Computing Overview 2019 - 2020

Computing skills in EYFS

Supporting Mathematics using computing

- Explore an online number environment (maths city; part of purple mash)
- Drag and drop objects to help sort and sequence
- Label missing numbers on a number line
- Show their understanding of shapes and numbers using pen tools
- Create graphs and pictograms
- Use paint to create one to one correspondence between drawings and numbers

Supporting Reading using computing

- Use ipads to play phonic games
- Operate equipment to play audio books (cBeebies / oxford owl)
- To record sound effects for stores and play them back
- Begin to create digital content; text, drawing, pictures and sound

These strands will be taught alongside the EYFs curriculum throughout the year
(Online safety to be taught across the year)

Music Area

- Understanding the differences between electronic music and music played on a physical, acoustic instrument
- Explore the different sounds that can be produced using electronic equipment and compose their own music
- Use appropriate language to describe the features of music

Fine Motor

- Develop good mouse skills with both integral and external equipment
- Successfully manipulate fine controls
- Explore and investigate digital toys
- Edit simple text size, font and colour
- Edit the appearance of digital images using simple software

Art, Design & Technology Area

- Using recording devices to talk about processes
- Create animations from images they have created
- Use technology to enhance their creations
- Use painting programs to be creative

Graphics

- Recognise a range of technology is used in places such as homes and schools (ELG)
- Develop typing skills
- To write digitally using a computer keyboard as well as a tablet

Role Play Area

- Enhance role play by incorporating music in to their play
- Develop children's narrative play by encouraging the use of old phones, sound buttons, tape recorders / voice recorders

Construction

- Use ipads and computers to research information about structures
- Use sound buttons and voice recorders to record instructional language
- Use software and apps to design and record how models have been made

Investigation Area

- Collect data during a survey
- Explore devices that monitor sound, light or temperature
- Select and use technology for particular purposes (ELG)
- Explore and build simple on screen pictograms (with support)

Small World Area

- Explore virtual worlds and compare these with real life situations
- Use simple instructional language to play robots and to control simple onscreen and physical devices
- Explore and investigate digital toys

	Autumn	Spring	Summer
Year 1	**Let's Create** Strand – Create & eWorlds • Begin to explore digital texts. • Investigate differences between input and output and hardware and software. • Explore the idea of a network related to computers at home and school, logging on to their area with support. • Use unplugged computing approaches to explore the devices they use. • Consider eSafe practice.	**Visual Information** Strand – Info…Info • Investigate how we derive information from different sources. • Create graphs and charts and make general statements. • Use data-loggers to explore environmental conditions. • Organise objects using branching databases. • Explore how computers might sort objects, noting the process of Repeat. • Build eSafe practice.	**Discovering Programming** Strand – eWorlds • Name the main external parts of a computer and explore how they work together. • Explore programmable devices relating their understanding of inputs and outputs to natural and digital systems. • Use unplugged approaches and simple onscreen and physical devices to develop understanding of algorithms and programming. • Develop their own skills in open programming time.
	Cross curricular links - Geography – Around my school	Cross curricular links - Maths / Science	Cross curricular links - Maths – positional language
	Suggested outcome Select digital resources and carry out the following tasks: • create a picture linked to a curriculum theme (story, poem, rhyme, song explanation etc.) • create a simple sentence related to their picture • create a digital sound recording related to their picture	Suggested outcome • Use appropriate software to organise some existing data in a simple pictogram/chart. • Use this to make some general statements about the data. • Use a branching database to identify specific objects. • Suggestive a "better" alternative for one of the questions in the branching database.	Suggested outcome Using scratchJR and 2code: • Create and write a simple algorithm to instruct a physical and/or onscreen device to achieve an objective or target • Test, debug and refine the program • Predict and test the outcome of a program written by a peer. • Suggest improvements to the program.
Year 2	**Getting Creative** Strand – Create & eWorlds • Use varied devices and software with increased precision. • Revisit differences between input and output and hardware and software. • Develop understanding of networks related to computers at home and school, logging on to their areas. • Build understanding of algorithms using unplugged approaches. • Develop eSafe practice.	**Starting Research** Strand – Info…Info & Digital Research • Develop understanding of researching using non-digital and digital sources, including the World Wide Web. They • Understand the need to check their research results. They • Present their research using charts, graphs and mind maps. • Begin to respect copyright and ownership and know who to talk to if they are worried.	**Messages & Virtual Worlds** Strand – eWorlds & Digital Communication • Explore ways of sending messages using digital and non-digital systems. • Investigate the history of messages. • Explore simple virtual worlds. • Create algorithms linked to their simulations. • Program onscreen characters. • Develop eSafe practice understanding the need to keep personal information private.
	Cross curricular links - History	Cross curricular links -	Cross curricular links - Geography
	Suggested outcome Using imotion create a simple animation by capturing digital images that can be used for a sequencing activity	Suggested outcome As a class, compose questions on a certain topic or area of learning. • use suitable digital resource/s to find the information.	Suggested outcome Using scratch JR to choose a simulation or simple game to explore. As a group, send or post an electronic recommendation about the simulation to someone in the

		• use existing templates or simple software to organise the information they have found. share with peers or others, explaining how they have organised what they have found.	school community.
Year 3	**Bringing Images to Life** Strand – Create & eWorlds • Develop understanding of digital images. • Transform and edit images, respecting copyright and ownership. They • Explore stop animation creating their own versions. • Produce programmed animations, using sequence, repeat and selection.	**Keeping Informed** Strand – Info…Info & eWorlds • Understand the difference between data and information. • Use sensors, data-loggers and other tools as part of their investigations. • Use branching and flat-file databases to enter, organise and search data, deriving information that they present in different forms	**Developing Communication** Strand – Create & Digital Communication • Use online communication tools such as email and blogs to support collaborative learning, safely and respectfully. • Begin to investigate the technology used in digital communication networks. • Use simple sound editing software to record and manipulate sound clips.
	Cross curricular links - English / History	Cross curricular links - Maths / Science	Cross curricular links - Music
	Suggested outcomes Plan and create an animation to convey an idea/message.	Suggested outcomes Design a database that contains a number of different fields.	Suggested outcomes Create a sound project for a given audience/purpose. Share their work via email, blog or other digital communication tool. Evaluate their completed task.
Year 4	**Authoring (digital texts)** Strand – Create • Investigate computing storage capacities and ways of saving data. • Develop understanding of networks and shared drives. • Use varied resources to create digital content, creating and manipulating images and words. • Select and use software to create non-linear content for specific audiences and objectives.	**Accuracy Counts** Strand – Info…Info & Digital Research • Discuss computer networks including the internet and the services it offers. • Explore how search engines work and what influences results, evaluating search engines and using sources. • Learn about the threat from computer viruses, develop understanding of intellectual property and relate this to their own content. • Use spreadsheet software to create graphs and to explore number patterns.	**Programming & Games** Strand – eWorlds • Explore simulations, investigating the structure and exploring how they might be programmed. • Begin to note that abstraction can simplify them. • Decompose tasks, creating and debugging algorithms and understanding how algorithms support the programming process. • Write, test, debug and refine programs to achieve specific objectives, using sequence, repetition and procedures. • Explore selection in digital and natural systems.
	Cross curricular links - History	Cross curricular links - Geography	Cross curricular links -
	Suggested outcomes Plan a non-linear multimedia text for a specific purpose. Choose an appropriate application and create the text. Demonstrate an understanding of copyright and ownership.	Suggested outcomes Carry out research related to a curriculum topic, designing their own research questions and identifying key words. The research should include numerical data. Present the information they have found, including using a spreadsheet to produce appropriate supporting graphs. Evaluate their work and consider how it could be improved further.	Suggested outcomes Design an algorithm for an onscreen programming task which includes repeat functions and ideally procedures. Use an onscreen programming language to write the program. Test, debug and refine their program considering how to improve its efficiency

Year 5	**Sound Works** Strand – Create & eWorlds • Review how digital sound is used in the world and how it has developed over time. • Create multi-track sound recordings for specific audiences, incorporating different content and demonstrating their understanding of the rules for copyright. • Use programming languages to create their own sound clips.	**Data Matters** Strand – Info…Info & Digital Research • Investigate the concept of "big data" and its use in the world. • Review file types and protection. • Explore binary form and develop understanding of computer networks. • Search more efficiently and investigate their digital footprints (or 'digital tattoos'), building safe and responsible use of online spaces. • Create and search flat-file databases, developing accuracy and efficiency.	**Robotics & Systems** Strand –eWorlds • Investigate automated systems in the wider world and the use of sensors within them. • Consider natural systems and use abstraction to represent them. • Create, test, debug and refine algorithms, pseudocode and the related programs using sequence, selection, repetition and variables. • Program physical devices, controlling inputs and outputs, relating to their study of automated systems.
	Cross curricular links - Music	Cross curricular links - PSHE – personal well being	Cross curricular links -
	Suggested outcome To plan and create a multi-track sound recordings using sound editing software to communicate an idea or mood appropriately and safely for a specific audience.	Suggested outcome • Produce a digital resource, selecting software and combining different digital content to inform younger pupils about an aspect of the online world and encourage eSafe practice	Suggested outcome Using scratch and MSW logo: • To plan a program to control a physical/onscreen device which includes input sensors and output devices for a specific brief • Include repetition and selection and use of variables in their program
Year 6	**Staying Connected** Strand – Digital Communication & Digital Research • Develop safe and appropriate use of online technologies. • Considering what they can use and what information is shared about them. • Create blogs for school projects, checking and uploading digital content. • Understand how a wiki works and the benefits of collaborative working. • Know the school's online safety rules and are proactive in encouraging other children to keep safe online.	**Information Models** Strand – Info…Info & eWorlds • Develop expertise in spreadsheets, using both formulae and functions. • Import and analyse data collected on data-loggers. • Use conditional formatting to vary the format of cells and create tools for specific user needs. • Create models, identifying variables and using what-if modelling.	**Morphing Image** Strand – Create & eWorlds • Use 3D graphical modelling to create and explore objects. • Review operating systems. • Evaluate films and animations, going on to create live film or animations for specific audiences. • Demonstrate their understanding of copyright and ownership
	Cross curricular links -	Cross curricular links - Maths – solving problems / PSHE	Cross curricular links - History / Geography
	Suggested outcome Using 2blog & wiki site; • Identify a topic or focus for a class wiki, shared space or similar collaborative collection of documents. • Create a page for the class wiki, using an appropriate	Suggested outcome Using Microsoft excel: • Create a simple spreadsheet model to find possible answers to a real life problem. • Identify the variables within the model, explaining the	Suggested outcome Using 2DIY/ imovie / I can animate: • To create a film, an animation or a 3D graphic to meet a specific need and audience

	style, format and content for the target audience. • Explain the steps taken to ensure that contributions are accurate, unbiased, relevant and respectful of copyright	effect of changing them. • Change the variables to provide a solution to the problem, presenting their answers in a report, using graphs as appropriate. • Explain how the model helped provide solutions to the problem, justifying their choices.	