Sandfield Primary School – Computing skills and progression document 2023 24

Subject Intent: Children are digital natives and technology is their go-to resource. We want our Sandfield children to be computational thinkers and problem-solvers with technology. We will provide children with key skills they can apply in every aspect of their lives. We want children to have a clear understanding of the pros and cons of the internet and how to stay safe whilst using electrical devices and the internet.

Computer Science	Information Technology	Digital Literacy
Computational Thinking	Word Processing / Typing	Self Image & Identity
Coding / Programming	Data Handling	Online Relationships
Computer Networks	Presentations, Web Design & eBook Creation	Online Reputation
	Animation	Online Bullying
	Video Creation	Managing Online Information
	Photography & Digital Art	Health, Wellbeing and Lifestyle
	Augmented Reality & Virtual Reality	Privacy & Security
	Sound	Copyright & Ownership

	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
NC objectives	Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	• Co2/1.1 understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. • Co2/1.2 create and debug simple programs • Co2/1.3 use logical reasoning to predict the behaviour of simple programs		• Co2/1.1 design, write and debug programs that accomplish specific goals, including controlling or stimulating physical systems; solve problems by decomposing them into smaller parts. • Co2/1.2 use sequence, selection and repetition in programs; work with variables and various forms of input and output • Co2/1.3 use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • Co2/1.4 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			
Comp Science 1 **Comp Think**	Children will know • How to follow simple oral algorithms • Spot simple patterns • Sequence simple familiar tasks	Children will know • What algorithms are • How to write simple algorithms • That the sequence of algorithms is important • How to debug simple algorithms • That algorithms are implemented as programs on digital devices	Children will know • How to write algorithm for everyday tasks • How to use logical reasoning to predict the outcome of algorithms • That decomposition is breaking objects/processes down • How to implement simple algorithms on digital devices • How to debug algorithms	Children will know • How to create algorithms for use when programming • How to decompose tasks (Such as animations) into separate steps to create an algorithm • That abstraction is focusing on important information • How to identify patterns in an algorithm • How to use repetition in algorithms	Children will know • How to use abstraction to focus on what's important in their design • How to write increasingly more precise algorithms for use when programming • How to use simple selection in algorithms • How to use logical reasoning to detect and correct errors in programs	Children will know • How to solve problems by decomposing them into smaller parts • How to use selection in algorithms • How to recognise the need for conditions in repetition within algorithms • How to use logical reasoning to explain how a variety of algorithms work • How to use logical reasoning to detect and correct errors in algorithms • How to evaluate their work and identify errors	Children will know • How to recognise, and make use of, patterns across programming projects • How to write precise algorithms for use when programming • How to identify variables needed and their use in selection and repetition • How to decompose code into sections for effective debugging • How to critically evaluate their work and suggest improvements
Apps and DARES projects	NA	Bee bots Daisy the Dino					

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Comp Science 2 **Coding & Programming**	Children will know • How to use a mouse, touch screen or appropriate access device to target and select options on screen • How to input a simple sequence of commands to control a digital device with support	Children will know • How to create a simple program – eg sequence of instructions for a Bee Bot • How to sequence in programs • How to locate and fix bugs in their programs	Children will know • That programs execute by following precise and unambiguous instructions • How to create programs on a a variety of digital platforms • How to debug programs of increasing complexity • How to use logical reasoning to predict the outcome of simple programs	Children will know • How to design and create programs • How to write programs that accomplish specific goals • How to use repetition in programs • How to work with various forms of input	Children will know • How to use simple selection in programs • How to work with various forms of output • How to use logical reasoning to systematically detect an correct errors in programs	Children will know • How to create programs by decomposing them into smaller parts • How to use selection in programs • How to use conditions in repetition commands • How to work with variables • How to create programs that control or simulate physical systems • How to evaluate their work and identify errors	Children will know • How to use a range of sequence, selection and repetition commands combined with variables as required to implement their design • How to create procedures to hide complexity in programs • How to identify and write generic code for use across multiple projects • How to critically evaluate their work and suggest improvements • How to identify and use basic HTML tags (See Comp Net obj)
Apps & DARES proj	Bee Bots **Daisy the dinosaur**	Bee bots Kodable Tynker **Daisy the dinosaur Scratch Jnr Robot helper**		Bee bot Scratch Jnr Kodable Tynker Scratch 3 Hopscotch Swift Playgrounds **Microbit LED animations Microbits & Makecode** **Microbit get off my stuff Microbits & Makecode**		Bee bot Scratch Jnr Kodable Tynker Scratch 3 Hopscotch Swift Playgrounds Sphero **Coding with Tinkercad & Coding patterns with Tinkercad** **Coding challenges (sphero) & Coding mazeworld (sphero)**	

NC obj	EYFS	• Y1	Y2	Y3	Y4	Y5	Y6
				• 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 can be discerning in evaluating digital content			
Comp Science 3 **Computer Networks (KS2 only)**	•		•	Children will know • That computers in a school are connected together in a network • Why computers are networked • The difference between the internet and the World Wide Web (www.)	Children will know • How to that servers on te internet are located across the planet • How email is sent across the internet • How the internet enables us to collaborate	Children will know • How we view web pages on the internet • How to use search technologies effectively • That web spiders index the web for search engines • How pages are ranked in a search engine	Children will know • What HTML is and recognise HTML tags • A range of HTML tags and can remix a web page • How to create a webpage using HTML
Apps & DARES proj				**Network explorer** **Adobe Spark Video**		**Search Engines** **Adobe Spark**	

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Information Technology **Data handling**	• Children will know: • how to identify a chart • How to sort physical objects, take a picture and discuss what they have done • How to present simple data on a digital device	Children will know: • how to sort images or text into two or more categories on a digital device • How to collect data on a topic • How to create a tally chart and pictogram • How to record myself explaining what I have done and what it shows me	Children will know: • How to sort digital objects into a range of charts such as Venn diagrams, Carroll diagrams and bar charts using different apps and software. • How to orally record myself explaining what the data shows me • How to create a branching database using questions	Children will know: • how to create their own sorting diagram and complete a data handling activity with it using images and text • How to start to input simple data into a spreadsheet • How to create a feelings chart exploring a story or character's feelings	Children will know: • How to create their own online multiple choice questionnaire • How to input data into a spreadsheet and export the data in a variety of ways – charts, bar charts, pie charts • How data is collected	Children will know: • How to create and publish their own online questionnaire and analyse the results • How to use simple formulae to solve calculations including =sum and other statistical functions • How to edit and format difference cells in a spreadsheet	Children will know: • How to write spreadsheet formula to solve more challenging maths problems • How to create and publish their own online quiz with a range of media (images & video)
Apps & DARES proj	Seesaw	Plickers Google Sheets Google Forms Excel Numbers **Pictograms Venn Diagram Seesaw Pic Collage**		Google sheets Google forms Excel Numbers Kahoot Mentimeter **Online questionnaire Google forms**		Google sheets Google forms Excel Numbers Kahoot Mentimeter **Google sheets**	

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Info Tech Word Proc & Typ	Children will know: • How to play on a touch screen game and use computers/keyboards/mouse in role play • How to type letters with increasing confidence using a keyboard and tablet • How to dictate short, clear sentences into a digital device	Children will know: • How to confidently type words quickly and correctly on a digital device • How to use the space bar to make space and 'delete' key to delete letters/words • How to make a line using enter/return • How to dictate into a digital device more accurately and with punctuation	Children will know: • How to use the space bar only once between words and use touch to navigate to words & letters to edit • How to copy and paste images and text • How to use caps lock for capital letters • How to add images alongside text in a word processed document • How to dictate longer passages into a digital device with accurate punctuation	Children will know: • How to use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g and use right fingers for h/j/k/l • How to edit the style and effect of my text and images to make my document more engaging and eye-catching (eg borders and shadows) • How to use cut, copy & paste to quickly duplicate and organise text	Children will know: • How to combine digital images from different sources, objects and text to make a final piece of a variety of tasks • How to confidently & regularly use text shortcuts such as cut, copy & paste & delete to organise text • How to use font sizes appropriately for audience and purpose • How to use spell check & thesaurus including through siri & other AI technology	Children will know: • How to start to apply other useful effects to their documents such as hyperlinks • How to import sounds to accompany and enhance the text in their document • How to organise and reorganise text on screen to suit a purpose	Children will know: • How to choose the best application to demonstrate their learning • How to format text to suit a purpose • How to publish their documents online regularly and discuss the audience and purpose of their content
Apps & DARES proj	Seesaw word pages google docs pic collage book creator popplet keynote			Seesaw word pages google docs keynote book creator popplet		Seesaw word pages google docs keynote book creator popplet	

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Info Tech **Pres, web des & eBook Creat**	Children will know: • How to record their voice over a picture • How to create a simple digital collage • How to move & resize images with their fingers or mouse	Children will know: • How to add labels to an image • How to order images to create a simple storyboard • How to create a simple spider diagram • How to sequence a series of pictures to explain their understanding of a topic	Children will know: • How to add voice labels to an image • How to add a voice recording to a storyboard • How to add speech bubbles to an image to show what a character thinks • How to import images to a project from the web and camera roll	Children will know: • How to create an interactive comic with sounds, formatted text and video • How to annotate an image with videos • How to create a simple web page • How to create a simple timeline/mindmap	Children will know: • How to create an interactive quiz eBook introducing hyperlinks • How to create an eBook with text, images and sound • How to create a presentation demonstrating my understanding with a range of media • How to create a digital timeline/mindmap and include different media – sound & video	Children will know: • How to collaborate with peers using online tools – eg blogs, Google Drive, Office 365 • How to create and export an interactive presentation including a variety of media, animations, transitions and other effects • How to create an interactive guide to an image by embedding digital content and publishing it online • How to create a webpage and ember video	Children will know: • How to create a web site which includes a variety of media • How to design an app prototype that links multimedia pages together with hyperlinks • How to choose applications to communicate to a specific audience • How to evaluate my own content and consider ways to improve it
Apps & DARES proj	Seesaw Balloon Stickies+ Thinglink pic collage book creator **Storyboard Pic collage Seesaw**			Seesaw Balloon Stickies+ Google sites Bok creator Keynote Adobe Spark Page Thinglink Powerpoint **Digital posters Adobe Express**		Seesaw Balloon Stickies+ Google sites Bok creator Keynote Adobe Spark Page Thinglink Powerpoint Wakelet **App prototype Keynote**	
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Info Tech **Video Creation**	Children will know: • The difference between a photo and a video • How to record a short film using the camera • How to record and play a film • How to watch films back	Children will know: • How to record a film using the camera app • How to select images and record a voiceover • How to highlight and zoom into images as I record	Children will know: • How to write and record a script using a teleprompter tool • How to use tools to add effects to a video • how to begin to use green screen techniques with support	Children will know: • How to sequence clips of mixed media in a timeline and record a voiceover • How to trim and cut film clips and add titles and transitions • How to independently create a green screen clip • How to create my own movie trailer	Children will know: • How to add music and sound effects to their films • How to add animated titles and transitions • How to add simple subtitles to a video clip • How to confidently use green screen to add animated backgrounds	Children will know: • How to use cutaway and split screen tools in iMovie • How to evaluate and improve the best video tools to best explain their understanding • How to further improve green screen clips using crop and resize & explore more creative ways to use the tool – wearing green clothes and the masking tool	Children will know: • How to use the green screen masking tool with more than one character • How to use picture in motion tools in iMovie • How to add animated subtitles to their film to further enhance their creation • How to create videos using a range of media – green screen, animations, film and image
Apps & DARES proj	iPad Camera App Doink Greenscreen iMovie Shadow Puppets Edu Adobe Spark Video **Masking Storytime Doink Greenscreen iMovie**			Doink Greenscreen iMovie Shadow Puppets Edu Adobe Spark Video Videorama Apple Clips Explain everything **Voiceover iMovie**		Doink Greenscreen iMovie Shadow Puppets Edu Adobe Spark Video Videorama Apple Clips Explain everything **News Report Doink Greenscreen iMovie**	

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Info Tech **Anim ation**	Children will know: • How to animate a simple image to speak in role • How to create a simple animation to tell a story including more than one character	Children will know: • How to add filters and stickers to enhance an animation of a character • How to create an animation to tell a story with more than one scene • How to add their own pictures to their story animation	Children will know: • How to create multiple animations of an image and edit these together • How to create a simple stop motion animation • how to explain the process of an animation/flip book and its' workings	Children will know: • How to create animations of faces tospeak in role with more life-like realistic outcomes • How to improve stop animation clips with techniques like onion skinning • How to use animation tools in presenting software to create simple animations	Children will know: • How to take multiple animations of a character I have created and edit them together for a longer video • How to use software to create a 3D animated story • How to use line draw tool to create animations	Children will know: • How to record animations of different characters and edit them together to create an interview • How to add green screen effects to a stop motion animation • How to create a flip book animation using digital drawings and export as a Gif or video	Children will know: • How to mix animations and video recordings of themselves to create video interviews • How to plan, script and create a 3D animation to explain a concept or tell a story • How to choose and create different types of animations to best explain their learning
Apps & DARES proj	Puppet Pals Chatterpix Kids I Can Animate Seesaw **Animated Character Chatterpix Kids Seesaw**			Puppet Pals Chatterpix Kids Animate Anything I Can Animate Seesaw iFunface Plotagon Puppetmaster Toontastic **Line Draw Animation Keynote**		Puppet Pals Chatterpix Kids Animate Anything I Can Animate Seesaw iFunface Plotagon Puppetmaster Toontastic **3D Animation Plotagon**	

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Info Tech **Photography & Digital Art**	Children will know: • How to take a photograph • How to take a photograph and use it in an app • How to use a painting app and explore the paint and brush tools	Children will know: • How to edit a photo with simple tools • How to use a paint/drawing app to create a digital image • how to begin to cut out an image to layer on another image	Children will know: • How to edit a photo (crop, filters, mark up etc) • How to select and use tools to create digital imagery – controlling the pen and using the fill tool • How to cut images with accuracy to layer on other images	Children will know: • How to confidently take and manipulate photos • How to create a digital image using a range of tools, pens, brushes and effects. • How to create transparent images with Instant Alpha	Children will know: • How to enhance digital images and photographs using crop, brightness, contrast and resize • To manipulate shapes to create digital art • How to draw a series of images and export as an animated GIF	Children will know: • How to make a digital photo using camera settings • How to enhance digital photos and images using crop, brightness and resize tools • How to link and explain how to photoshop images ad how this is used in the media	Children will know: • How to edit a picture to remove items, add backgrounds, merge 2 photos • How to evaluate and discuss images explaining effects ad filters that have been used to enhance the media • How to use a 3D drawing app to create a realistic representation of world objects
Apps & DARES proj	Seesaw Camera Mark up Photo Booth Draw & Tell Keynote Pic Collage Notes **Photoshopping Pic Collage Seesaw**			Camera and Mark Up Notes Seesaw Keynote Pic Collage Sketches Pro Paper **Digital Self Portrait Keynote**		Camera and Mark Up Notes Seesaw Keynote Pic Collage Sketches Pro Paper	

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Info Tech **Aug ment ed Reali ty & Virtu al Reali ty**	Children will know: • How to scan a QR code • How to explore a 360 image • How to talk about AR objects in my class	Children will know: • How to explore an interactive 360 image • How to scan a trigger image to begin a AR experience • How to pretend to interact with AR objects	Children will know: • How to draw a 360 image and explore it in VR • How to bring objects into their surroundings using augmented reality • How to create their own QR code	Children will know: • How to create their own digital 360 image and explore it in VR • How to create their own images and bring it into their surroundings through AR	Children will know: • How to create their own 360 video • How to use the camera to create a 360 image • How to add multiple objects into their surroundings through AR to explain a concept	Children will know: • How to create an interactive VR experience • How to create an animated object and bring it into their surroundings through AR • How to create an AR experience using objects they have created to explain a concept	Children will know: • How to create and upload their own VR Google Expedition • How to create an interactive poster using AR • How to explain how AR ad VR works
Apps & DARE S proj	AR Makr Google Expeditions Figment AR LEO AR Camera Thinglink Keynote **Storytelling with AR AR Makr**			Camera and Mark Up Notes Seesaw Keynote Pic Collage Sketches Pro Paper **Design a Playground Tinkercad Invent a Toy Tinkercad**		AR Makr Abobe Aero Thinglink Keynote Google Tour Creator Google Expeditions Eyejack Merge Cube Figment AR **Interactive AR scene Reality Composer**	

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Info Tech	Children will know: • How to record sounds with different resources • How to find ways to change your voice (tube, tin can, shouting to create an echo) • How to record sounds/voices in storytelling and explanations	Children will know: • How to create a sequence of sounds (instruments, apps/software) • How to explore short and long sounds • How to record my voice and add different effects	Children will know: • How to create a musical composition using software • How to record their own sound effects • How to record their voice over a composition to perform a song	Children will know: • How to create and edit purposeful compositions using music software to create mood or a certain style • How to experiment with live loops to create a song	Children will know: • How to edit sound effects for a purpose • How to create a simple four chord song following the correct rhythm • How to record a radio broadcast or audiobook	Children will know: • How to add voice over and edit sound clips (volume, pitch, fade, effect) to create a podcast • How to create a remix of a popular song	Children will know: • How to add voice over and edit sound clips (volume, pitch, fade, effect) to use in film or radio broadcast (podcast) • How to compose a soundtrack that can be added to a film project
Apps & DARES proj	Seesaw Voice Memos Keezy Garageband Achor **Podcasting Keezy**			Camera and Mark Up Notes Seesaw Keynote Pic Collage Sketches Pro Paper **Movie Soundtrack iMovie Garageband**		Seesaw Voice Memos Garageband Anchor Keezy **Podcasting Garageband**	