



Computing in a Nutshell



EYFS – Sparrows

Both Years	Autumn	Spring	Summer
EYFS	When using technology: <ul style="list-style-type: none"> • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 		
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know that I need to stay safe when using technology. • I know how to select and play a simple game on an iPad or laptop. • I know how to program a programmable toy 		
Never forgets Skills Disciplinary knowledge	<ul style="list-style-type: none"> • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 		
Vocabulary	Computer, iPad, password, internet, mouse, keyboard		



Computing in a Nutshell



KS1 - Skylarks & Willows

Odd Year	Autumn 2	Spring 2	Summer 2
Unit title	Digital Painting Teach Computing Y1	Grouping Data Teach Computing Y1	Programming Animations Teach Computing Y1
Concept	Creating Media	Data and Information	Programming B
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> I know how to choose appropriate tools in a program to create art, and making comparisons with working non-digitally I know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<ul style="list-style-type: none"> I know how to log on to a computer, open a document and save documents. I know how to assign data (images) with different labels to demonstrate how computers are able to group and present data. I know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content. 	<ul style="list-style-type: none"> I know how to use Scratch Jr to explore the way a project looks by investigating sprites and backgrounds I know how to use programming blocks to use, modify, and create programs I understand what algorithms are and that programs execute by following precise and unambiguous instructions
Never forgets Skills Disciplinary knowledge	<ul style="list-style-type: none"> I can turn on a computer / tablet and open a program I can make choices when painting a digital picture I can use a computer/tablet on my own to paint a picture 	<ul style="list-style-type: none"> I can label objects to describe their properties I can count objects with the same properties. I can compare groups of objects. I can understand that computers are not intelligent and require input from humans to perform tasks. 	<ul style="list-style-type: none"> I can use commands to move a sprite on ScratchJr. I can show that a series of commands can be joined together. I can use an algorithm to create a program
Vocabulary	Computer, iPad / tablet, Digital / non-digital, Paint Program, Create, Screen, Tools, Picture, Line, Shapes, Colour, Artist	Computer, document, label, save, properties, group, classify, data	ScratchJr, algorithm, Sprite, blocks, commands, values, numerical values, background, join



Computing in a Nutshell



KS1 - Skylarks & Willows

Even Year	Autumn 1	Spring 1	Summer 1
Unit title	Digital Photography Teach Computing Y2	Robot Algorithms Teach Computing Y2	Pictograms Teach Computing Y2
Concept	Creating Media	Programming A	Data & Information
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know that different devices can be used to capture photographs. • I know how to capture, edit, and improve photos • I know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content 	<ul style="list-style-type: none"> • I know what algorithms are and how they are implemented as programs on digital devices • I know that programs execute by following precise and unambiguous instructions • I know how to create and debug simple programs • I know how to use logical reasoning to predict the behaviour of simple programs 	<ul style="list-style-type: none"> • I know what data means and how data can be collected in the form of a tally chart • I know the term 'attribute' and can use this to organise data • I know how to present data in the form of a pictogram and block diagram
Never forgets Skills Disciplinary knowledge	<ul style="list-style-type: none"> • I can use a digital device to take a photograph • I can describe what makes a good photograph • I can experiment with different light sources and how the effect light has on the photo 	<ul style="list-style-type: none"> • I can describe a series of instructions as a sequence • I can use an algorithm to program a sequence on a floor robot • I can predict the outcome of a sequence • I can test and debug each part of the program 	
Vocabulary	Digital, photograph, capture, edit, photos, technology, organise, store, manipulate, digital content, retrieve, portrait, landscape	Algorithm, debug, test, sequence, program, instructions	Data, attribute, information, pictogram, tally, create, organise, question, information



Computing in a Nutshell

Lower KS2 – Swifts & Sycamores



Odd Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	Connecting Computers Teach Computing Y3	Stop Frame Animation Teach Computing Y3	Sequencing sounds Teach Computing Y3	Branching Databases Teach Computing Y3	Desktop Publishing Teach Computing Y3	Levels 1 – 3 Espresso Coding
Concept	Computing Systems & Networks	Creating Media	Programming A	Data & Information	Creating Media	Coding
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know that digital devices have inputs, processes, and outputs • I know how devices can be connected to make networks 	<ul style="list-style-type: none"> • I know how to capture and edit digital still images to produce a stop-frame animation that tells a story • I know that animation is a sequence of drawings or photographs. 	<ul style="list-style-type: none"> • I know how to create sequences in a block- based programming language to make music. • I know that the order of the commands will impact the outcome. 	<ul style="list-style-type: none"> • I know how to build and use branching databases to group objects using yes/no questions. • I know why it is important that a branching database is well structured. 	<ul style="list-style-type: none"> • I know how to create documents by modifying text, images • I know how to edit page layouts for a specified purpose. • I know how text and images convey information. 	<ul style="list-style-type: none"> • I know that when a computer does something, it is following instructions called 'code'. • I know that programs execute by following precise instructions.
Never forgets Skills Disciplinary knowledge	<ul style="list-style-type: none"> • I can explain how digital devices function • I can identify input and output devices • I can recognise how digital devices can change the way we work 	<ul style="list-style-type: none"> • I can relate animated movement with a sequence of images • I can plan an animation • I can review and edit an animation • I can evaluate the impact of adding other media to an animation 	<ul style="list-style-type: none"> • I can create sequences by joining blocks of code together • I can combine motion and sounds in one sequence • I can edit the appearance of a sprite. 	<ul style="list-style-type: none"> • I can create questions with yes/no answers • I can identify the attributes needed to collect data • I can independently create an identification tool 	<ul style="list-style-type: none"> • I can edit text and layout • I can add text and images to page layouts • I can choose a suitable layout for different purposes 	<ul style="list-style-type: none"> • I can use a list of commands to create a sequenced animation. • I can use timed events to create complex sequences. • I can relate sequences to real life problems (eg traffic lights). • I can debug a variety of mistakes in code.



Computing in a Nutshell



<p>Vocabulary</p>	<p>digital device, input, process, output, program, digital, non- digital, connection, network, switch, server, wireless access point, cables, sockets</p>	<p>animation, flip book, stopframe, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition</p>	<p>Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code.</p>	<p>attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.</p>	<p>text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.</p>	<p>Variable, score, start, click, time, alert, Conditional, event, score, value, hit, animation, background, algorithm, debugging, error, execute, input, instructions, loop, output, pixel, pointer, program, run, sequence, simulate, value</p>
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Computing in a Nutshell



Lower KS2 – Swifts & Sycamores

Even Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	The Internet Teach Computing Y4	Audio Production Teach Computing Y4	Repetition in shape Teach Computing Y4	Repetition in Games Teach Computing Y4	Photo Editing Teach Computing Y4	Levels 1 – 3 Espresso Coding
Concept	Computing Systems and Networks	Creating Media	Programming	Programming	Creating Media	Coding
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know the World Wide Web is part of the internet • I know how to explore the World Wide Web safely 	<ul style="list-style-type: none"> • I know how to record audio on a computer • I know how to open and save audio files on a computer 	<ul style="list-style-type: none"> • I know how to create programs by planning, modifying, and testing commands. • I know how to use text-based programming language. 	<ul style="list-style-type: none"> • I know the difference between count controlled and infinite loops • I know how to design and create a game which uses repetition 	<ul style="list-style-type: none"> • I know digital images can be changed and edited • I know how images can be resaved and reused 	<ul style="list-style-type: none"> • I know that different inputs make an object move.
Never forgets Skills Disciplinary knowledge	<ul style="list-style-type: none"> • I can describe the internet as a network of networks and understand why it needs protecting • I can use software to create a website • I can follow rules to keep me safe online • I understand that not everything I read or see on the internet is not real 	<ul style="list-style-type: none"> • I can record audio on a computer • I can inspect the soundwave view to know where to trim my recording • I can edit a voice recording and add audio • I can plan and create a podcast 	<ul style="list-style-type: none"> • I can write an algorithm to produce a given outcome • I can identify repetition in everyday tasks • I can identify patterns in a sequence • I can use a procedure in a program • I can create a program that uses count-controlled loops to produce a given outcome 	<ul style="list-style-type: none"> • I can develop the use of count-controlled loops in a different programming environment • I can develop a design that includes two or more loops which run at the same time • I can design and create a project that includes repetition 	<ul style="list-style-type: none"> • I can use photo editing software on an image • I can change colours in digital images • I can use cloning to edit an image • I can create a project that is a combination of other images 	<ul style="list-style-type: none"> • I can create and edit variables. • I can use repetition and loops to do things over and over again. • I can use a nested loop to save repeating the same code.



Computing in a Nutshell



Vocabulary	Internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	Audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	Data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	Image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font.	Variable, score, start, click, time, alert, Conditional, event, score, value, hit, animation, background, algorithm, debugging, error, execute, input, instructions, loop, output, pixel, pointer, program, run, sequence, simulate, value
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Computing in a Nutshell



Upper KS2 – Swallows & Oaks

Odd Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	Systems & searching Teach Computing Y5	Video production Teach Computing Y5	BBC Microbits Teach Computing Y5	Flat-file databases Teach Computing Y5	Introduction to vector graphics Teach Computing Y5	Levels 4 – 6 Espresso Coding
Concept	Computing Systems and Networks	Creating Media	Programming A	Data & Information	Creating Media	Coding
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know how information is transferred between systems and devices and that computers can be connected together to form systems • I know that 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 	<ul style="list-style-type: none"> • I know how to use a digital device to create short videos • I know how to capture, edit, and manipulate videos. • I know how to import my video into an editing programme. 	<ul style="list-style-type: none"> • I know how to control a simple circuit connected to a computer • I know how a microcontroller and its components are connected • I know how to write a program that includes count-controlled loops 	<ul style="list-style-type: none"> • I know what a database is. • I know that flat-file databases can be used to organise data in records. • I know how to use databases to answer questions. • I know how to present data in a database 	<ul style="list-style-type: none"> • I know how to create vector drawings • I know that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. 	<ul style="list-style-type: none"> • I know that computers use variables. • I know that computers use repetition and loops. • I know how computers use numbers to represent things • I know that computers can generate random numbers and how these can be used in simulations • I know how to use variables in more complex ways and to manipulate inputs to create useful outputs



Computing in a Nutshell



<p>Never forgets</p> <p>Skills</p> <p>Disciplinary knowledge</p>	<ul style="list-style-type: none"> • I can use search technologies effectively. • I can describe how search engines select results, • I can describe some of the ways that search results can be influenced 	<ul style="list-style-type: none"> • I can explain that video is a visual media format • I can capture a video using a range of filming techniques. • I can edit a video I have created. • I can evaluate my video based on success criteria. 	<ul style="list-style-type: none"> • I can write an algorithm that uses selection to control a sequence using output devices. • I can write a program that includes count-controlled loops • I can explain that a loop can stop when a condition is met • I can create a program that controls a physical computing project. 	<ul style="list-style-type: none"> • I can compare paper and computer-based databases • I can group and sort data • I can explain that tools can be used to select specific data. • I can explain that computer programs can be used to compare data visually • I can use a real-world database to answer questions 	<ul style="list-style-type: none"> • I can create a vector drawing by combining shapes • I can use tools to achieve a desired effect • I can recognise that vector drawings consist of layers • I can group objects to make them easier to work with 	<ul style="list-style-type: none"> • I can use a computer programme to code. • I can combine knowledge of coordinates and variables to create a game • I can understand how a variable can be used to keep track of the score in a game.
<p>Vocabulary</p>	<p>World Wide Web, Internet, Search engine, systems, Social Media, input, process, output, digital system</p>	<p>Video, capture, import, edit, storyboard, visual media format, Microsoft Video Editor</p>	<p>Microcontroller, components, connection, infinite loop, output, motor, repetition, count-controlled loop,</p>	<p>Database, data, information, record, field, sort, order, group, record, search, value, graph, chart, axis, compare, filter, presentation</p>	<p>Vector, drawing tools, object, toolbar, drawing, object, move, resize, colour, rotate, duplicate/copy, Zoom, select, rotate, align, modify, layers, order, copy, paste, group, ungroup, duplicate, vector drawing, reuse</p>	<p>Variable, score, start, click, time, alert, Conditional, event, score, value, hit, animation, background, algorithm, debugging, error, execute, input, instructions, loop, output, pixel, pointer, program, run, sequence, simulate, value</p>



Computing in a Nutshell



Upper KS2 – Swallows & Oaks

Even Year	Autumn		Spring		Summer	
Unit title	Communication and Collaboration Teach Computing Y6	Web Page Creation Teach Computing Y6	Levels 4 – 6 Espresso Coding	Introduction to Spreadsheets Teach Computing Y6	3D Modelling Teach Computing Y6	Variables in Games Teach Computing Y6
Concept	Computing Systems and Networks	Creating Media	Coding	Data & Information	Creating Media	Programming B
Never forgets Knowledge Substantive knowledge	<ul style="list-style-type: none"> • I know how the internet facilitates online communication and collaboration • I know how to evaluate different methods of communication. • I know how to communicate responsibly by considering what should and should not be shared on the internet. 	<ul style="list-style-type: none"> • I know what makes a good web page and how to use this information to design and evaluate their own website using Google Sites. • I know what 'fair use' and 'copyright' mean, and that I should find and use copyright free images • I know how to create multiple web pages for my site and can use hyperlinks to link them together 	<ul style="list-style-type: none"> • I know that computers use variables. • I know that computers use repetition and loops. • I know how computers use numbers to represent things • I know that computers can generate random numbers and how these can be used in simulations 	<ul style="list-style-type: none"> • I know how to organise data into columns and rows to create a data set • I know how to format data to support calculations • I know how to apply formulas to cells 	<ul style="list-style-type: none"> • I know how to work in a 3D space, moving, resizing, and duplicating objects. • I know how to create hollow objects using placeholders and combine multiple objects • I know the benefits of grouping and ungrouping 3D objects 	<ul style="list-style-type: none"> • I know what variables are • I know how to use variables to create a simulation • I know how to use the Use-Modify-Create model



Computing in a Nutshell



<p>Never forgets</p> <p>Skills</p> <p>Disciplinary knowledge</p>	<ul style="list-style-type: none"> • I can explain the importance of internet addresses • I can recognise how data is transferred across the internet • I can evaluate different ways of working together online • I can recognise how we communicate using technology • I can evaluate different methods of online communication 	<ul style="list-style-type: none"> • I can review an existing website and consider its structure • I can plan the features of a web page • I can recognise the need to preview pages • I can outline the need for a navigation path • I can recognise the implications of linking to content owned by other people 	<ul style="list-style-type: none"> • I can use a computer programme to code. • I can combine knowledge of coordinates and variables to create a game • I can understand how a variable can be used to keep track of the score in a game. 	<ul style="list-style-type: none"> • I can create a data set in a spreadsheet • I can apply formulas to data • I can create a spreadsheet to plan an event • I can choose suitable ways to present data 	<ul style="list-style-type: none"> • I can identify that digital 3D objects can be modified • I can recognise that objects can be combined in a 3D model • I can create a 3D model for a given purpose • I can plan and create a 3D model 	<ul style="list-style-type: none"> • I can define a 'variable' as something that is changeable • I can explain why a variable is used in a program • I can improve a game by using variables • I can design a game
<p>Vocabulary</p>	<p>communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.</p>	<p>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.</p>	<p>Variable, score, start, click, time, alert, Conditional, event, score, value, hit, animation, background, algorithm, debugging, error, execute, input, instructions, loop, output, pixel, pointer, program, run, sequence, simulate, value</p>	<p>data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.</p>	<p>TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.</p>	<p>variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare</p>