

Newby and Scalby Primary School Curriculum Overview - Computing

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.

Year 1 Learning	
K	- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (Unit 5 Programming A – Moving a robot) - recognise common uses of information technology beyond school (Unit 1 Computing systems and networks - technology all around us; Unit 5 Programming A – Moving a robot) - know how to 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. (Unit 1 Computing systems and networks - technology all around us; Unit 3 Creating media – digital writing; Unit 4 Data and information – grouping data)
S	- create and debug simple programs (Unit 5 Programming A – Moving a robot) - use logical reasoning to predict the behaviour of simple programs (Unit 5 Programming A – Moving a robot) - use technology purposefully to create, organise, store, manipulate and retrieve digital content (Unit 1 Computing systems and networks - technology all around us; Unit 3 Creating media – digital writing; Unit 4 Data and information – grouping data) - 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. (Unit 1 Computing systems and networks - technology all around us; Unit 3 Creating media – digital writing; Unit 4 Data and information – grouping data)
V	Unit 1 - Technology, computer, mouse/trackpad, keyboard, screen, click, drag, draw, click, double-click, input device, shift, space bar, capital letter, full stop, safely, responsibly Unit 3 – word processor, keys, letters, Microsoft Word, numbers, backspace, cursor, toolbar, bold, italic, underline, font, undo Unit 4 - object, label, group, search, image, property, colour, size, shape, data set, value, more, less, most, fewest, the same Unit 5 – forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, plan, algorithm, program, route
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Year 2 Learning

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K	- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (Unit 5 – Programming A – robot algorithms) - recognise common uses of information technology beyond school (Unit 1 Computing systems and networks – IT around us) - know how to 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. (Unit 1 Computing systems and networks – IT around us; Unit 4 Data and information – pictograms; Unit 5 – Programming A – robot algorithms)
S	- create and debug simple programs (Unit 5 – Programming A – robot algorithms) - use logical reasoning to predict the behaviour of simple programs (Unit 5 Programming A – robot algorithms) - use technology purposefully to create, organise, store, manipulate and retrieve digital content (Unit 1 Computing systems and networks – IT around us; Unit 3 Creating media – making music; Unit 4 Data and information – Pictograms) - 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. (Unit 1 Computing systems and networks – IT around us; Unit 4 Data and information – Pictograms; (Unit 5 – Programming A – robot algorithms)
V	Unit 1 – Information technology (IT), computer, barcode, scanner/scan Unit 3 – Music, pattern, rhythm, pulse, pitch, tempo, notes, instrument, create, emotion, open, edit Unit 4 – organise, data, object, tally chart, total, votes, pictogram, enter, compare, less, most, least, more common, less common, attribute, group, block diagram, sharing Unit 5 – instruction, sequence, clear, unambiguous, algorithm, program
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Year 3 Learning	
K	- 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 - know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 4 Data and information – Branching databases)
S	- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (Unit 6 Programming B – events and actions) - use sequence, selection, and repetition in programs; work with variables and various forms of input and output (Unit 6 Programming B – events and actions) - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (Unit 6 Programming B – events and actions) - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content (Unit 3 Creating media – Desktop publishing) - 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 (Unit 1 Computing systems and networks – Connecting computers; Unit 3 Creating media – Desktop publishing; Unit 4 Data and information – Branching databases; Unit 6 Programming B – events and actions) - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 4 Data and information – Branching databases)
V	Unit 1 – digital device, input, output, process, program, connection, network, network switch, server, wireless access point (WAP) Unit 3 – text, images, advantages, disadvantages, communicate, font, font style, template, landscape, portrait, orientation, layout, content, placeholder, desktop publishing, copy, paste Unit 4 – attribute, value, questions, table, object, branching databases, database, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree Unit 6 – motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, design, action, debugging, errors, design, code, events
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Year 4 Learning	
K	- 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 (Unit 1 Computing systems and networks – The internet) - know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – The internet; Unit 2 Creating media – Audio editing; Unit 3 Creating media – Photo editing)
S	- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (Unit 6 Programming B – repetition in games) - use sequence, selection, and repetition in programs; work with variables and various forms of input and output (Unit 6 Programming B – repetition in games) - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (Unit 6 Programming B – repetition in games) - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content (Unit 1 Computing systems and networks – The internet; Unit 2 Creating media – Audio editing; Unit 3 Creating media – Photo editing) - 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 (Unit 1 Computing systems and networks – The internet; Unit 2 Creating media – Audio editing; Unit 3 Creating media – Photo editing) - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – The internet; Unit 2 Creating media – Audio editing; Unit 3 Creating media – Photo editing)
V	Unit 1 – internet, network, router, network security, network switch, server, wireless access point (WAP), website, web page, web address, routing, route tracing, browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, adverts Unit 2 – audio, record, playback, microphone, speaker, headphones, input, output, sound, start, pause, stop, podcast, save, file, edit, selection, open, save, file, mixing, time shift, export, MP3, feedback Unit 3 – image, edit, arrange, select, digital, crop, undo, save, search, copyright, pixels, rotate, flip, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, retouch, clone, recolour, magic wand, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font styles, shapes, border, layer Unit 6 – scratch, programming, sprite, blocks, code, loop, repeat, value, forever, infinite loop, count-controller loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate
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Year 5 Learning	
K	- 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 (Unit 1 Computing systems and networks – Sharing information) - know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – Sharing information; Unit 3 Creating media – Video editing)
S	- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (Unit 1 Computing systems and networks – Sharing information; Unit 6 – Programming B – selection in quizzes) - use sequence, selection, and repetition in programs; work with variables and various forms of input and output (Unit 1 Computing systems and networks – Sharing information; Unit 6 – Programming B – selection in quizzes) - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Unit 6 – Programming B – selection in quizzes) - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content (Unit 3 Creating media – Video editing; Unit 4 – Data and information – flat-file databases) - 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 (Unit 1 Computing systems and networks – Sharing information; Unit 3 Creating media – Video editing; Unit 4 – Data and information – flat-file databases) - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – Sharing information; Unit 3 Creating media – Video editing)
V	Unit 1 – system, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration Unit 3 – video, audio, recording, storyboard, script, soundtrack, dialogue, capture, zoom, storage, digital, tape, AV (audio-visual), save, videographer, zoom, pan, tilt, angle, lighting, setting, YouTuber, content, light, sound, camera, colour, export, computer, split, trim/clip, edit, titles, end credits, timeline, transitions, soundtrack, content, retake/reshoot, special effects, export Unit 4 – database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation Unit 6 – selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, share
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Year 6 Learning	
K	- 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 (Unit 1 Computing systems and networks – Communication) - know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – Communication)
S	- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (Unit 5 Programming A – Variables in games) - use sequence, selection, and repetition in programs; work with variables and various forms of input and output (Unit 5 Programming A – Variables in games) - use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (Unit 5 Programming A – Variables in games) - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content (Unit 1 Computing systems and networks – Communication) - 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 (Unit 2 Creating media – 3D modelling; Unit 4 Data and information – Spreadsheets; Unit 5 Programming A – Variables in games) - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Unit 1 Computing systems and networks – Communication)
V	Unit 1 – search, search engine, refine, index, crawler, bot, ranking, links, content creator, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email Unit 2 – 2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, duplicate, select, dimensions, placeholder, hole, group, ungroup, design, modify, evaluate, improve Unit 3 – website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, copyright, fair use, home page, preview, evaluate, device, breadcrumb trail, navigation, hyperlink, subpage, external link, embed Unit 4 – spreadsheet, data, data heading, data set, cells, columns and rows, data item, object, format, common attribute, formula, calculation, input, output, cell reference, operation, range, duplicate, sigma, propose, question, organised, graph, chart, results, comparison, software, tools Unit 5 – variable, change, name, value, set, design, event, algorithm, code, task, program, project, test, debug, improve, evaluate, share
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