Computing Planning Overview

___ - Direct link to class topic or literacy text.

	Understanding the world	Literacy	Physical development	Communication and language	Personal, social and emotional development	Mathematics	Expressive arts and design
EYFS	Classrooms could contain a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote controlled cars, walkie-talkies and interactive pets, as part of continuous provision. Digital cameras could be available for pupils to use 'for a particular purpose' (EYFS Framework).	Children could create a story about a Bee Bot's journey, such as around a local area or a country being studied, or they could sequence events within a story being studied. For example, children could guide the Bee Bot between different locations, characters and locations within Little Red Riding Hood. The Barefoot website has Fake Bots available, which children can use instead of a digital device if the Bee Bots are not available for you to use.	Children could be introduced to using a keyboard and mouse, as they are already used to accessing tablets in their home environment. Usage could be linked to phonics sessions, such as through the use of drill and practice games, including Dance Mat Typing, or more creative outcomes, as described when examining the areas below.	Unplugged activities, or those away from the machine, could enable children to give precise instructions verbally, such as through giving instructions to a sandwich making robot, with links made to the importance of using the correct vocabulary, along with speaking clearly and precisely. This could also form part of sessions linked to physical development activities, such as determining rules for certain playground games.	Voice recorders, or the microphone built into a tablet device, could be used to record how pupils are feeling, or to discuss their relationships with others. A range of age-appropriate books are now available for young children to examine online safety, such as Chicken Clicking, Goldilocks (A hashtag cautionary tale) and the free Smartie the Penguin. Using voice and video recorders also allows children to self-evaluate their own speaking.	Controlling devices can give an opportunity to develop pupils' understanding of left and right, along with directional language. Pupils could be asked to guide a device around a shape, or use activities from programming related websites, such as code.org, to develop their understanding further. These activities should be purposeful and linked to an area of the children's interest.	The use of painting and graphics applications, such as the free Doodle Buddy, can allow pupils to take ownership of their work and could even be part of an extended project. Outputs produced could be linked to other uses of technology, such as producing mats for Bee Bots to travel around. Outfits for the device to wear, such as Bee Bot head dresses or Sphero paper cup people, could also be developed.

	Autumn		Spring		Summer	
Year 1	**Autumn 1: Getting Started** Skills covered: • Introducing to logging in and saving own work. • Recognising common uses of information technology. • Knowing what to do if they have concerns about content or contact online. • Creating digital art using an online paint tool. • Locating where keys are on the keyboard. • Developing basic mouse skills.	**Autumn 2: Code Studio** Skills covered: • Learning the rules to safely visit places online. • Sequencing by clicking and dragging to finish puzzles. • Writing instructions to get the Flurb to the fruit. • Programming Scrat the sabre-toothed squirrel to reach the acorn.	**Spring 1: Programming Bee Bots** Skills covered: • Using Bee-Bots to navigate an area and constructing simple algorithms, through the story of The Lion Inside. • Learning how to explore and tinker with hardware to find out how it works. • Applying computing concepts to real world situation in an unplugged activity.	**Spring 2: Code Studio** Skills covered: • Writing programs to help Scrat reach the acorn. • Helping BB-8 collect the scrap metal. • Solving bigger problems using loops with the Flurb. • Using loops to help Scrat the sabre-toothed squirrel to cover more ground.	**Summer 1: *Introduction to Data*** Skills covered: • Learning about what data is and how it can be represented and using these skills to show the findings of a minibeast hunt. • Using technology purposefully to create, organise, store, manipulate and retrieve digital content. • Selecting software appropriately. • Recognising uses of technology beyond school.	**Summer 2: Code Studio Free play/consolidation** Skills covered: • Collecting treasure underground with Laurel the adventurer. • Using loops and patterns to finish the images. • Moving and shouting when given an instruction to model algorithms. • Creating your own game or story.
	Each year group will be expected to implement computing skills in another lesson to ensure computing is taught in a cross-curricular way. - Year 1 – taking photos on iPads					

Year 2	**Autumn 1: What is a computer?** Skills covered: • Exploring exactly what a computer is, identifying and learning how inputs and outputs work. • Understanding what a computer is and the role of individual components. • Understand how computers are used in the wider world and designing their own computerised invention.	**Autumn 2: Code Studio** Skills covered: • Learning about your digital footprint and how to stay safe when visiting websites. • Programming your classmates to step carefully from place to place. • Helping Red the Angry Bird follow the path to the naughty pig. • Creating programs to help the Angry Bird move through the maze.	**Spring 1: *Word processing*** Skills covered: • Using their developing word processing skills, pupils write simple messages to friends and learn why we must be careful about who we talk to online. • Using word processing software to type and reformat text. • Understanding the importance of staying safe online.	**Spring 2: Code Studio** Skills covered: • Helping the Harvester collect vegetables along a path. • Using repeat loops to make sprites have a dance party. • Helping the Harvester collect even more, using loops! • Programming Laurel the adventurer to collect treasure in an open cave.	**Summer 1: International Space Station** Skills covered: • Building on their understanding of how computers sense the world around us, pupils learn how data is collected, used and displayed to keep astronauts safe on board the ISS • Using technology to create and label images and to put data into a spreadsheet. • Considering inputs and outputs to understand how sensors work.	**Summer 2: Code Studio and Free play/consolidation** Skills covered: • Using patterns and loops to finish the images. • Sketching your own smartphone app. • Moving or shouting when given a command to model algorithms. • Using events to create a story or make an interactive game.
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Year 3	**Autumn 1: Book covers** Skills covered: • Using word processing software to design and create an alternative book cover for the book 'Seal Surfer'. • Using technology safely, respectfully and responsibly by searching for appropriate images to use on the alternative book cover.	**Autumn 2: Code Studio** Skills covered: • Learning what to do if something online makes you feel angry, sad, or scared. • Learning about how passwords protect your information, and how to make a good password. • Pretending your classmates are robots and program them to build patterns of stacked cups. • Learning about sequences and algorithms with Angry Birds. • Finding problems in puzzles and practice your debugging skills. • Writing algorithms to help Laurel the Adventurer collect lots of gems!	**Spring 1: Networks** Skills covered: • To understand how computers communicate, children learn about networks and how they are used to share information. • Identifying network components and how data is transferred.	**Spring 2: Code Studio** Skills covered: • Creating beautiful images by programming the Artist. • Creating your very own binary bracelet and learn how computers remember information! • Programming your classmates again, but using loops to solve bigger and more complicated problems. • Helping BB-8 through mazes using loops. • Using loops to help the harvester collect some vegetables. • Avoiding lava to begin learning about conditionals in the world of Minecraft.	**Summer 1: Journey Inside a Computer** • Children learn about the different parts of a computer through role-play and develop their understanding of how they follow instructions. • Understanding what different components of a computer do. • Understanding that programs execute by following precise and unambiguous instructions.	**Summer 2: Code Studio** **Free play/consolidation** Skills covered: • Using loops to create images in with Artist. Playing a fun game to learn about events. • Building your own Flappy Bird game to share with classmates. • Making games in Play Lab. • It's time to get creative and make a game in Play Lab! • Using data to help us understand our world and answer interesting questions. • Collecting data from a Play Lab project and visualising it using different graphs. • End of Course Project – building a project using coding.
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Year 4	**Autumn 1: Using Publisher** Skills covered: • Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals. • Understanding opportunities offered by the World Wide Web for communication and collaboration. **Code Studio** Skills covered: • Programming classmates to draw pictures.	**Autumn 2: Anglo-Saxon Flip Books** Skills covered: • Using search technologies effectively to learn about flip books. • Selecting, using and combining Pivot Animator and Google searches to design and create a flip book that accomplishes a given goal. **Code Studio** Skills covered: • Using code to create artwork in teams. • Learning how to debug code (fixing problems in code). • Making your own video game using specific events. • Repeating blocks to help Scrat reach the acorn as efficiently as possible.	**Spring 1: How the Internet Works** Skills covered: • Understanding computer networks, including the internet. • Identifying components of a network and understand how they used to connect to the Internet.	**Spring 2: Code Studio** Skills covered: • Making art using loops with the Artist. • Creating nested loops. • Playing games that involve earning points under certain conditions to expand our knowledge of conditionals. • Programming Bee to use conditionals when collecting honey and nectar. • Increasing our understanding of while loops. • Using `until` loops in Maze.	**Summer 1: HTMLs** Skills covered: • Recognising that information on the Internet might not be true or correct. • Using technology safely, by recognising acceptable/unacceptable behaviour and knowing what to do when they have concerns about content or contact online. • Understanding that websites can be altered by exploring the code beneath the site. • Designing, writing and debugging programs that accomplish specific goals. • Solving problems by decomposing them into smaller parts.	**Summer 2: Code Studio Free play/consolidation** Skills covered: • Practicing when to use each type of conditional and deciding what to do. • Learning how computers store pictures using a language with only two options. • Learning how to make images using only 0s and 1s. • Discussing the difference between safe and private information. • Time to celebrate by programming your own interactive dance party.
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Year 5	**Autumn 1: Web Pages** Skills covered: • Developing searching skills and learning how to identify trustworthy sources. • Recognising that information on the Internet might be biased. • Knowing how to use key words to quickly find accurate information.	**Autumn 2: Code Studio** Skills covered: • Writing your own programs by sequencing in the maze. • Make images with Artist. Learning about conditionals in the world of Minecraft. • Giving instructions to a computer under certain conditions in a fun and challenging series. • Thinking about what commands are needed to get the appropriate result when playing a game. • Learning how to create and edit sprites.	**Spring 1: Code Studio** Skills covered: • Learning the difference between information that is safe to share and information that is private. • Creating an interactive poster with SpriteLab and applying understanding of sharing personal and private information on the web. • Learning about accessibility and the value of empathy through thinking of and designing accessible solutions for hypothetical apps. • Building understanding of nested loops.	**Spring 2: Mars Rover** Skills covered: • Exploring inputs and outputs as well as Binary numbers to understand how the Mars Rover transmits and receives data. • Understanding how scientists are able to control the Mars Rover to explore another planet. • Recognising that computers transfer data in binary and understand simple binary addition.	**Summer 1: Code Studio** Skills covered: • Use nested loops to create patterns in ice. • Learning about functions through lyrics from songs and creating efficient code. • Making complex drawings more easily with the help of functions. • End of Course Project – finding inspiration and developing a plan to unleash creativity alongside our knowledge of functions.	**Summer 2: Online Safety Leaflets** **Free play/consolidation** Skills covered: • Creating an online safety resource for younger children using tools such as presentation software, video tools or a simple stop-motion animation. • Recognising that information on the Internet might not be true or correct. • Using technology safely, by recognising acceptable/unacceptable behaviour and knowing what to do when they have concerns about content or contact online.
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Year 6	**Autumn 1: Bletchley Park** Skills covered: • Learning about the history of Bletchley Park, including: key historical figures, how the first modern computers were created at as part of a WWII code breaking team and how computers have evolved over time. • Using programming software to understand hacking and relating this to computer cracking codes in WWII.	**Autumn 2: Code Studio** Skills covered: • Using functions for the most efficient code. • Creating and editing sprites. • Creating an interactive project that can be shared with classmates. • Learning what variables are and their functions. • Making fantastic drawings through puzzles using variables that change as the program runs.	**Spring 1: Big Data – QR Codes** Skills covered: • Learning how data is collected and stored by exploring barcodes, QR codes and RFID chips. • Investigating how collecting big data can be used to help people in a variety of different scenarios. • Using a variety of software to design and create a range of programs, systems and content for various functions. • Understanding that computer networks provide multiple services. • Understanding how barcodes and QR codes work.	**Spring 2: Code Studio** Skills covered: • Running simulations on the computer and experimenting by changing variables. • Learning about `for` loops by guiding a bee to nectar. • Using `for` loops to make some jaw-dropping pictures. • Understanding how the internet works. • Learning to program your own sprite behaviours. • Creating an interactive Virtual Pet that looks and behaves however they are programmed to whilst using tools to customise a pet's appearance.	**Summer 1: Skills Showcase** Skills covered: • Reflecting on and showcasing computing skills by creating an entire project around a favourite topic from Year 6. • Showcasing digital literacy skills. • Demonstrating computational thinking skills by designing and debugging programs, using different inputs and outputs. • Understanding how search engines work and knowing how to use them safely and effectively.	**Summer 2: Code Studio Free play/consolidation** Skills covered: • Using events, behaviours, and other concepts to give a pet a life of its own. • Discussing what is and isn't okay to say online. • Discovering crowdsourcing, the process of building a project with a team. • Learning about the challenges and benefits of ownership and copyright. • End of Course Project – finding inspiration and developing a plan to unleash creativity alongside our knowledge of functions.
	Each year group will be expected to implement computing skills in another lesson to ensure computing is taught in a cross-curricular way. - Year 6 – using garage band to compose music					