

COMPUTING OVERVIEW 2021 - 2022

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	<p>Computing Systems and networks – Technology around us</p> <ul style="list-style-type: none"> • Technology around us • Using technology • Developing mouse skills • Using a computer keyboard • Developing keyboard skills • Using a computer responsibly 	<p>Creating Media – Digital Painting</p> <ul style="list-style-type: none"> • How can we paint using computers? • Using shape and lines • Making careful choices • Why did I choose that? • Painting all by myself • Comparing computer art and painting 	<p>Creating Media – Digital writing</p> <ul style="list-style-type: none"> • Exploring the keyboard • Adding and removing text • Exploring the toolbar • Making changes to text • Explaining my choices • Pencil or computer? 	<p>Grouping Data</p> <ul style="list-style-type: none"> • Label and match • Group and count • Describe an object • Making different groups • Comparing groups • Answering questions 	<p>Programming A – Moving a robot</p> <ul style="list-style-type: none"> • Buttons • Directions • Forwards and backwards • Four directions • Getting there • Routes 	<p>Programming B – Programming animations</p> <ul style="list-style-type: none"> • Comparing tools • Joining blocks • Make a change • Adding sprites • Project design • Following my design

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Year 2</p>	<p>Computing Systems and networks – Information Technology around us</p> <ul style="list-style-type: none"> • What is information technology? • Where have we seen information technology in the home? • Where have we seen information technology in the world? • How does IT improve our world? • Demonstrate safe use of information technology • Using information technology responsibly 	<p>Digital photography</p> <ul style="list-style-type: none"> • Taking photographs • Landscape or portrait? • What makes a good photograph? • Lighting • Effects • Is it real? 	<p>Making music</p> <ul style="list-style-type: none"> • How music makes us feel • Rhythms and patterns • How music can be used • Notes and tempo • Creating digital music • Reviewing and editing music 	<p>Pictograms</p> <ul style="list-style-type: none"> • Counting and comparing • Enter the data • Creating pictograms • What is an attribute? • Comparing people • Presenting information 	<p>Programming A – Robot algorithms</p> <ul style="list-style-type: none"> • Giving instructions • Same but different • Making predictions • Mats and routes • Algorithm design • Debugging 	<p>Programming quizzes</p> <ul style="list-style-type: none"> • ScratchJr recap • Outcomes • Using a design • Changing a design • Designing and creating a program • Evaluating

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Year 3	Connecting computers <ul style="list-style-type: none"> • How does a digital device work? • What parts make up a digital device? • How do digital devices help us? • How am I connected? • How are computers connected? • What does our school network look like? 	Stop-frame animation <ul style="list-style-type: none"> • Can a picture move? • Frame by frame • What's the story? • Picture perfect • Evaluate and make it great! • Lights, camera, action! 	Desktop publishing <ul style="list-style-type: none"> • Words and pictures • Can you edit it? • Great template! • Can you add content? • Lay it out • Why desktop publishing? 	Branching databases <ul style="list-style-type: none"> • Yes or no questions • Making groups • Creating a branching database • Structuring branching database • Using a branching database • Presenting information 	Programming A – sequencing sounds <ul style="list-style-type: none"> • Introduction to Scratch • Programming sprites • Sequences • Ordering commands • Looking good • Making an instrument 	Programming B – Events and actions in programs <ul style="list-style-type: none"> • Moving a sprite • Maze movement • Drawing lines • Adding features • Debugging movement • Making a project
Year 4	The Internet <ul style="list-style-type: none"> • Connecting networks • What is the internet made of? • Sharing information • What is a website? • Who owns the web? • Can I believe what I read? 	Audio editing <ul style="list-style-type: none"> • Digital recording • Recording sound • Creating a podcast • Editing digital recordings • Combining audio • Evaluating podcasts 	Photo editing <ul style="list-style-type: none"> • Changing digital images • Changing the composition of images • Changing images for different uses • Retouching images • Fake images • Making and evaluating a publication 	Data logging <ul style="list-style-type: none"> • Answering questions • Data collection • Logging • Analysing data • Data for answers • Answering my question 	Programming A – Repetition in shapes <ul style="list-style-type: none"> • Programming a screen turtle • Programming letters • Patterns and repeats • Using loops to create shapes • Breaking things down • Creating a program 	Repetition in games <ul style="list-style-type: none"> • Using loops to create shapes • Different loops • Animate your name • Modifying a game • Designing a game • Creating your games

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Year 5	Sharing information <ul style="list-style-type: none"> • Systems • Computer systems and us • Transferring information • Working together • Better working together • Shared working 	Vector drawing <ul style="list-style-type: none"> • The drawing tools • Create a vector drawing • Being effective • Layers and objects • Manipulating objects • Get designing 	Video editing <ul style="list-style-type: none"> • What is video? • Identifying devices • Using a device • Features of an effective video • Importing and editing video • Video evaluation 	Flat-file databases <ul style="list-style-type: none"> • Creating a paper-based database • Computer databases • Using databases • Using search tools • Comparing data visually • Databases in real life 	Programming A - Selection in physical computing <ul style="list-style-type: none"> • Connecting Crumbles • Combining output devices • Controlling with conditions • Starting with selection • Drawing designs • Writing and testing algorithms 	Programming B – Selection in quizzes <ul style="list-style-type: none"> • Exploring conditions • Selecting outcomes • Asking questions • Planning a quiz • Testing a quiz • Evaluating a quiz
Year 6	Communication <ul style="list-style-type: none"> • Searching the web • Selecting search results • How search results are ranked • How are searches influenced? • How we communicate • Communicating responsibility 	3D Modelling <ul style="list-style-type: none"> • What is 3D modelling? • Making changes • Rotation and position • Making holes • Planning my own 3D model • Making my own 3D model 	Web page creation <ul style="list-style-type: none"> • What makes a good website? • How would you lay out your web page? • Copyright or copyWRONG? • How does it look? • Follow the breadcrumbs • Think before you link! 	Introduction to spreadsheets <ul style="list-style-type: none"> • What is a spreadsheet? • Modifying spreadsheets • What's the formula? • Calculate and duplicate • Event planning • Presenting data 	Programming A – variables in games <ul style="list-style-type: none"> • Introducing variables • Variables in programming • Improving a game • Designing a game • Design a code • Improving and sharing 	Programming B – Sensing <ul style="list-style-type: none"> • The micro:bit • Go with the flow • Sensing inputs • Finding your way • Designing a step counter • Making a step counter
All Years	Online-safety	File Management	Online-safety	Social Media	Online-safety	Technology Awareness

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.

Schools are not required by law to teach the example content in [square brackets].

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

Key stage 2

Pupils should be taught to:

- 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