

Big Idea	Aspect	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Humankind	Communication	World Digital technology is used in all parts of everyday life. Some technology is used to communicate with others. Explain that digital technology is used in the home and at school for communication.	Digital technology is used in all parts of everyday life, such as using a tablet to play a game or a microwave to heat food. Some of this digital technology can be used to connect with others locally, such as sharing digital work in the classroom, or globally, such as using Skype on a computer to speak to a friend overseas. Explain simply that digital technology can be used to connect with others locally and globally.	Digital technology, such as email, social media platforms or blogs, can be used by individuals to communicate and connect with others but should be used appropriately, including using language that is not hurtful or disrespectful to others, having adult supervision or following the school's acceptable use policy. Use digital technology appropriately to communicate and connect with others locally and globally.	Advantages of communicating electronically are that it is available at any time, instant and global. Disadvantages include easier misunderstandings, people pretending to be someone they are not, lack of privacy (once something is published online, it cannot be removed) and a threat to personal safety (access to personal information). Concerns should be reported to a trusted adult. Explain the advantages and disadvantages of communicating electronically and strategies for preventing issues.	Cyberbullying is bullying using technology, such as social media or gaming networks and can involve teasing, name calling, harassment, deliberate exclusion, threatening or being undermined. A trusted adult or child safety organisation should be contacted if there are any concerns or worries. A trusted adult can provide help and support or contact the police if needed. Explain actions to report and prevent cyberbullying.	Working online requires a level of responsibility and strategies to stay safe, including protecting private information and accounts. This enables people to protect themselves and others from potential online dangers, inappropriate behaviour and bullying. Any concerns should be reported to a trusted adult, the police or child protection organisations. Demonstrate appropriate online behaviour and apply a range of strategies to protect themselves and others from potential online dangers, inappropriate behaviour and bullying.	Knowing someone online is not the same as knowing them face to face. People online are not always who they say they are and may use intimate images or content inappropriately. Once something is online, it is not under the user's control and can be made public. Using offensive language can affect others negatively and is a form of bullying called 'trolling'. Privacy and personal boundaries are important when communicating with others online. Recognise that sending intimate images and content and using offensive language online is a risk, has a permanent online trail (digital footprint) and is not appropriate behaviour.
	Staying safe	World Know that if they see something online that makes them sad, scared or worried, they should tell an adult straight away. Describe what they would do if they saw something online that made them sad, scared or worried.	Private information includes names, addresses, dates of birth or schools and this information should not be shared online. Any concerns or worries should be reported to a trusted adult. Recognise that some websites ask for private information and discuss how to handle these requests and where to go for help and support.	Some websites are not age-appropriate and so it is important to tell a trusted adult about any concerns or worries. Stay safe online by choosing websites that are appropriate to visit (based on the confidence you have in the author(s) of the website) and know where to go for help and support when they have concerns about content or contact on the internet and other online technologies.	Images and data should not be shared online without the permission of the owner. Personal information, such as full name, age, school and address, should not be shared online. Describe simple rules for sharing images and data safely.	Technology can have positive influences on health, such as enabling people to hear using a hearing aid or helping doctors to diagnose or treat illnesses using special machines. Both mental and physical health can be negatively influenced by technology. Technology can have positive influences on the environment, such as using systems to monitor and control energy usage. Negative influences on the environment include contributing to pollution by travelling and using a lot of power. Identify the positive and negative influences of technology on health and the environment and how to protect themselves.	Digital content can affect others and be available to anyone. Digital content is traceable, which means it can be tracked to the person who created it. To stay safe, it is important to discuss technology use with a trusted adult. Discuss the impact that digital content can have and why it is important to discuss their use of technology with an adult.	The benefits of devices broadcasting the user's location and passing on personal information include improved customer service, allowing organisations to analyse data and improving the quality of applications. Risks include identity theft, cyberstalking, victimisation and threat to privacy. Identify the benefits and risks of devices broadcasting the user's location and of giving personal information to different organisations.
	Digital citizenship	World Ask to use digital devices to create work in a safe and responsible way.	When work is saved electronically, it needs to have a name that identifies it and is easily remembered. Recognise that work they have created belongs to them.	A digital footprint is the information that exists on the internet, following a user's online activity. Recognise that information put online leaves a digital footprint.	As with face to face communication, online communication should be done respectfully and responsibly, considering the impact on others. Compose clear and appropriate messages in online communities.	Appropriate behaviour when contributing to collaborative online projects includes consideration towards others, awareness of copyright and keeping personal data safe. Identify appropriate behaviour when contributing to collaborative online projects for learning.	Citing sources is giving credit to the person or website that created the information. Using someone else's work without citing it is called plagiarism and is a form of cheating. Cite all sources when researching and explain why sources should be provided.	Digital content may have been edited online by anyone, and so it is important to verify content against other independent or reputable sources. Recognise that digital content can be edited online.
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Processes	Physical Interactions	World Technological toys need instructions to operate in a particular way. Errors in instructions can be checked and fixed. Input simple instructions to make technological toys operate, including floor robots and onscreen sprites.	An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Mistakes are called bugs and finding and fixing them is called debugging. Observe and explore outcomes when buttons are pressed in sequences on a robot and identify and debug a simple algorithm.	Robots can be programmed to follow a series of instructions using algorithms. Plan and enter a sequence of instructions using a robot, specifying distance and angle of turn.	Sequencing instructions is the step-by-step process that robots or other devices follow to achieve specific outcomes. This can be a single algorithm or series of algorithms called a program. Design, write and enter a sequence of instructions using a robot or other device to achieve specific outcomes, debugging if necessary.	Computers interact with the world using input and output devices. An input device may include sensors that can detect changes, such as in temperature, light level, sound level or movement. The input then sends the information to a computer, which tells the output device to trigger an action, such as making a sound or creating a movement. Use sensors to 'trigger' an action, such as sound or movement.	Sensors can be combined to control a physical system, such as using motion, light and sound sensors to control a road network of traffic lights and level crossings. Use a range of sensors to control a physical system.	Input and output devices can be combined with programming software to control a physical system, such as using sensors to create a sensory station that incorporates motors, lights and buzzers. Design, write and debug a program to control a physical system, which may include output devices, such as motors, lights and buzzers.
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Creativity	Creation	World Use age-appropriate software to create images and record sounds and videos.	Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. It can be used to create and combine digital content for different audiences and purposes. Select appropriate software to complete given tasks using text, images, audio and video clips.	Multimedia components, such as text, images, audio and video clips, can be created, edited and combined to create content for a range of tasks. Create and edit multimedia components for a range of tasks.	Text, images, animation, audio and video clips can be combined using tools within a piece of software or by using a range of software. For example, an image could be inserted into a word processing document or a video could be inserted into a presentation. Combine a range of text, images, animation and audio and video clips for given purposes.	Manipulating a range of text, images, sound or video clips and animation may include changing their style, size, colour, effect, shape, location or format. Manipulate a range of text, images, sound or video clips and animation for given purposes.	Creating, selecting and combining a range of texts, images, sound clips and videos for given purposes could include creating a web page, slide show presentation, short film or an animation. Create, select and combine a range of texts, images, sound clips and videos for given purposes.	A variety of software, such as word processing software, image editing software or internet services, can be selected, used and combined to meet a goal. Select, use and combine a variety of software, including internet services, to meet a goal.
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Investigation	Data and computational thinking	World Technological toys need instructions to achieve an outcome. Input simple instructions to technological toys, including floor robots and onscreen sprites.	An algorithm is a sequence of steps, instructions or rules that is used to perform a specific task. Algorithms can be followed by people or digital equipment. For algorithms to achieve the end goal, instructions have to be accurate and followed sequentially. Follow a sequence of steps to solve a problem and create instructions that others can follow (for floor robots or onscreen sprites).	Computers' behaviour can be predicted and the outcome tested by following the steps of an algorithm and recognising that the computer will follow instructions precisely. Create a simple solution that tests an idea, predict the outcome and test and debug the solution to ensure that it works.	Repetitions or loops can be used in programming where a computer will continue to run part of a program a number of times or until a condition is met, using the term 'repeat... until'. The given feedback can be used to identify and correct any mistakes in the program. Identify and use repetitions or loops in a program sequence, predicting outcomes and noticing and correcting any mistakes.	A loop is a sequence of instructions that repeats continually until a certain condition is met. A program that contains a looping element is useful for a wide range of scenarios, such as controlling traffic lights. Describe and demonstrate a simple program that contains a looping element and how part of a program may need repetition.	Sequences of instructions (algorithms) that contain IF, THEN and OTHERWISE statements are called selections. The computer will complete operations based on whether the conditions of these selections are met or not. Design, write and debug simple sequences of instructions (algorithms), including IF, THEN and OTHERWISE commands, to decide if something is true or false.	Decomposition is breaking down a problem down into smaller parts to make it easier to process and following a sequence of instructions. Decomposition is useful for checking programs and debugging because it saves time. Demonstrate how programs run in an exact order by following a sequence of instructions, and test and debug programs.
	Networks	World Recognise that digital work can be saved, shared and accessed from other devices.	When work is saved electronically, it can be stored on a hard drive, a shared drive called a server or online so that it can be opened on the same device or another device at a later time. Show awareness that work they create and save on a computer or tablet can be shown to others using another device.	Computers and devices can be linked in different ways, such as through a network, the internet and Bluetooth. This allows for the sharing of resources. Recognise that computers can be linked to share resources and digital content can be stored, organised and retrieved.	When work is saved, it is stored on a storage device, such as the computer's hard drive, a USB flash drive, a shared server or online. This work can then be retrieved from another device (except if it is saved on the computer's hard drive). Recognise that saved work can be retrieved from another device on the same network.	A school network has computers that are connected together so they can share hardware, software and data. Recognise that the school network links computers to allow the sharing of resources.	Computer networks are made up of computers that are connected by cables, fibres or wireless links. Each network can only be accessed by computers within their network, such as in school or at home. The internet network can be accessed by anyone. Compare the ways in which work can be shared on a school network with the ways work is shared at home or in the wider world.	The positives of communicating online include the speed, low cost and ability to communicate globally. The negatives of communicating online include the threat to privacy, influencing of others, access to technology and anonymity. Name some of the positives and negatives of communicating with others online.
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Materials	Hardware	World Smartphones, tablets, laptops, computers and floor robots are all types of computing hardware. Explore how to use different computing hardware.	Hardware is the parts of a computer that you can touch, such as a mouse, tablet or floor robot. Use a range of computing hardware for different purposes.	Hardware, such as cameras, scanners and data loggers, can be used to collect data. Use computing hardware in different ways to collect data.	Several pieces of hardware can be used together to complete one task, such as using a camera to take a photograph, uploading it to a computer and then printing it using a printer. Use familiar computer hardware to successfully complete a task.	Interacting regularly with hardware enables users to recognise common features and become confident in working with new or unfamiliar hardware. Use new and unfamiliar computing hardware.	Using prior knowledge and experience of computing skills can be applied to unfamiliar hardware to solve a problem successfully. Apply computing skills using unfamiliar hardware to solve a problem successfully.	Some hardware is more effective than others in particular contexts, such as using virtual reality or a touchscreen rather than a mouse to meet a specific need. Choosing the right hardware can increase creativity and productivity. Identify how using different hardware can increase creativity and productivity.
	Software	World Software is the programs we use on computers and mobile devices. Use age-appropriate software independently.	Software is the programs that are used by a computer, such as word processing software, presentation software or image editing software. Begin to use a range of software for different purposes.	Each type of software, such as word processing, presentation and image editing, can be used for different purposes, including writing reports and creating slide shows or posters. Use different types of software and identify their purposes.	Several pieces of software can be used together to complete one task, such as adding a video to a word processed document. Use a range of different software to successfully complete a project.	New computing software commonly has features that should be familiar to users, such as icons or terminology. Apply computing skills to use new computing software.	Using prior knowledge and experience of computing skills can be applied to create content using unfamiliar programs or apps. Apply computing skills to create content using unfamiliar programs or apps.	Some software or apps are designed to help increase creativity by saving time or making tasks easier, such as being able to combine text, images, audio or video content into one place. Identify how a new piece of software or an app can increase creativity.
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