

Computing Curriculum

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

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.

Attainment targets

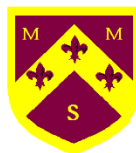
By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key stage 1

Pupils should be taught to:

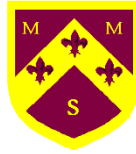
- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to 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.



Year 1

Unit	Title	Unit summary	Computing Programme of Study focus	Suggested software/hardware
Autumn 1	We are painters	Illustrating an eBook	Creativity Tux	Paint/Paint/2Paint/Word
Autumn 2	We are treasure hunters	Using programmable toys	Programming	Programmable toys
Spring 1	We are storytellers	Producing a talking book	Communication/Collaboration	PowerPoint/Photostory/Clicker 5
Spring 2	We are collectors	Finding images using the web	Computer networks	Internet browser/PowerPoint or IWB software
Summer 1	We are celebrating	Creating a card electronically	Productivity	PowerPoint/Word/Clicker 5
Summer 2	We are TV chefs	Filming a recipe	Computational thinking	Word/Movie Maker/iMovie/Adobe Premier Elements

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Year 2

Unit	Title	Unit summary	Computing Programme of Study focus	Suggested software/hardware
Autumn 1	We are games testers	Exploring how computer games work	Computational thinking	Selection of free online games
Autumn 2	We are detectives	Communicating clues	Communication/Collaboration	Email software/Word
Spring 1	We are astronauts	Programming on screen	Programming	Scratch
Spring 2	We are photographers	Taking, selecting and editing digital images	Creativity	Picasa/Pixelr/Picasa Web/Photoshop Elements
Summer 1	We are researchers	Researching a topic	Computer networks	FreeMind/Linkbunch/PowerPoint
Summer 2	We are zoologists	Recording bug hunt data	Productivity	PowerPoint/Excel/2Count