Hipsburn Primary School: Computing Skills Progression

Early Years Progression for Computing Skills and Knowledge The teaching of computing skills and knowledge begins in the Early Years at Hipsburn Primary School as part of Personal Social and Emotional Development, Physical Development and Understanding of the World curriculum. Alongside this progression grid, effective communication and language skills are an essential part of computing development for our youngest learners.		
Preschool 2 (2-3 year olds)	Personal, Social and Emotional Development	• Begin to show 'effortful control'
	Physical Development	• Develop manipulation and control • Explore different materials and tools
	Understanding the World	• Repeat actions that have an effect
Preschool 2 (3-4 year olds)	Personal, Social and Emotional Development	• Increasingly follow rules, understanding why they are important.
	Physical Development	• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World	• Explore how things work.
Reception	Personal, Social and Emotional Development	• Show resilience and perseverance in the face of a challenge.
	Physical Development	• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Know and talk about the different factors that support their overall health and wellbeing:-sensible amounts of 'screen time'.
	Expressive Arts and Design	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

E-Safety, Programming, Multimedia, Technology in Our Lives and Data Handling using Hipsburn Primary Scheme of Work and Development Matters

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E-Safety			
Year 1	Year 2	Year 3 and Year 4	Year 5 and Year 6
Understand they need to follow certain rules to remain safe when visiting places online	Stay safe online by choosing websites that are good for them to visit & not inappropriate sites	Agree sensible e-safety rules for the classroom	Agree sensible e-safety rules for the classroom
Begin to understand that if you creative something you own it	Explore what cyber-bullying means & what to do when they encounter it	Choose a secure password for age-appropriate websites	Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats
Learn that many websites ask for information that is private & discuss how to responsibly handle such requests	Know that if they put information online it leaves a digital footprint or "trail" & they need to manage it so it's not hurtful	Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button	Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns
Explore how email can be used to communicate with real people within their schools, families & communities	Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results	Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time	Explore using the safe and responsible use of online communication tools e.g. blogs, messaging
Learn that directory sites with alphabetical listings offer one way to find things on the Internet	Discuss criteria for rating informational websites a site.	Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully	
	Realise that not all websites are equally good sources of information	Comment and provide positive feedback on the work of classmates in school or online, or the work of others online	

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Programming					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Physically follow & give each other instructions to move around	Physically follow and give each other forward, backward & turn (right-angle) instructions	Plan & enter a sequence of instructions on a robot specifying distance & turn to achieve specific outcomes, debug the sequence where necessary	Create & edit procedures typing logo commands including pen up, pen down & changing the trail of the turtle	Explore procedures using repeat to achieve solutions to problems with Logo & a floor robot	Record in some detail the steps (the algorithm) that are required to achieve an outcome & refer to this when programming
Explore outcomes when buttons are pressed in sequences on a robot	Articulate an algorithm to achieve a purpose	Test & improve / debug programmed sequences.	Use sensors to 'trigger' an action such as turning the lights on using Probot if it 'goes through a tunnel', or reversing if it touches something	Talk about procedures as parts of a program	Predict the outputs for the steps in an algorithm
Begin to use software to create movement & patterns on a screen	Plan and enter a sequence of instructions to achieve an algorithm, with a robot specifying distance & turn and drawing a trail	Begin to type logo commands to achieve outcomes.	Solve open-ended problems with a floor robot, Logo & other software using efficient procedures to create shapes & letters	Refine procedures to improve efficiency	Increase confidence in the process to plan, program, test & review a program
Begin to identify an algorithm to achieve a specific purpose	Explore outcomes when giving instructions in a simple Logo program	Explore outcomes when giving sequences of instructions in Logo software	Experience a variety of resources to extend knowledge & understanding of programming.	Use a variable to replace number of sides in a regular shape	Write a program which follows an algorithm to solve a problem for a floor robot or other model

Execute a program on a floor robot to achieve an algorithm	Watch a Logo program execute & debug any problems	Use repeat to achieve solutions to tasks	Create an algorithm & a program that will use a simple selection command for a game	Explore instructions to control software or hardware with an input & using if… then… commands	Write a program which follows an algorithm to achieve a planned outcome for appropriate programming software
Use the word debug to correct any mistakes when programming a floor robot	Predict what will happen & test results	Solve open-ended problems with a floor robot & Logo including creating simple regular polygons, making sounds & planning movements such as a dance	Begin to correct errors (debug) as they program devices & actions on screen, & identify bugs in programs written by others	Explore a computer model to control a physical system	Control on screen mimics & physical devices using one or more input & predict the outputs
Begin to predict what will happen for a short sequence of instructions in a program	Talk about similarities & differences between floor robots and logo on screen	Create an algorithm to tell a joke or a simple story	Use an algorithm to sequence more complex programming into order	Change inputs on a model to achieve different outputs	Understand how sensors can be used to measure input in order to activate a procedure or sequence & talk about applications in society
		Sequence pre-written lines of programming into order	Link the use of algorithms to solve problems to work in Maths, Science & DT.	Refine & extend a program	Create variables to provide a score/trigger an action in a game
		Talk about algorithms planned by others & identify any problems & the expected outcome		Identify difficulties & articulate a solution for errors in a program	Link errors in a program to problems in the original algorithm

				Group commands as a procedure to achieve a specific outcome within a program	
				Write down the steps required (an algorithm) to achieve the outcome that is wanted and refer to this when programming.	

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Multimedia					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Record their own voices and play back to an audience	Use an increasing variety of tools and effects in paint programs and talk about their choices	Explore & begin to evaluate the use of multimedia to enhance communication	Explore how multimedia can create atmosphere & appeal to different audiences	Select an appropriate ICT or online tool to create and share ideas.	Identify the purpose for selecting an appropriate online tool
Use a video or stills camera to record an activity	Use templates to make electronic books individually and in pairs	Create & begin to edit presentation documents & text, experimenting with fonts, size, colour, alignment for emphasis & effect	Be confident in creating & modifying text & presentation documents to achieve a specific purpose	Explore the effects of multimedia (photos, video, sound) in a presentation or video and show how they can be modified	Discuss audience, atmosphere and structure of a presentation or video
Create sounds and simple music phrases using ICT tools	Explore the effects of sound and music in animation and video	Use a range of effects in art programs including brush sizes, repeats, reflections	Use art programs & online tools to modify photos for a specific purpose using a range of effects	Develop skills using transitions and hyperlinks to enhance the stricture of presentations	Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience
Add text and images to a template document using an image & word bank	Create own documents, adding text and images	Explore the use of video, animation & green screening	Explore the use of video, animation, & green screening for a specific audience	Use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness	Use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations
Use index fingers (left and right hand) on a keyboard to build words &sentences	Use keyboard to enter text (index fingers left & right hand)	Use ICT tools to create musical phrases	Use ICT tools to create music phrases for a specific purpose	Know how to use text and video editing tools in programs to refine their work	Store presentations and videos online where they can be accessed by themselves and shared with others

Know when & how to use the SPACE BAR (thumbs) to make spaces between words	Know when and how to use the RETURN/ ENTER key. Use SHIFT & CAPS LOCK to enter capital letters. Use DELETE & BACKSPACE buttons to correct text. Create sentences, SAVE & edit later	Amend text & save changes.	Use a keyboard effectively, including the use of keyboard shortcuts	Use online tools to create and share presentations and films	Evaluate the effectiveness of their own work and the work of others
		Use individual fingers to input text & use SHIFT key to type characters	Use font sizes & effects such as bullet points appropriately		
		Amend text by highlighting & using SELECT/ DELETE & COPY/ PASTE	Know how to use a spell check		
		Look at own work & consider how it can be improved for effectiveness	Look at their own, and a friend's work & provide feedback that is constructive & specific		

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Technology in Our Lives					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Recognise uses of technology in their homes and in their community	Begin to understand there are a variety of sources of information and begin to recognise the differences	Save work on the school network, on the Internet and on individual devices	Talk about the school network & the different resources they can access, including the Internet	Identify different parts of computing devices.	Describe different services provided by the Internet & how information moves around the Internet
Understand that there are online tools that can help them create and communicate	Begin to understand what the Internet is and the purposes that it is used for	Talk about the parts of a computer	Frame questions & identify key words to search for information on the Internet	Identify different parts of the Internet	Describe different parts of a computing device & how it connects to the Internet. Connect a computing device to a keyboard, mouse or printer
	Understand the different types of content on websites and that some things may not be true or accurate	Use appropriate tools to collaborate on-line	Consider reliability of information & ways it may influence you	Choose appropriate tools for communication and collaboration and use them responsibly	Identify appropriate forms of online communication for different audiences.
		Use appropriate tools to communicate on-line	Check who the owner is before copying photos, clipart or text	Use effective strategies to search with appropriate search engines	Use search engines as part of an effective research strategy
		Use simple search tools and find appropriate websites		Talk about the different elements on web pages	Describe how search results are selected & ranked
		Talk about the owner of information online		Find out who the information presented on a webpage belongs to.	Acknowledge who resources belong to that they have found on the internet

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Data Handling					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Take photographs, video and record sound to record learning experiences	Take and save photographs, video & record sound to capture learning	Find out information from a pre-prepared database, asking straightforward questions	Plan and create a database to answer questions	Collect and record information using spreadsheets and databases	Use the whole data process – generate, process, interpret, store, and present information – realising the need for accuracy and checking plausibility
Look at how data is representing digitally	Use microscopes or other devices to capture and save magnified images	Contribute towards a database	Identify different types of data	Carry out complex searches (e.g. using and/or; ≤ / ≥)	Select appropriate data tool
Contribute to and interpret a pictogram	Ask questions and consider how they will collect information	Construct and use a branching database	Ask questions carrying out simple searches on a database	Solve problems and present answers using data tools	Identify and present results
	Collect data, generate graphs and charts to find answers	Record data in a variety of ways	Identify inaccurate data	Analyse information and question data	Interrogate a database, refining searches to provide answers to questions
	Save & retrieve the data to show to others	Present data for others	Present data in appropriate format for an audience	Identify poor quality data.	Plan investigations using the outcomes from a data logger to show findings
	Create paper/ object decision trees & explore a branching database	Use a data logger to monitor changes and talk about the outcomes seen	Use a data logger to record and compare individual readings.	Select appropriate use of a data logger for an investigation and interpret the findings	

	Investigate different types of digital data e.g. online encyclopaedias				