

Year 3 Sequence		
Computing systems and networks- Connecting computers	Creating media- Animation	Creating media- Desktop publishing
• To understand how digital devices function • To identify input and output devices • To understand how digital devices can change the way that we work • To understand how a computer network can be used to share information • To understand that a computer network is made up of several devices • To recognise the physical components of a network	• To understand that animation is a sequence of drawings or photographs • To create a simple stop-frame animation • To plan an effective animation on a storyboard • To evaluate a sequence of frames and make improvements where needed • To evaluate the impact of adding other media to an animation	• To recognise how text and images convey information • To understand how text and layout can be edited • To choose appropriate page settings • To add content to a desktop publishing publication • To understand how different layouts can suit different purposes • To understand the benefits of desktop publishing
Key Vocabulary: Digital device, input, process, output, program, digital, non-digital, connection, network, network switch, server, wireless access point, network cables, network sockets	Key Vocabulary: Animation, flip book, stop-frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition	Key Vocabulary: Text, images, advantages, disadvantages, communicate, font, font style, communicate, template, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits
National Curriculum links		
• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	• 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	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

- 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
- 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

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- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

- 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

Year 3 Sequence

Data and information- Branching databases	Programming- Sequence in music	Programming- Events and actions
• To create questions with yes/no answers • To identify the object attributes needed to collect relevant data • To create a branching database • To understand why a database should be well structured • To identify objects using a branching database • To compare the information shown in a pictogram with a branching database	• To explore a new programming environment • To identify that commands have an outcome • To understand that a program can start in different ways • To understand where order is and is not important in a sequence • To make design choices for my artwork • To create a project from a task description	• To explain how a sprite moves in an existing project • To create a program to move a sprite in four directions • To adapt a program to a new context • To develop my program by adding features • To identify and fix bugs in a program • To design and create a maze-based challenge

Key Vocabulary: Attribute, value, questions, table, objects, branching database, database, equal, even, separate structure, compare, order, organise, j2data, selecting, pictogram, compare, information, decision tree.	Key Vocabulary: Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop programming blocks, motion, turn, point in direction, go to, glide, sequence, event, task, design, code, note, chord, costume, backdrop, algorithm, bug, debug	Key Vocabulary: Motion, event, sprite, algorithm, logic move, resize, extension block, pen up, set up, design, action, debugging, errors, setup, design, code, test, debug, events
National Curriculum links		
• 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	• 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 • 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	• 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 • 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

Computing Year 4 Sequence		
Computing systems and networks- The Internet	Creating media- Audio editing	Creating media- Photo editing
• To describe how networks physically connect to other networks • To understand how networked devices make up the internet • To understand how websites can be shared via the World Wide Web (WWW) • To describe how content can be added and accessed on the World Wide Web (WWW) • To understand how the content of the WWW is created by people • To evaluate the consequences of unreliable content	• To identify that sound can be recorded • To understand that audio recordings can be edited • To recognise the different parts of creating a podcast project • To apply audio editing skills independently • To combine audio to enhance my podcast project • To evaluate the effective use of audio	• To explain that digital images can be changed • To change the composition of an image • To understand how images can be changed for different uses • To make effective choices when selecting different tools • To combine images for a purpose • To evaluate how changes can improve an image
Key Vocabulary: Internet, network, router, network security, network switch, server, wireless access point (WAP), router, website, web page, web address, routing, web browser, World Wide Web, internet, content, links, files, use, content, download, sharing, ownership, permission, information, accurate, honest, content, adverts	Key Vocabulary: Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, sound, layer, import, record, playback, edit, selection, Audio, sound, load, import, save, export, MP3, export, MP3, audio, editing, evaluate, feedback	Key Vocabulary: Image, edit, arrange, select, digital, crop, undo, save, search, save, copyright, composition, edit, pixels, crop, rotate, flip, adjustments, effects, colours, hue/saturation, sepia, version, illustrator, vignette, retouch, clone, recolour, magic wand, select, adjust, sharpen, brighten, fake, real, composite, cut, copy, paste, alter, background, foreground, publication, elements, original, font style, shapes, border, layer,

National Curriculum links

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Year 4 Sequence		
Data and information- Data logging	Programming- Repetition in shapes	Programming- Repetition in games
• To understand that data gathered over time can be used to answer questions • To use a digital device to collect data automatically • To explain that a data logger collects 'data points' from sensors over time • To use data collected over a long duration to find information • To identify the data needed to answer questions • To use collected data to answer questions	• To understand that accuracy in programming is important • To create a program in a text-based language • To identify patterns in a sequence • To modify a count-controlled loop to produce a given outcome • To decompose a task into small steps • To create a program that uses count-controlled loops to produce a given outcome	• To develop the use of count-controlled loops in a different programming environment • To understand that in programming there are infinite loops and count-controlled loops • To develop a design that includes two or more loops which run at the same time • To modify an infinite loop in a given program • To design a project that includes repetition • To create a project that includes repetition
Key Vocabulary: Data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, data logger, logged, collection, analyse, review, conclusion	Key Vocabulary: Program, commands, code snippet, algorithm, design, logo commands, pattern, repeat, repetition, count-controlled loop, algorithm, value, repetition, trace, value, decompose, procedure,	Key Vocabulary: Scratch, programming, sprite, blocks, code, loop, repeat, value Block, repeat, forever, infinite loop, count-controlled loop, costume, repetition, forever, count-controlled loop, animate, costume, event block, duplicate, forever, modify, design, sprite, algorithm, duplicate, debug, refine, evaluate
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- ...work with various forms of input
- 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

- 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
- 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

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Computing Year 5 Sequence		
Computing systems and networks- Sharing information	Creating media- Vector drawing	Creating media- Video editing
• To understand that computers can be connected to form systems • To recognise the role of computer systems in our lives • To understand how information is transferred over the internet • To explain how sharing information online lets people in different places work together • To contribute to a shared project online • To evaluate different ways of working together online	• To identify that drawing tools can be used to produce different outcomes • To create a vector drawing by combining shapes • To use tools to achieve a desired effect • To recognise that vector drawings consist of layers • To group objects to make them easier to work with • To create a vector drawing for a specific purpose	• To explain what makes a video effective • To use a digital device to record video • To capture video using a range of techniques • To create a storyboard • To identify that video can be improved through reshooting and editing • To understand the impact of the choices made when making and sharing a video
Key Vocabulary: System, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration	Key Vocabulary: Vector, drawing tools, object, toolbar, object, move, resize, colour, rotate, duplicate/copy, zoom, select, object, align, resize, modify, layers, order, copy, paste, group, ungroup, duplicate, object, vector drawing, reuse, reflection, vector drawing	Key Vocabulary: Video, audio, camera, talking head, panning, close up, video camera, microphone, lens, close up, mid-range, long shot, moving subject, side by side, high angle, low angle, normal angle, static camera, zoom, pan, tilt, storyboard, filming, review Import, split, trim, clip, edit, reshoot, delete, trim, reorder, export, evaluate, share

National Curriculum links		
• 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 • 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 • 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	• 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.	• 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.

Year 5 Sequence		
Data and information- Flat-file databases	Programming- Selection in physical computing	Programming- Selection in quizzes
• To use a form to record information • To compare paper and computer-based databases • To outline how grouping and then sorting data allows us to answer questions • To understand how tools can be used to select specific data • To understand that computer programs can be used to compare data visually • To use a database to ask and answer real-world questions	• To control a simple circuit connected to a computer • To write a program that includes count-controlled loops • To understand that a loop will stop when a condition is met • To explain how a loop can be used to repeatedly check whether a condition has been met • To design a physical project that includes selection • To create a program that controls a physical computing project	• To explain how selection is used in computer programs • To understand that a conditional statement connects a condition to an outcome • To understand how selection directs the flow of a program • To design a program which uses selection • To create a program which uses selection • To evaluate my program
Key Vocabulary: Database, data, information, record, field, sort, order, group, field, search, value, search, criteria, graph, chart, axis, compare, filter, presentation	Key Vocabulary: Microcontroller, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, crumble controller, switch, motor, LED, sparkle, crocodile clips, connect, battery box, program, condition, input, output, selection, action, repetition, debug	Key Vocabulary: Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, program, task, design, input, program, selection, implement, test, run, design, debug, setup, condition, share, evaluate, constructive

National Curriculum links		
• 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	• 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 • 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	• 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

Year 6 Sequence		
Computing systems and networks- Communication	Creating media- 3D modelling	Creating media- Web page creation
• To understand how to use a search engine • To understand how search engines select results • To explain how search results are ranked • To recognise why the order of results is important, and to whom • To recognise how we communicate using technology • To evaluate different methods of online communication	• To use a computer to create and manipulate three-dimensional (3D) digital objects • To compare working digitally with 2D and 3D graphics • To construct a digital 3D model of a physical object • To understand that physical objects can be broken down into a collection of 3D shapes • To design a digital model by combining 3D objects • To develop and improve a digital 3D model	• To review an existing website and consider its structure • To plan the features of a web page • To consider the ownership and use of images (copyright) • To recognise the need to preview pages • To outline the need for a navigation path • To recognise the implications of linking to content owned by other people
Key Vocabulary: Search, search engine, Google, Bing, Yahoo!, DuckDuckGo, refine, index, crawler, bot, search engine, ranking, search engine optimisation, links, web crawlers, searching, web crawler, content creator, selection, communication, internet, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround	Key Vocabulary: 2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, resize, design, modify, evaluate, improve	Key Vocabulary: Website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed

National Curriculum links		
• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • 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	• 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	• 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.

Computing Year 6 Sequence		
Data and information- Spreadsheets	Programming- Variables in games	Programming- Sensing
• To identify questions which can be answered using data • To understand that objects can be described using data • To explain that formulas can be used to produce calculated data • To apply formulas to data, including duplicating • To create a spreadsheet to plan an event • To choose suitable ways to present data	• To define a 'variable' as something that is changeable • To explain why a variable is used in a program • To choose how to improve a game by using variables • To design a project that builds on a given example • To use my design to create a project • To evaluate my project	• To create a program to run on a controllable device • To explain that selection can control the flow of a program • To update a variable with a user input • To use a conditional statement to compare a variable to a value • To design a project that uses inputs and outputs on a controllable device • To develop a program to use inputs and outputs on a controllable device
Key Vocabulary: Spreadsheet, data, data heading, data set, cells, columns and rows, data, data item, data set, object, spreadsheet application, format, common attribute, formula, calculation, spreadsheet, input, output, cells, cell reference, calculate, operation, cell, range, duplicate, sigma, propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools	Key Vocabulary: Variable, change, name, value, set, design, event, design, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share	Key Vocabulary: Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, variable, random, variable, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, step-counter, plan, create, code, test, debug
National Curriculum links		

- 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

- 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
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