Ewanrigg Junior School

Computing Skills Progression

Strand	Year 3	Year 4	Year 5	Year 6
Computing systems and networks	**Connecting computers- Cycle B Autumn 1** • To explain how digital devices function • To identify input and output devices • To recognise how digital devices can change the way we work • To explain how a computer network can be used to share information • To explore how digital devices can be connected • To recognise the physical components of a network	**The Internet- Cycle B Spring 2** • To describe how networks physically connect to other networks • To recognise how networked devices, make up the internet • To outline how websites can be shared via the World Wide Web • To describe how content can be added and accessed on the World Wide Web • To recognise how the content of the WWW is created by people • To evaluate the consequences of unreliable content	**Systems and Searching- Cycle B Autumn 1** • To explain that computers can be connected together to form systems • To recognise the role of computer systems in our lives • To recognise 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	**Communication and collaboration- Cycle B Spring 2** • To explain the importance of internet addresses • To explain how data is transferred across the internet • To explain how sharing information online can help people work together • To evaluate different ways of working together online • To recognise how we communicate using technology • To evaluate different methods of online communication
Vocabulary	*digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets*	*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*	*system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking*	*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.*

Strand	Year 3	Year 4	Year 5	Year 6
Creating Media A	**Stop Frame animation- Cycle B Spring 1** • To explain that animation is a sequence of drawings or photographs • To relate animated movement with a sequence of images • To plan an animation • To identify the need to work consistently and carefully • To review and improve an animation • To evaluate the impact of adding other media to an animation	**Audio production- Cycle B Summer 2** • To identify that sound can be digitally recorded • To use a digital device to record sound • To explain that a digital recording is stored as a file • To explain that audio can be changed through editing • To show that different types of audio can be combined and played together • To evaluate editing choices made	**Video production- Cycle B Spring 1** To recognise video as moving pictures, which can include audio • To identify digital devices that can record video • To capture video using a digital device • To recognise the features of an effective video • To identify that video can be improved through reshooting and editing • To consider the impact of the choices made when making and sharing a video	**Web Page creation- Cycle B Summer 2** • 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
Vocabulary	*text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits*	*audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback*	*video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share*	*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*

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Creating Media B	**Desktop Publishing- Cycle 1 Summer 1** • To recognise how text and images convey information • To recognise that text and layout can be edited • To choose appropriate page settings • To add content to a desktop publishing publication • To consider how different layouts can suit different purposes • To consider the benefits of desktop publishing	**Photo editing- Cycle B Summer 1** • To explain that digital images can be changed • To change the composition of an image • To describe how images can be changed for different uses • To make good choices when selecting different tools • To recognise that not all images are real • To evaluate how changes can improve an image	**Vector Graphics- Cycle A Spring 1** • 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 workwith • To evaluate my vector drawing	**3D modelling- Cycle A Summer 2** • To recognise that you can work in 3D on a computer • To identify that digital 3d objects can be modified • To recognise that objects can be combined in a 3d model • To create a 3d model for a given purpose • To plan my own 3d model
Vocabulary	*animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition*	*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*	*vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection*	*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*

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Programming A	**Sequencing sounds- Cycle A Autumn 2** • To explore a new programming environment • I can identify that each sprite is controlled by the commands I choose • To explain that a program has a start • To recognise that a sequence of commands can have an order • To change the appearance of my project • To create a project from a task description	**Repetition in shapes- Cycle B Autumn 2** • To identify that accuracy in programming is important • To create a program in a text- based language • To explain w hat 'repeat' means • To modify a count-controlled loop to produce a given outcome • To decompose a program into parts • To create a program that uses count-controlled loops to produce a given outcome	**Selection in physical computing- Cycle B Autumn 2** • To control a simple circuit connected to a computer • To w rite a program that includes count-controlled loops • To explain that a loop can stop w hen a condition is met, e.g. number of times • To conclude that a loop can be used to repeatedly check w hether a condition has been met • To design a physical project w hich includes selection • To create a controllable system w hich includes selection	**Variable in games- Cycle A Summer 1** • To define a 'variable' as something that is changeable • To explain w hy 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
Vocabulary	*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*	*Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure*	*microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer*	*variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare*

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Programming B	**Events and actions in programmes- Cycle A Spring 1** • 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 (given) challenge	**Repetition in games- Cycle A Summer 2** • To develop the use of count-controlled loops in a different programming environment • To explain that in programming there are infinite loops and count controlled loops • To develop a design which 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	**Selection in quizzes- Cycle A Autumn 2** • To explain how selection is used in computer programs • To relate that a conditional statement connects a condition to an outcome • To explain 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	**Sensing movement- Cycle B Summer 1** • To create a program to run on a controllable device • To explain that selection can control the flow of a program • To update the 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
Vocabulary	*motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions*	*Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate*	*Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operato*	*Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug*

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Data and information	**Branching database- Cycle A Autumn 1** • To create questions with yes/no answers • To create a branching database • To explain why it is helpful for a database to be well structured • To identify objects using a branching database • To identify the object attributes needed to collect relevant data • To compare the information shown in a pictogram with a branching database	**Data logging- Cycle A Spring 2** • To explain 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	• **Flat-file database- Cycle A Autumn 1** • To use a form to record information • To compare paper and computer-based databases • To apply my knowledge of a database to ask and answer real-world questions • To explain that tools can be used to select data to answer questions • To apply my knowledge of a database to ask and answer real-world questions • To apply my knowledge of a database to ask and answer real-world questions	**Spreadsheet- Cycle A Spring 2** • To create a data set in a spreadsheet • To build a data set in a spreadsheet • To explain that formulae should be used to produce calculated data • To apply formulae to data • To create a spreadsheet to plan an event • To choose suitable ways to present data
Vocabulary	*attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree*	*data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion*	*database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation*	*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*