



Computing Progression of Skills

Skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online Safety	Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. Play appropriate games on the Internet. Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private.	Understand they need to follow certain rules to remain safe when visiting places online. Begin to understand that if you create something you own it. Learn that many websites ask for information that is private & discuss how to responsibly handle such requests. Explore how email can be used to communicate with real people within their schools, families & communities. Learn that directory sites with alphabetical listings offer one way to find things on the Internet	Stay safe online by choosing websites that are good for them to visit & not inappropriate sites. Explore what cyber-bullying means & what to do when they encounter it. Know that if they put information online it leaves a digital footprint or “trail” & they need to manage it so it's not hurtful. Understand that keyword searching is an effective way to locate online information & how to select keywords to produce the best search results. Discuss criteria for rating informational websites a site. Realise that not all websites are equally good sources of information.	Agree sensible online safety rules for the classroom. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button. Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.	Agree sensible online safety rules for the classroom. Choose a secure password for age-appropriate websites. Discuss what actions could be taken if they are uncomfortable or upset online e.g. Report Abuse button. Talk about what games they enjoying playing and what good choices are when playing games e.g. content, screen time. Use a class blog to share information and talk about who can see it, and how to communicate safely and respectfully Comment and provide positive feedback on the work of classmates in school or online, or the work of others online.	Agree sensible online safety rules for the classroom. Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns. Explore using the safe and responsible use of online communication tools e.g. blogs, messaging.	Agree sensible online safety rules for the classroom. Discuss their own personal use of the Internet and choices they make Discuss how to protect devices from virus threats. Discuss the importance of keeping an adult informed about what you're doing online, and how to report concerns. Explore using the safe and responsible use of online communication tools e.g. blogs, messaging.
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	Physically follow & 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 & 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 & 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 & turn and drawing a trail Explore outcomes when giving instructions in a simple program Watch a program execute & debug any problems Predict what will happen & test results Talk about similarities & differences between floor robots and logo on screen	Plan & enter a sequence of instructions on a robot specifying distance & turn to achieve specific outcomes, debug the sequence where necessary. Test & 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 & Logo including creating simple regular polygons, making sounds & 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 Talk about algorithms planned by others & identify any problems & the expected outcome.	Create & edit procedures typing logo commands including pen up, pen down & 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, scratch & other software using efficient procedures to create shapes & letters. Experience a variety of resources to extend knowledge & understanding of programming. Create an algorithm & a program that will use a simple selection command for a game. Begin to correct errors (debug) as they program devices & actions on screen, & identify bugs 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 & DT.	Explore procedures using repeat to achieve solutions to problems with scratch & 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 & using if... then... commands Explore a computer model to control a physical system Change inputs on a model to achieve different outputs Refine & extend a program Identify difficulties & articulate a solution for errors in a program 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.	Record in some detail the steps (the algorithm) that are required to achieve an outcome & refer to this when programming Predict the outputs for the steps in an algorithm Increase confidence in the process to plan, program, test & 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 & physical devices using one or more input & predict the outputs Understand how sensors can be used to measure input in order to activate a procedure or sequence & talk 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.



Multimedia	Use a mouse to rearrange objects and pictures on a screen. Recognise text, images and sound when using ICT. Use paint programs to create pictures. Begin to use a keyboard.	Record their own voices and play back to an audience. Use a video or stills camera to record an activity. Create sounds and simple music phrases using ICT tools. Add text and images to a template document using an image & word bank Use index fingers (left and right hand) on a keyboard to build words & sentences. Know when & 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 templates to make electronic books individually and in pairs. Explore the effects of sound and music in animation and video. Create own documents, adding text and images. Use keyboard to enter text (index fingers left & right hand). 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.	Explore & begin to evaluate the use of multimedia to enhance communication. Create & begin to edit presentation documents & text, experimenting with fonts, size, colour, alignment for emphasis & effect. Use a range of effects in art programs including brush sizes, repeats, reflections Explore the use of video, animation & green screening. Use ICT tools to create musical phrases. Amend text & save changes. Use individual fingers to input text & use SHIFT key to type characters. Amend text by highlighting & using SELECT/ DELETE & COPY/ PASTE. Look at own work & consider how it can be improved for effectiveness	Explore how multimedia can create atmosphere & appeal to different audiences Be confident in creating & modifying text & presentation documents to achieve a specific purpose. Use art programs & online tools to modify photos for a specific purpose using a range of effects. Explore the use of video, animation, & green screening for a specific audience. Use ICT tools to create music phrases for a specific purpose Use a keyboard effectively, including the use of keyboard shortcuts. Use font sizes & effects such as bullet points appropriately. Know how to use a spell check. Look at their own, and a friend's work & provide feedback that is constructive & specific.	Select an appropriate ICT or online tool to create and share ideas. Explore the effects of multimedia (<i>photos, video, sound</i>) 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. Use online tools to create and share presentations and films.	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. Evaluate the effectiveness of their own work and the work of others
Technology in Our Lives	Recognise purposes for using technology in school and at home. 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 on-line. Use appropriate tools to communicate on-line. Use simple search tools and find appropriate websites. Talk about the owner of information online.	Talk about the school network & the different resources they can access, including the Internet. Frame questions & identify key words to search for information on the Internet. Consider reliability of information & 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 & how information moves around 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. 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 & ranked. Acknowledge who resources belong to that they have found on the internet.
Data Handling		Take photographs, video and record sound to record learning experiences. Look at how data is representing digitally. Contribute to and interpret a pictogram.	Take and save photographs, video & record sound to capture learning. 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.	Find out information from a pre-prepared database, asking straightforward questions. Contribute towards a database. Construct and use a branching database. Record data in a variety of ways. Present data for others.	Plan and create a database to answer questions. Identify different types of data. Ask questions carrying out simple searches on a database. Identify inaccurate data. Present data in appropriate format for an audience.	Collect and record information using spreadsheets and databases 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.	Use the whole data process – generate, process, interpret, store, and present information – 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.



			Save & retrieve the data to show to others. Create paper/ object decision trees & explore a branching database. Investigate different types of digital data e.g. online encyclopaedias	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.	Plan investigations using the outcomes from a data logger to show findings
Online Relationships	Recognise some ways in which the internet can be used to communicate.	Use the internet with adult support to communicate with people I know. Explain why it is important to be considerate and kind to people online.	Use the internet to communicate with people I don't know well (e.g. email a penpal in another school/ country). Give examples of how to use technology to communicate with others I don't know well.	Describe ways people who have similar likes and interests can get together online. Give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak). Explain some risks of communicating online with others I don't know well. Explain how my own feelings and other people's feelings can be hurt by what is said or written online. Explain why I should be careful who I trust online and what information I can trust them with. Explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. Explain what it means to 'know someone' online and why this might be different from knowing someone in real-life. Explain what is meant by 'trusting someone online'. Explain why this is different from 'liking someone online'.	Describe strategies for safe and fun experiences in a range of online social environments Give examples of how to be respectful to others online.	Explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault. Make positive contributions and be part of online communities. Describe some of the communities in which I am involved and describe how I collaborate with others positively.	Show how I understand my responsibilities for the well-being of others in my online social group. Explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming). Demonstrate how I would support others (including those who are having difficulties) online. Demonstrate ways of reporting problems online for both myself and my friends.
Internet Safety and Harms	Self-image and identity Recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset. Explain how this could be either in real-life or online and be able to talk about how to use the internet to find things out. Health, well-being and lifestyle Identify rules that help keep us stay safe and healthy in and beyond the home when using technology. Privacy and Security Describe the people I can trust and can share this with; and explain why I can trust them. Copyright and Ownership Name my work so that others know it belongs to me.	Self-image and identity Recognise that there may be people online who could make me feel sad, embarrassed or upset. If something happens that makes me feel sad, worried, uncomfortable or frightened Give examples of when and how to speak to an adult I can trust. Online reputation Recognise that information can stay online and could be copied. Describe what information I should not put online without asking a trusted adult first Online bullying Describe how to behave online in ways that do not upset others and can give examples. Managing online information Use the internet to find things out.	Self-image and identity Explain how other people's identity online can be different to their identity in 'real-life.' Describe ways in which people might make themselves look different online. Give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help. Online reputation Explain how information put online about me can last for a long time. Explain who to talk to if someone has made a mistake about putting something online. Online bullying Give examples of bullying behaviour and how it could look online. Understand how bullying can make someone feel.	Self-image and identity Explain what is meant by the term 'identity'. Explain how I can represent myself in different ways online. Explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media). Online reputation Search for information about myself online. Recognise I need to be careful before I share anything about myself or others online. Know who I should ask if I am not sure if I should put something online. Online bullying Describe how to capture bullying content as evidence (e.g. screen-	Self-image and identity Explain how my online identity can be different to the identity I present in 'real-life' Knowing this, I can describe the right decisions about how I interact with others and how others perceive me. Online reputation Describe how others can find out information about me by looking online. Explain ways that some of the information about me online could have been created, copied or shared by others. Online bullying Identify some online technologies where bullying might take place. Describe ways people can be bullied through a range of media (e.g. image, video, text, chat).	Self-image and identity Explain how identity online can be copied, modified or altered. Demonstrate responsible choices about my online identity, depending on context. Online reputation Search for information about an individual online and create a summary report of the information I find. Describe ways that information about people online can be used by others to make judgments about an individual. Online bullying Recognise when someone is upset, hurt or angry online. Describe how to get help for someone that is being bullied online and assess when support is needed by someone. Explain how to block abusive users.	Self-image and identity Describe ways in which media can shape ideas about gender. Identify messages about gender roles and make judgements based on them. Challenge and explain why it is important to reject inappropriate messages about gender online. Describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. Give examples of how I might get help, both on and offline. Explain why I should keep asking until I get the help I need. Online reputation Explain how I am developing an online reputation which will allow other people to form an opinion of me.



		Use simple keywords in search engines^[1]^[SEP] Describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable worried or frightened. <u>Health, well-being and lifestyle</u> Explain rules to keep us safe when we are using technology both in and beyond the home. Give examples of some of these rules. <u>Privacy and Security</u> Recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school). Explain why I should always ask a trusted adult before I share any information about myself online. <u>Copyright and Ownership</u> Explain why work I create using technology belongs to me. I can say why it belongs to me (e.g. 'it is my idea' or 'I designed it')^[1]^[SEP] can save my work so that others know it belongs to me (e.g. filename, name on content).	Talk about how someone can/would get help about being bullied online or offline. <u>Managing online information</u> Use keywords in search engines.^[1]^[SEP] Demonstrate how to navigate a simple webpage to get to information (e.g. ^[SEP]home, forward, back buttons; links, tabs and sections). Explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri).^[1]^[SEP] Explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'.^[1]^[SEP] <u>Health, well-being and lifestyle</u> Explain simple guidance for using technology in different environments and settings. Say how those rules/guides can help me <u>Privacy and Security</u> Describe how online information about me could be seen by others^[1]^[SEP] Describe and explain some rules for keeping my information private.^[1]^[SEP] Explain what passwords are and can use passwords for my accounts and devices.^[1]^[SEP] Explain how many devices in my home could be connected to the internet and can list ^[SEP]some of those devices.^[1]^[SEP] <u>Copyright and Ownership</u> Describe why other people's work belongs to them. Recognise that content on the internet may belong to other people.	grab, URL, profile) to share with others who can help me.^[1]^[SEP] Identify a range of ways to report concerns both in school and at home about online bullying. <u>Managing online information</u> Use key phrases in search engines. Explain what autocomplete is and how to choose the best suggestion. Explain how the internet can be used to sell and buy things <u>Health, well-being and lifestyle</u> Explain the difference between a 'belief', an 'opinion' and a 'fact'. Explain why spending too much time using technology can sometimes have a negative impact; give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films) <u>Privacy and Security</u> Give reasons why information should only be shared trusted people. Explain what to do if there is a feeling of pressure or uncertainty. Speak to a trusted adult. Understand and give reasons why passwords are important. Describe simple strategies for creating and keeping passwords private. Describe how connected devices can collect and share data. <u>Copyright and Ownership</u> Explain why copying someone else's work from the internet without permission can cause problems. Give examples of what those problems might be. Explain why spending too much time using technology can sometimes have a negative impact. Give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films,) Give reasons why information should only be shared with people that can be trusted. Explain that a trusted adult can help if needed.	Explain why people need to think carefully about how content posted might affect others, their feelings and how it may affect how others feel about them (their reputation). <u>Managing online information</u> Analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. Understand what criteria have to be met before something is a 'fact'. Describe how to search for information within a wide group of technologies (e.g. social media, image sites, video sites). Describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online. Explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. Explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true. <u>Health, well-being and lifestyle</u> Explain how using technology can distract from other things that people might do or should be doing. Identify times or situations people need to limit the amount of time they use technology. Suggest strategies to help limit this time. <u>Privacy and Security</u> Explain what a strong password is. Describe strategies for keeping personal information private, depending on context. Explain that others online can pretend to be me or other people, including my friends. Suggest reasons why they might do this Explain how internet use can be monitored. <u>Copyright and Ownership</u>	Explain how to report online bullying on the apps and platforms used. Describe the helpline services who can support and what would be said and one if help was needed (e.g. Childline). <u>Managing online information</u> Use different search technologies. Evaluate digital content and can explain how to make choices from search results. Explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence. Understand the difference between online mis-information (inaccurate information distributed by accident) and dis-information (inaccurate information deliberately distributed and intended to mislead). Explain what is meant by 'being sceptical'. Give examples of when and why it is important to be 'sceptical'. Explain what is meant by a 'hoax'. Explain why it is important to think carefully before forwarding anything online. Explain why some information found online may not be honest, accurate or legal. Explain why information that is on a large number of sites may still be inaccurate or untrue. Assess how this might happen (e.g. the sharing of misinformation either by accident or on purpose). <u>Health, well-being and lifestyle</u> Describe ways technology can affect healthy sleep and can describe some of the issues. Describe some strategies, tips or advice to promote healthy sleep with regards to technology <u>Privacy and Security</u> Create and use strong and secure passwords. Explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.	Describe some simple ways that help build a positive online reputation <u>Online bullying</u> Describe how to capture bullying content as evidence (e.g screen- grab, URL, profile) to share with others who can help me. Identify a range of ways to report concerns both in school and at home about online bullying. <u>Managing online information</u> Use search technologies effectively. Explain how search engines work and how results are selected and ranked. Demonstrate the strategies that would be applied to be discerning in evaluating digital content. Describe how some online information can be opinion and can offer examples. Explain how and why some people may present 'opinions' as 'facts'. Define the terms influence, manipulation and persuasion and explain how these might be encountered online (e.g. advertising and 'ad targeting'). Demonstrate strategies to analyse and evaluate the validity of 'facts' and explain why using these strategies are important. Identify, flag and report inappropriate content. <u>Health, well-being and lifestyle</u> Describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. Assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise). Explain the importance of self-regulating my use of technology; demonstrate the strategies used to do this (e.g. monitoring my time online, avoiding accidents). <u>Privacy and Security</u> Use different passwords for a range of online services.
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				Understand and can give reasons why passwords are important. Describe simple strategies for creating and keeping passwords private. Describe how connected devices can collect and share data. Explain why copying someone else’s work from the internet without permission can cause problems. Give examples of what those problems might be.	When searching on the internet for content to use, explain why it is important to consider who owns it and whether I have the right to reuse it. Give some simple examples.	Explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing. <u>Copyright and Ownership</u> Assess and justify when it is acceptable to use the work of others. Give examples of content that is permitted to be reused.	Describe effective strategies for managing those passwords (e.g. password managers, ¹¹¹sepa_{SEP}acronyms, stories). Know what to do if my password is lost or stolen. Explain what app permissions are and can give some examples from the technology or services used. Describe simple ways to increase privacy on apps and services that provide privacy settings. Describe ways in which some online content targets people to gain money or information illegally; describe strategies which help identify such content (e.g. scams, phishing) <u>Copyright and Ownership</u> Demonstrate the use of search tools to find and access online content which can be reused by others. Demonstrate how to make references to and acknowledge sources used from the internet
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