

National Curriculum Aims		The national curriculum for Computing aims to ensure that all pupils: ♣ can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms, and data representation. ♣ can analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. ♣ can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems. ♣ are responsible, competent, confident and creative users of information and communication technology.					
EYFS		Understanding the World Within the new EYFS curriculum the ‘Technology’ strand has been removed from ‘Understanding the World’ and has not been replaced with any updated guidance. However, computing and technology are still vitally important subjects to teach to Foundation children. Teaching computing within the curriculum ensures that children enter Year 1 with a strong foundation of knowledge. Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning. We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety. Below are prerequisite skills for the computing at EYFS: To begin to show an awareness of technology within their environment. Building an awareness of what safe use of technology looks like. Complete a simple programme on electronic devices. Uses ICT hardware to interact with age-appropriate computer software. Develops digital literacy skills by being able to access, understand and interact with a range of technologies.					
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online Safety	Self Image & Identity To name and recognise uncomfortable, embarrassed, and upset emotions. To recognise, online or offline, that anyone can say ‘no thank you’/ ‘please stop’/ ‘I’ll tell’/ ‘I’ll ask’ to somebody who makes them feel sad, uncomfortable, embarrassed or upset.	Self Image & Identity To recognise that there may be people online who could make someone 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 and how they can help.	Self Image & Identity To know that other people may look and act differently online and offline. To give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened and explain how they might get help.	Self Image & Identity To be able to explain what is meant by the term ‘identity’. To know how people can represent themselves in different ways online. To be able to explain ways in which someone might change their identity depending on what they are doing online (e.g. gaming, using an avatar, social media) and why.	Self Image & Identity To know how my online identity can be different from my offline identity. To describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. To know that others online can pretend to be someone else, including my friends, and I can suggest reasons why they might do this.	Self Image & Identity To know how identity online can be copied, modified or altered. To demonstrate how to make responsible choices about having an online identity, depending on context.	Self Image & Identity To identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups and explain why it is important to challenge and reject inappropriate representations online. To describe issues online that could make anyone feel sad, worried, uncomfortable or frightened.
	Online Relationships To recognise some ways in which the	Online Relationships To be able to give examples of when I should ask permission to	Online Relationships To give examples of how someone might use technology to communicate with	Online Relationships To be able to describe ways people who have	Online Relationships	Online Relationships To be able to give examples of technology-specific forms of communication (e.g. emojis, memes and GIFs). To know that there are some people I communicate with online	To know and can give examples of how to get help online and offline. I can explain the

internet can be used to communicate. To be able to give examples of how I (might) use technology with people I know. Online Reputation To identify ways that I can put information on the internet. Online Bullying To describe ways that some people can be unkind online. To offer examples of how this can make others feel. Managing Online Information To be able to talk about how to use the internet as a way of finding information online. To identify devices I could use to access information on the internet. Health, Wellbeing & Lifestyle To be able to identify rules that help keep us safe and healthy in and beyond the home when I am using technology. Privacy & Security	do something online and explain why this is important. To use the internet with adult support to communicate with people I know (e.g. video call apps or services). To be able to explain why it is important to be considerate and kind to people online and to respect their choices. To explain why things one person finds funny or sad online may not always be seen in the same way by others. Online Reputation To know that information can stay online and could be copied. To know what information I should not put online without asking a trusted adult first. Online Bullying To be able to describe how to behave online in ways that do not upset others and can give examples. Managing Online Information To be able to describe simple examples of how to find information using	others they don't also know offline and explain why this might be risky (e.g. email, online gaming, a penpal in another school/country). To describe different ways to ask for, give or deny my permission online and identify who can help me if I am not sure. To explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. To know who can help me if something happens online without my consent. To explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. To explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online. Online Reputation To describe how anyone's online information could be seen by others.	similar likes and interests can get together online. To know what it means to 'know someone' online and why this might be different from knowing someone offline. To know what is meant by 'trusting someone online', why this is different from 'liking someone online', and why it is important to be careful about who to trust online, including what information and content they are trusted with. To be able to explain why someone may change their mind about trusting anyone with something if they feel nervous, uncomfortable or worried. To know that someone's feelings can be hurt by what is said or written online. To know the importance of giving and gaining permission before sharing things online and how the principles of sharing online are the same as sharing offline (e.g. sharing images and videos). Online Reputation	To describe strategies for safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms). To give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviours. To know how content shared online may feel unimportant to one person but may be important to other people's thoughts, feelings and beliefs. Online Reputation To know how to find out information about others by searching online. To be able to explain ways that some of the information about anyone online could have been created, copied or shared by others. Online Bullying To recognise when someone is upset, hurt or angry online. To describe ways people can be bullied through a range of media (e.g. image, video, text, chat). To be able to explain why people need to think carefully about how	who may want to do me or my friends harm. To recognise that this is not my/our fault. To describe some of the ways people may be involved in online communities and how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities and social media groups). To explain how someone can get help if they are having problems and identify when to tell a trusted adult. To demonstrate how to support others (including those who are having difficulties) online. Online Reputation To search for information about an individual online and summarise the information found. To describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect. Online Bullying To recognise that online bullying can be different from bullying in the physical world and can	importance of asking until I get the help needed. Online Relationships To explain how sharing something online may have an impact either positively or negatively. To know how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online and how to support them if others do not. To describe how things shared privately online can have unintended consequences for others, for example screen-grabs. To know that taking or sharing inappropriate images of someone, for example embarrassing images, even if they say it is okay, may have an impact for the sharer and others. I can also explain who can help if someone is worried about this. Online Reputation To explain the ways in which anyone can develop a positive online reputation.
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To identify some simple examples of my personal information (e.g. name, address, birthday, age, location). To describe who would be trustworthy to share this information with and explain why they are trusted. Copyright & Ownership To know that work I create belongs to me. To name my work so that others know it belongs to me. To express how I felt when I created this work. To be able to share my work with a friend.	digital technologies (e.g. search engines, voice activated searching). To understand that I can encounter a range of things online, including things I like and don't like as well as things which are real or make believe/a joke. To know how to get help from a trusted adult if I see content that makes me feel sad, uncomfortable worried or frightened. Health, Wellbeing & Lifestyle To explain rules to keep myself safe when using technology both in and beyond the home. Privacy & Security To know that passwords are used to protect information, accounts and devices. To recognise more detailed examples of information that is personal to someone (e.g. where someone lives and goes to school, family names). To be able to explain why it is important to always ask a trusted adult before sharing any personal information	To know who to talk to if something has been put online without consent or if it is incorrect. Online Bullying To know what bullying is, how people may bully others and how bullying can make someone feel. To explain why anyone who experiences bullying is not to blame. To know how anyone experiencing bullying can get help. Managing Online Information To use simple keywords in search engines. To demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward back buttons; links, tabs and sections). To explain what voice activated searching is and how it might be used, and I know it is not a real person (e.g. Alexa, Google Now, Siri). To explain the difference between things that are	To know how to search for information about others online. To be able to give examples of what anyone may or may not be willing to share about themselves online. To be able to explain the need to be careful before sharing anything personal. To know who someone can ask if they are unsure about putting something online. Online Bullying To describe appropriate ways to behave towards other people online and why this is important. To give examples of how bullying behaviour could appear online and how someone can get support. Managing Online Information To know how to use key phrases in search engines to gather accurate information online. To know what autocomplete is and how to choose the best suggestion. To know how the internet can be used to sell and buy things.	content they post might affect others, their feelings and how it may affect how others feel about them (their reputation). Managing Online Information To be able to analyse information to make a judgement about probable accuracy, and understand why it is important to make my own decisions regarding content and that my decisions are respected by others. To describe how to search for information within a wide group of technologies and make a judgement about the probable accuracy (e.g. social media, image sites, video sites). To know 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. To know that technology can be designed to act like, or impersonate, living things (e.g. bots) and describe what the benefits and the risks might be.	describe some of those differences. To know that what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. To explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult. To be able to identify a range of ways to report concerns and access support in school and at home about online bullying. To know how to block abusive users. To know about helpline services which can help people experiencing bullying and how to access them (e.g. Childline or The Mix). Managing Online Information To explain the benefits and limitations of using different types of search technologies such as voice-activation search engines. To know how some technology can limit the information I am presented with, for example voice-activated	To know strategies anyone can use to protect their digital personality and online reputation, including degrees of anonymity. Online Bullying To know how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me. To explain how someone could report online bullying in different contexts. Managing Online Information To know how search engines work and how results are selected and ranked. To know how to use search technologies effectively. To describe how some online information can be opinion and can offer examples. To explain how and why some people may present opinions as facts, and why the popularity of an opinion or the personalities of those promoting it does not necessarily make it true, fair or perhaps even legal.
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	online belonging to myself or others. Copyright & Ownership To be able to explain why work I create using technology belongs to me (e.g. 'I designed it' or 'I filmed it'). To save my work under a suitable title/name so that others know it belongs to me (e.g. filename, name on content). To understand that work created by others does not belong to me even if I save a copy.	imaginary, made up or make believe and things that are true or real. To explain why some information I find online may not be real or true. Health, Wellbeing & Lifestyle To explain simple guidance for using technology in different environments and settings (e.g. accessing online technologies in public places and the home environment). To know how those rules/guides can help anyone accessing online technologies. Privacy & Security To explain and give examples of what is meant by 'private' and 'keeping things private'. To describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). To explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights,	To be able to explain the difference between a belief, an opinion and a fact and can give examples of how and where they might be shared online (e.g. in videos, memes, posts, news stories). To know that not all opinions shared may be accepted as true or fair by others. To describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad, uncomfortable worried or frightened. Health, Wellbeing & Lifestyle To be able to explain why spending too much time using technology can sometimes have a negative impact on anyone (e.g. mood, sleep, body, relationships). To give some examples of both positive and negative activities where it is easy to spend a lot of time engaged (e.g. doing homework, games, films, videos). To know why some online activities have age restrictions, why it is important to follow	To know what is meant by fake news; for example, why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. Health, Wellbeing & Lifestyle To be able to explain how using technology can be a distraction from other things in a positive and negative way. To identify times or situations when someone may need to limit the amount of time they use technology. To suggest strategies to help with limiting this time. Privacy & Security To know strategies for keeping personal information private, depending on context. To know that internet use is never fully private and is monitored. To describe how some online services may seek consent to store information about me. To know how to respond appropriately and who I can ask if I am not sure. To know what the digital age of consent is and the	searching giving one result. To evaluate digital content and can explain how to make choices about what is trustworthy, for example differentiating between adverts and search results. To identify ways the internet can draw us to information for different agendas (e.g. website notifications, pop-ups, targeted ads). To describe ways of identifying when online content has been commercially sponsored or boosted (e.g. by commercial companies or by vloggers, content creators, influencers). To know what is meant by the term 'stereotype', how stereotypes are amplified and reinforced online and why accepting stereotypes may influence how people think about others. To describe how fake news may affect someone's emotions and behaviour and explain why this may be harmful. To explain what is meant by a hoax. To explain why someone would need to think carefully before they share.	To be able to define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online, for example advertising, ad targeting and targeting for fake news. To understand the concept of persuasive design and how it can be used to influence peoples' choices. To demonstrate how to analyse and evaluate the validity of facts and information, and I can explain why using these strategies is important. I can explain how companies and news providers target people with online news stories they are more likely to engage with and how to recognise this. To describe the difference between online misinformation and disinformation. To know that information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen, for example the sharing of misinformation or disinformation.
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			fridges, toys, televisions). Copyright & Ownership To recognise that content on the internet may belong to other people. To describe why other people's work belongs to them.	them and know who I can talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age restricted gaming or web sites). Privacy & Security To be able to describe simple strategies for creating and keeping passwords private. To give reasons why someone should only share information with people they choose and can trust. To know that if they are not sure or feel pressured, they should tell a trusted adult. To describe how connected devices can collect and share anyone's information with others. Copyright & Ownership To be able to explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.	impact this has on online services asking for consent. Copyright & Ownership 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. To be able to give some simple examples of content which I must not use without permission from the owner (e.g. videos, music, images).	Health, Wellbeing & Lifestyle To describe ways technology can affect health and well-being positively (e.g. mindfulness apps) and negatively. To describe some strategies, tips or advice regarding technology to promote health and wellbeing. To recognise the benefits and risks of accessing information about health and well-being online and how we should balance this with talking to trusted adults and professionals. To explain how and why some apps and games may request or take payment for additional content (e.g. in-app purchases, loot boxes) and explain the importance of seeking permission from a trusted adult before purchasing. Privacy & Security To know what a strong password is and demonstrate how to create one. To explain how many free apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.	To be able to identify, flag and report inappropriate content. Health, Wellbeing & Lifestyle To know some common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. To recognise and can discuss the pressures that technology can place on someone and how and when they could manage this. To recognise features of persuasive design and how they are used to keep users engaged (current and future use). To assess and action different strategies to limit the impact of technology on health (e.g. night-shift mode, regular breaks, correct posture, sleep, diet and exercise). Privacy & Security To describe effective ways people can manage passwords, for example storing them securely or saving them in the browser. To know what to do if a password is shared, lost or stolen.
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Vocabulary	Emotions – sad, uncomfortable, embarrassed, upset, nervous, happy, online, offline, trust, trusted adult, communicate, technology, internet, connect, unkind, device, rules, safe,	EYFS+ mood, advice, allowed, permission, positive/negative, cyberbullying, sharing, sign up, search engine, access, password.	EYFS, Y1 + risk, identity, avatar, privacy, consent, forever, tab, profile, username, self-esteem, responsible, blame, support, advice, webpage, links, browser.	EYFS, Y1, Y2 + reputation, online reputation, response, follower, block, report, autocomplete, suggestion, prediction, fact, opinion, source, PEGI, age restriction, targeted, copyright.	EYFS, Y1, Y2, Y3 + intimidate, self-image, self-esteem, self-regulate, identity theft, screengrab, pop up, fake news, digital age of consent, creative commons licence, commercial licence, usage rights.	EYFS, Y1, Y2, Y3, Y4 + modify, alter, original, gif, meme, emoji, profile, digital footprint, virtual, banter, sceptical, cookies, hoax, wellbeing, mental health.	EYFS, Y1, Y2, Y3, Y4, Y5+ stereotype, inclusivity, CEOP, Childline, targeted advert, influencer, persuasive design, autoplay, streak, loot box, scams, phishing, plagiarism, bibliography, cite.

	danger, personal, information, private, belong.						
Creating Media	To use applications to create pictures and begin to write and type words and phrases.	Digital Painting To describe what different freehand tools do. To use the shape tool and the line tool. To know how to change the colour and brush sizes. To make careful choices when painting a digital picture in the style of an artist. To explain why I chose the tools I used. To use a computer on my own to paint a picture. To compare painting a picture on a computer and on paper. Digital Writing To use a computer to write. To find keys (space, back space, letters and numbers) on a keyboard. To add and remove text on a computer. To identify that the look of text can be changed on a computer. To type a capital letter using caps lock. To understand the purpose of the tool bar	Digital Photography To know which digital device to use to capture a digital photo. To use a digital device to take a photograph in either portrait or landscape. To make choices when taking a photograph. To describe what makes a good photograph. To recognise that photos can be changed. To decide how photographs can be improved. To use tools to change an image. Digital Music To know how music can make us feel and identify simple differences in pieces of music. To identify patterns in music and follow and create rhythm patterns. To change pitch using a computer and using images to create sounds. To use a computer to create a musical	Stop-frame Animation To explain that animation is a sequence of drawings or photographs. To relate animated movement with a sequence of images. To plan an animation. To create a flip-book style animation, explaining how it works. To identify the need to work consistently and carefully. To review and improve an animation. To evaluate the impact of adding other media to an animation. Desktop Publishing To recognise how text and images convey information. To know the difference between text and images and the advantages and disadvantages of using them. To know that text and layout can be edited (font style, size, and colours) for a given purpose. To choose appropriate page settings	Audio Production To know that sound can be recorded. To recognise that input and output devices are used to record and play sound. To use a computer to record audio. To explain that audio recordings can be edited/trimmed and saved as an editable document. To combine audio to enhance their podcast project. To evaluate the effective use of audio. Photo Editing To know that the composition of digital images can be changed and improved by rotating, cropping an image and changing colours. To change the composition of an image. To make good choices when selecting different tools. To describe how images can be changed for different uses. To know how cloning and colour effects can be used in photo editing.	Video Production To explain what makes a video effective. To identify which digital devices can record video. To know the features on a digital video recording device, including a microphone. To capture video using a range of techniques. To create a storyboard. To show that video can be improved through reshooting and editing and know which tools to use. To know the impact of the choices made when making and sharing a video. To save, retrieve and export video content. Introduction to Vector Graphics To know that drawing tools can be used to produce different outcomes and that vector drawings are made using shapes or objects. To create a vector drawing by combining shapes, resizing, rotating and duplicating objects. To know which tools to use to achieve a desired effect and improve	Web Page Creation To know the different types of media used on websites. To know that websites are written in HTML. To review an existing website and consider its structure. To know the common features of a web page. To know about the ownership and use of images (copyright). To know the term fair use and can find copyright free images. To add content to a webpage and preview it. To know that there is a need for a navigation path and can link webpages using hyperlinks. To know the implications of linking to content owned by other people. 3D Modelling To work in three dimensions on a computer and add 3D shapes to a project. To move 3D shapes relative to one another. To modify 3D objects by resizing, lifting, lowering and/or recolouring.

		and how to use bold, italic, and underline. To make careful choices when changing text; including double-clicking, dragging to select and changing the font. To be able to use the 'undo' tool. To explain why particular tools were chosen. To compare the similarities and differences between typing on a computer to writing on paper; saying which they prefer.	pattern using sequences of notes. To create music/rhythm for a purpose. To review and refine computer work and explain how it was changed.	(templates, page orientation, placeholders). To add content to a desktop publishing publication. To consider how different layouts can suit different purposes. To know the benefits of desktop publishing and compare work made on desktop publishing to work created by hand.	To know that images can be combined using tools to select and copy part of an image. To know how to combine images for a purpose. To recognise that not all images are real.	consistency including zoom, alignment grids and resize handles. To recognise that vector drawings consist of layers and how to add a new layer, change the order of layers. To group and ungroup objects to make them easier to work with by copying part of a drawing and duplicating several objects. To apply what they have learned about vector drawings to create a vector drawing for a specific purpose and reflect on the skills they have used and why they have used them.	To show that objects and models can be combined, grouped, rotated and duplicated in a 3D model. To create a 3D model for a given purpose. To accurately size 3D objects and show that placeholders can create holes in 3D objects. To plan and create a 3D model and explain how it could be improved and modified.
Vocabulary	keypad, home button, paint, type, save, exit.	<u>Digital Painting</u>: paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers <u>Digital writing</u>: word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing	<u>Digital Photography</u>: device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting <u>Digital Music</u>: music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit	<u>Stop-frame Animation</u>: animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition <u>Desktop Publishing</u>: text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits	<u>Audio Production</u>: audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate <u>Photo editing</u>: image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background,	<u>Video Production</u>: video, audio, camera, talking head, panning, close up, video camera, lens, microphone, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, filming, storyboard, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share <u>Introduction to Vector Graphics</u>: vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate,	<u>Web Page Creation</u>: website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed <u>3D Modelling</u>: 2D, 3D, TinkerCAD, shapes, select, move, view, perspective, handles,

					foreground, zoom, undo, font	duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify
Programming	Learning the foundations of computational thinking through; playing and exploring making, checking and fixing things playing & working collaboratively grouping things, comparing and spotting similarities naming & labelling, responding to instructions sequencing things breaking down problems into steps. Exploring electronic toys – pressing buttons to make things move, light up and make noises.	Moving a Robot To know what a given command will do, predicting and matching it to an outcome. To combine forwards and backwards commands to predict and make a sequence. To use left and right commands to move a robot. To combine four direction commands to make sequences. To plan a simple program and debug the program, knowing what it should do. To find more than one solution to a problem. Programming Animations To choose a command for a given purpose (move a sprite). To show that a series of commands (blocks) can be joined together to create an algorithm.	Robot algorithms To describe a series of instructions to create a sequence. To explain what happens when we change the order of instructions. To program and predict a sequence for a floor robot. To know that programming projects can have code and artwork To design an algorithm. To create and debug a program that has been created. Programming Quizzes To explain that a sequence of commands has a start and know how to run a program. To explain that a sequence of commands has an outcome and the outcome can be changed.	Sequencing Sounds To use the programming environment of Scratch. To know that commands in Scratch are represented in blocks have an outcome. To create a program using a design and sequence. To know that sprites are controlled by commands. To recognise that a sequence of commands can have an order. To create a project from a task description using sprites controlled by movement commands and sound commands. To change the appearance of a project. Events and Actions in Programs To explain how a sprite moves in an existing project using blocks. To program movement using a sequence of commands and create a	Repetition in Shapes To identify that accuracy in programming is important. To create a program on a computer by typing in commands in a text-based language. To write an algorithm to achieve an outcome. To explain what 'repeat' means. To write a code and change the value of a command. To use and modify a count-controlled loop, knowing which values to change to produce a given outcome. To decompose a task into small steps. To use a procedure in a program and develop the program by debugging it. Repetition in Games To use count-controlled and infinite loops in a different programming environment. To know that in programming there are	Selection in Physical Computing To control a simple circuit and connect it to a microcontroller controlling an LED. To describe what an infinite loop does. To connect more than one output device to a microcontroller. To write a program that includes count-controlled loops and that these control the output. To explain that a loop can stop when a condition is met. To recognise that a loop can be used to repeatedly check whether a condition has been met and that if it has can start an action. To know that a condition (if, then) can control a program. To design a physical project that includes selection. To create a program that controls a physical computing project.	Variables in Games To know that a variable is used in a program and these can hold a number of letters, knowing that they have names and values. To know that program variables can hold the place of a single variable. To know that events in a program can set variables. To improve a game by using variables. To design a project that builds on a given example. To use a design to create a project. To evaluate their project. Sensing Movement To create a program to run on a controllable device and test the program on an emulator. To know that programs can be transferred to a controllable device. To know that if, then and else statements can be

		To run and test a program using a start block. To identify the effect of changing a value of a block. To explain that each sprite has its own instructions and how to add and delete more than 1 sprite. To design the parts of a project. To use algorithms to create a program and test what has been created.	To create a program using a given design, creating algorithms for a sprite's actions using a sequence of blocks. To change a given design. To create a program using their own design. To know how improve their project by adding features and debugging.	program to move a sprite in four directions. To adapt a program to a new context using program extensions and blocks. To develop a program by adding features from a given set of blocks and choose suitable keys to turn on additional features. To fix bugs in a program. To design and create a maze-based challenge.	infinite loops and count-controlled loops. To develop a design that includes two or more loops which run at the same time and know that more than one process can run at once. To modify an infinite loop in a given program. To design a project that includes repetition. To evaluate the steps they followed when building their project. To know how to use existing code on new sprites.	To test and debug the project. Selection in Quizzes To explain how selection is used in computer programs and how conditions are used. To relate that a conditional statement connects a condition to an outcome. To use selection in an infinite loop to check a condition. To know the condition and outcomes in an 'if... then... else...' statement. To explain how selection directs the flow of a program and it can branch according to a condition. To design a program that uses selection and identify the outcome of user input in an algorithm. To create a program that uses selection and implement an algorithm to create the first section of my program. To evaluate their program.	used to control the flow of a program, knowing the importance of the order of these. To update a variable with a user input and that conditions can be used to change variables. To use a conditional statement to compare a variable to a value and use operands (<=>) in an if, then statement. To design a project that uses inputs and outputs on a controllable device. To develop a program to use inputs and outputs on a controllable device and use a range of approaches to find and fix bugs.
Vocab	check, fix, explain, group, sort, same/different, name/label.	<u>Moving a robot:</u> Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program <u>Programming animations:</u> Scratch Jr,	<u>Robot algorithms:</u> instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition <u>Programming Quizzes:</u>	<u>Sequencing Sounds:</u> Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord,	<u>Repetition in shapes:</u> Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure	<u>Selection in physical computing:</u> microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips,	<u>Variables in games:</u> variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare

		command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code	algorithm, bug, debug, code <u>Events and actions in programs:</u> Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code	<u>Repetition in games:</u> Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate	connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer <u>Making Quizzes:</u> selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator	<u>Sensing Movement:</u> Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug
Computing Systems & Networks	Technology Around Us To recognise that a range of technology is used in places such as homes and schools. To select and use technology for particular purposes. To know the main parts of a computer (keyboard, screen, mouse, trackpad). To control a cursor using a mouse/ trackpad.	Technology Around Us To identify different types of technology. To know the main parts of a computer (on/off switch, mouse/trackpad to click and drag). To use a mouse/ trackpad in different ways (open a program and create a picture). To use a keyboard to type on a computer, and move the cursor and delete letters. To use the keyboard to edit text. To use technology responsibly.	IT Around Us To recognise the uses of information technology in school and beyond. To identify how information technology helps us. To use information technology safely. To explain that choices are made when using information technology.	Connecting Computers To explain how digital devices function, using input and output. To identify the physical components of a network and that a computer network is made up of multiple devices. To suggest how digital devices can change the way we work. To explain how a computer network can be used to share information. To explore how digital devices can be connected.	The Internet To describe how networks physically connect to other networks. To recognise how networked devices make up the Internet. To outline how websites can be shared via the World Wide Web (WWW). To describe how content can be added and accessed on the World Wide Web (WWW). To recognise how the content of the WWW is created by people. To understand that there are rules to protect content on the WWW. To know that not everything on the WWW is true, and why it may not be honest, accurate or legal.	Systems and searching To explain that computers can be connected together to form systems, and that these feature inputs, outputs and processes. To recognise the role of computer systems in our lives. To be able to use search engines safely and efficiently. To understand how search engines select results. To describe how search results are ranked and recognise why the order of results is important, and to whom.	Communication and collaboration To identify the importance of internet addresses and how these are used to access websites. To describe how data is transferred across the internet. To explain how sharing information online can help people to work together evaluate different ways of working together online. To describe how we communicate using technology and evaluate different methods of online communication. To explain how to access shared files stored online.

Vocabulary	technology	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing	Information technology (IT), computer, barcode, scanner/scan	digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	Internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many
	Grouping Data To know that things can be grouped, comparing and spotting similarities and differences, beginning to work out rules. To count objects. To label objects.	Grouping Data To label objects. To identify that objects can be counted. To describe objects in different ways. To count objects with the same properties. To compare groups of objects. To group objects and answer questions about these groups.	Pictograms To describe the properties of an object, count and compare them. To count and compare objects using tally charts. To represent objects as pictures. To create a pictogram. To select objects by attribute and make comparisons. To recognise that people can be described by attributes. To explain that we can present information using a computer.	Branching Databases To create questions with yes/no answers. To identify the attributes needed to collect data about an object. To create a branching database. To explain why it is helpful for a database to be well structured. To plan the structure of a branching database. To independently create an identification tool.	Data logging To explain that data gathered over time can be used to answer questions. To use a digital device to collect data automatically. To explain that a data logger collects 'data points' from sensors over time. To view and sort data. To describe how a computer can help us analyse data. To identify the data needed to answer questions. To use data from sensors to answer questions.	Flat-file database To use a form to record information. To compare paper and computer-based databases. To navigate a flat file database to compare information. To outline how you can answer questions by grouping and then sorting data. To explain how 'and and or' can be used to refine data. To describe how filters can refine data and charts. To know that tools can be used to select specific data.	Introduction to Spreadsheets To create a data set in a spreadsheet. To know the inputs and outputs in a spreadsheet. To build a data set in a spreadsheet. To explain that formulas and operations can be used to calculated data. To apply formulas to data. To create a spreadsheet to plan an event. To choose suitable ways to present data.
	group, sort, count	object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same,	attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree	data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion	database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart,



Progression in skills for Computing - The Cliff Federation of Hemswell Cliff and Willoughton Primary School



			different, conclusion, block diagram, sharing				evaluate, results, sum, comparison, software, tools
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