Curriculum overview for parents and carers

Computing

Summary of key Computing learning for Reception to Year 6.

Computing, Online Safety and Digital Skills Progression of Substantive and Disciplinary Knowledge

The National Curriculum for Computing aims to ensure that all pupils:

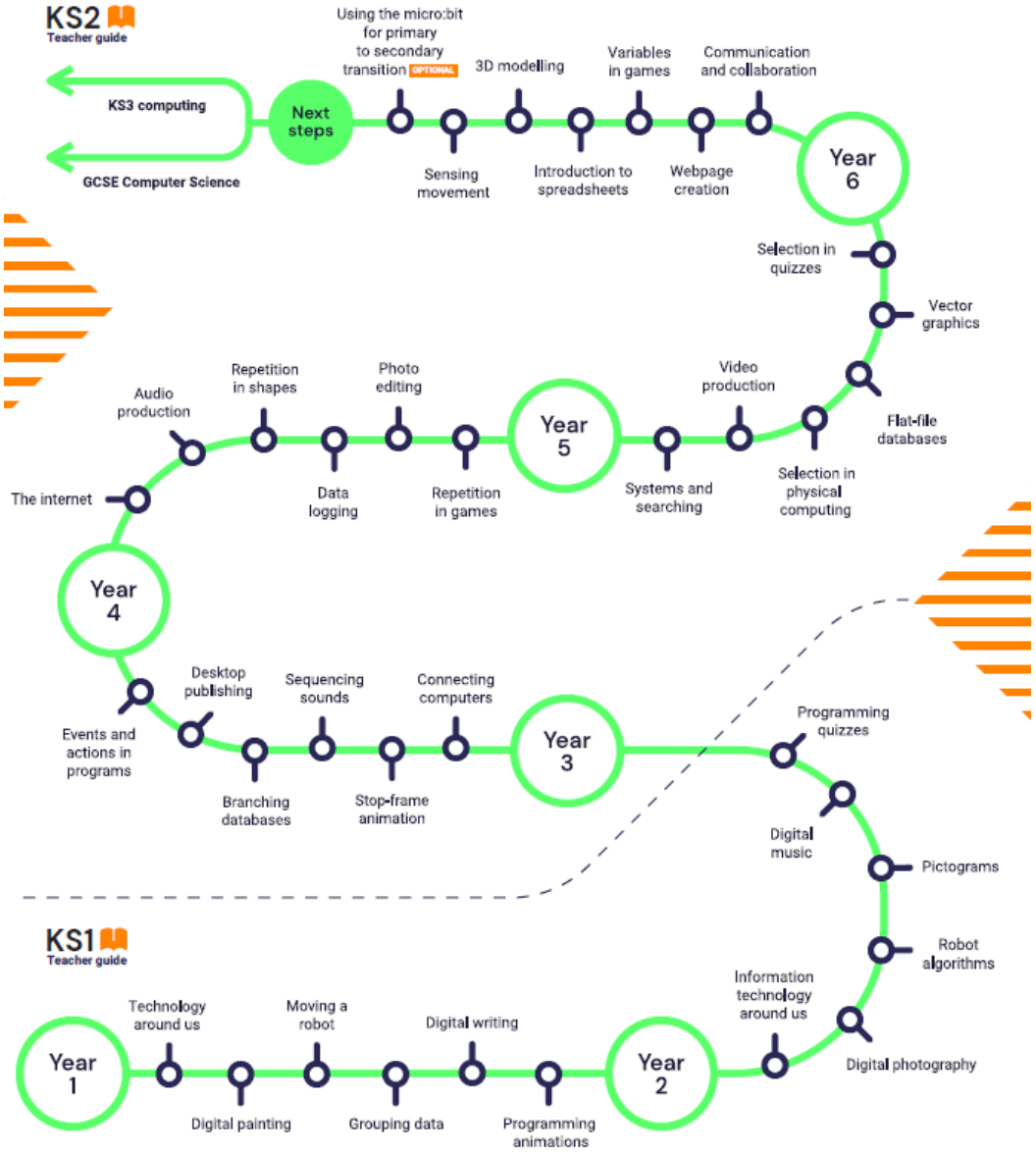
- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- 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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Pupils should be taught about: ● understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions ● create and debug simple programs ● use logical reasoning to predict the behaviour of simple programs ● use technology purposefully to create, organise, store, manipulate and retrieve digital content ● recognise common uses of information technology beyond school ● use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.			**Pupils should be taught about:** ● design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts ● use sequence, selection, and repetition in programs; work with variables and various forms of input and output ● use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs ● understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration ● use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content ● select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information ● use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.		

Through teaching computing at Whitfield St James', we equip our children with the substantive and disciplinary knowledge needed to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. We use Teach Computing as a vehicle for the computing curriculum, Children will increase their substantive knowledge in computing by developing an understanding of how to safely use technology, how to be computational thinkers and how to program. This will support the development of disciplinary knowledge by allowing children to interpret and apply their substantive knowledge in the creation of original digital content. Computing skills are taught within context, using technology to both create and assist learning in all subject areas. We believe a high-quality computing education equips our pupils to use computational thinking and creativity to understand and change the world. Computing is embedded across our curriculum due to its deep links with mathematics, PSHE, science, and design and technology.

Teach Computing Curriculum

Primary Journey



Progression		Nursery	Reception	Year 1	Year 2
Online Safety	Substantive Knowledge	Can discuss the amount of time they spend using a computer/tablet/game device and what they use them for. Explain why they should ask an adult to use my tablet/internet/apps. Know that they can tell an adult when something worrying or unexpected happens while they are using them.	Talk about what they like doing online and discuss what online safety is. Learn how to tell when something makes them feel sad or upset, whether it's on the computer or in the real world, and know when to talk to a grown-up about it. Can give examples of how they (might) use technology to communicate with people they know. Can discuss and understand why rules for safe and healthy technology use are important at home and school, and provide simple examples of these rules.	Recognise that there may be people online who could make them feel sad, embarrassed, or upset. Provide examples of when and how to speak to an adult they can trust if something happens that makes them feel sad, worried, uncomfortable, or frightened. Understand that they can encounter a range of things online, including things they like and don't like, and things that are real or make-believe. Recognise that information can stay online and could be copied. Describe what information they should not put online without asking a trusted adult first. Recognise more detailed examples of information that is personal to them (e.g., where they live, their family's names, where they go to school). Explain why they should always ask a trusted adult before sharing any information about themselves online. Explain how passwords can be used to protect information and devices.	Describe various ways in which people might appear or behave differently online compared to offline. Provide examples of online situations that could potentially make someone feel sad, worried, uncomfortable, or frightened. Give examples of how one can seek help when facing such online issues. Describe how technology can be used for communication with others. Know the importance of using technology safely and respectfully, including keeping personal information private. Identify where to seek help and support when there are concerns about content or contact online or other online technologies. Explain how information put online about them can persist for a long time. Know whom to talk to if they suspect someone has made a mistake about putting something online.
	Disciplinary Knowledge	Can take turns and share when using tablets, the internet, or apps Can discuss the importance of balancing time between using a computer/tablet/game device and other activities. Understand and follow rules for using technology and consistently practise good digital behaviour	Children can recognise that they can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks them to do something that makes them feel sad, embarrassed, or upset both online and offline Children understand how to safely use a device - handling, respect, care.	Discuss how spending too much time using technology can sometimes affect their mood. They can provide examples of activities where it is easy to spend a lot of time engaged (e.g., games, films, videos). Explain why they have a right to say 'no' or 'they will have to ask someone. Explain why they should always ask a	Children should consistently practise kindness and respect when interacting with others online, following the rule that online behaviour should mirror real-life behaviour. Children must understand and consistently follow the rule that if they encounter something online that makes them feel uncomfortable, they should immediately seek help from a trusted

				trusted adult before clicking yes, agree, or accept online Describe how to behave online in ways that do not upset others and can provide examples. Explain why it is important to be considerate and kind to people online. Explain rules to keep them safe when they are using technology both in and beyond the home. They can give examples of some of these rules.	adult Children should learn and apply the rule of treating digital devices with care, understanding the importance of proper handling and responsible use

Progression		Year 3	Year 4	Year 5	Year 6
Online Safety	Substantive Knowledge	Recognise that people's identity includes factors like their name, age, gender, hobbies, and cultural background, shaping their unique sense of self. Understand that changing identity online may involve using avatars or pseudonyms in gaming for privacy, creativity, or community, while real names are used on social media for personal branding or networking. Learn that people can connect with others who share their interests through social media groups, forums, specialised websites, or apps dedicated to hobbies, causes, or passions. Emphasise cautious trust online, acknowledging that not everyone has honest intentions, and being mindful of sharing personal information or sensitive details. Recognise that posting content online can shape how others perceive and respond to an individual, impacting relationships and reputation, and the	Know the basics of using messaging apps for communication and collaboration. Know the importance of using clear and respectful language in online communication. Recognise common signs of cyberbullying and online harassment. Know how to report incidents of cyberbullying and seek help from trusted adults. Understand the role of trusted adults and peers in providing support and intervention when faced with cyberbullying. Identify and describe common digital devices, such as computers, tablets, and smartphones. Understand the purpose of passwords and how to create strong, secure passwords for online accounts.	Understand that online activities, such as posting photos, comments, and personal information, contribute to a digital footprint. Recognise that a digital footprint can influence how others perceive an individual online. Identify strategies for managing and protecting one's digital identity and personal information. Describe the potential risks of sharing personal information online, including the dangers of talking to strangers. Understand the importance of setting privacy settings on social media profiles and online accounts. Recognise the signs of cyberbullying and know how to respond and seek help when faced with online harassment. Identify common advertising tactics online, such as sponsored content, endorsements, and product placements.	Describe online issues that might cause sadness, worry, discomfort, or fear and know how to seek help both online and offline. Explain the importance of persistently seeking help until it is obtained. Demonstrate how to support others, including those facing difficulties, online. Identify various ways to report concerns about online bullying in school and at home. Assess and implement different strategies to limit the impact of technology on one's health, considering technology use and health. Explain the importance of self-regulating technology use and demonstrate the strategies used to do so. Explain what app permissions are and provide examples from the technology or services used, addressing technology use.

		importance of considering potential consequences. Understand the importance of passwords for safeguarding personal data and online accounts. Strategies include using strong, unique passwords, regularly changing them, and not sharing them. Be aware that excessive screen time, such as video games, films, or social media, can lead to issues like reduced physical activity, limited social interaction, and disrupted sleep patterns.	Be able to differentiate between reliable and unreliable online sources. Demonstrate online etiquette by using polite and respectful language when communicating with others. Understand the importance of obtaining consent before sharing personal information or photos online. Be aware of the potential consequences of inappropriate online behaviour, including hurting others' feelings and harming one's online reputation. Describe what a digital footprint is and how online actions, like posting photos and comments, contribute to it. Know the key principles of online safety, including not sharing personal information with strangers and avoiding risky online activities. Understand the role of parents, teachers, and trusted adults in guiding and supporting online safety practices. .	Understand the influence of online advertisements and their impact on consumer choices. Develop critical thinking skills to evaluate online content for credibility, accuracy, and potential bias. Understand the concept of copyright and why respecting creators' rights is important. Know how to properly attribute and give credit when using images, videos, or other digital content created by others. Recognise the ethical implications of using someone else's work without permission. Be aware of the reporting mechanisms and tools available on various online platforms to report safety concerns, cyberbullying, or inappropriate content. Understand the role of moderators and administrators in maintaining online communities and addressing violations of community guidelines. Recognise the potential legal consequences of engaging in harmful online behaviour, such as cyberbullying or harassment.	Describe simple ways to increase privacy on apps and configure privacy settings, considering online privacy. Describe ways in which some online content targets people to gain money or information illegally and describe strategies to identify such content, including scams and phishing, addressing online safety and technology use.
	Disciplinary knowledge	Explain the purpose and functions of common digital devices such as computers, tablets, and smartphones. Identify basic hardware components of digital devices, including screens, keyboards, and mice. Understand how to navigate digital interfaces, including desktops, app menus, and web browsers. Describe various digital communication tools and platforms, including email, messaging apps, and video conferencing. Understand the basics of sending and receiving emails or messages using age-appropriate digital tools.	Explain the basics of digital communication, including sending emails, texting and using messaging apps. Understand the importance of clear and respectful online communication with peers and adults. Recognise the potential consequences of sharing personal information online and the concept of online privacy. Describe what cyberbullying is Understand the impact of cyberbullying on individuals and the importance of reporting such incidents.	Explain the concept of a digital footprint and how online activities contribute to it. Identify the potential long-term consequences of online actions on one's digital identity. Understand the difference between private and public information and the importance of protecting personal data online. Describe common online communication tools and platforms used by individuals, considering online communication. Explain the risks associated with sharing personal information online and the importance of privacy settings.	Explain how media, including social media, can shape and perpetuate stereotypes and ideas about gender roles. Identify common tactics used by online platforms and media to target and influence users for commercial gain. Recognise the impact of online content and statements on individuals' online reputation and public perception Describe the various online platforms, websites, or services where one can seek help or report online bullying, and understand their specific reporting mechanisms.

		Recognise the importance of using clear and respectful language in online communication. Explain the concept of online safety and the need to protect personal information online. Understand the importance of not sharing personal information, such as full names, addresses, or phone numbers, with strangers online. Recognise the role of trusted adults in guiding online safety practices. Understand the basics of digital etiquette, including using polite language and being respectful when interacting with others online. Recognise the difference between real-life and online friendships and the importance of treating online friends with kindness and respect. Explain the potential consequences of unkind or harmful online behaviour, such as hurting others' feelings. Identify age-appropriate online sources, like websites and educational apps, for learning and entertainment. Understand that not all online information is reliable and that it's essential to use trusted sources. Learn basic search skills like using keywords to find information online.	Explain how to seek help and support when faced with cyberbullying and the role of trusted adults. Identify common digital devices and understand their basic functions and purposes. Explain the concept of passwords and the importance of creating strong, secure passwords for online accounts. Recognise the difference between credible and non-credible online sources of information. Understand the importance of online etiquette and respectful behaviour when interacting with others on the internet. Explain the concept of consent and respect for others' online privacy, including not sharing personal information without permission. Recognise the potential consequences of inappropriate online behaviour, such as hurting others' feelings or damaging one's own online reputation. Describe what a digital footprint is and how online actions contribute to it. Understand the concept of online safety, including not sharing personal information, meeting strangers online, or engaging in risky online behaviour.	Recognise the difference between positive online communication and harmful online behaviour, such as cyberbullying. Understand the role of media and advertising in shaping opinions and decisions, considering media influence. Identify common advertising strategies used online, such as sponsored content and influencer marketing. Explain the importance of critical thinking skills in evaluating online content for credibility and bias. Explain the concept of copyright and intellectual property rights, considering digital ethics. Recognise the importance of respecting copyright when using online resources, like images and videos. Understand the consequences of plagiarism and the importance of giving credit to creators when using their work. Describe ways to report online safety concerns and inappropriate content on various online platforms. Understand the role of moderators and administrators in online communities and their responsibilities in maintaining a safe environment. Explain the potential legal and ethical consequences of engaging in harmful online behaviour.	Explain the legal and ethical aspects of capturing and sharing evidence of online bullying or harassment, including using screenshots or URLs. Understand the concept of online privacy and the importance of configuring privacy settings on different apps and services to protect personal information. Recognise the potential risks associated with sharing personal data online and the strategies used by cybercriminals, such as scams and phishing, to gain illegal access to information. Explain how certain technological features, like night shift mode or privacy settings, can be used to improve online experiences and reduce negative health impacts. Describe the concept of app permissions and provide examples of the information apps may request access to on devices. Understand the importance of monitoring and self-regulating technology used to balance screen time with other aspects of life. Recognise the potential consequences of impulsive and rash online communication, both in personal relationships and one's online reputation.

Progression		Nursery	Reception	Year 1	Year 2
Computer Science	Substantive Knowledge	Know how to follow simple instructions Put pictorial instructions into sequential order Use programmable toys and talk about their discoveries	Can follow simple oral commands (algorithms). Can order steps that tell something what to do.	Be able to know explain that an algorithm is a set of instructions to complete a task. Know how to work out what is wrong with a simple algorithm when the steps are out of order Know how to write own simple Algorithm Be able to make good guesses of what is going to happen in a program. For example, where a robot might go.	Be able to explain that an algorithm is a set of instructions to complete a task. Show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code Know how to create a simple program that achieves a specific purpose. Be able to identify and correct some errors
Computer Science	Disciplinary Knowledge	Understand how to use the different types of bricks. Use action bricks to complete tasks.	Can input a simple sequence of commands to control a digital device.	Understand what algorithms are Understand programs execute by following precise and unambiguous instructions Create and debug simple programs. Can say what an argument is, for a program. Can reduce the amount of code I write by changing an argument.	Understand what algorithms are Understand programs execute by following precise and unambiguous instructions Create and debug simple programs.

Progression		Year 3	Year 4	Year 5	Year 6
	Substantive Knowledge	Can break an open-ended problem up into smaller parts. Can put programming commands into a sequence to achieve a specific outcome.	Can use logical thinking to solve an open-ended problem by breaking it up into smaller parts. Can use an efficient procedure to simplify	Make more complex real-life problems into algorithms for a program. Test and debug my programs as I work.	Design and implement algorithms to solve complex problems. Deconstruct problems into smaller steps, recognising similarities to solutions used

Computer Science		Keep testing my program and can recognise when I need to debug it. Can use repeat commands.	a program. To keep testing a program while putting it together. Can use various tools to create a program. Can recognise an error in a program and debug it. Understand how stop-motion animations are created using repetition.	Convert (translate) algorithms that contain sequence, selection and repetition into code that works. Use sequence, selection, repetition, and some other coding structures in my code. Organise code carefully, for example, naming variables Use logical methods to identify the cause of any bugs	before. Explain and program each of the steps in my algorithm. Use logical reasoning to detect and correct errors in algorithms and programs. Analyse and debug complex programs to identify and correct error Evaluate the effectiveness and efficiency of an algorithm Apply advanced programming constructs like loops, conditionals, and functions to create efficient and functional programs.
Computer Science	Disciplinary Knowledge	Use logical reasoning to explain how a simple algorithm works. Design, write, and debug programs that control or simulate virtual events. Describe the algorithm I will need for a simple task. Detects problems in an algorithm which could cause unsuccessful programming.	Design, write and debug programs that accomplish specific goals Solve problems by decomposing them into smaller parts Use sequence and selection Recognise that an algorithm will help me to sequence more complex programs. Recognise that using algorithms will also help solve problems in other learning.	Design, write and debug programs that accomplish specific goals Solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs Work with variables Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Use variables and operators to stop a program. Recognise when I need to use a variable to achieve a required output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Progression		Nursery	Reception	Year 1	Year 2
Information Technology	Substantive Knowledge	Learn to use simple educational apps or websites with guidance. Children understand that computers and devices are tools we use. Learn that devices can display pictures and play sounds. They become aware that devices respond to commands and buttons.	Learn to use simple educational apps or websites with guidance. Children understand that devices are tools we use. Recognise basic computer parts like screens, keyboards, and buttons. Children recognise that information is stored on computers.	Identify and name common technology devices like computers, tablets, and smartphones. Begin to understand the concept of software as programs and apps that make devices work. Understand the importance of taking care of technology devices and keeping them clean. Start to use basic computer terminology such as "click," "press," Identify and differentiate between different types of devices (e.g., tablet vs. smartphone). Recognise ways in which the internet can be used to communicate.	Use different software programs and discuss the benefits of their usage. I can talk about how to use the internet as a way of finding information online. I can use simple keywords in search engines.
Information Technology	Disciplinary Knowledge	Learn new things by looking and touching. Understand that devices have buttons to make them work. Know that grown-ups help me when using devices.	Learn new things by looking and touching. Understand that devices have buttons to make them work. Know that grown-ups help me when using devices.	Recognise the ways we use technology in our classroom. Recognise how we use technology at home and in the community. Analyse some of the benefits of technology in the modern world. Explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions, doorbells, heating).	Know the difference between hardware and software. Recognise common uses of IT beyond school. Explain the difference between things that are imaginary, made up, or make-believe and things that are true or real. Explain what voice-activated searching is, how it might be used, and understand that it's not a real person (e.g., Alexa, Google, Siri).

Progression		Year 3	Year 4	Year 5	Year 6
Information Technology	Substantive Knowledge	Demonstrate how to use key phrases in search engines to gather accurate information online. Explain what autocomplete is and how to choose the best suggestion. Analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content.	Demonstrate how to conduct advanced searches using filters and advanced search operators. Discern between reliable and unreliable sources of information on the internet. Understand the importance of citing and referencing online sources appropriately when conducting research.	Use more advanced features such as filters when searching online. Use a range of search tools to find exactly what I am looking for. Can explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this may cause. Can search the internet for content to use and can explain why we need to consider who owns it and whether we have the right to reuse it. Describe the concept of cloud computing and understand how it is used for data storage and collaboration.	Demonstrate the use of search tools to find and access online content that can be used by others. Demonstrate how to make references to and acknowledge sources used from the internet. Demonstrate the ability to critically evaluate online information sources for credibility, bias, and reliability. Describe the concept of cloud computing and understand how it is used for data storage and collaboration.
Information Technology	Disciplinary Knowledge	Use search technologies effectively Appreciate how results are selected and ranked, and be discerning in evaluating digital content Understand that the Internet is a large network that enables computers to share information.	Understand that the internet is a large network. Can explain how search engines work and how searches are selected and ranked. Appreciate how results are selected and ranked, and be discerning in evaluating digital content Create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. Understand that the Internet is a large network that enables computers to share information. To understand the history of computing and discuss significant individuals. To understand the history of computing, including with ethnic minority groups.	To understand the history of computing and discuss significant individuals. To understand the history of computing, including with BAME (Black, Asian, and Minority Ethnic) influences. Can explain the benefits and limitations of using different types of search technologies, e.g., voice activation search engines like Alexa (giving only one result). Understand how search engines order their search results. Can explain what is meant by being sceptical when judging online content. To be critical and questioning of information online, and taught to see how it can be presented with bias.	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. When searching the internet for content to use, explain why it's necessary to consider who owns it and whether there is the right to reuse it. Give some examples of content that must not be used without permission from the owner, e.g., music, images. Give examples of content that is permitted to be reused and know how this content can be found online.

Digital Skills Progression Framework

Progression		Nursery	Reception	Year 1	Year 2
Digital Skills	Procedural Knowledge	Taking a photo and recording a video with their device. Finding a familiar app and selecting a game of choice independently. Using a paint/drawing app to create a digital image. Begin to identify and locate keys on the keyboard. Find the spacebar and begin to make spaces. Use a microphone to talk about a topic. Add labels to an image. Sequence a series of pictures to explain my understanding of a topic.		Logging into a laptop with support and then independently. Charging/putting away their device independently. Taking a photo and recording a video with their device (Front / Rear Camera, still, that it fits the 'frame'). Using the search tool to find an app Creating basic presentations or projects including text, audio, visual media to communicate a topic or idea for a variety of audiences and purposes. Identify basic assistive technology tools, such as text-to-speech apps or large-text software, and understand their role in supporting learning. Begin to identify and locate all the keys on the keyboard with increasing speed (Dancemat typing, typing club). Use the spacebar to make spaces and delete to delete letters/words and make a new line using enter/return. Dictate into a digital device more accurately and with punctuation (full stops and capital letters). Collect data on a topic and create tally charts and pictograms Record myself explaining what I have done and what it shows me Sequence a series of pictures to explain my understanding of a topic Use a paint/drawing app to create a digital image.	Independently sign into devices and log-ins for additional apps Use fonts, colour, graphics, effects, transitions, and animations to enhance the purpose rather than distract from it. Use creativity tools for creating interactive stories and sharing learning. Identify and locate all the keys on the keyboard fluently and with increasing accuracy (Dancemat typing, typing club). Use caps lock for capital letters. Use the space bar only once between words and use the arrows and delete key to correct mistakes. Copy and paste images and text. Take screenshots and crop images with some support. Add images alongside text in a word processed document Dictate longer passages into a digital device with accurate punctuation. Add voice labels to an image Add speech bubbles to an image to show what a character thinks Import images to a project from the web, Google Image, and camera roll. Create a simple stop-motion animation Write and record a script Use tools to add effects to a video Edit a photo (crop, filters, mark-up, etc.). Explore and use simple assistive technology tools, such as screen readers or voice recognition software, to support reading and writing tasks.

Progression		Year 3	Year 4	Year 5	Year 6
Digital Skills	Taught alongside the curriculum or in explicit digital skills lessons.	Capture and manipulate photos with confidence. Design digital images using a variety of tools, pens, brushes, and effects. Animate personal images and integrate them into real-world surroundings through augmented reality Understand the importance of informed choices when selecting digital tools and software for specific tasks. Recognise the significance of personalised assistive technology solutions catering to diverse learning needs. Implement proper keyboard finger placement with index fingers on home keys (f/j). Assign left fingers to a/s/d/f/g and right fingers to h/j/k/l. Employ text and image style modifications, such as borders and shadows, to enhance the visual appeal of documents. Utilise cut, copy, and paste functions to efficiently duplicate and organise text. Create sorting diagrams and perform data handling tasks, connecting to mathematics concepts. Initiate data input into spreadsheets, with an emphasis on mathematical applications. Craft interactive comics featuring sounds, formatted text, and videos. Enhance images with video annotations. Create lifelike facial animations for role-play and enhance stop-motion clips using onion skinning.	Understand how assistive technology can seamlessly integrate into the learning environment to provide inclusive educational experiences. Add music, sound effects, animated titles, transitions, and subtitles to video clips. Enhance digital images and photographs using tools like crop, brightness, contrast, and resize. Manipulate shapes to create digital art. Edit sound effects for various purposes. Create simple four-chord songs following the correct rhythm. Record radio broadcasts or audiobooks. Recognise the availability of diverse technology tools and platforms for specific purposes, choosing the most suitable option based on project requirements. Utilise advanced assistive technology features to support complex tasks like maths or note-taking, demonstrating increased independence. Combine digital images, objects, and text from various sources to create final pieces for tasks such as posters, documents, eBooks, scripts, and leaflets. Confidently and regularly use text shortcuts (e.g., cut, copy, paste, delete) to organise text efficiently. Use appropriate font sizes based on the audience and purpose. Employ spell check and thesaurus functions Develop online multiple-choice questionnaires using platforms like	Understand the concept of adaptability and flexibility in choosing technology approaches for diverse situations. Proficiently select and utilise assistive technology tools and strategies for learning challenges. Create and publish interactive guides online. Edit character animations for interviews. Apply green screen effects to animations. Generate flip book animations and export them as GIFs or videos. Use camera settings for digital photography. Enhance digital images using various tools. Create voice-overs, sound editing, and effects. Integrate sounds into text documents. Organise text effectively for various purposes. Create, publish, and analyse results from online questionnaires. Collaborate effectively using online platforms. Create and export interactive presentations with diverse media, transitions, and effects. Develop web pages and embed videos. Evaluate video tools for effective communication. Create song remixes, exploring the creative process.	Recognise and appreciate the diversity of technology tools and platforms available for different purposes, understanding the importance of informed choices in selecting the most suitable option. Develop critical thinking skills to evaluate and compare various technology approaches, considering factors such as efficiency, effectiveness, and ethical considerations. Recognise that the ability to make informed technology choices is a valuable skill that empowers individuals to excel in problem-solving, creativity, and productivity, preparing them for more advanced technology applications in the future. Evaluate and select the most appropriate assistive technology tools and strategies for specific learning challenges, demonstrating advanced proficiency and self-regulation in their use. Mix animations and video recordings of myself to create video interviews. Plan, script, and create a 3D animation to explain a concept or tell a story. Choose and create different types of animations to best explain my learning. Edit a picture to remove items, add backgrounds, merge two photos. 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 (Sketcher). Add voice-over and edit sound clips (volume, pitch, fade, effect) to use in a film or radio broadcast (podcast). Confidently choose the best application to

		Sequence mixed-media clips in a timeline, record voice overs, trim, add titles, and transitions. Independently create green screen clips for various applications. Independently employ assistive technology tools to improve reading comprehension and writing skills, customising settings for individual needs	Kahoot, linking to data handling (maths). Input data into spreadsheets and export it in various formats like charts, bar charts, and pie charts, connected to mathematics. Create interactive quiz eBooks and eBooks with text, images, and sound. Develop multimedia presentations demonstrating understanding with various media. Create digital timelines and mind maps, incorporating different media like sound and video.		demonstrate my learning. Format text to suit a purpose. Publish documents online regularly and discuss the audience and purpose of content. Write a spreadsheet formula to solve more challenging maths problems. Create and publish my own online quiz with a range of media (images and video). Create a website that includes various media. Design a page, picture, or website that links multimedia together with hyperlinks (Thinglink, Slides, Sites, etc.). Choose applications to communicate to a specific audience. Evaluate own content and consider ways to improve.

KS3 National Curriculum Substantive and disciplinary knowledge	
Disciplinary/ procedural knowledge Pupils should be taught to: ● design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; ● use logical reasoning to compare the utility of alternative algorithms for the same problem ● use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; ● undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users ● create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability	Substantive knowledge Pupils should be taught to: ● understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems understand how instructions are stored and executed within a computer system; ● understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits ● understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; ● recognise inappropriate content, contact and conduct and know how to report concerns. ● make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]

Vocabulary Work Bank KS1

Year 1		
Computing systems and networks - Technology around us	**Creating media - Digital painting**	**Creating media - Digital writing**
technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	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.
Data and information – Grouping	**Programming A - Moving a robot**	**Programming B – Programming animations**
object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.

Year 2		
Computing systems and networks - Information technology around us	**Creating media - Digital music**	**Creating media - Digital photography**
Information technology (IT), computer, barcode, scanner/scan	music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit.	device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting,
Data and information – Pictograms	**Programming A - Robot algorithms**	**Programming B - Programming quizzes**
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, different, conclusion, block diagram, sharing	instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition	sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code.

Year 3		
Computing systems and networks - Connecting computers	**Creating Media - Desktop publishing**	**Creating Media - Stop-frame animation**
digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets	text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits.	animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition.
Data and Information - Branching databases	**Programming A - Sequencing sounds**	**Programming B - Events and actions in programs**
attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree.	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.	motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code, test, debug, actions.

Year 4		
Computing systems and networks - Connecting computers - The internet	**Creating Media - Audio production**	**Creating Media - Photo editing**
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	audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback.	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, foreground, zoom, undo, font.
Data and Information - Data logging	**Programming A - Repetition in shapes**	**Programming B - Repetition in games**
data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion.	Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure.	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.

Year 5		
Computing systems and networks – systems and searching	**Creating Media – Introduction to vector graphics**	**Creating Media – Video production**
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.	vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection	video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share.
Data and Information – Flat-file databases	**Programming A – Selection in physical computing**	**Programming B – Making Quizzes**
database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation.	microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer	Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator

Year 6		
Computing systems and networks – Communication and collaboration	**Creating media – Webpage creation**	**Creating Media 3D Modelling**
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.	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.	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify.
Data and Information – Introduction to spreadsheets	**Programming – Variables in games**	**Programming – Sensing movement**
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, evaluate, results, sum, comparison, software, tools.	variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare	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.