

Nun Monkton Primary School
Computing Curriculum Overview



Curriculum Statement

Early Years Foundation Stage Framework and National Curriculum Coverage			
EYFS	Key Stage 1	Key Stage 2	
Nursery & Reception	Year 1 & 2	Year 3 and 4	Year 5 & 6
<p>Although the Framework for Early Years Foundation Stage (Sept. 2021) does not explicitly mention computing within it, we provide opportunities for children to use technology to solve problems and produce creative outcomes through the identification of children's interest and development needs.</p>	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	

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Key Stage 1 and 2

Our school has adapted the Department for Education's 'Teach Computing Curriculum for KS1 and KS2' (<https://teachcomputing.org/>) to reflect our mixed age class structure and need for a rolling computing curriculum.

KS1 and KS2 teacher's use the 'Teach Computing' lesson plans to inform their computing planning and meet the needs of the pupils in their class. Lessons have clear learning objectives and key vocabulary is identified. Every lesson includes formative assessment through teacher questioning and observation. Summative assessment opportunities are built in across the year.

The approach to implementing the computing curriculum content for mixed year groups is slightly different from other, larger schools, as our classes change yearly depending on the number of children within each year group. In this case, we will adapt the Teach Computing curriculum map to suit the needs of our ever-changing classes. Children will be taught units of work that build on their prior knowledge across each of the computing curriculum areas.

Each year children will follow the same curriculum cycle, beginning by working on computer systems and networks before moving onto creating media, programming, collating data and information and ending with additional units in creating media and programming. The further strands of the teach computing curriculum; impact of technology, effective use of tools and safety and security are threaded through each unit ensuring children leave primary school as safe, competent and confident users of technology.

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Teach Computing Curriculum Map

The Teach Computing Curriculum has been developed by the National Centre for Computing Education's (NCCE). All learning outcomes can be described through a high-level taxonomy of ten strands, ordered alphabetically as follows:

- **Algorithms** — Be able to comprehend, design, create, and evaluate algorithms
- **Computer networks** — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems** — Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media** — Select and create a range of media including text, images, sounds, and video
- **Data and information** — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- **Design and development** — Understand the activities involved in planning, creating, and evaluating computing artefacts
- **Effective use of tools** — Use software tools to support computing work
- **Impact of technology** — Understand how individuals, systems, and society as a whole interact with computer systems
- **Programming** — Create software to allow computers to solve problems
- **Safety and security** — Understand risks when using technology, and how to protect individuals and systems

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Key Stage One

Statement Number	National Curriculum Statement
1.1	understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
1.2	create and debug simple programs
1.3	use logical reasoning to predict the behaviour of simple programs
1.4	use technology purposefully to create, organise, store, manipulate and retrieve digital content
1.5	recognise common uses of information technology beyond school
1.6	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.

Teach Computing Taxonomy		
Abbreviation	Strand	Description
NW	Networks	Understand how networks can be used to retrieve and share information and come with associated risks
CM	Creating Media	Select and create a range of media including text, images, sounds and video.
DI	Data & Information	How is data stored, organised and used to represent real world artefacts and scenarios
DD	Design & Development	The activities involved in planning, creating and evaluating computing artefacts
CS	Computing Systems	What is a computer, how do it's constituent parts function together as a whole
IT	Impact of Technology	How individuals, systems and society as a whole interact with computer systems
AL	Algorithms	Being able to comprehend, design, create and evaluate algorithms
PG	Programming	Creating software to allow computers to solve problems
ET	Effective Use of tools	Use software tools to support computing work
SS	Safety & Security	Understanding risks when using technology and how to protect individuals and systems

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Key Stage Two

Statement Number	National Curriculum Statement
2.1	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
2.2	use sequence, selection, and repetition in programs; work with variables and various forms of input and output
2.3	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
2.4	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
2.5	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
2.6	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
2.7	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

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Unicorn Class		Year 1	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
			CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			Technology Around Us	Digital Painting	Moving a Robot	Grouping Data	Digital Writing	Programming Animations
Griffin Class	Cycle A	Year 2/3	CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			IT around US	Digital Photography	Robot algorithms	Pictograms	Digital Music	Programming Quizzes
	Cycle B	Year 2/3	CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			Connecting computers	Stop-frame Animation	Sequencing Sounds	Branching Databases	Desktop Publishing	Events and Actions in Programs
Phoenix Class	Cycle A	Year 4/5/6	CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			The Internet	Audio Production	Repetition in Shapes	Data Logging	Photo Editing	Repetition in Games
	Cycle B	Year 4/5/6	CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			Systems and searching	Video Production	Selection in Physical Computing	Flat-File Databases	Introduction to Vector Graphics	Selection in Quizzes
	Cycle C	Year 4/5/6	CS	CM	PG	DI	CM	PG
			Computing Systems and Networks	Creating Media	Programming A	Data and Information	Creating Media	Programming B
			Communication and Collaboration	Web Page Creation	Variables in Games	Introduction to Spreadsheets	3D modelling	Sensing Movement

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Computing Skills Progression			
	Nursery 1	Nursery 2	Reception
Early Years Development Journal Steps	<p>Developmental Steps linked to Computing:</p> <ul style="list-style-type: none"> • Explores cause-and-effect toys • Presses buttons and expects a result • Shows curiosity about how things work • Repeats actions to achieve the same outcome • Explores simple technology in the setting <p>What this looks like in provision:</p> <ul style="list-style-type: none"> • Pop-up toys • Musical toys with buttons • Interactive whiteboard mark-making • Simple battery-operated toys 	<p>Developmental Steps linked to Computing:</p> <ul style="list-style-type: none"> • Uses simple technology independently (tablet, camera) • Completes simple software activities • Understands basic equipment operation • Begins to use programmable toys with support • Talks about technology used at home <p>What this looks like in provision:</p> <ul style="list-style-type: none"> • Taking photos • Simple paint programs • Using programmable toys (e.g. forward/turn commands with adult support) • Role-play technology (phones, keyboards) 	<p>Developmental Steps linked to Computing:</p> <ul style="list-style-type: none"> • Uses technology for a specific purpose • Completes simple programs independently • Understands basic sequencing (forward, turn, stop) • Creates simple digital content (photo, video, drawing) • Understands simple online safety rules (e.g. tell an adult) <p>What this looks like in provision:</p> <ul style="list-style-type: none"> • Programming floor robots independently • Recording short videos • Using simple coding apps • Discussing safe technology use
	Key Stage 1	<ul style="list-style-type: none"> • 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 	

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	<ul style="list-style-type: none">• 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.
Key Stage 2	<ul style="list-style-type: none">• 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.