Curriculum Progression Map

WEST RISE

Computing

At West Rise, we grow digitally literate citizens who…

Know how to use digital systems and how to put this knowledge to use through programming.

Are able to use a range of devices to express themselves and develop their ideas using technology, including creating systems and a wide range of content.

Understand how to be responsible participants in an increasingly digital world.

West Rise Aims and Purpose

Intent	Aims	Character Traits

To provide a structured sequence of lessons, covering the skills required to meet the aims of the Computing curriculum.
 	
Our curriculum content allows children to develop both a broad and deep understanding of Computing and how it links to their lives.
 	
Children will have a range of opportunities for consolidation, challenge and variety. They will apply the fundamental principles and concepts of computer science. They will develop analytical problem-solving skills and learn to evaluate and apply information technology.
 	
To enable children to become responsible, competent, confident and creative users of information technology.
	Learning in Computing will be enjoyable and purposeful.
	
	Children will use digital and technological vocabulary accurately, alongside a progression in their technical skills.
	
	Children will be confident using a range of hardware and software and will produce high-quality purposeful products.
	
	Children will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. They will be confident and respectful digital citizens going on to lead happy and healthy digital lives.
		• Perseverance / resilience
		  - Problem solving when de-bugging programs
		
		• Teamwork
		  - Working collaboratively to solve computational problems.
		
		• Kindness
		  - Being aware of their online presence and the impact it has on others.
		
		• Love of Learning
		  - Developing a love of Computing and seeing its use and impact in other subject areas and in life.
		
		• Gratitude
		  - Children feel grateful to be empowered with Computing skills and to have the opportunity to use these in different programs and contexts.
		
		• Respect
		  - Children develop respect for others and learn how to be good digital citizens

National Curriculum Aims and Purpose

Purpose of Study	Aims	Attainment Targets
A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.	The national curriculum for computing aims to ensure that all pupils: - can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation - can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems - can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems - are responsible, competent, confident and creative users of information and communication technology.	By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject Content

Key stage 1	Key stage 2
Pupils should be taught 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.	Pupils should be taught 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

West Rise Computing Overview

	Term 1 – Computing Systems and Networks	Term 2 – Creating Media 1	Term 3 – Programming 1	Term 4 – Data and Information	Term 5 – Creating Media 2	Term 6 – Programming 2
Year 3	Connecting computers	Stop-frame Animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
Year 4	The internet	Audio editing	Repetition in shapes	Data logging	Photo editing	Repetition in games
Year 5	Sharing information	Vector drawing	Selection in physical computing	Flat-file databases	Video editing	Selection in quizzes
Year 6	Internet Communication	Webpage creation	Variables in games	Introduction to spreadsheets	3D modelling	Sensing

Progression – Termly Knowledge and Skills

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 1 – Computing Systems and Networks	Connecting computers Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	The internet Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Sharing information Identifying and exploring how information is shared between digital systems.	Internet Communication Recognising how the WWW can be used to communicate and be searched to find information.

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 2 – Creating Media 1	Stop-frame Animation Capturing and editing digital still images to produce a stop-frame animation that tells a story	Audio editing Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Vector drawing Creating images in a drawing program by using layers and groups of objects	Webpage creation Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 3 – Programming 1	Sequencing sounds Creating sequences in a block-based programming language to make music	Repetition in shapes Using a text-based programming language to explore count-controlled loops when drawing shapes.	Selection in physical computing Exploring conditions and selection using a programmable microcontroller.	Variables in games Exploring variables when designing and coding a game.

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 4 – Data and Information	Branching databases Building and using branching databases to group objects using yes/no questions	Data logging Recognising how and why data is collected over time, before using data loggers to carry out an investigation.	Flat-file databases Using a database to order data and create charts to answer questions.	Introduction to spreadsheets Answering questions by using spreadsheets to organise and calculate data.

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 5 – Creating Media 2	Desktop publishing Creating documents by modifying text, images, and page layouts for a specified purpose.	Photo editing Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled.	. Video editing Planning, capturing, and editing video to produce a short film.	3D modelling Planning, developing, and evaluating 3D computer models of physical objects.

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Term 6 – Programming 2	Events and actions in programs Writing algorithms and programs that use a range of events to trigger sequences of actions.	Repetition in games Using a block-based programming language to explore count-controlled and infinite loops when creating a game.	Selection in quizzes Exploring selection in programming to design and code an interactive quiz.	Sensing Designing and coding a project that captures inputs from a physical device

Subject Content	Knowledge and Skills			
	Year 3	Year 4	Year 5	Year 6
Online safety – At least 1 lesson each term plus whole school Internet Safety Day in Term 3	Reviewing and editing online safety rules. Developing an awareness of online bullying. Assessing the trustworthiness of websites. Understanding the digital trails we leave behind. Practising good internet etiquette. Who do we really know online?	Reviewing and editing online safety rules. Dealing positively with peer pressure. Getting the message: compare and contrast the ways messages were sent pre- and post-internet. Understanding risk and prevention of information loss. Understanding and respecting digital rights and responsibilities. Virtual friendship vs real friendship; who we can trust.	Reviewing and editing online safety rules. Understanding the impact of online behaviour. Understanding advertising and endorsements online. Developing strategies to protect our future selves. Understanding and applying copyright laws. Understanding how games developers make money.	Reviewing and editing online safety rules. Inappropriate use of technology and the internet – nude selfies. Understanding that internet safety skills must always be switched on. Respecting the personal information and privacy of others. Using skills to resolve unfamiliar situations. Creating and delivering advice on safe online gaming.

Progression – Vocabulary

Vocabulary			
Year 3	**Year 4**	**Year 5**	**Year 6**

Year 3	Year 4	Year 5	Year 6
Term 1 inputs, processes, outputs, digital and non-digital devices, computer networks Term 2 media, stop-frame animation, sequence Term 3 sprite, backdrop, command, control, algorithm, code Term 4 data, branching database, attributes, effectiveness, binary trees, pictograms, grouping data Term 5 text, images, communicate, font, template, orientation, placeholder, layout Term 6 links, events, actions, sequencing, directions (up, down, left, and right), task, design, code Online Safety online bullying, trustworthiness, inappropriate, digital footprint, 'netiquette', avatar	Term 1 internet, network of networks, secure, World Wide Web, content, access, create, evaluate, accurate, reliable, web page, website, copyright, Term 2 Recording, digital audio, input device (microphone), output device (speaker or headphones), copyright, podcast, editing, evaluate, volume, fade, export Term 3 programs, planning, modifying, testing, commands, create, shapes, patterns, text-based programming language, repetition, loop, sequence of commands, count-controlled loop, algorithm, code, actions, decomposition, procedures. Term 4 Data, senses, sensors, monitor, data points, data sets, logging intervals, analyse, automatically, data logger Term 5 digital image, edit, crop, edited images, filters, retouching, 'fake' and 'real', digitally alter Term 6 Repetition, the difference between count-controlled and infinite loops, modify, refine Online Safety peer pressure, accurate, criminal, suspicious, viruses, personal information, accounts, digital citizenship, virtual friendship	Term 1 computer systems, small-scale systems, large-scale systems, collaborative, online project, components, physical and electronic connections, communicate, online collaborative working Term 2 vector images, shapes, layers, duplicate, object, resizing, rotating, zoom, layers Term 3 selection in programming, Crumble, microcontroller, conditions, algorithms, circuit Term 4 flat-file database, records, graphs, charts, field, order, sort, group Term 5 capturing, editing, manipulating, visual media, camera angles, filming techniques, scenes, reshooting Term 6 the 'if… then… else…' structure, outcomes, conditions, conditional statement, flow Online Safety advertising, endorsements, responsibility, appropriate, online reputation, copyright, game developers, parental controls	Term 1 search engine, select and rank results, web crawler, index, criteria, limitations, privacy, information security Term 2 evaluate, copyright, fair use, aesthetics, navigation paths, layout features, web page, hyperlinks Term 3 Variables, simulation, letters (strings), identify a program variable as a placeholder in memory for a single value Term 4 spreadsheet, column, row, data set, formatting, formula, cell, graph, chart, organise, analyse, store, data table, data headings Term 5 3D model, 3D modelling, manipulate, represent, graphical objects, construct, rotate, position Term 6 sequence, repetition, selection, variables, micro:bit, step counter, controllable device, use an operand (e.g. <>=) in an if…then… statement, modify, outcome Online Safety inappropriate, nude selfie, age restriction, social networking, indecent images, personal information, privacy preferences, trolling, bribery, permission, grooming, parental controls

Weekly Skill Development – Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Year 3 Term 1	How do we stay safe online? (We are Year 3 rule writers)	How do we turn on, log off and shutdown the laptops safely?	How do we use touch type?	How do we use Times Tables Rock Stars?	How do we use MyMaths?	How do we use Google Classroom?
Year 3 Term 2	We are digital friends	Can a picture move?	Frame by frame	What's the story?	Picture prefect	Evaluate and make it great
Year 3 Term 3	We are internet detectives	Introduction to Scratch	Programming Sprites	Sequencing	Ordering Commands	Looking Good
Year 3 Term 4	We are aware of our digital footprint	Yes or no questions	Making groups	Creating a branching data base	Structuring a branching data base	Using a branching data base
Year 3 Term 5	We are netiquette experts	Words and Pictures	Can you edit it?	Great template	Can you add content?	Lay it out
Year 3 Term 6	We are avatar creators	Moving a sprite	Maze movement	Drawing lines	Adding features	Debugging movement

Weekly Skill Development – Year 4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Year 4 Term 1	Online Safety & class online safety charter	Logging on MyMaths	Logging on Goggle Classroom	Google Classroom Saving	Google Classroom Editing	Google Classroom Creating Docs
Year 4 Term 2	Cyberbullying	What is the purpose of a quiz? Can we create a quiz?	What is debugging and why is it important?	How do you debug a programme?	Why does a quiz need sound?	How do you include a scoring system in a quiz?
Year 4 Term 3	Programming a screen turtle	Programming letters	Patterns and repeats	Using loops to create shapes	Breaking things down	Creating a program
Year 4 Term 4	Can I explain that data gathered over time can be used to answer questions?	How do I use a digital device to collect data automatically?	Can I explain that a data logger collects 'data points' from sensors over time?	How do I use data collected over a long duration to find information?	Can I identify the data needed to answer questions?	Can I use collected data to answer questions?
Year 4 Term 5	Changing digital images	Changing the composition of images	Changing images for different uses	Retouching images	Fake images	Making and evaluating publication
Year 4 Term 6	Using loops to create shapes	Different loops	Animate your name	Modifying a game	Designing a game	Creating your games

Weekly Skill Development – Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Year 5 Term 1 Sharing information	Systems	Computer systems and us	Transferring information	Working together	Better working together	Shared working
Year 5 Term 2 Vector drawing	The drawing tools	Create a vector drawing	Being effective	Layers and objects	Manipulating objects	Get designing
Year 5 Term 3 Selection in physical computing	Connecting Crumbles	Combining output components	Controlling with conditions	Starting with selection	Drawing designs	Writing and testing algorithms
Year 5 Term 4 Flat-file databases	Creating a paper-based database	Computer databases	Using a database	Using search tools	Comparing data visually	Databases in real life
Year 5 Term 5 Video editing	What is video?	Filming techniques	Using a storyboard	Planning a video	Importing and editing video	Video evaluation
Year 5 Term 6 Selection in quizzes	Exploring conditions	Selecting outcomes	Asking questions	Planning a quiz	Testing a quiz	Evaluating a quiz

Weekly Skill Development – Year 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Year 6 Term 1 Internet Communication	Searching the web	Selecting search results	How search results are ranked	How are searches influenced?	How we communicate	Communicating responsibly
Year 6 Term 2 Web Page Creation	What makes a good website?	How would you lay out your web page?	Copyright or copyWRONG?	How does it look?	Follow the breadcrumbs	Think before you link!
Year 6 Term 3 Sensing in Games	Introducing variables	Variables in programming	Improving a game	Designing a game	Design to code	Improving and sharing
Year 6 Term 4 Spreadsheets	What is a spreadsheet?	Modifying spreadsheets	What's the formula?	Calculate and duplicate	Event planning	Presenting data
Year 6 Term 5 3D Modelling	What is 3D modelling?	Making changes	Rotation and position	Making holes	Planning my own 3D model	Making my own 3D model
Year 6 Term 6 – Sensing using micro:bit	The micro:bit	Go with the flow	Sensing inputs	Finding your way	Designing a step counter	Making a step counter

Progression – Curriculum Links