



Sheldwich Primary School – Computing Progression Map



	EYFS & KS1	KS2
NC Subject Aims	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.	
NC Subject Content	KS1 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.	KS2 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.

	Pre-School	Reception	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
Computing Systems and Networks Understand what a computer is, and how its constituent parts function together as a whole Understand how networks can be used to retrieve and share information, and how they come with associated risks Understand risks when using technology, and how to protect individuals and systems Understand how individuals, systems, and society as a whole interact with computer systems	Show an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.	Know how to operate simple equipment (e.g. turn on CD player or use remote control). Are aware of different types of computers and devices at home. Are familiar with a range of input devices including a keyboard and mouse.	Recognise that a range of technologies are used in places such as homes and schools. Identify the main parts of a computer; be able to switch it on and log in. Demonstrate increasing skill at using a keyboard and mouse to interact with a computer.	Describe some of the uses and features of computers Identify the uses of computing devices in school and at home	Recognise what is a digital device Identify input and output devices Recognise how digital devices can change the way we work Explore how digital devices can be connected Recognise some of the physical components of a network Understand that the internet allows for global communication.	Understand that the internet is a network of computers Describe how networks physically connect to other networks Understand the difference between a web browser, a website and a search engine Recognise that the World Wide Web (www) is one of many ways information is transmitted on the internet.	Understand that computers can be connected together to form systems Recognise the role of computer systems in our lives Describe how search engines select results and explain how those results are ranked Recognise why the order of results is important, and to whom Explore cryptography and understand the importance of password security. [RS	Understand what an IP address is and why they are important Recognise how data is transferred across the internet Explain how sharing information online can help people to work together Evaluate different ways of working together online Identify and evaluate different methods of online communication

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Programming and Computational Thinking Create software to allow computers to solve problems Be able to comprehend, design, create, and evaluate algorithms	Respond to simple instructions, e.g. to get or put away an object.	Respond to instructions involving a two-part sequence Experiment and play with programmable toys (Beebots)	Able to follow and deliver simple word algorithms including the use of directional language. Plan a route for a Bluebot to solve a problem Sequence an animation in Scratch Jr.	Understand that an algorithm is a set of accurate instructions. Create an algorithm in Scratch Jr with a sequence of commands. Examine simple games and consider what steps were needed to make them work. Identify key components of a computer program. Make and test predictions about changes to Scratch Jr algorithms.	Understand the key elements of the Scratch environment (including the stage, sprites, script area, costumes tab, and block palette). Create a simple animation in Scratch including speech, movement and pause blocks to synchronise the action. Debug simple errors in Scratch programs. Use repetition to simplify shape drawing algorithms in Scratch.	Create a simple object avoidance game in Scratch. Use events to control player sprites and repetition to automate NPCs. Use selection and repetition to detect collisions. Explain what variables are used for in programs. Understand what it means to decompose a problem into smaller parts. Use a range of inputs and outputs when coding micro:bits (including the accelerometer, microphone and BLE to transmit data).	Consolidate use of selection, repetition, and variables when designing and coding a Scratch game. Use operators to determine an outcome of a conditional statement. Use logical reasoning to detect and debug mistakes in a program. Begin to use My Blocks in Scratch to become familiar with the idea of a function.	Achieve complex outcomes using a visual programming language. Investigate the physical parameters of the sensors and motors of a robotic vehicle when creating a remote control out of two micro:bits. Compare lists and variables and consider use cases. Use Logo and Python text coding languages to draw with Turtle.

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Data and Information Understand how data is stored, organised, and used to represent real-world artefacts and scenarios	Recognise that computers can be helpful.	Know that information can be retrieved from computers and other devices.		Collect data using tick and tally charts. Sort and classify data using a dichotomous key. Summarize and present data about minibeasts using appropriate software. Use mind-mapping software to present information.		Understand that data can be gathered over time to answer questions and help solve problems. Identify the data needed to answer a given question. Collect, record and analyse data using a data logger (Arduino Science Journal).	Understand the key elements of a spreadsheet, including cells, cell references and how to input data. Use spreadsheets to represent data visually.	Use spreadsheets to collect, structure and format data. Manipulate and calculate data using formulas and functions within a spreadsheet. Use data in a spreadsheet to solve problems and answer questions. Present data using charts and graphs.

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Creating Media Select and create a range of media including text, images, sounds, and video Understand the activities involved in planning, creating, and evaluating computing artefacts Use software tools to support computing work	Show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.	Take digital photos (iPads) Create digital artworks (Purple Mash)	Use a range of tools in a digital art app :brushes, shapes, fill, undo. (Brushes Redux) Record, playback and re-record audio in Scratch Jr and Chrome Music Lab. Experiment with digital instruments and loops. Create and edit text, add images and audio to an eBook in Book Creator.	Use technology to create and present work in a range of digital formats. Take and edit digital photographs Create and edit digital music on Garageband. Use sequencing and looping of notes to create a tune.	Create a PowerPoint presentation about themselves to share with the class. Add slides, use transitions and animations, edit and format text and add images. Create a stop-frame animation in iMotion.	Edit, enhance and manipulate digital photos. Use crop, filters, cloning, selection and layers. (paint.net) Create and share (locally) a blog about a subject of personal interest. (Purple Mash)	Design their own assets for a Scratch game (sprites, backdrops, sound effects, music). Record and produce a short digital film, editing content and including effects. Use hyperlinks within PowerPoint to create an interactive choose your own adventure game.	Manage and manipulate images, audio and video to present to others. Create, edit and publish a school/class magazine using Microsoft Publisher.

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eSafety Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.			Create and understand rules for using technology responsibly	Explain how to use information technology safely Recognise that choices are made when using information technology Understand what personal information is and know what is acceptable to share Know to go to a trusted adult for help	Know how to report concerns about content or contact Know what communication is acceptable online Know how to use search engines safely	Aware of what information is acceptable to share and how to keep data secure Give examples of how social media platforms can be used positively Know that 'online friends' are not always who they say they are and know to keep themselves safe when talking online	Identify which websites they can safely share content from Understand the potential risks of sharing content online Identify reliable sources of information and know not everything online is true Understand and can give examples of how they leave a digital footprint Able to use the internet to research safely	Support one another to protect themselves and make good choices online, including reporting concerns to an adult Know what spam is, how to identify it and ways to protect yourself from it Understand the risks of phishing Perform independent research, searching accurately and safely