Walking Tall
Richardson Dees Primary School

Computing Curriculum Map

- ✓ **By the end of Key Stage One, we expect pupils to be able to:**
- ✓ understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- ✓ create and debug simple programs
- ✓ use logical reasoning to predict the behaviour of simple programs
- ✓ use technology purposefully to create, organise, store, manipulate and retrieve digital content
- ✓ recognise common uses of information technology beyond school
- ✓ 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.

- ✓ **By the end of Key Stage Two, we expect pupils to be able to:**
- ✓ 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
- ✓ 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

Year 1	**Autumn** E - Safety	**Spring** Mouse and Keyboard Skills	**Spring** Text and images	**Autumn** Digital Sound	**Summer** Digital Art	**Summer** Programming
National Curriculum Programme of Study	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.	Recognise common uses of information technology beyond school.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use logical reasoning to predict the behaviour of simple programs. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.
RDPS Knowledge and Skills	Understand what personal information is and why we keep personal information private. Understand why websites want personal information. Identify when and where to go for help when concerned. Understand the dangers of sharing photos online. Understand that people online are not always who they say they are. Understand how to trust information online. Learn to use the Internet responsibly. Understand why we should be respectful.	Move the mouse or trackpad and left click to select an object. Drag and drop with mouse or trackpad to move objects around the screen. Use double click or double tap. Find letters or numbers on keyboard. Begin touch typing with home row keys.	Add, move and resize images. Add text and adjust size and placement. Add, resize, and place images on a page then add and position text to label and describe images. Use word banks to write sentences about images.	Understand that different instruments make their own sound and that instruments can be divided into groups Create a rhythm using a pattern of beats. Create digital sounds using patterns and shapes. Create a simple melody using patterns and adjust tempo.	Change the colour and pattern of elements. Position and rotate objects on a design. Position objects in relation to each other. Resize, rotate, flip, and arrange objects behind/in front of each other.	Place instructions into the correct order (sequence) to make something work. Use direction arrows to move an on-screen object (character/sprite) to achieve an objective. Predict a route and sequence direction commands (algorithm) to achieve an objective. Correct the errors if necessary (debug). Sequence code blocks, including movements and execute (start program) blocks to write a program to achieve an objective.

Supporting Resources	https://projectevolve.co.uk/toolkit/resources/years/year-one/ https://www.ilearn2.co.uk/e-safety---key-stage-1.html/	https://www.ilearn2.co.uk/eyfsyear-1-mouse-and-keyboard-skills.html/	https://www.ilearn2.co.uk/year-1-text--images.html/	https://www.ilearn2.co.uk/year1musiccreation.html/	https://www.ilearn2.co.uk/year13ddesign.html/	https://www.ilearn2.co.uk/year-1-programming.html/
Year 2	**Autumn** E - Safety	**Autumn** Digital Art	**Spring** Developing Programming	**Spring** Internet Research	**Summer** Programming	**Summer** Text and Images
National Curriculum Programme of Study	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.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	Use logical reasoning to predict the behaviour of simple programs. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	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.	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs.	Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
RDPS Knowledge and Skills	Understand what personal information is and why we keep personal information private. Understand why websites want personal information. Identify when and where to go for help when concerned. Understand the dangers of sharing photos online. Understand that people online are not always who they say they are. Understand how to trust information online.	Add a background and objects to a frame, including text. Copy/clone a frame and move objects to create an animation. Flip an object. Create screen-recording animation. Create stop-motion animation with photos.	Place instructions into the correct order (sequence) to make something work. Use direction arrows to move an on-screen object (character/sprite) to achieve an objective. Predict a route and sequence direction commands (algorithm) to achieve an objective. Correct the errors if necessary (debug). Sequence code blocks, including movements and	Understand how a webpage displays information in different ways, text, images, videos and interactive elements. Use a webpage to answer questions by using keywords.	Program movements. Program outputs for audio or text. Find errors in a program (debug). Program inputs (touch or clicking) Program selection/conditions (if statements).	Add a book cover with title, author, colour, and image. Add multiple pages based on a theme. Add text on different pages. Add images on different pages to match the theme/text. Add voice recordings to match the text and theme.

	Learn to use the Internet responsibly. Understand why we should be respectful.		execute (start program) blocks to write a program to achieve an objective.			
Supporting Resources	https://projectevolve.co.uk/toolkit/resources/years/year-two/ https://www.ilearn2.co.uk/e-safety---key-stage-1.html/	https://www.ilearn2.co.uk/year-2-animation.html/	https://www.ilearn2.co.uk/year-2-programming.html/	https://www.ilearn2.co.uk/year-2-research.html/	https://www.ilearn2.co.uk/year-2-scratch-jr.html/	https://www.ilearn2.co.uk/ebookcreationks1.html/
Year 3	**Autmn** E-Safety	**Autumn** Text and Images	**Spring** Digital Art	**Spring** Infographics	**Summer** Text Editing	**Summer** Programming
National Curriculum Programme of Study	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.	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.	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.	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.	Design, write and debug programs that accomplish specific goal. Use sequence and selection in programs; work with various forms of input.
RDPS Knowledge and Skills	Understand what to do if something upsets you online. Understand why and how people can be nasty online. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. Understand why people pretend to be someone else online.	Know the advantages of creating comics digitally. Know how to add, resize, and organise colour or picture backgrounds. Know how to add, resize, organise characters/objects to different panels. Know how to add narration using text and direct speech using speech bubbles.	Understand and place 3D space on a grid to match another design. Re-create or design familiar 3D models using cubes, such as tables and chairs. Use chisel tool to improve and adapt models. Colour individual blocks or whole models. Apply 3D skills to your own design.	Understand what an infographic is and why we use them. Search for and add suitable graphic elements. Add and format suitable titles and text. Label an image using arrows.	Add and edit backgrounds. Add and edit characters, including changing posture, expression, and clothing. Add narration and speech bubbles, including formatting text. Duplicate objects to match scenes. Search for objects to use.	Create a 3D place using various design tools. Write a program to control a character using inputs. Write a program with conditions to create an if statement. Add a multi-player aspect. Write a program with variables (scoring system).

	Understand why we only talk to people we know in the real world, when online.	Add, resize, and organise colour or picture backgrounds. Add, resize, organise characters/objects to different panels. Add narration using text and direct speech using speech bubbles. Save comic with name and title.	Design cities/towns for a purpose and to a budget.			Program operators (equals) to achieve a score and win game.
Supporting Resources	https://projectevolve.co.uk/sign-in/?redirect=%2Ftoolkit%2Fresources%2Fyears%2Fyear-three%2F https://www.ilearn2.co.uk/e-safety---key-stage-2.html/	https://www.ilearn2.co.uk/comiccreationteacher.html/	https://www.ilearn2.co.uk/year33ddesignteacher.html/	https://www.ilearn2.co.uk/year3infographics.html/	https://www.ilearn2.co.uk/year3storyboards/	https://www.ilearn2.co.uk/year-3-kodu.html/
Year 4 National Curriculum Programme of Study	**Autumn** E-Safety	**Autumn** Internet Research	**Spring** Programming	**Spring** Inside a computer	**Summer** Digital Art	**Summer** Animation
	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.	Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Design, write and debug programs that accomplish specific goals. Use sequence, selection, and repetition in programs, work with 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.	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.	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.
	Understand what to do if something upsets you online. Understand why people pretend to be someone else online.	Understand how search results are selected and ranked and show awareness of different strategies for finding specific information. Understand the features of an Internet Browser.	Program inputs with loops, selection and sensing for interactions. Work with variables and various forms of input and output.	Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, Fan, Hard Drive, RAM, Graphics Card). Understand that memory is measured in bytes and gigabytes.	Create an icon using different shapes and fill tools. Combine shapes and lines, then arrange them in front/behind each other.	Understand that stop-motion is a series of pictures that are slightly different, and they appear to move when played one after other. Know how to create a stop motion video by duplicating

RDPS Knowledge and Skills	Understand why we only talk to people we know in the real world, when online. Understand why we should not always trust what we read online and how to check. Understand how to protect digital content with a strong password. Understand the importance of being kind in the real world and also online.	Use search technologies (different websites) to find specific pieces of information. Reference the correct source of information. Be discerning in evaluating digital content. Check the internet for fake news by cross-referencing facts.	Debug programs that accomplish goals. (correcting errors) Use selection, data variables and operators. Program a virtual robot using Scratch blocks.	Use search engines on websites to find suitable information.	Combine shapes, colour and text to re-create an icon. Change the colour, size and style of text to match an icon, then arrange images and use masking and opacity tools.	slides that include backgrounds and shapes. Know how to use transition and animation effects in presentation software. Know how to animation individual parts of objects to create realistic animation. How to create animated pixel animation and save it as GIF file (short animation on a loop).
Supporting Resources	https://projectevolve.co.uk/toolkit/resources/years/4/ https://www.ilearn2.co.uk/e-safety---key-stage-2.html/	https://www.ilearn2.co.uk/year-4-research.html/	https://www.ilearn2.co.uk/y4scratch.html/	https://www.ilearn2.co.uk/year-4-inside-a-computer/	https://www.ilearn2.co.uk/year-4-graphic-design/	https://www.ilearn2.co.uk/year-4-animation.html/
Year 5	**Autumn** E-Safety	**Autumn** Programming	**Spring** Computer Networks	**Spring** Digital Sound	**Summer** Programming	**Summer** Text-based programming
National Curriculum Programme of Study	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.	Design, write and debug programs that accomplish specific goals; 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.	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 content that accomplish given goals.	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.	Use sequence and repetition in programs; work with variables. Correct errors.

RDPS Knowledge and Skills	Understand what to do if something upsets you online. Understand why and how people can be nasty online. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. Understand why people pretend to be someone else online. Understand why we only talk to people we know in the real world, when online. Understand why we should not always trust what we read online and how to check. Understand how to protect digital content with a strong password. Understand the importance of using avatars and how to make them.	Know that sprites can be controlled in different ways using keyboard or touch screen inputs. Know that sprites can be programmed to sense other sprites or colours then make decisions. Know how to program variables, including random variables that can be used to make a game unpredictable. Program inputs for control, selection (conditions) and sensing for interaction and data variables for scoring and a game timer. Program distance sensing and movement. Program Inputs, outputs, loops, selection, sensing, and variables. Program list variables that chooses randomly.	Understand the different equipment needed for a computer network and how they help. Understand the advantages of a computer network (share information, troubleshoot computers, do not need to use the same computer to access files). Understand why a computer network needs to be secure. Understand the term 'cloud computing' and the advantages of it.	Layer tracks using sounds and effects. Use various online samplers and sequencers to create drums patterns and scales. Create effective instrument tracks. Edit tracks and effectively adjust volume and add effects.	Understanding Bluetooth Technology as an Input Device. Write programs for the Sphero using movement and repetition (loops). Write a program to trace a maze/route with Sphero and De-bug. Write a program with outputs. Write a program with random variables	Know that JavaScript and Logo are text-based programming languages that use letters, numbers, and symbols to program interactive elements (JavaScript) or an on-screen turtle to move or draw. Know that text-based programming commands need to be typed accurately. Change the variables of text-based commands. Write text-based commands accurately and use fill effects, stamps, and functions. Write text commands/functions to program keyboard inputs in a game. Programming a Logo turtle to move and use pen. Use co-ordinates in with a Logo. Print labels in Logo Program a loop (repetition) and shapes. Program colours and variables.
Supporting Resources	https://projectevolve.co.uk/toolkit/resources/years/5/ https://www.ilearn2.co.uk/e-safety---key-stage-2.html/	https://www.ilearn2.co.uk/y5scratch.html/	https://www.ilearn2.co.uk/year-5-computer-networks.html/	https://www.ilearn2.co.uk/year-5-music-creation.html/	https://www.ilearn2.co.uk/year-5-sphero-programming-html/	https://www.ilearn2.co.uk/textprogrammingstudent.html/

Year 6	**Autumn** E- Safety	**Autumn** Spreadsheets	**Spring** BBC Micro: bit	**Spring** Programming	**Summer** Digital Art	**Summer** Digital Advancements
National Curriculum Programme of Study RDPS Knowledge and Skills	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.	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	Design, write and debug programs that accomplish specific goals; 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.	Design and create digital content to accomplish goals. Use search technologies effectively and be discerning in evaluating digital content.
	Know what to do if something upsets you online. Understand why and how people can be nasty online. Describe the term 'sharing online' and why we need to get permission to share photos and videos of other people. Understand why people pretend to be someone else online. Understand why we only talk to people we know in the real world, when online. Understand why we should not always trust what we read online and how to check. Understand how to protect digital content with a strong password.	Use comprehension skills to find clues that match the column headings of a spreadsheet. Use spreadsheet tools (filters and conditional formatting) to find the specific data to match the clues. Use spreadsheet tools (filters and conditional formatting) to find the specific data to match the clues and select the best tool for the type of data that is being found. Write clues that allow others to search the spreadsheet.	Know how to create test and transfer code to micro: bits. Understand that computers need instructions in a sequence, also known as algorithms, and that these are written as programs in code, a language the computer can understand. Learn how sequences and loops can be used to make animations and control programs. Gain practical experience and understanding of inputs, outputs, and variables in real-world contexts. Learn how logic ('if…then' instructions) and sensors comb ine to make a simple control system.	Program inputs, selection, loops, and random variables (operators) for unpredictability. Program inputs, selection (conditions), sensing, random variables, operators for direction and data variables for scoring. Use inputs, selection (conditions), loops, sensing, costume changes, and broadcasts. Work with multiple sprites to send broadcast messages between them. Know that sprites can be controlled in different ways using keyboard or touch screen inputs. Know that sprites can be programmed to sense other sprites or colours then make decisions.	Adjust the colours, brightness, and contrast to improve a photo. Create a before and after slide in presentation software. Take and crop a screenshot. Add drawing and text layers. Import new images as layers and resize them to fit. Add colour elements to a black and white photo using layers and eraser tools. Use Artificial Intelligence to remove objects from photographs and expand them.	Show an awareness of how computers and digital technology helps us today. Understand how technology has changed over time and represent it as an interactive timeline. Understand the impact (positive/negative) technological changes have on society. Predict how technology will change in the future. Show awareness of how computers and digital technology helps us today. Understand how technology has changed over time and represent it as an interactive timeline.

	Understand the importance of being kind in the real world and online. Understand the importance of using avatars and how to make them.		Combine skills and knowledge gained through the previous lessons to create computer simulations of real-world games of chance. Evaluate control programmes.	Know how to program variables, including random variables that can be used to make a game unpredictable. Know how to program operators to add sums. Know how to program broadcasts, to send messages between sprites.		Understand the impact (positive/negative) technological changes have on society. Predict how technology will change in the future.
Supporting Resources	https://projectevolve.co.uk/toolkit/resources/years/6/ https://www.ilearn2.co.uk/e-safety---key-stage-2.html/	https://www.ilearn2.co.uk/year-6-data-detectives/	https://microbit.org/teach/lessons/first-lessons-with-makecode-and-the-microbit/	https://www.ilearn2.co.uk/year6-html/	https://www.ilearn2.co.uk/imageeditingteacher.html/	https://www.ilearn2.co.uk/year-6-computers-past-present-future.html/