



Computing Curriculum Overview

As a school, we use the MrPICT scheme to support our teaching of Computing in KS1. In Nursery (FS1) and Reception (FS2), we use a bespoke curriculum, designed from the current Development Matters statements that link to Computing and Technology.

Below sets out the national statutory, Government recommended Aims and Knowledge for all children for the Computing Curriculum.

Aims	Knowledge
<u>Early years – Development Matters 2023</u> All pupils will: • Understanding the World – exploring technology and how things work • Communication and Language – discussing technology and giving instructions • Characteristics of Effective Learning – problem-solving, exploring, and creating • Early computational thinking through sequencing, patterns, instructions, and debugging simple activities.	<u>Early years – Development Matters 2023</u> Children learn to: • Recognise and use everyday technology • Follow and create simple instructions • Understand that devices need commands • Spot and fix simple mistakes • Use technology creatively • Stay safe when using digital devices • Develop curiosity about how technology works.
<u>Key stage 1 – National Curriculum</u> 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.	<u>Key stage 1 – National Curriculum</u> 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.

First order concepts (Content – what pupils learn)		Second order concepts (Skills/processes – how they learn it)	
Computers systems and networks	Identifying basic parts of a computer (keyboard, screen, mouse) Understanding that devices can be used for different purposes Using devices safely and purposefully Beginning awareness that devices can connect and internet allows sharing	Abstraction (simplifying)	Finding the most important part of the task. Recognising patterns in simple tasks
Algorithms	Understanding that an algorithm is a set of instructions Giving and following simple instructions (e.g. directions, recipes) Sequencing steps in the right order	Decomposition	Breaking tasks into smaller steps (e.g. “how do we brush our teeth?” → step-by-step)
Programming	Creating simple programs Using age-appropriate tools (e.g. Bee-Bots, ScratchJr) Making predictions about what a program will do Debugging simple errors	Logical Thinking / Reasoning	Predicting what will happen in a program Spotting errors and explaining why something didn't work
Data and information	Recognising and sorting data (e.g. objects, pictures) Representing information in simple ways (charts, pictograms) Using technology to organise and present data	Debugging	Finding and fixing mistakes in instructions or programs Testing and improving work
Creating Media	Use digital tools to create different media. Edit and improve digital content. Select appropriate tools. Compare digital and non-digital and evaluate work	Pattern recognition	identifying similarities (e.g repeated instructions, loops at a basic level.)
Online safety (Digital literacy)	Knowing how to stay safe online Understanding what personal information is Knowing how to ask for help when unsure	Evaluation	Saying what worked well or not Suggesting improvements

Online Safety

As soon as children begin to explore the online world in KS1, we embed the following into every half term:

Year 1	Personal information Trusted adults Kind online behaviour Using devices safely
Year 2	Privacy and personal information Online communication Digital footprints Trusted sources Reporting concerns

TERM	Foundation 1 – Nursery Bespoke planning	Foundation 2 – Reception Bespoke planning	Year 1 MrPICT Scheme	Year 2 MrPICT Scheme
Autumn 1	Unit: Exploring Technology	Unit: Technology Around Us	Unit: Computing Systems and Networks – Technology Around Us	Unit: Computing Systems and Networks – IT Around Us
Focus:	Becoming familiar with everyday technology.	Explore classroom technology Identify digital devices Understand technology helps us in everyday life Basic online safety: asking an adult for help	Identify technology in school and home Use technology safely and respectfully Log on and access devices	Understand information technology Identify IT in everyday life Explain how technology supports us
Rationale :	Children recognise technology in their environment and begin identifying its purpose.	Children identify digital devices and understand safe and responsible use.	Pupils identify different technologies and explain their uses while learning to use them safely.	Pupils recognise information technology in a wider range of contexts and explain how it supports everyday life.
First order concept:	Computing Systems and Networks	Computing Systems and Networks, Online Safety	Computing Systems and Networks	Computing Systems and Networks
Second order concept:	Observation, Classification	Classification, Evaluation	Classification, Evaluation	Abstraction, Evaluation

Autumn 2	Unit: Using Technology Purposefully	Unit: Using Technology Purposefully	Unit: Creating Media – Digital Painting	Unit: Creating Media – Digital Photography
Focus:	Using technology for a simple purpose.	Operate simple digital equipment Use a mouse, touch screen and keyboard Create simple digital pictures Discuss staying safe when using devices	Use drawing tools Create and edit digital artwork Compare digital and non-digital art	Capture photographs Improve composition Edit and evaluate images
Rationale :	Children use simple digital devices for a purpose and begin discussing appropriate use.	Children create digital images and discuss their work.	Pupils select appropriate digital tools and evaluate digital artwork against traditional methods.	Pupils capture, edit and improve digital images while evaluating composition.
First order concept:	Computing Systems and Networks, Creating Media	Creating Media	Creating Media	Creating Media
Second order concept:	Evaluation	Evaluation	Abstraction, Evaluation	Evaluation

Spring 1	Unit: Following Instructions	Unit: Digital Creativity	Unit: Programming A – Moving a Robot	Unit: Programming A – Robot Algorithms
Focus:	Understanding and following instructions.	Take photographs using tablets/cameras Record voices and sounds Review and talk about digital work	Understand instructions and algorithms Program floor robots Predict and debug outcomes	Develop and test algorithms Create precise instructions Debug programs
Rationale :	Children learn that instructions have an order and that following them achieves a goal.	Children capture photographs and recordings before reviewing and improving them.	Pupils write, predict and debug simple algorithms for floor robots.	Pupils design increasingly precise algorithms and refine them through testing.
First order concept:	Algorithms	Creating Media	Algorithms, Programming	Algorithms, Programming
Second order concept:	Sequencing, Logical Reasoning	Evaluation	Decomposition, Logical Reasoning, Debugging	Decomposition, Logical Reasoning, Debugging

Spring 2	Unit: Early Programming	Unit: Programming Basics	Unit: Data and Information – Grouping Data	Unit: Data and Information – Pictograms Collect data
Focus:	Learning that instructions make things happen.	Follow and create simple instructions Understand sequencing through practical activities Use programmable toys (e.g. Bee-Bots)	Sort and group objects Collect simple data Answer questions using grouped data	Represent data using pictograms Interpret and compare information
Rationale :	Children create simple sequences of instructions using programmable toys.	Children create and follow simple programs using practical resources.	Pupils organise objects into groups and interpret simple datasets.	Pupils collect, represent and interpret data using pictograms.
First order concept:	Programming	Algorithms, Programming	Data and Information	Data and Information
Second order concept:	Pattern Recognition, Logical Reasoning, Debugging	Sequencing, Logical Reasoning	Classification, Pattern Recognition	Pattern Recognition, Interpretation

Summer 1	Unit: Patterns and Problem Solving	Unit: Programming and Problem Solving	Unit: Creating Media – Digital Writing	Unit: Creating Media – Making Music
Focus:	Recognising and creating patterns.	Create simple routes for programmable toys Predict outcomes Debug simple errors	Use a keyboard Enter and edit text Compare digital and handwritten work	Explore digital music tools Create and edit musical patterns Evaluate compositions
Rationale :	Children predict outcomes, identify patterns and correct simple mistakes.	Children predict outcomes and improve programs through trial and error.	Pupils develop keyboard skills and compare digital and handwritten work.	Pupils create digital musical patterns and evaluate their compositions.
First order concept:	Programming	Programming	Creating Media	Creating Media
Second order concept:	Pattern Recognition, Logical Reasoning, Debugging	Pattern Recognition, Debugging, Logical Reasoning	Evaluation	Pattern Recognition, Evaluation

Summer 2	Unit: Creating and Reviewing	Unit: Creating and Sharing	Unit: Programming B – Introduction to Animation	Unit: Programming B – Programming Quizzes
Focus:	Using technology to create and share.	Combine images, sounds and recordings Use technology to tell stories Celebrate and review learning Online safety recap	Design simple animations Create sequences of images Evaluate digital creations	Design simple quizzes Use events and actions Test and improve programs
Rationale :	Children create digital content and reflect on what they have produced.	Children combine different media and reflect on their creations while revisiting online safety.	Pupils design and create animations by sequencing images and evaluating outcomes.	Pupils design interactive quizzes using events and actions, testing and refining their programs.
First order concept:	Creating Media	Creating Media, Online Safety	Programming, Creating Media	Programming
Second order concept:	Evaluation	Evaluation	Abstraction, Sequencing, Evaluation	Abstraction, Decomposition, Logical Reasoning, Debugging, Evaluation