

The Ellis COMPUTING Long Term Overview

	Block	<i>EYFS</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
Digital literacy	E-Safety	Use technology safely.	Use technology safely. Keep personal information private. Begin to understand that if you creative something you own it.	Keep personal information private. Know where to go for help if concerned. Develop an awareness of copyright.	Use technology respectfully and responsibly. Know different ways they can get help if concerned. Know and understand copyright.	Recognise acceptable and unacceptable behaviour using technology. Realise that not all websites are equally good sources of information.	Understand they have to make choices when using technology and that not everything is true/safe. Understand how to protect devices from viruses.	Be increasingly aware of potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable. Be able to identify potential scams/virus links.
	Multimedia	Develop an interest in ICT by using age appropriate websites or programs	Use a video or stills camera to record an activity. Use index fingers (left and right hand) on a keyboard to build words and sentences. Know when and how to use the SPACE BAR (thumbs) to make spaces between words.	Use an increasing variety of tools and effects in paint programs and talk about their choices. Use keyboard to enter text (index fingers left and right hand). Know when and how to use the RETURN/ ENTER key. Use SHIFT and CAPS LOCK to enter capital letters. Use DELETE and BACKSPACE buttons to correct text. Create sentences, SAVE and edit later.	Create and begin to edit presentation documents and text, experimenting with fonts, size, colour, alignment for emphasis and effect. Use a range of effects in art programs including brush sizes, repeats, and reflections. Explore the use of video, animation and green screening. Amend text and save changes. Use individual fingers to input text and use SHIFT key to type characters Amend text by highlighting and using SELECT/	Explore how multimedia can create atmosphere and appeal to different audiences Be confident in creating and modifying text and presentation documents to achieve a specific purpose Use art programs and online tools to modify photos for a specific purpose using a range of effects Explore the use of video, animation, and green screening for a specific audience Use a keyboard effectively, including the use of keyboard shortcuts Use font sizes and effects such as bullet points appropriately	Select an appropriate ICT or online tool to create and share ideas. Explore the effects of multimedia (photos, video, sound) in a presentation or video and show how they can be modified Develop skills using transitions and hyperlinks to enhance the structure of presentations. Use a wide range of effects in art programs and online tools, discussing the choices made and their effectiveness Know how to use text and video editing tools in programs to refine their work	Identify the purpose for selecting an appropriate online tool Discuss audience, atmosphere and structure of a presentation or video Collect information and media from a range of sources (considering copyright issues) into a presentation for a specific audience Use sound, images, text, transitions, hyperlinks and HTML code effectively in presentations Store presentations and videos online where they can be accessed by themselves and shared with others

					DELETE and COPY/ PASTE Look at own work and consider how it can be improved for effectiveness		Use online tools to create and share presentations and films	Evaluate the effectiveness of their own work and the work of others
Information Technology	Technology in Our Lives	Recognise purposes for using technology in school and at home. Understand that things they create belong to them and can be shared with others using technology. Recognise that they can use the Internet to play and learn.	Recognise uses of technology in their homes and in their community. Understand that there are online tools that can help them create and communicate.	Begin to understand there are a variety of sources of information and begin to recognise the differences. Begin to understand what the Internet is and the purposes that it is used for. Understand the different types of content on websites and that some things may not be true or accurate.	Save work on the school network, on the Internet and on individual devices. Talk about the parts of a computer. Use appropriate tools to collaborate online. Use appropriate tools to communicate online. Use simple search tools and find appropriate websites. Talk about the owner of information online.	Talk about the school network and the different resources they can access, including the Internet. Frame questions and identify key words to search for information on the Internet. Consider reliability of information and ways it may influence you. Check who the owner is before copying photos, clipart or text.	Identify different parts of computing devices. Identify different parts of the Internet. Choose appropriate tools for communication and collaboration and use them responsibly. Use effective strategies to search with appropriate search engines. Talk about the different elements on web pages. Find out who the information presented on a webpage belongs to.	Describe different services provided by the Internet and how information moves around the Internet. Describe different parts of a computing device and how it connects to the Internet. Connect a computing device to a keyboard, mouse or printer. Identify appropriate forms of online communication for different audiences. Use search engines as part of an effective research strategy. Describe how search results are selected and ranked. Acknowledge who resources belong to that they have found on the internet.
	Data Handling	Collect information as photos or sound files. Use a simple pictogram or set of	Take photographs, video and record sound to record learning experiences.	Take and save photographs, video and record sound to capture learning.	Find out information from a pre-prepared database, asking	Plan and create a database to answer questions. Identify different types of data.	Collect and record information using spreadsheets and databases.	Use the whole data process – generate, process, interpret, store, and present information –

		photos to count and organise information.	Look at how data is representing digitally. Contribute to and interpret a pictogram.	Use microscopes or other devices to capture and save magnified images. Ask questions and consider how they will collect information. Collect data, generate graphs and charts to find answers. Save and retrieve the data to show to others. Create paper/object decision trees and explore a branching database. Investigate different types of digital data e.g. online encyclopaedias.	straightforward questions. Contribute towards a database. Construct and use a branching database. Record data in a variety of ways. Present data for others.	Ask questions carrying out simple searches on a database. Identify inaccurate data. Present data in appropriate format for an audience.	Carry out complex searches (e.g. using and/or; $\leq$ / $\geq$). Solve problems and present answers using data tools. Analyse information and question data. Identify poor quality data.	realising the need for accuracy and checking plausibility. Select appropriate data tool. Identify and present results. Interrogate a database, refining searches to provide answers to questions. Plan investigations using the outcomes from a data logger* to show findings.
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Computer Science

Programming

Help adults operate equipment around the school, independently operating simple equipment. Use simple software to make things happen Press buttons on a floor robot and talk about the movements. Explore options and make choices with toys, software and websites.

Physically follow and give each other instructions to move around. Explore outcomes when buttons are pressed in sequences on a robot. Begin to use software to create movement and patterns on a screen. Begin to identify an algorithm to achieve a specific purpose. Execute a program on a floor robot to achieve an algorithm. Use the word debug to correct any mistakes when programming a floor robot. Begin to predict what will happen for a short sequence of instructions in a program.

Physically follow and give each other forward, backward and turn (right-angle) instructions. Articulate an algorithm to achieve a purpose. Plan and enter a sequence of instructions to achieve an algorithm, with a robot specifying distance and turn and drawing a trail. Explore outcomes when giving instructions in a simple Logo program. Watch a Logo program execute and debug any problems. Predict what will happen and test results. Talk about similarities and differences between floor robots and logo on screen.

Plan and enter a sequence of instructions on a robot specifying distance and turn to achieve specific outcomes, debug the sequence where necessary, test and improve/ debug programmed sequences. Begin to type logo commands to achieve outcomes. Explore outcomes when giving sequences of instructions in Logo software. Use repeat to achieve solutions to tasks. Solve open-ended problems with a floor robot and Logo including creating simple regular polygons, making sounds and planning movements such as a dance. Create an algorithm to tell a joke or a simple story. Sequence pre-written lines of programming into order.

Create and edit procedures typing logo commands including pen up, pen down and changing the trail of the turtle. 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. Solve open-ended problems with a floor robot, Logo and other software using efficient procedures to create shapes and letters. Experience a variety of resources to extend knowledge and understanding of programming. Create an algorithm and a program that will use a simple selection command for a game. Begin to correct errors (debug) as they program devices and actions on screen, and identify bugs

Explore procedures using repeat to achieve solutions to problems with Logo and a floor robot. Talk about procedures as parts of a program. Refine procedures to improve efficiency. Use a variable to replace number of sides in a regular shape. Explore instructions to control software or hardware with an input and using if... then... commands. Explore a computer model to control a physical system. Change inputs on a model to achieve different outputs. Refine and extend a program. Identify difficulties and articulate a solution for errors in a program. Group commands as a procedure to

Record in some detail the steps (the algorithm) that are required to achieve an outcome and refer to this when programming. Predict the outputs for the steps in an algorithm. Increase confidence in the process to plan, program, test and review a program. Write a program which follows an algorithm to solve a problem for a floor robot or other model. Write a program which follows an algorithm to achieve a planned outcome for appropriate programming software. Control on screen mimics and physical devices using one or more input and predict the outputs. Understand how sensors can be used to measure input in order to activate a procedure or sequence and talk

					Talk about algorithms planned by others and identify any problems and the expected outcome.	in programs written by others. Use an algorithm to sequence more complex programming into order. Link the use of algorithms to solve problems to work in Maths, Science and DT.	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.	about applications in society. Create variables to provide a score/trigger an action in a game. Link errors in a program to problems in the original algorithm.
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Year-By-Year Ellis Vocabulary Overview

Block		<i>EYFS</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
Vocabulary	E-Safety	Instructions, camera, share, technology, Google, information, internet.	Emoji, search, selection, website, personal information, link, menu, icon, trusted adult, online, sign in, game, wireless (Wifi), online bullying, , log in, send, follow.	Password, username, interact, images, facts, scan, chat, post / re-post, copyright, backdrop, characters, avatars, fictitious/fake, evaluation, publish, trust, reputation, identity,	Block, digital content, simulation, blog/blogging, consequences, illustrator, untrusted, cyberbully, cyberbullying, reliable, report, sceptical, verify, fake news, 360° Video, authenticate.	Page ranking, hacker, secure (https), PEGI, netiquette, conditional, filters, grieving, cloud computing, positive online communication, online persona, digital footprint, age restrictions, social network, screenshot, screencast.	Vlog, YouTube, IP address, pixels, vector, HTML, CSS, services, ISP, LAN, TCP/IP, hub, CEOP, ChildLine, harassment, plagiarism, infringe copyright, illegal downloads, streaming, blocking, victim, cookie, junk mail.	Antivirus, collaboration, visual coding, text based coding, adware, trojan, bot, boolean, checksum, server, firewall, security updates, plug in, pop up blocker, scams, phishing, location based settings, in app purchasing, trolling, sexting, exclusion, doxxing, catfishing, flaming, fabotage, creeping, dissing, ghosting FTP, filtering, malware, screen time, balanced lifestyle,
	Multimedia	Website, program.	Landscape, portrait, illustration, tool.	Stroke, template, digital book (eBook/ePub).	Block, palette, soundtrack.	Audio, selection, animation.	Podcast, edit.	New media.
	Technology in Our Lives	computer, iPad/tablet, app (application), keyboard, button, printer, save, zoom.	Bluetooth, download, frame, processor, green screen, hard drive.	Browser, computer networks, data, computational thinking, execute/run, input, output, software, World Wide Web (WWW)	hyperlink, attachment, URL, MegaByte, GigaByte VR (virtual reality), font, shortcut,		peripheral, bandwidth, cache, RAM / ROM, USB, ZIP, augmented reality, bit and bytes, upload.	Configuring.
	Data Handling	Information.	Digital, communicate.					Generalisation
	Programming	Robot, sequence, control.	Algorithm, sequence, 3D, program, debug, design.	repeat / loop	code/coding, command, decomposition, sprite, stage, condition, control	Logical reasoning, repetition (sometimes referred to as 'iteration' in upper KS2), script, scripts area,	Abstraction, variables,	

Ongoing Ellis Vocabulary Overview

Area of vocab>	E safety	Multimedia	Technology	Data Handling	Programming	Other
	Screenshot Sharing Passwords Personal data Cyber bullying Phishing Spam Junk Social media	Applications Record Video Play Green screen	Computer Keyboard Mouse Save Open File Drive Network Domain	Search Data Represent Interpret Information	Control Debug Sequence Unplugged Repeat	