Computing Medium Term Plan

Year 4 Computing	Autumn	Spring	Summer
Unit of work	**Online Safety** **Inside a Computer** **Programming in Scratch**	**Animation** **Internet Research**	**Data Handling** **Typing** **3D design**
Link to NC programme of study	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.	Select, use and combine a variety of software on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals. 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. 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.

What we need to know	Know how to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Know how to use sequence, selection, and repetition in programs. Know how to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Know how to use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Know how to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Know how to 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.
Vocabulary	Computer virus, cookies, copyright, digital footprint, email, identity theft, malware, phishing, plagiarism, spam. Motherboard, CPU, RAM, Graphics card, network card, monitor, speakers, keyboard and mouse. Action, alert, algorithm, code, design, control, command, debug, debugging, design mode, event, flowchart bug, input, object, repeat, selection, computer simulation, timer, variable.	Animation, background, frame, flipbook, onion skinning, stop motion, play, sound, video clip. Internet, internet browser, search, search engine, spoof website, website.	Average, advance mode, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer. Font, bold, italic, underline. Animation, background, frame, flipbook, onion skinning, stop motion, play, sound, video clip.

Disciplinary Knowledge	Understand what to do if something upsets you online. Understand why and how people can be un kind 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 the importance of being kind in the real world and also online. Understand the importance of using avatars and how to make them. 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. Use search filters on websites to find suitable information. Program inputs with loops, selection and sensing for interactions. Work with variables and various forms of input and output. Debug programs that accomplish goals.	Create a stop-motion video by duplicating slides that include backgrounds and shapes. Create animation using transition and animation effects (morph, motion paths, pulse etc), including taking and editing a screenshot. Animate individual elements of objects. Create animated GIF files by animating pixels. Appreciate how search results are selected and ranked and show awareness of different strategies for finding specific information. Understand the features of an Internet Browser. 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.	Change appearance of cells in a spreadsheet (fill colour and border) then add and align text. Find and add data to a spreadsheet, resize cells and use the software to create a suitable chart with a title. Use the correct hand position and fingers for touch typing. Develop and assess my touch-typing skills. Understand how to put a keyboard back together. Understand 3D spacial awareness. Add 3D shapes, resize, adjust height, duplicate and use the different perspective. Re-create different types of buildings using 3D shapes. Create roads/paths by adjusting the height of 3D shapes. Add windows and door shapes. Add, move, change colour and duplicate a brick. Rotate bricks. Use sloping bricks and special bricks for a purpose. Change the transparency of bricks.

	(correcting errors) Use selection, data variables and operators. Program a virtual robot using Scratch blocks.		