



Computing

Purpose

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 Target

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.

Enrichment opportunities



Objective Coverage across Key Stage

Year Group	Objective in Bold Covered	Mode of delivery	Promotion of Literacy and Maths
Year 3	<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 	Scratch 1.4 Computing Suite Smoking Car Game (2) Music Machine (4) Dressing Up Game (2) Getting Up Algorithm (3)	Maths Decimal fractions especially tenths used in Smoking Car & Music Machine Negative numbers used as extension
Year 3	<ul style="list-style-type: none"> use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 	Web research via other subject focus Research List (5)	
Year 3	<ul style="list-style-type: none"> 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 	Word Processing (5) Desktop Publishing (5) Presentation Media (5) Branching Database (3) iPod iPad Skills (2)	Literacy Word Processing, Desktop Publishing & Presentation Media are all digital writing tools
Year 3	<ul style="list-style-type: none"> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	Circle Times Passwords	



Year 4	<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 	Scratch 1.4 Computing Suite Conversation (2) Maths Quiz (4) Slug Trail Game (2) Jam Sandwich (Algorithm (bottom)) (1) Playground Games Flowcharts Algorithms (1) FMS Logo Tree (6)	Maths Maths questions designed in quiz Decimal Fractions in slug trail game Literacy Conversation focus could be a literacy one
Year 4	<ul style="list-style-type: none"> • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 	Web research via other subject focus Research List (5)	
Year 4	<ul style="list-style-type: none"> • 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 	Google Domain Email (3) Word Processing (4) Desktop Publishing (4) Presentation Media (4)	Literacy Word Processing, Desktop Publishing & Presentation Media are all digital writing tools
Year 4	<ul style="list-style-type: none"> • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	Circle Times Have your say Cyber People	



Year 5	<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 	Scratch 1.4 Computing Suite Counting Machine (3) Perimeter (2) Times Tables (3) Clock (3)	Maths Decimal fractions, negative numbers, multiples, perimeter, time
Year 5	<ul style="list-style-type: none"> • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 	Web research via other subject focus Research List	
Year 5	<ul style="list-style-type: none"> • 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 	Connecting the Internet Tracing the Internet Packet Game Linking WWW How web search works How a network works (6)	
Year 5	<ul style="list-style-type: none"> • 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 	Spreadsheets (5) Databases (4) 3D modelling (3) Podcasting (3) Animation (4)	Maths Graphing
Year 5	<ul style="list-style-type: none"> • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	Circle Times Images Mobile Phones Cyber Bullying	



<p>2014-2015 ONLY Year 6</p>	<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 	<p>Scratch 1.4 Computing Suite Music Machine(2) Slug Trail(2) Crab Maze(3) Cartesian Coordinates(1) Toilet Fan(afternoon)* Car Park Barrier(afternoon)* Exchange Sort Investigation(2)</p>	<p>Maths Decimal fractions, Cartesian coordinates, greater than less than, investigations</p>
<p>2015-2016 ONWARDS Year 6</p>	<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 	<p>Scratch 1.4 Computing Suite Crab Maze(3) Primary Games Maker Cartesian Coordinates(1) Toilet Fan(afternoon)* Car Park Barrier(afternoon)* Tilt Switch(afternoon)* Exchange Sort Investigation(2)</p>	<p>Maths Decimal fractions, Cartesian coordinates, greater than less than, investigations</p>
<p>Year 6</p>	<ul style="list-style-type: none"> use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 	<p>Web research via other subject focus Research List(5)</p>	
<p>Year 6</p>	<ul style="list-style-type: none"> 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 	<p>Spreadsheets(5) Web Publishing(5) Surveying(3) Animation(4)</p>	<p>Maths Formula building in spreadsheets</p>
<p>Year 6</p>	<ul style="list-style-type: none"> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 	<p>Circle Times Images Keeping our identity private</p>	

*These also contribute towards DT curriculum aim apply their understanding of computing to program monitor and control their products