



Computing Progression of Skills

Computer Science: Substantive Knowledge – Declarative Knowledge (Know what) and Procedural Knowledge (Know how)				
	EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Computational Thinking	- I can follow simple oral algorithms - I can spot simple patterns - I can sequence simple familiar tasks	- I understand what algorithms are - I can write simple algorithms - I understand the sequence of algorithms is important - I can debug simple algorithms - I understand that algorithms are implemented as programs on digital devices - I can write algorithms for everyday tasks - I can use logical reasoning to predict the outcome of algorithms - I understand decomposition is breaking objects/processes down - I can implement simple algorithms on digital devices (Bee Bots, Apps: Daisy the Dino) - I can debug algorithms	- I can create algorithms for use when programming - I can decompose tasks (such as animations) into separate steps to create an algorithm - I understand abstraction is focusing on important information - I can identify patterns in an algorithm - I can use repetition in algorithms - I can use abstraction to focus on what's important in my design - I can write increasingly more precise algorithms for use when programming. - I can use simple selection in algorithms - I can use logical reasoning to detect and correct errors in programs	- I can solve problems by decomposing them into smaller parts - I can use selection in algorithms - I can recognise the need for conditions in repetition within algorithms - I can use logical reasoning to explain how a variety of algorithms work - I can use logical reasoning to detect and correct errors in algorithms - I can evaluate my work and identify errors - I can recognise, and make use, of patterns across programming projects - I can write precise algorithms for use when programming - I can identify variables needed and their use in selection and repetition - I can decompose code into sections for effective debugging - I can critically evaluate my work and suggest improvements
Coding and Programming	- I can use a mouse, touch screen or appropriate access device to target and select options on screen - I can input a simple sequence of commands to control a digital device with support	- I can create a simple program - I can use sequence in programs I can locate and fix bugs in my program - I understand programs execute by following precise and unambiguous Instructions - I can create programs on a variety of digital devices - I can debug programs of increasing complexity - I can use logical reasoning to predict the outcome of simple programs	- I can design and create programs - I can write programs that accomplish specific goals - I can use repetition in programs I can work with various forms of input - I can use simple selection in programs - I can work with various forms of output - I can use logical reasoning to systematically detect and correct errors in programs - I can work with various forms of output	- I can create programs by decomposing them into smaller parts - I can use selection in programs - I can use conditions in repetition commands - I can work with variables - I can create programs that control or simulate physical systems - I can evaluate my work and identify errors - I can use a range of sequence, selection and repetition commands combined with variables as required to implement my design - I can create procedures to hide complexity in programs - I can identify and write generic code for use across multiple projects - I can critically evaluate my work and suggest improvements - I can identify and use basic HTML tags (See Computer Networks objectives)



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Computer Networks (KS2 only)			• I understand that computers in a school are connected together in a network • I understand why computers are networked • I understand the difference between the Internet and the World Wide Web (WWW) • I understand that servers on the Internet are located across the planet • I understand how email is sent across the Internet • I understand how the Internet enables us to collaborate	• I understand how we view web pages on the Internet • I use search technologies effectively • I understand that web spiders index the web for search engines • I appreciate how pages are ranked in a search engine • I understand what HTML is and recognize HTML tags • I know a range of HTML tags and can remix a web page • I can create a webpage using HTML
Information Technology: Substantive Knowledge – Declarative Knowledge (Know what) and Procedural Knowledge (Know how)				
Word Processing/Typing	• I can play on a touch screen game and use computers/keyboards/mouse in role play • I can type letters with increasing confidence using a keyboard and tablet. • I can dictate short, clear sentences into a digital device	• I can confidently type words quickly and correctly on a digital device. • I can use the space bar to make space and delete to delete letters/words • I can make a new line using enter/return • I can dictate into a digital device more accurately and with punctuation. • I can use the space bar only once between words and use touch to navigate to words letter to edit • I can copy and paste images and text • Use caps locks for capital letters. • I can add images alongside text in a word-processed document. • I can dictate longer passages into a digital device with accurate punctuation.	• I can use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g, and use right fingers for h/j/k/l • I can edit the style and effect of my text and images to make my document more engaging and eye-catching. For example, borders and shadows. • I can use cut, copy and paste to quickly duplicate and organise text. • I can combine digital images from different sources, objects, and text to make a final piece of a variety of tasks: posters, documents, eBooks, scripts, leaflets. • Confidently and regularly use text shortcuts such as cut, copy and paste and delete to organise text • Use font sizes appropriately for audience and purpose.\Use spell check and thesaurus including through Siri and other AI technology	• I can start to apply other useful effects to my documents such as hyperlinks. • I can import sounds to accompany and enhance the text in my document. • I can organise and reorganise text on screen to suit a purpose • I can confidently choose the best application to demonstrate my learning. • I can format text to suit a purpose. • I can publish my documents online regularly and discuss the audience and purpose of my content.
Data Handling	• I can identify a chart. • I can sort physical objects, take a picture and discuss what I have done. • I can present simple data on a digital device.	• I can sort images or text into two or more categories on a digital device. • I can collect data on a topic. • I can create a tally chart and pictogram. • I can record myself explaining what I have done and what it shows me. • I can sort digital objects into a range of charts such as Venn diagrams, Carroll diagrams and bar charts using different apps and software. • I can orally record myself explaining what the data shows me. • I can create a branching database using questions	• I can create my own sorting diagram and complete a data handling activity with it using images and text. • I can start to input simple data into a spreadsheet. • I can create a feelings chart exploring a story or character's feelings • I can create my own online multiple-choice questionnaire. • I can input data into a spreadsheet and export the data in a variety of ways: charts, bar charts, pie charts.	• I can create and publish my own online questionnaire and analyse the results. • I can use simple formulae to solve calculations including =sum and other statistical functions • I can edit and format difference cells in a spreadsheet. • I can write spreadsheet formula to solve more challenging maths problems. • I can create and publish my own online quiz with a range of media (images and video)



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Presentations, web design and eBook Creation	- I can record my voice over a picture. - I can create a simple digital collage. - I can move and resize images with my fingers or mouse	- I can add labels to an image - I can order images to create a simple storyboard. - I can create a simple spider diagram. - I can sequence a series of pictures to explain my understanding of a topic. - I can add voice labels to an image. - I can add a voice recording to a storyboard. - I can add speech bubbles to an image to show what a character thinks. - I can import images to a project from the web and camera roll	- I understand how data is collected. - I can create an interactive comic with sounds, formatted text and video. - I can annotate an image with videos - I can create a simple web page. - I can create a simple digital timeline/mind map - I can create an interactive quiz eBook introducing hyperlinks. - I can create an eBook with text, images and sound. - I can create a presentation demonstrating my understanding with a range of media. - I can create a digital timeline/mind map and include different media – sound and video.	- I can collaborate with peers using online tools, e.g. blogs, Google Drive, Office 365 - I can create and export an interactive presentation including a variety of media, animations, transitions and other effects. - I can create an interactive guide to a image by embedding digital content and publishing it online. - I can create a webpage and embed video - I can create a web site which includes a variety of media. - I can design an app prototype that links multimedia pages together with hyperlinks. - I can choose applications to communicate to a specific audience. - I can evaluate my own content and consider ways to improvements.
Animation	- I can animate a simple image to speak in role - I can create a simple animation to tell a story including more than one character.	- I can add filters and stickers to enhance an animation of a character. - I can create an animation to tell a story with more than one scene. - I can add my own pictures to my story animation. - I can create multiple animations of an image and edit these together. - I can create a simple stop motion animation. - I can explain how an animation/flip book works	- I can create animations of faces to speak in role with more life-like realistic outcomes. - I can improve stop motion animation clips with techniques like onion skinning. - I can use animation tools in presenting software to create simple animations - I can take multiple animations of a character I have created and edit them together for a longer video. - I can use software to create a 3D animated story. - I can use line draw tool to create animations.	- I can record animations of different characters and edit them together to create an interview. - I can add green screen effects to a stop motion animation. - I can create flip book animation using digital drawings and export as a Gif or video - I can mix animations and videos recordings of myself to create video interviews. - I can plan, script and create a 3D animation to explain a concept or tell a story. - I can choose and create different types of animations to best explain my learning.
Video Creation	- I know the difference between a photography and video. - I can record a short film using the camera - I can record and play a film - I can watch films back	- I can record a film using the camera app. - I can select images and record a voiceover. - I can highlight and zoom into images as I record. - I can write and record a script using a teleprompter tool. - I can use tools to add effects to a video - I can begin to use green screen techniques with support	- I can sequence clips of mixed media in a timeline and record a voiceover - I can trim and cut film clips and add titles and transitions - I can independently create a green screen clip. - I can create my own movie trailer. - I can add music and sound effects to my films - I can add animated titles and transitions - I can add simple subtitles to a video clip. - I can use confidently use green screen adding animated backgrounds.	- I can use cutaway and split screen tools in iMovie. - I can evaluate and improve the best video tools to best explain my understanding. - I can further improve green screen clips using crop and resize and explore more creative ways to use the tool - wearing green clothes and the masking tool. - I can use the green screen masking tool with more than one character. - I can use picture in picture tools in iMovie. - I can add animated subtitles to my film to further enhance my creation.



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				I can create videos using a range of media - green screen, animations, film and image.
Photography and Digital Art	- I can take a photograph - I can take a photograph and use it in an app - I can use a painting app and explore the paint and brush tools	- I can edit a photo with simple tools - I can use a paint/drawing app to create a digital image - I can begin to cut out an image to layer on another image. - I can edit a photo (crop, filters, mark up etc) - I can select and use tools to create digital imagery - controlling the pen and using the fill tool - I can cut images with accuracy to layer on other images.	- I can confidently take and manipulate photos - I can create a digital image using a range of tools, pens, brushes and effects - I can create transparent images with Instant Alpha - I can enhance digital images and photographs using crop, brightness, contrast & resize - I can manipulate shapes to create digital art. - I can draw a series of images and export as an animated GIF	- I can make a digital photo using camera settings - I can enhance digital photos and images using crop, brightness and resize tools - I can link and explain how to photoshop images and how this is used in the media - I can edit a picture to remove items, add backgrounds, merge 2 photos - I can evaluate and discuss images explaining effects and filters that have been used to enhance the media. - Use a 3D drawing app to create a realistic representation of world objects
Augmented Reality and Virtual Reality	- I can scan a QR code. - I can explore a 360 image. - I can talk about AR objects in my class	- I can explore an interactive 360 image. - I can scan a trigger image to begin an AR experience. - I can pretend to interact with AR objects. - I can draw my own 360 image and explore it in VR. - I can bring objects into my surroundings using Augmented Reality. - I can create my own QR code	- I can create my own digital 360 image and explore it in VR - I can create my own images and bring it into my surroundings through AR. - I can create my own 360 video. - I can use the camera to create a 360 image. - I can add multiple objects into my surroundings through AR to explain a concept.	- I can create an interactive VR experience. - I can create an animated object and bring it into my surroundings through AR - I can create an AR experience using objects I have created to explain a concept. - I can create and upload my own VR Google Expedition. - I can create an interactive poster using AR - I can explain how VR and AR works.
Sound	- I can record sounds with different resources - I can find ways to change your voice (tube, tin can, shouting to create an echo) - I can record sounds/voices in storytelling and explanations	- I can create a sequence of sounds (instruments, apps/software) - I can explore short and long sounds. - I can record my voice and add different effects. - Create a musical composition using software - I can record my own sound effects. - I can record my voice over a compositions to perform a song.	- I can create and edit purposeful compositions using music software to create mood or a certain style - I can experiment with live loops to create a song. - Edit sound effects for a purpose. - Create a simple four chord song following the correct rhythm. - I can record a radio broadcast or audiobook.	- Add voice over and edit sound clips (volume, pitch, fade, effect) to create a podcast. - Create a remix of a popular song. - Add voice over and edit sound clips (volume, pitch, fade, effect) to use in a film or radio broadcast (podcast) - Compose a soundtrack that can be added to a film project.
Digital Literacy: Substantive Knowledge – Declarative Knowledge (Know what) and Procedural Knowledge (Know how)				
Self-Image and Identity	- I can 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. - I can explain how this could be either in real life or online.	- I can 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 I can give examples of when and how to speak to an adult I can trust. - I can explain how other people's identity online can be different to their identity in real life.	- I can explain what is meant by the term 'identity'. - I can explain how I can represent myself in different ways online. - I can 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). - I can explain how my online identity can be different to the identity I present in 'real life'	- I can explain how identity online can be copied, modified or altered. - I can demonstrate responsible choices about my online identity, depending on context. - I can describe ways in which media can shape ideas about gender. - I can identify messages about gender roles and make judgements based on them. - I can challenge and explain why it is important to reject inappropriate messages about gender online.



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		- I can describe ways in which people might make themselves look different online. - I can 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	Knowing this, I can describe the right decisions about how I interact with others and how others perceive me.	- I can describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. I know and can give examples of how I might get help, both on and offline. - I can explain why I should keep asking until I get the help I need.
Online Relationships	- I can recognise some ways in which the internet can be used to communicate. - I can give examples of how I (might) use technology to communicate with people I know.	- I can use the internet with adult support to communicate with people I know. - I can explain why it is important to be considerate and kind to people online. - I can use the internet to communicate with people I don't know well (e.g. email a penpal in another school/ country). - I can give examples of how I might use technology to communicate with others I don't know well.	- I can describe ways people who have similar likes and interests can get together online. - I can give examples of technology-specific forms of communication (e.g. emojis, acronyms, text speak). - I can explain some risks of communicating online with others I don't know well. - I can explain how my and other people's feelings can be hurt by what is said or written online. - I can explain why I should be careful who I trust online and what information I can trust them with. I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried. - I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life. I can explain what is meant by 'trusting someone online'. I can explain why this is different from 'liking someone online'. - I can describe strategies for safe and fun experiences in a range of online social environments - I can give examples of how to be respectful to others online.	- I can explain that there are some people I communicate with online who may want to do me or my friend's harm. I can recognise that this is not my/our fault. - I can make positive contributions and be part of online communities. - I can describe some of the communities in which I am involved and describe how I collaborate with others positively. - I can show I understand my responsibilities for the well-being of others in my online social group. - I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming). - I can demonstrate how I would support others (including those who are having difficulties) online. - I can demonstrate ways of reporting problems online for both myself and my friends.
Online Reputation	I can identify ways that I can put information on the internet.	- I can recognise that information can stay online and could be copied. - I can describe what information I should not put online without asking a trusted adult first - I can explain how information put online about me can last for a long time. - I know who to talk to if I think someone has made a mistake about putting something online.	- I can search for information about myself online. - I can recognise I need to be careful before I share anything about myself or others online. - I know who I should ask if I am not sure if I should put something online. - I can describe how others can find out information about me by looking online. - I can explain ways that some of the information about me online could have been created, copied or shared by others.	- I can search for information about an individual online and create a summary report of the information I find. - I can describe ways that information about people online can be used by others to make judgments about an individual. - I can explain how I am developing an online reputation which will allow other people to form an opinion of me. - I can describe some simple ways that help build a positive online reputation



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Online Bullying	- I can describe ways that some people can be unkind online. - I can offer examples of how this can make others feel.	- I can describe how to behave online in ways that do not upset others and can give examples - I can give examples of bullying behaviour and how it could look online. - I understand how bullying can make someone feel. - I can talk about how someone can/would get help about being bullies online or offline.	- I can explain what bullying is and can describe how people may bully others. - I can describe rules about how to behave online and how I follow them. - I can identify some online technologies where bullying might take place. - I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). - I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).	- I can recognise when someone is upset, hurt or angry online. - I can describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone. - I can explain how to block abusive users. - I can explain how I would report online bullying on the apps and platforms that I use. - I can describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline). - I can describe how to capture bullying content as evidence (e.g. screengrab, URL, profile) to share with others who can help me. - I can identify a range of ways to report concerns both in school and at home about online bullying.
Managing Online Information	- I can talk about how I can use the internet to find things out. - I can identify devices I could use to access information on the internet. - I can give simple examples of how to find information (e.g. search engine, voice activated searching).	- I can use the internet to find things out. - I can use simple keywords in search engines - I can 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. - I can use keywords in search engines. - I can demonstrate how to navigate a simple webpage to get to information - I need (e.g. home, forward, back buttons; links, tabs and sections). - I can explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri). - I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. - I can explain why some information I find online may not be true.	- I can use key phrases in search engines. - I can explain what autocomplete is and how to choose the best suggestion. - I can explain how the internet can be used to sell and buy things - I can explain the difference between a 'belief', an 'opinion' and a 'fact'. - I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'. - I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). - I can 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. - I can explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people. - I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.	- I can use different search technologies. - I can evaluate digital content and can explain how I make choices from search results. - I can explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence. - I understand the difference between online mis-information (inaccurate information distributed by accident) and dis-information (inaccurate information deliberately distributed and intended to mislead). I can explain what is meant by 'being sceptical'. - I can give examples of when and why it is important to be 'sceptical'. I can explain what is meant by a 'hoax'. - I can explain why I need to think carefully before I forward anything online. - I can explain why some information I find online may not be honest, accurate or legal. - I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation either by accident or on purpose). - I can use search technologies effectively. - I can explain how search engines work and how results are selected and ranked.



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				- I can demonstrate the strategies I would apply to be discerning in evaluating digital content. - I can describe how some online information can be opinion and can offer examples. - I can explain how and why some people may present 'opinions' as 'facts'. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. advertising and 'ad targeting'). - I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are Important. - I can identify, flag and report inappropriate content.
Health ,Well-being and Lifestyle	- I can identify rules that help keep us safe and healthy in and beyond the home when using technology. - I can give some simple examples. - Know and talk about the different factors that support their overall health and wellbeing: sensible amounts of 'screen time'	- I can explain rules to keep us safe when we are using technology both in and beyond the home. - I can give examples of some of these rules. - I can explain simple guidance for using technology in different environments and settings. - I can say how those rules/guides can help me	- I can explain why spending too much time using technology can sometimes have a negative impact on me; I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos). - I can explain how using technology can distract me from other things I might do or should be doing. - I can identify times or situations when I might need to limit the amount of time I use technology. - I can suggest strategies to help me limit this time.	- I can describe ways technology can affect healthy sleep and can describe some of the issues. - I can describe some strategies, tips or advice to promote healthy sleep with regards to technology - I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. - I can 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). - I can explain the importance of self-regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents).
Privacy and Security	- I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location). - I can describe the people I can trust and can share this with; I can explain why I can trust them.	- I can 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). - I can explain why I should always ask a trusted adult before I share any information about myself online. - I can explain how passwords can be used to protect information and devices. - I can describe why other people's work belongs to them.	- I can give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult. - I understand and can give reasons why passwords are important. - I can describe simple strategies for creating and keeping passwords private. - I can describe how connected devices can collect and share my information with others. - I can explain what a strong password is.	- I can create and use strong and secure passwords. - I can 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. - I can 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.



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		I can recognise that content on the internet may belong to other people.	- I can describe strategies for keeping my personal information private, depending on context. - I can explain that others online can pretend to be me or other people, including my friends - I can suggest reasons why they might do this - I can explain how internet use can be monitored.	- I use different passwords for a range of online services. - I can describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories). - I know what to do if my password is lost or stolen. - I can explain what app permissions are and can give some examples from the technology or services I use. - I can describe simple ways to increase privacy on apps and services that provide privacy settings. - I can describe ways in which some online content targets people to gain money or information illegally. - I can describe strategies to help me identify such content (e.g. scams, phishing)
Copyright and Ownership	- I know that work I create belongs to me. - I can name my work so that others know it belongs to me.	- I can 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'). - I can save my work so that others know it belongs to me (e.g. filename, name on content). - I can describe why other people's work belongs to them. - I can recognise that content on the internet may belong to other people.	- I can explain why copying someone else's work from the internet without permission can cause problems. - I can give examples of what those problems might be. - When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. - I can give some simple examples.	- I can assess and justify when it is acceptable to use the work of others. - I can give examples of content that is permitted to be reused. - I can demonstrate the use of search tools to find and access online content which can be reused by others. - I can demonstrate how to make references to and acknowledge sources I have used from the internet