>- Safely use and explore a variety of materials, tools and techniques.</li> <li>- Share their creations, explaining the process they have used.</li> </ul> <p>By exploring instructions with others, algorithms and debugging with a range of technology such as BeeBots.</p>	<ul style="list-style-type: none"> <li>- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.</li> </ul> <p>By exploring new technologies, safely, and new areas of the school that have technology, e.g. Computing Suite.</p>	<ul style="list-style-type: none"> <li>- Safely use and explore a variety of materials, tools and techniques.</li> <li>- Share their creations, explaining the process they have used.</li> </ul> <p>By using a range of technologies to create and complete specific tasks, sharing these with others and discussing what they like about their work.</p>
--------------------	--	---	--

<p>Class 1</p>	<p><b>Moving a robot</b></p> <p>Writing short algorithms and programs for floor robots, and predicting program outcomes.</p>	<p><b>Introduction to animation</b></p> <p>Designing and programming the movement of a character on screen to tell stories.</p>	<p><b>Online Safety</b></p> <p>Begin using online features, such as browsers and email, safely and responsibly and to understand what personal information needs to be kept safe.</p>	<p><b>Technology around us</b></p> <p>Recognising technology in school and using it responsibly.</p>	<p><b>Digital painting</b></p> <p>Choosing appropriate tools in a program to create art and making comparisons with working non-digitally.</p>	<p><b>Digital writing</b></p> <p>Using a computer to create and format text, before comparing to writing non-digitally.</p>
<p>Class 2</p>	<p><b>Robot algorithms</b></p> <p>Creating and debugging programs, and using logical reasoning to make predictions.</p>	<p><b>Introduction to quizzes</b></p> <p>Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p>	<p><b>Online Safety</b></p> <p>To search for things safely online, recognise appropriate material and to identify kind and unkind behaviour online.</p>	<p><b>IT around us</b></p> <p>Identifying IT and how its responsible use improves our world in school and beyond.</p>	<p><b>Making music</b></p> <p>Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p>	<p><b>Digital photography</b></p> <p>Capturing and changing digital photographs for different purposes.</p>



Class 3	<b>Sequence sounds</b> Creating sequences in a block-based programming language to make music.	<b>Events and actions in programs</b> Writing algorithms and programs that use a range of events to trigger sequences of actions.	<b>Online Safety</b> To understand the term 'cyberbullying', how to create a strong password, understanding privacy settings and sending and receiving emails safely.	<b>Connecting computers</b> Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	<b>Animation (stop-frame)</b> Capturing and editing digital still images to produce a stop-frame animation that tells a story.	<b>Desktop publishing</b> Creating documents by modifying text, images, and page layouts for a specified purpose.
Class 4	<b>Repetition in shapes</b> Using a text-based programming language to explore count-controlled loops when drawing shapes.	<b>Repetition in games</b> Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	<b>Online Safety</b> To recognise cyberbullying and how to report it, understand the term 'plagiarism' and how to be a responsible digital citizen.	<b>The internet</b> Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	<b>Audio editing</b> Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	<b>Photo editing</b> Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.
Class 5	<b>Selection in physical computing</b> Exploring conditions and selection using a programmable microcontroller.	<b>Selection in quizzes</b> Exploring selection in programming to design and code an interactive quiz.	<b>Online Safety</b> To identify and report spam emails, developing strong passwords and recognising false information and how it may have been edited.	<b>Systems and searching</b> Recognising IT systems around us and how they allow us to search the internet.	<b>Video Production</b> Planning, capturing, and editing video to produce a short film.	<b>Vector drawing</b> Creating images in a drawing program by using layers and groups of objects.
Class 6	<b>Variables in games</b> Exploring variables when designing and coding a game.	<b>Sensing</b> Designing and coding a project that captures inputs from a physical device.	<b>Online Safety</b> To identify good strategies to deal with cyberbullying, identify information that should never be shared and be able to judge what can be trusted.	<b>Communication and collaboration</b> Identifying and exploring how data is transferred and information is shared online.	<b>3D modelling</b> Planning, developing, and evaluating 3D computer models of physical objects.	<b>Web page creation</b> Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation



National Curriculum Coverage — KS1: Years 1 and 2	Year 1						Year 2					
	Computer Science		Digital Literacy		Information Technology		Computer Science		Digital Literacy		Information Technology	
	Moving a robot	Introduction to animation	Technology around us	Online safety	Digital painting	Digital writing	Robot algorithms	Introduction to quizzes	IT around us	Online safety	Digital photography	Making music
<b>Pupil should be taught to:</b>												
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												



National Curriculum Coverage — KS2: Years 3 and 4	Year 3						Year 4					
	Computer Science		Digital Literacy		Information Technology		Computer Science		Digital Literacy		Information Technology	
	Sequencing sounds	Events and actions in programs	Connecting computers	Online safety	Animation (stop-frame)	Desktop publishing	Repetition in shapes	Repetition in games	The internet	Online safety	Audio editing	Photo editing
<b>Pupil should be taught to:</b>												
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts												
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output												
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs												
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration												
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content												
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information												
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact												



National Curriculum Coverage — KS2: Years 5 and 6	Year 5						Year 6					
	Computer Science		Digital Literacy		Information Technology		Computer Science		Digital Literacy		Information Technology	
	Selection in physical computing	Selection in quizzes	Sharing information	Online safety	Vector drawing	Video production	Variable in games	Sensing	Internet communication	Online safety	3D modelling	Web page creation
<b>Pupil should be taught to:</b>												
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts												
Use sequence, selection, and repetition in programs; work with variables and various forms of input and output												
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs												
Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration												
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content												
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information												
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact												