

Long term planning- progression of skills for Computing

	EYFS	KS1	LKS2	UKS2
<i>Please add in overarching themes/ national curriculum expectations</i>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>○ Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions;</li> <li>• create and debug simple programs;</li> <li>• use logical reasoning to predict the behaviour of simple programs;</li> <li>• use technology purposefully to create, organise, store, manipulate and retrieve digital content;</li> <li>• recognise common uses of information technology beyond school;</li> <li>• 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.</li> </ul>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts;</li> <li>• use sequence, selection, and repetition in programs; work with variables and various forms of input and output;</li> <li>• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs;</li> <li>• 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;</li> <li>• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content;</li> <li>• 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;</li> <li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	
Multimedia Text and Images	<ul style="list-style-type: none"> <li>• Develop mouse control through simple activities on-screen including click-and-drag, drag-and-drop.</li> <li>• Begin to use a keyboard and develop familiarity with letters, numbers, backspace (to delete), arrow keys and space bar. Use a keyboard in play writing.</li> <li>• Use an interactive whiteboard for mark-making. Explore using a combination of images, sound and text.</li> </ul>	<p>Children use technology purposefully to create, organise, store, manipulate and retrieve digital content</p> <ul style="list-style-type: none"> <li>• add text strings, text boxes and show and hide objects and images, manipulating the features;</li> <li>• use various tools, such as brushes, pens, eraser, stamps and shapes, and set the size, colour and shape;</li> <li>• use applications and devices in order to communicate ideas, work, messages and demonstrate control;</li> </ul>	<p>Children 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. They 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,</p>	<p>Children 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 the skills already developed to create content using unfamiliar technology;</p>

	<ul style="list-style-type: none"> <li>• Explore changing text size, style and colour (with appropriate simple software).</li> <li>• Use templates to make simple labels. Interact and respond to a range of ICT stimuli, including media and ICT texts. Print out work, using appropriate software.</li> <li>• Be aware that text and images on a computer can be printed out.</li> <li>• Be aware that text comes in different colours, sizes and styles.</li> <li>• Be aware that they can interact with multimedia software to make something happen on screen.</li> <li>• Begin to understand that ICT can be used to communicate through text, images and sound.</li> <li>• Be aware that a keyboard and mouse are tools for communicating with a computer</li> <li>• Know how to use simple tools on an interactive whiteboard, e.g., software and pen tools.</li> </ul>	<ul style="list-style-type: none"> <li>• save, retrieve and organise work;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present.</li> </ul>	<p>including collecting, analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>• create different effects with different technological tools, demonstrating control;</li> <li>• use appropriate keyboard commands to amend text on a device;</li> <li>• use applications and devices in order to communicate ideas, work, and messages;</li> <li>• save, retrieve and evaluate work, making amendments;</li> <li>• insert a picture/text/graph/hyperlink from the internet or a personal file;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: draw, object, shape, line, line colour, fill colour, group, ungroup, font, size, text box, format, image, wrap text, plan, link, image, object, link, hyperlink, minimise, restore, size, move, screen, split, create, organise, file, folder, close, exit, search, print, password, screenshot, snipping tool, shift, undo, redo, menu, dictionary, highlight, cursor, toolbar, spellcheck.</li> </ul>	<ul style="list-style-type: none"> <li>• select, use and combine the appropriate technology tools to create effect;</li> <li>• review and improve their own work and support others to improve their work;</li> <li>• save, retrieve and evaluate their work, making amendments;</li> <li>• insert a picture/text/graph/hyperlink from the internet or personal file; f use key vocabulary to demonstrate knowledge and understanding in this strand: window, layout, text, font, colour, format, heading, hyperlink, 2D shape, 3D shape, orbit, pan, zoom, eraser, dimension, measurement, guide.</li> </ul>
<p>Multimedia Sound and Motion</p>	<p>Graphics (Drawing and Painting)</p> <ul style="list-style-type: none"> <li>• Use a paint program or interactive whiteboard software to make marks using simple tools, including changing brushes, fill, colour, and stamps, to communicate their ideas.</li> </ul> <p>Digital Photographs, Video and Animation</p>	<p>Children use technology purposefully to create, organise, store, manipulate and retrieve digital content.</p> <ul style="list-style-type: none"> <li>• use software to record sounds;</li> <li>• change sounds recorded;</li> <li>• save, retrieve and organise work;</li> </ul>	<p>Children 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,</p>	<p>Children 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,</p>

	<ul style="list-style-type: none"> <li>• Interact and explore their environment using multimedia equipment, including digital cameras, video cameras, microscopes, webcams and visualisers to capture still and moving images.</li> <li>• With help, play back captured still or moving images, becoming familiar with the control buttons, e.g., using play, stop and pause.</li> <li>• Use a program that allows children to select objects and animate them.</li> <li>• Be aware that marks can be made on screen as well as paper and that a range of tools can be used to change the effects.</li> <li>• Be aware that there are various ways of capturing still and moving images.</li> <li>• Be aware that still and moving digital images can be transferred to the computer, saved and reviewed.</li> <li>• Be aware that still objects can be animated using the computer.</li> <li>• Explore ways of making and listening to sounds using simple programs and devices, e.g., karaoke machines, music mats and piano keyboards.</li> <li>• With help, use buttons to play back sounds on a computer and a sound player.</li> <li>• Record sounds and speech using a microphone and computer or a recording device, e.g., talking tins, recording pens, talking postcards.</li> <li>• Choose pre-recorded sounds within a piece of software.</li> <li>• Experiment with pitch and sound using simple programs and tools.</li> <li>• Be aware that computers and other devices can be used to record and play back sounds.</li> <li>• Be aware that sound can be recorded on a computer or a sound device.</li> </ul>	<ul style="list-style-type: none"> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: commands, add sound.</li> </ul>	<p>evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>• use software to record, create and edit sounds and capture still images;</li> <li>• change recorded sounds, volume, duration and pauses; c use software to capture video for a purpose;</li> <li>• crop and arrange clips to create a short film; e plan an animation and move items within each animation for playback;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: audio, sound, video, movie, embed, link, file format, animate, animation, still image, thaumatrope, zoetrope, zoopraxiscope, stereoscope, flip book, frame, onion skinning, loop, frame rate, record, stop, play, stop motion, stop frame.</li> </ul>	<p>analysing, evaluating and presenting data and information.</p> <ul style="list-style-type: none"> <li>• collect audio from a variety of resources including own recordings and internet clips;</li> <li>• use a digital device to record sounds and present audio;</li> <li>• trim, arrange and edit audio levels to improve quality;</li> <li>• publish their animation and use a movie editing package to edit/refine and add titles;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: audio, record, edit, play stop, skip, waveform, input, output, record, edit, play podcast, digital content, downloadable, backing track, voiceover, mute, gain, production, post-production, documentary, project, evaluation, screening, ceremony, upload.</li> </ul>
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	<ul style="list-style-type: none"> <li>• Be aware that a range of ICT software and equipment can be used to select, control and change sounds.</li> </ul>			
Handling data	<ul style="list-style-type: none"> <li>• Use a shortcut such as an icon on the desktop to navigate to a specific website.</li> <li>• Explore a teacher-selected website or CD ROM to find a desired page, using hyperlinks and navigation buttons.</li> <li>• Be aware that ICT sources, e.g., Busy Things, and the Internet can be used to find things out. Be aware that information can be in different forms, e.g., video, pictures and sound, as well as text.</li> <li>• Be aware of what to do if they see something they do not like on a website, e.g., how to turn the monitor off, tell an adult, use back buttons to return to the home page.</li> </ul>		<p>Children 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.</p> <ul style="list-style-type: none"> <li>• talk about the different ways data can be organised;</li> <li>• sort and organise information to use in other ways;</li> <li>• search a ready-made database to answer questions;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table.</li> </ul>	<p>Children 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.</p> <ul style="list-style-type: none"> <li>• construct data on the most appropriate application;</li> <li>• know how to interpret data, including spotting inaccurate data and comparing data;</li> <li>• use keyboard shortcuts and functions to input data on spreadsheets and create formulas for spreadsheets;</li> <li>• add data to an existing database; use key vocabulary to demonstrate knowledge and understanding in this strand: Google Docs, insert, table, spreadsheet, cell, row, column, formula/formulas, calculate, format, edit, insert, ascending, descending.</li> </ul>
Technology in Our Lives	<ul style="list-style-type: none"> <li>• Use different forms of electronic communication in free play, e.g., email, mobile phones, hand-held devices, walkie-talkies, sound recording devices.</li> <li>• Explore simple web-based communication tools with adult support, e.g., on the VLE (Busy Things, J2E).</li> </ul>	<p>Children recognise common uses of technology beyond school. They use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p> <ul style="list-style-type: none"> <li>• recognise ways that technology is used in the home and community, e.g. taking photos, blogs, shopping;</li> </ul>	<p>Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.</p>	<p>Children 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. They use search technologies effectively, appreciate how results are selected and ranked, and are discerning in evaluating digital content.</p>

	<ul style="list-style-type: none"> <li>• Participate in simple video conferencing and webcam activities with adult help.</li> <li>• Be aware of the use of different forms of electronic communication via teacher-led activities and free play, e.g., sending an email to another class.</li> <li>• Be aware that there is a range of ICT tools for communicating, e.g., webcams, text and email.</li> </ul>	<ul style="list-style-type: none"> <li>• use links to websites to find information; recognise age-appropriate websites;</li> <li>• use safe search filters;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure.</li> </ul>	<ul style="list-style-type: none"> <li>• explain ways to communicate with others online;</li> <li>• describe the world wide web as the part of the internet that contains websites;</li> <li>• add websites to a favourites list;</li> <li>• use search tools to find and use an appropriate website and content; e use strategies to improve results when searching online;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: filter, Google, search engine, image, keyboard, email, subject, address, communicate, sender, safe, secure, internet, world wide web, social media.</li> </ul>	<ul style="list-style-type: none"> <li>• search for information using appropriate websites and advanced search functions within Google;</li> <li>• use strategies to check the reliability of information (cross-check with another source such as books);</li> <li>• talk about the way search results are selected and ranked; d check the reliability of a website, including the photos on site;</li> <li>• tell you about copyright and acknowledge the sources of information;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: world wide web, search, search engine, advanced search, results, Google, browser, terms of use, bias, authority, citation, plagiarism, source, website, secure, https, site, domain, website, browser, address bar.</li> </ul>
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<p>Coding and Programming</p>	<ul style="list-style-type: none"> <li>• Collect information, e.g., by taking photographs or collecting objects.</li> <li>• Begin to sort, classify or group various objects progressing from practical activities to the use of ICT, e.g., practically sorting fruit into colours, types or shapes, and then on-screen.</li> <li>• Use ICT to sort and sequence objects on a screen or interactive whiteboard.</li> <li>• Produce simple pictograms with help.</li> <li>• Be aware that information can be sorted both practically and by using a computer program.</li> <li>• Have an awareness of how a computer allows: objects to be moved around easily on screen changes to be made easily changes to be saved information to be revisited at another time and changes made.</li> <li>• At this stage, children should be made aware of everyday devices that sense data, e.g., bar codes, metal detectors, simple sound recorders, automatic doors, light sensors, stick-on thermometer strips.</li> <li>• Be aware that digital devices e.g., thermometers, metal detectors, and sound monitors can be used to show external changes.</li> <li>• Use a variety of electronic toys in play situations, e.g., dance mats, Bee-Bots, and remote control toys, using basic directional language. Explore toys that simulate control devices e.g., traffic lights, scanner, microwave, cash tills, with the intention of finding out how it works.</li> </ul>	<p>Children understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. They create, debug and use logical reasoning to predict the behaviour of simple programs.</p> <ul style="list-style-type: none"> <li>• give commands one at a time to control direction and movement, including straight, forwards, backwards, turn;</li> <li>• control the nature of events: repeat, loops, single events and add and delete features;</li> <li>• give a set of instructions to follow and predict what will happen;</li> <li>• improve/change their sequence of commands by debugging; e use key vocabulary to demonstrate knowledge and understanding in this strand: algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink.</li> </ul>	<p>Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <ul style="list-style-type: none"> <li>• use logical thinking to solve an open-ended problem by breaking it up into smaller parts;</li> <li>• write a program, putting commands into a sequence to achieve a specific outcome;</li> <li>• give a set of instructions to follow and predict what will happen;</li> <li>• keep testing a program and recognise when it needs to be debugged;</li> <li>• use variables to create an effect, e.g. repetition, if, when, loop; f use key vocabulary to demonstrate knowledge and understanding in this strand: decompose, decomposing, logical sequence, flowchart, sprite, block, command, algorithm, answer, correct, errors, program, algorithm, instructions, commands, forward (fd), left (lt), right (rt), move, turn, clear screen (cs), variable.</li> </ul>	<p>Children design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; they solve problems by decomposing them into smaller parts. They use sequence, selection, and repetition in programs and work with variables and various forms of input and output. They use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</p> <ul style="list-style-type: none"> <li>• use external triggers and infinite loops to demonstrate control;</li> <li>• follow a sequence of instructions, e.g. in a flowchart and modify a flowchart using symbols;</li> <li>• use conditional statements and edit variables;</li> <li>• decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program;</li> <li>• keep testing a program and recognise when it needs to be debugged;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: flowchart, algorithm, control, output, symbol, start, stop, delay, process, decision, loop, backdrop, script, block, repeat, commentary, sequence, consequence, debug, program, Kodu, world, object, tool</li> </ul>
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	<ul style="list-style-type: none"><li>• Explore the commands needed to control a range of electronic toys.</li><li>• Control simple games on-screen using the arrow keys.</li><li>• Be aware that some devices need commands to operate and control them, e.g., traffic lights, car park barrier, games consoles.</li><li>• Understand what commands are needed to control different devices, e.g., make a noise to activate a toy; press a button to make it work.</li><li>• Be aware that the computer keyboard can be used to control objects on screen.</li><li>• Begin to understand that computers can represent real or imaginary situations.</li><li>• Be aware that different choices made using a program on the computer can produce different outcomes.</li><li>• Be aware that computers can make imaginary things happen on-screen, which may not happen in everyday life.</li></ul>			palette, program environment, smooth, flatten, raise
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<p>Online Safety</p>	<p>Children identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</p> <ul style="list-style-type: none"> <li>• seek help from an adult when they see something that is unexpected or worrying;</li> </ul>	<p>Children can use technology safely and respectfully, keeping personal information private; they identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.</p> <ul style="list-style-type: none"> <li>• identify what things count as personal information;</li> <li>• identify what is appropriate and inappropriate behaviour on the internet;</li> <li>• agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;</li> <li>• seek help from an adult when they see something that is unexpected or worrying;</li> <li>• demonstrate how to safely open and close applications and log on and log off from websites;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet.</li> </ul>	<p>Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.</p> <ul style="list-style-type: none"> <li>• reflect on their own digital footprint and behaviour online;</li> <li>• identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying;</li> <li>• agree and follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords;</li> <li>• seek help from an adult when they see something that is unexpected or worrying;</li> <li>• demonstrate understanding of age-appropriate websites and adverts;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, internet, world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.</li> </ul>	<p>Children use technology safely, respectfully and responsibly. They recognise acceptable/unacceptable behaviour and identify a range of ways to report concerns about content and contact.</p> <ul style="list-style-type: none"> <li>• protect their password and other personal information;</li> <li>• be a good online citizen and friend;</li> <li>• judge what sort of privacy settings might be relevant to reducing different risks;</li> <li>• seek help from an adult when they see something that is unexpected or worrying;</li> <li>• discuss scenarios involving online risk;</li> <li>• use key vocabulary to demonstrate knowledge and understanding in this strand: spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal.</li> </ul>
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