WICKLEWOOD COMPUTING SKILLS PROGRESSION

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science: write and debug programs *To create a simple program on a computer* Sequence stories Apps: Beebot, Scratch Jr	**Computer Science: write and debug programs** *Can create simple programs* NCCE Unit – Moving a robot Learners will explore using individual commands, both with other learners and as part of a computer program. https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot NCCE Unit – animation. Introduces learners to on-screen programming through ScratchJr. Use programming blocks to use, modify, and create programs. https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation	**Computer Science: write and debug programs** *Can debug simple programs* NCCE Unit – Introduction to quizzes. Recaps on learning from the Year 1 intro to animation. Use and modify designs to create their own quiz questions in ScratchJr and realise these designs in ScratchJr using blocks of code. https://teachcomputing.org/curriculum/key-stage-1/programming-b-an-introduction-to-quizzes	**Computer Science: write and debug programs** *Design and create programs that use sequence* Phil Bagge - Jam Sandwich (part of English: recipe writing) NCCE Unit – sequencing music. Explores sequencing in programming through Scratch. Introduction to the programming environment, be new to most learners. Introduced to motion, sound, and event blocks which they will use to create their own programs, featuring sequences. Final project is to make a representation of a piano. https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music	**Computer Science: write and debug programs** *Use repetition in programs* NCCE Unit – repetition in shapes. Repetition and loops within programming. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns. They will use Logo, a text-based programming language. https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes/lesson-1-programming-a-screen-turtle	**Computer Science: write and debug programs** *Design and create programs that use selection* *Can simulate physical systems* NCCE Selection in quizzes unit. Create a maths quiz that responds to user input. NCCE Unit – selection in physical computing. Use physical computing to explore the concept of selection in programming through the use of the Crumble. Introduced to a microcontroller (Crumble controller) and learn how to connect and program components (including output devices-LEDs and motors) through the application of their existing programming knowledge. Crumble switch/motor unit – link to D&T model Moon around Earth https://teachcomputing.org/curriculum/key-stage-2/programming-a-selection-in-physical-computing	**Computer Science: write and debug programs** *Work with variables* Times tables quiz in Scratch Random sentence generator NCCE Games unit. Explores the concept of variables in programming through games in Scratch. First, pupils will learn what variables are, and relate them to real-world examples of values that can be set and changed. Use variables to create a simulation of a scoreboard. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, pupils will experiment with variables in an existing project, then modify them, then create their own project. In Lesson 4, pupils will focus on design. In Lesson 6, their knowledge of variables and design to improve their game in Scratch. https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games
Computer Science: algorithms and logical reasoning *To explore programmable toys: Beebots* Match symbol cards to direction vocabulary, direct each other using words then symbols, replicate using programmable toy. Identify when things have gone wrong, what went wrong and can they fix it? *To develop computational thinking* Barefoot: Awesome Autumn Springtime: Seed Sequencing (linked with Spring unit) Summer Fun Winter Warmers	**Computer Science: algorithms and logical reasoning** *Understands that programs execute by following precise instructions* What is an algorithm? Unplugged activities, list steps in a task in order, such as brushing teeth, choreograph a dance, gymnastics routine, etc.	**Computer Science: algorithms and logical reasoning** *Can use logical reasoning to predict the behaviour of simple programs* Understands what algorithms are and that they are implemented as programs on devices NCCE Unit – Robot algorithms. Use given commands in different orders to investigate how the order affects the outcome. Learn about design in programming. https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms	**Computer Science: algorithms and logical reasoning** *Use logical reasoning to detect errors in programs* NCCE Unit – events and actions. Moving a sprite in four directions (up, down, left and right). Explore movement within the context of a maze, using design to choose an appropriately sized sprite. https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions	**Computer Science: algorithms and logical reasoning** *Use logical reasoning to correct errors in programs* NCCE Unit – repetition in games. Repetition in programming using Scratch. Scratch activity similar to Logo in Programming A, discover similarities. Look at the difference between count-controlled and infinite loops, use their knowledge to modify existing animations and games using repetition. Their final project - design and create a game which uses repetition. https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games	**Computer Science: algorithms and logical reasoning** *Use logical reasoning to explain how algorithms work and detect and correct errors in them* NCCE Unit – Selection in quizzes. Develop their knowledge of selection by revisiting how conditions can be used in programs and then learning how the If… Then… Else structure can be used to select different outcomes depending on whether a condition is true or false. They represent this understanding in algorithms and then by constructing programs using the Scratch. https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes	**Computer Science: algorithms and logical reasoning** *Can solve problems in writing programs by decomposing them into smaller parts* NCCE Unit – Sensing. Explore the Micro:bit to eventually make a motivational step-counter. All the four programming constructs: sequence from year 3, repetition from year 4, selection from year 5 and variables, introduced in year 6, programming A. Could use Crumbles and adapt this unit to make a buggy that detects distance to prevent it crashing into a wall. https://teachcomputing.org/curriculum/key-stage-2/programming-b-sensing https://www.barefootcomputing.org/resources/viking-raid-animation

Vocabulary Instructions, robot, sequence, turn left, turn right	**Vocabulary** Control, program, code, predict, mistake, turn, instructions	**Vocabulary** Algorithm, program, software, code, predict, distance	**Vocabulary** Algorithm, error, bug, sequence, repeat, motion, repeat, loop, computational thinking, command, block, sprite, script	**Vocabulary** Debug, selection, decompose, conditional, logical, command	**Vocabulary** Simulation, nested, rotate, forever, loop, LED, wait, abstraction	**Vocabulary** Variables, random, generate, animate, evaluate
Information Technology: create digital content *Use ICT hardware to interact with age appropriate software* Create drawings on iPad or IWB. Change colour, thickness of pen, etc. Print these and use them for making cards, calendars, wrapping etc or have an exhibition. Discuss the differences between digital and 'real' paintings. Choosing and using tools in art applications (SPECIFY) Take digital photos of our work Type our name	**Information Technology: create digital content** *Use technology to purposefully create digital content* Collect / present data - Excel to create pictograms NCCE Unit - Digital painting / keyboard skills https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting NCCE Unit – Digital writing + keyboard skills. Using a computer to create and change text https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing Apps: typing.com - browser-based	**Information Technology: create digital content** *Use technology to manipulate digital content* Typing skills - BBC Dance Mat https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z3c6tfr Stop Motion animation - https://www.culturestreet.org.uk/activities.php Keyboard skills - https://www.abcya.com/grades/2/skill NCCE Unit – Making music Make patterns and use those patterns to make music with both percussion instruments and digital tools. https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music NCCE Unit – Digital photography Recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography Apps: Pic Collage, Book Creator, Puppet Pals, Chatterpix	**Information Technology: create digital content** *Can choose from a variety of internet software and internet services to accomplish given goals* NCCE Unit – Desktop publishing Become familiar with the terms 'text' and 'images'. Use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktoppublishing NCCE Unit – Stop frame animation Use a range of techniques to create a stop-frame animation using tablets. Apply those skills to create a story-based animation.	**Information Technology: create digital content** *Create content to accomplish a goal* NCCE Unit – audio editing to create a podcast. Examine devices capable of recording digital audio, include identifying the input device (microphone) and output devices (speaker or headphones). https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing NCCE Unit – photo editing Develop understanding of how digital images can be changed and edited, how they can then be resaved and reused. Consider the impact that editing images can have, and evaluate the effectiveness of their choices. https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z2tqr82	**Information Technology: create digital content** *Design and create systems to accomplish a given goal* NCCE Unit – vector drawing Learn that vector images are made up of shapes. Learn how to use the different drawing tools and how images are created in layers. Explore ways which images can be grouped and duplicated to support them in creating more complex pieces of work. https://teachcomputing.org/curriculum/key-stage-2/creating-media-vector-drawing NCCE Unit – video editing Learn how to create short videos in groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video https://teachcomputing.org/curriculum/key-stage-2/creating-media-video-editing	**Information Technology: create digital content** *Combine a variety of software to accomplish given goals on a range of digital devices* Year Book – Book Creator MFL – Green screen weather NCCE Unit – 3d modelling. Develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, including combining 3D objects to make a house and examining the differences between working digitally with 2D and 3D graphics. Learners will progress to making accurate 3D models of physical objects, such as a pencil holder, which include using 3D objects as placeholders. https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling NCCE Unit – create a web page Introduces the creation of websites for a chosen purpose. Identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths. https://teachcomputing.org/curriculum/key-stage-2/creating-media-web-page-creation
	Information Technology: Information and data *Use technology purposefully to organise and store digital content* NCCE Unit – Grouping data	**Information Technology: Information and data** *Use technology to retrieve digital content* Basic skills – logging on, opening files, saving in correct folder	**Information Technology: Information and data** *Can collect and present information and data* Plant growth bar chart Newspaper Article	**Information Technology: Information and data** *Can combine information and data* E book (cross curricular) Apps: iMovie, Book Creator, Google apps, Word, Powerpoint	**Information Technology: Information and data** *Can evaluate information and data* Fake News NCCE Unit – flat file databases	**Information Technology: Information and data** *Can analyse information and data* Money Management Unit NCCE Unit – introduction to

	Begin by using labels to put objects into groups, and labelling these groups. https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data Apps: Seesaw	Create a Branching database using hyperlinks in a Powerpoint Kahoot for data collection Unplugged - Modify/improve a pictogram NCCE Unit – Pictograms. Introduces the term 'data'. Will begin to understand what data means and how this can be collected in the form of a tally chart. https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms	Powerpoint NCCE Unit – branching databases. Develops understanding of what a branching database is and how to create one. Understand what attributes are and how to use them to sort groups of objects by using yes/no questions. Create physical and on-screen branching databases. https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases	NCCE Unit – data logging. Consider how and why data is collected. Consider the senses that humans use and how computers can use special input devices called sensors to monitor the environment. https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging	Looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. (Titanic spreadsheet in J2E) https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases Link to maths / science - Create own spreadsheets from data gathered and draw conclusions.	spreadsheets Introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create graphs and charts, and evaluate their results in comparison to questions asked. https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets
Vocabulary iPad, app, computer, camera, technology, keyboard, button, printer	**Vocabulary** Landscape, portrait, save design, illustration, digital	**Vocabulary** Data, collection, tally, chart	**Vocabulary** Green screen, spreadsheet, graph, data. QR Code, copy, paste, cut, insert, save, resize	**Vocabulary** Data logger, sensor, input, data points, intervals	**Vocabulary** Flat-file database, record, file, log	**Vocabulary** Columns, rows, data set, formatting data, formula
Digital Literacy *Explain what a computer and peripherals are* Explore old computers, machinery Mouse and keyboard-based games https://www.happyclicks.net/click-tap-games/index.php https://www.roomrecess.com/games/DragonDrop/play.html	**Digital Literacy: Networks** *Describe common uses of information technology beyond school* Describe the main parts of a computer http://ncce.io/csn1-2-p Develop mouse skills http://ncce.io/csn1-3-p NCCE Unit – Technology around us https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us	**Digital Literacy: Computing systems and networks** *Describe common uses of information technology beyond school* NCCE Unit – Technology around us. How is IT beneficial to our lives? https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us	**Digital Literacy: Computing systems and networks** *Understand the opportunities computer networks offer for communication* Ways to communicate online NCCE Unit – Connecting Computers develop understanding of digital devices, initial focus on inputs, processes, and outputs. Comparing digital and non-digital devices, introduce to computer networks that include infrastructure devices like routers and switches. https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers https://www.bbc.co.uk/bitesize/topics/zs7s4wx/articles/zxjsfg8	**Digital Literacy: Networks** *Understand how computer networks can provide multiple services, such as the world wide web* History of internet NCCE Unit – The Internet learn the World Wide Web is part of the internet, be given opportunities to explore the WWW to learn about who owns content and what they can access, add, and create. Will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet https://www.bbc.co.uk/bitesize/topics/zs7s4wx/articles/z2nbgk7 https://www.bbc.co.uk/bitesize/topics/zs7s4wx/articles/z3tbgk7 https://www.bbc.co.uk/bitesize/topics/zs7s4wx/articles/ztbjq6f https://www.bbc.co.uk/bitesize/topics	**Digital Literacy: Networks** *Understand the opportunities computer networks offer for collaboration* NCCE Unit – Systems and searching Develop understanding of computer systems and how information is transferred between systems and devices. https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information	**Digital Literacy: Networks** *Understands the basic workings of computer networks including internet* What is world wide web? https://www.bbc.co.uk/bitesize/clips/zxxf34j NCCE Unit – Communication and collaboration Class will learn about the World Wide Web as a communication tool. learn how we find information on the World Wide Web, through learning how search engines work (including how they select and rank results) and what influences searching, and through comparing different search engines. They will then investigate different methods of communication, before focusing on internet-based communication. Finally, they will evaluate which methods of internet communication to use for particular purposes. https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-communication

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			Digital Literacy: Searching *Is selective when using digital content* How to save an image How to import an image Using QR codes E book (cross curricular)	**Digital Literacy: Searching** *Can appreciate how search results are selected* Spiders: https://www.wordtracker.com/academy/google/how-it-works/how-google-algorithm-works How to search effectively	**Digital Literacy: Searching** *Is discerning in evaluating digital content* Fake News https://www.allaboutexplorers.com/explorers/drake/	**Digital Literacy: Searching** Appreciates how search results are ranked Barefoot – Selecting search activity Ranking Search activity
Digital Literacy: E Safety *To know how to safely use an iPad- rules established.* *To know to tell an adult if you feel unsure or uncomfortable about what you are seeing.*	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-one/	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-two/	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-three/	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-four/	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-five/	**Digital Literacy: E Safety** Project Evolve - https://projectevolve.co.uk/toolkit/years/year-six/
Vocabulary Internet, share, information	**Vocabulary** Google, website, search, online, login, password	**Vocabulary** Personal information, link, icon, username	**Vocabulary** Network, LAN, connection,	**Vocabulary** World Wide Web, ownership, router, hub	**Vocabulary** Search engine, search engine optimisation (SEO)	**Vocabulary** Protocols, data packets