

Year 3

Year 3 - Autumn 1

Milestone LO:

I am learning to understand computer networks.

I am learning to describe how connected devices can collect and share information.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Digital Literacy	<p>Know that...</p> <ul style="list-style-type: none"> • Computer networks are a group of connected computing devices. • A computer network is formed when two or more computers are connected together. • Networks allow people to access the same information from any computer on the network. • On the school network, files can be accessed and shared, staff members can access the register and administration system, and messages can be sent easily between people. • In school it is useful because it means that information such as attendance information or shared projects can be accessed by more than one person, meaning that such information only needs to be entered once. Communication between staff and children can be more effective. • Digital devices are all forms of information technology, and that their purpose is to help us to complete certain tasks. • Input is data that is sent to a program to be processed. • Input devices include a keyboard, mouse, microphone, button • An output device is a piece of hardware used to receive data from the computer and convert it into a human-perceptible form. 	<p>Know how...</p> <ul style="list-style-type: none"> • A digital device accepts inputs • A digital device produces outputs • A digital device works by applying their knowledge of input, process, and output. • Different digital devices are needed for different activities e.g. camera to take photos, phones to make calls. • Information can be passed between devices • Messages are passed through multiple connections • The role of a switch, server, and wireless access point in a network plays • Devices in a network are connected together • Computer networks benefit me

	<ul style="list-style-type: none"> • An example of an output device is a set of speakers. They take the data from the computer and turn it into an audible sound. • A connection is a link between two things. • A server is a networked computer for storing files • A network switch is device that connects multiple devices on a network with one another • A wireless access point is a wired device that sends and receives wireless signals for devices with wireless connectivity to and from the network • Cables are wires used to connect wired devices to the network • Sockets allow network cables to be connected to the network 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • Recognise that smart devices often collect and share personal information and other information about people (e.g. tech usage) • there a difference between hearing and listening • You can buy things using a smart device - parents may have set up cards and allowed automatic purchases • Smart devices collect information about you - the tech companies are vague about what is collected, but recordings are transferred to their servers for processing, storage and may be shared with third parties. • Any information you share may be shared with other companies • Smart devices listen all the time, but do not record all the time - digital assistants listen for the keyword, the recording starts as the keyword is spoken. 	<p>Know how...</p> <ul style="list-style-type: none"> • To recognise if your voice is being recorded • An assistant processes information after it's heard the key word • devices find out the answers to commands asked
Vocabulary	digital device/Smart device - input process output	

	<p>program digital non-digital connection network switch - A device that enables multiple devices on a network to be connected together Server - A computer that manages the network and stores files. Wireless access point - A device connected to a wired network, which sends and receives wireless signals for devices with Wi-Fi connectivity. cables sockets</p>
Enrichment & wider development	



Year 3 - Autumn 2

Milestone LO:

I am learning to use software to create content.

I am learning to explain what it means to 'know someone' online and why this might be different from knowing someone offline.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> • Software is the programs that run on a computer in order to use it. • The type of software available in school comes in the form of: google classroom, smart notebook, PowerPoint, word, VLC media player. • Animation is where a number of pictures are drawn or taken of an object or picture, and the pictures are shown quickly, which makes it look like the object or picture is moving. • There are many ways to make animations, e.g. using a pencil and paper, modelling clay, building bricks, etc. but that the word 'animation' means that we are making something that cannot move on its own look like it is moving, by taking a series of pictures and then showing them very quickly in sequence. • A flipbook is a small book of drawings conveying a series of pictures in progressing forms of movement so that when the pages are flipped in quickly, they animate a scene or create the illusion of movement. • Stopframe is animation that is captured one frame at a time, with physical objects that are moved between frames. • A frame is a single image that makes up a sequence of images. • Onion skinning is a technique used in creating animation and editing movies to see several frames at once. • Media is used to pass information to many people in a society including television, radio, newspapers, magazines and the 	<p>Know how...</p> <ul style="list-style-type: none"> • To create an effective flip book • Draw a sequence of pictures • A flipbook works • Make small changes for each frame • Break down a story into settings, characters and events • Use onion skinning to make small changed between frames • Add media to an animation

	<p>internet.</p> <ul style="list-style-type: none"> • Import in animation is a list of images into an animation layer. • A transition is the special effect that occurs when you exit one slide and move on to the next during a presentation. 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • People online are not always who they say they are. • Some people may pretend to be a different person online. • There are many reasons why people may choose to be someone different online. 	<p>Know how...</p> <ul style="list-style-type: none"> • to explain what it means to 'know' someone. • to give different examples of how well I know people eg friends, family, teachers. • to explain the differences between 'knowing' someone online compared to offline privacy settings
Vocabulary	<p>Animation flip book stopframe frame sequence image photograph setting character events onion skinning consistency evaluation delete media import transition</p>	
Enrichment & wider development		

FEDERATION



Year 3 - Spring 1

Milestone LO:

I am learning to use sequencing in programming.

I am learning to explain ways in which someone might change their identity depending on what they're doing online and why.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer science	<p>Know that...</p> <ul style="list-style-type: none"> Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. Scratch is a block-based visual programming language. Blocks are puzzle-piece shapes that are used to create code in Scratch. The blocks connect to each other vertically like a jigsaw puzzle. Code is a set of instructions used to communicate with computers A sprite is the main character in Scratch Sequencing is the specific order in which instructions are performed in an algorithm. An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. A bug is an unexpected problem with software. Debugging is the process of finding and correcting errors or bugs in a computer program. 	<p>Know how...</p> <ul style="list-style-type: none"> To navigate the Scratch interface Build a sequence of commands To create a sequence of connected commands To input an algorithm as code
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> Identity means that although people are similar, we all have characteristics and traits which make us different to others. People choose to express their identities in a variety of ways online. 	<p>Know how...</p> <ul style="list-style-type: none"> To explain what is meant by the term 'identity'. To explain how I can represent myself in different ways online.

	<ul style="list-style-type: none"> • People might be happy to share some information about themselves online but not everything. • someone might change their identity online for different platforms e.g. gaming; using an avatar; social media 	<ul style="list-style-type: none"> • Know ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media).
Vocabulary	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 algorithm bug debug	
Enrichment & wider development		

FEDERATION



Year 3 - Spring 2

Milestone LO:

I am learning to use software to create a branching database.

I am learning to describe appropriate ways to behave towards other people online and why this is important.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> • Software is the programs that run on a computer in order to use it (revisit Year 3 Aut 2) • A branching database is a way of classifying a group of objects • Classifying is putting things into groups • An attribute is a word that can be used to describe an object such as its colour, size, or price. • A database is a collection of data that is stored in a computer and that can easily be used and added to. • A decision tree is a sequence of questions used to solve problems. 	<p>Know how...</p> <ul style="list-style-type: none"> • to make up a yes/no question about a collection of objects • to arrange objects into a tree structure • select an attribute to separate objects into groups • to group objects based on their own yes/no questions • to select objects to arrange in a branching database • to test a branching database to see if it works • compare branching database structures • create yes/no questions using given attributes • create a physical version of a branching database • create questions to use in a branching database
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • there are lots of reasons why people are sometimes unkind online • You can still hurt someone's feelings online. • Before posting online, we should ask ourselves: <ul style="list-style-type: none"> • Is it helpful? • Am I following the crowd? • Would I say that to their face? • Why am I posting this? • Am I jealous? 	<p>Know how...</p> <ul style="list-style-type: none"> • To explain why I should be kind online vs. unkind • I should act online • I make sure I am being kind online

Vocabulary	Attribute Value Questions Table Objects Branching Database Objects Equal Even Separate Structure Compare Order Organise Selection information decision tree
Enrichment & wider development	



Year 3 - Summer 1

Milestone LO:

I am learning to use software to create content that accomplish given goals.
I am learning to explain why copying someone else's work from the internet is not fair.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> Software is the programs that run on a computer in order to use it (revisit Year 3 Aut 2 and Spr 2) The copy command copies the text or image that has been selected and stores it in the virtual clipboard. To copy a piece of text you need to highlight the text you want to copy and press ctrl + c (as a shortcut) or two finger tap the trackpad and select copy. The clipboard is a location on a computer, phone, or tablet memory that temporarily stores cut or copied text or other data. The cut command removes the selected data from its original position and stores it in the virtual clipboard. To cut a piece of text you need to highlight the text you want to copy and press ctrl + x (as a shortcut) or two finger tap the trackpad and select cut. The paste command is used to place the information that has been stored on the virtual clipboard in the location that the mouse cursor has been placed. To paste a piece of text, the cursor needs to be placed where the copied content needs to be and two finger tap the trackpad and select paste. As a shortcut, press ctrl + v. Font refers to a combination of typeface, style and size. Typeface is a design of letters, numbers and other symbols. Layout describes the way something is designed or arranged on the page. 	<p>Know how...</p> <ul style="list-style-type: none"> To change the font style, size and colours to suit the purpose To use the google docs interface To edit a piece of text To make changes to content after it has been added To paste text and images

	<ul style="list-style-type: none"> The layout of a document depends on its purpose. 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> The content online is all owned by someone – depending on who made it. We all have rights over the content we create Whilst the internet may be 'Free' not all content is 'Free to use' Plagiarism is taking someone else's work and pretending it is our own. Plagiarism is against the law and can lead to lots of trouble if you are caught. 	<p>Know how...</p> <ul style="list-style-type: none"> To find appropriate images to support my work which are copyright free To take notes and write things in my own words to avoid plagiarising someone else's work.
Vocabulary	Text Images Advantages Disadvantages Communicate Font Style landscape portrait orientation template layout content copy cut paste purpose benefits	
Enrichment & wider development		

FEDERATION



Year 3 - Summer 2

Milestone LO:

I am learning to use logical reasoning to explain how some simple algorithms work

Revisiting sequencing from Yr 3 Spr 1

I am learning to explain why spending too much time using technology can sometimes have a negative impact on someone.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer science	<p>Know that...</p> <ul style="list-style-type: none"> Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (Revisit Yr 3, Spr 1) A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. (Revisit Yr 3, Spr 1) Scratch is a block-based visual programming language. (Revisit Yr 3, Spr 1) Blocks are puzzle-piece shapes that are used to create code in Scratch. The blocks connect to each other vertically like a jigsaw puzzle. (Revisit Yr 3, Spr 1) Code is a set of instructions used to communicate with computers. (Revisit Yr 3, Spr 1) A sprite is the main character in Scratch. (Revisit Yr 3, Spr 1) Sequencing is the specific order in which instructions are performed in an algorithm. (Revisit Yr 3, Spr 1) An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (Revisit Yr 3, Spr 1) A bug is an unexpected problem with software. (Revisit Yr 3, Spr 1) Debugging is the process of finding and correcting errors or bugs in a computer program. (Revisit Yr 3, Spr 1) Motion blocks are used to move or turn sprites. Event blocks trigger scripts to run. The pen in Scratch enables a sprite to draw a line as it moves. 	<p>Know how...</p> <ul style="list-style-type: none"> To choose a character suitable for my project To choose a suitable size for a character Program a movement Choose blocks to set up a program To use a programming extension To match a piece of code to an outcome

<p>Online Safety</p>	<p>Know that...</p> <ul style="list-style-type: none"> • Technology has both positive and negative uses in our lives. • Technology can sometimes become a distraction from other things. • Screen time can have a negative impact on our health, by impacting on our sleep, attention span, eye health and even our ability to focus on tasks. • Social media companies want us to spend more time online so we see more adverts, and create them more revenue. 	<p>Know how...</p> <ul style="list-style-type: none"> • To give examples of tech/online activities that you (could) engage with for extended periods of time. • To create simple rules/strategies to reduce the impact of these issues.
<p>Vocabulary</p>	<p>Motion Event Sprite Algorithm Logic Move Resize extension block pen up set up pen design action debugging errors setup code test debug actions.</p>	
<p>Enrichment & wider development</p>		

FEDERATION



Year 4

Year 4 Autumn 1

Milestone LO:

I am learning to understand computer networks including the internet; how they can provide multiple services, such as the World Wide Web.

I am learning to explain why I need to consider who owns online content and whether I had the right to use it.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Digital literacy	<p>Know that...</p> <ul style="list-style-type: none"> • Computer networks are a group of connected computing devices. (Revisit Yr 3, Aut 1) • A computer network is formed when two or more computers are connected together. (Revisit Yr 3, Aut 1) • Networks allow people to access the same information from any computer on the network. (Revisit Yr 3, Aut 1) • On the school network, files can be accessed and shared, staff members can access the register and administration system, and messages can be sent easily between people. (Revisit Yr 3, Aut 1) • In school it is useful because it means that information such as attendance information or shared projects can be accessed by more than one person, meaning that such information only needs to be entered once. Communication between staff and children can be more effective. (Revisit Yr 3, Aut 1) • Digital devices are all forms of information technology, and that their purpose is to help us to complete certain tasks. • A connection is a link between two things. (Revisit Yr 3, Aut 1) 	<p>Know how...</p> <ul style="list-style-type: none"> • Information is shared across the internet • Networked devices connect • The internet is used to provide many services • To access websites on the WWW

- A server is a networked computer for storing files. (Revisit Yr 3, Aut 1)
- A network switch is device that connects multiple devices on a network with one another. (Revisit Yr 3, Aut 1)
- A wireless access point is a wired device that sends and receives wireless signals for devices with wireless connectivity to and from the network. (Revisit Yr 3, Aut 1)
- A router connects computers and other devices to the internet.
- A website is a collection of webpages that are accessed with a single domain name.
- A web page is a document on the World Wide Web.
- A domain is a system of interconnected network objects, systems, and resources that are centrally managed.
- A web address is contains information about the location of the webpage.
- A web browser is a software application that lets people access the World Wide Web.
- The internet is a network of networks.
- The World Wide Web contains websites and web pages.
- Networks need protecting because it prevents cybercriminals from gaining access to valuable data and sensitive information.
- The internet is used to provide many services, including e-mail, maps, media downloads, streaming audio and visual, social media and video-conferencing.
- Websites and their content are created by people.
- Not everything on the World Wide Web is true.
- Some information found online may not be honest, accurate or legal.

<p>Online Safety</p>	<p>Know that...</p> <ul style="list-style-type: none"> • Ownership of online content refers to the legal rights held by individuals or organizations over digital materials they create or publish. • Online content includes text, images, videos, music, software, and other digital media. • Copyright is a legal right that protects the original work of creators, giving them exclusive rights to reproduce, distribute, and publicly display their work. • Intellectual property laws govern the ownership and use of digital content, including trademarks, patents, and copyrights. • Using someone else's online content without permission may violate copyright or intellectual property laws. • Understanding rights and permissions involves determining whether you have the legal right to use, share, or modify online content. • Respecting ownership of online content involves ethical considerations, such as giving credit to creators, avoiding plagiarism, and promoting fair use of digital materials. • Acknowledging ownership and obtaining proper permissions demonstrate respect for creators' rights and contribute to a positive digital community. 	<p>Know how...</p> <ul style="list-style-type: none"> • To identify ownership of online content by checking for authorship, copyright notices, or licensing information provided by creators. • To verify the authenticity and credibility of sources before using or sharing online content • To distinguish between copyrighted and public domain content, and understand the concept of fair use for educational or non-commercial purposes. • To cite sources properly when using quotes, images, or references from online sources • To create original content and respect others' intellectual property rights by avoiding plagiarism and unauthorised use of copyrighted materials. • To use online tools and resources to create and share digital content responsibly, while respecting legal and ethical guidelines.
<p>Vocabulary</p>	<p>Internet Network Router Security Switch Server wireless access point (WAP)</p>	



	<p>website web page web address routing web browser World Wide Web Content Links Files Download Sharing Ownership Permission Information Accurate Honest Content adverts</p>
<p>Enrichment & wider development</p>	



Year 4 Autumn 2

Milestone LO:

I am learning to use software to create content that accomplish given goals.

I am learning to understand the digital age of consent and the impact this has.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> Software is the programs that run on a computer in order to use it. (Revisit Yr 3, Aut 2) Audio is any sound. An input device sends information to a computer system. (Revisit Yr 3, Aut 1) Input devices include a keyboard, mouse, microphone, button. (Revisit Yr 3, Aut 1) An output device is a piece of hardware used to receive data from the computer and convert it into a human-perceptible form. (Revisit Yr 3, Aut 1) An example of an output device is a set of speakers. They take the data from the computer and turn it into an audible sound. (Revisit Yr 3, Aut 1) A podcast is a digital audio program consisting of a series of audio episodes. A microphone is an input device which sends audio information to a computer A speaker is an output device that connects to a computer to generate sound. Trim means to remove some of the audio that is not wanted. Layering is when you combine multiple individual sounds to 	<p>Know how...</p> <ul style="list-style-type: none"> To use a computer to record audio To identify the input and output devices used to record and play sound To trim a recording To re-record to improve the recording Sounds can be combined to make a podcast/ recording more engaging To plan appropriate content for a podcast/ recording To save a projects so that the parts remain editable To choose appropriate edits To identify strengths in an audio recording To open a project so that work can be continued on it

	<p>create a single, more complete sound.</p> <ul style="list-style-type: none"> • Import means bringing new content to a project (using file> import) • Exporting tracks means saving them as separate audio files in a specific format, such as MP3. • MP3 is a coding format for digital audio. • 'MP3' is the abbreviation for 'MPEG Audio Layer 3' ('MPEG' stands for 'Motion Pictures Expert Group'). It's a compressed digital audio file. • Playback means playing back previously recorded data. • The person who records the sound can say who is allowed to use it 	
Online safety	<p>Know that...</p> <ul style="list-style-type: none"> • Some online activities have age restrictions because they include content which is not appropriate for children under a specific age. • Age restrictions are there to keep children and young people safe. • Age verification means having to prove your age to access certain content online, for example, online gambling and purchasing of certain age restricted materials such as alcohol. • The digital age of consent refers to the minimum age (13) at which a person can legally provide their own consent for certain online activities, such as creating social media accounts, sharing personal information, or using online services independently. • The digital age of consent varies by country and may also depend on the specific platform or service provider. • Examples such as creating social media profiles, posting photos or videos online, subscribing to newsletters, signing up for online services, and consenting to data collection practices. 	<p>Know how....</p> <ul style="list-style-type: none"> • To keep themselves safe by using child-friendly search engines and sites such as Swiggle and YouTube Kids. • To apply their online safety learning from school in real-world situations. • To navigate privacy settings on social media and other online platforms to control who can see their information and activities. • To adjust settings to ensure privacy and security. • To discuss online activities and digital age of consent with parents or guardians to make responsible decisions. • To seek advice from trusted adults about safe online behaviour and managing online accounts. • To recognise situations where consent is required for online activities and understand the importance of informed consent. • To make informed decisions about sharing personal information online and respecting others' privacy rights.

	<ul style="list-style-type: none"> • The digital age of consent aims to protect minors from potential risks associated with online activities, including privacy concerns, exposure to inappropriate content, and interactions with strangers. • Understanding the digital age of consent helps individuals and families make informed decisions about online behaviour and privacy settings. • Violating the digital age of consent may have legal consequences, such as fines or restrictions on accessing certain online platforms. 	
Vocabulary	<p>Audio Microphone Speaker Headphones input device output device sound podcast edit trim layer import record playback selection load save export MP3 Evaluate Feedback.</p>	
Enrichment & wider development		



Year 4 - Spring 1

Milestone LO:

I am learning to use software to create content that accomplish given goals.

I am learning to give examples of how to be respectful to others online and describe how to recognise healthy and unhealthy online behaviour.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer science	<p>Know that...</p> <ul style="list-style-type: none"> • Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (revisit, Yr 3 Sum 2) • A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. (revisit, Yr 3 Sum 2) • Scratch is a block-based visual programming language. (revisit, Yr 3 Sum 2) • Blocks are puzzle-piece shapes that are used to create code in Scratch. The blocks connect to each other vertically like a jigsaw puzzle. (revisit, Yr 3 Sum 2) • Code is a set of instructions used to communicate with computers. (revisit, Yr 3 Sum 2) • A sprite is the main character in Scratch. (revisit, Yr 3 Sum 2) • Sequencing is the specific order in which instructions are performed in an algorithm. (revisit, Yr 3 Sum 2) • An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 3 Sum 2) • A bug is an unexpected problem with software. (revisit, Yr 3 Sum 2) • Debugging is the process of finding and correcting errors or 	<p>Know how...</p> <ul style="list-style-type: none"> • To program a computer by typing a command. • To explain the effect of changing a value of a command. • Test an algorithm in a text-based language. • To write an algorithm to produce a given outcome. • To identify patterns in a sequence. • To use a count-controlled loop. • To design a program that includes count-controlled loops • To develop a program by debugging it.

	<p>bugs in a computer program. (revisit, Yr 3 Sum 2)</p> <ul style="list-style-type: none"> • A command is an instruction given to a computer to perform a specific task. • Repetition is lines of code which are run multiple times. • A count-controlled loop is a loop in which you know beforehand how many times it will be repeated. • Decompose involves breaking down a complex problem or system into smaller parts that are more manageable and easier to understand. • Procedure is a selection of computer code that performs a specific task. 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • Being respectful online involves treating others with kindness, empathy, and consideration, similar to how one would behave face-to-face. • Respectful online behaviour includes using polite language, refraining from insults or derogatory remarks, and respecting others' opinions and privacy. • Examples such as using appropriate language in comments and messages, giving credit when sharing others' work, and listening actively in online discussions. • Respecting boundaries and consent online means not pressuring others to share personal information or engage in activities they are uncomfortable with. • Healthy online behaviour fosters positive interactions, builds relationships, and supports others' well-being. • Unhealthy online behaviour can include cyberbullying, spreading rumours or gossip, sharing inappropriate content, or engaging in online arguments. 	<p>Know how...</p> <ul style="list-style-type: none"> • To communicate respectfully through written messages, comments, and replies. • To use positive language and constructive feedback when interacting with others online. • To contribute positively to online discussions by listening actively, asking questions, and sharing ideas respectfully. • To resolve conflicts peacefully and seek help from a trusted adult if disagreements escalate. • To recognise and avoid behaviours that could harm others or contribute to a negative online environment. • To report or block individuals engaging in cyberbullying or inappropriate behaviour online. • To reflect on their own online behaviour and consider the impact of their actions on others. • To analyse online situations to determine whether behaviour is respectful or potentially harmful.

	<ul style="list-style-type: none"> To identify signs such as negative comments, exclusion from online groups, receiving threats or harassment, or feeling pressured to participate in risky activities. 	
Vocabulary	Program Commands code snippet algorithm design debug pattern repeat repetition count-controlled loop decompose procedure	
Enrichment & wider development		



Year 4 - Spring 2

Milestone LO:

I am learning to collect and analyse data.

I am learning to describe ways people can be bullied through a range of media.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer science	<p>Know that...</p> <ul style="list-style-type: none"> • A database is a collection of data that is stored in a computer and that can easily be used and added to. (Revisit Yr 3 Spr 2) • Data is information that consists of facts and figures. • Data can be gathered over time • Data can be collected using sensors • A data logger is an electronic device that is used to store data over time. • An input device sends information to a computer system. (Revisit Yr 4, Aut 2) • Input devices include a keyboard, mouse, microphone, button. (Revisit Yr 4, Aut 2) • Sensors are electronic devices that turn information about their environment into a value that can be used in a program. • A data point represents a single piece of information. • Interval data a data type which is measured along a scale, in which each is placed at equal distance from one another. • A data set is a collection of number or values that relate to a particular subject. • Export is when you can transfer data to a file. • Import is when you bring data into a file. • Logging is keeping a log of events that occur in a computer system. 	<p>Know how...</p> <ul style="list-style-type: none"> • To use data to answer questions • To talk about the data which has been captured • There are different ways to view data • To sort data to find information • To collect data using a data logger • To draw conclusions from the collected data • To explain the benefits of using a data logger • To interpret data that has been collected using a data logger

<p>Online safety</p>	<p>Know that ...</p> <ul style="list-style-type: none"> • Bullying is repetitive, intentional behaviour that hurts someone else. • Bullying behaviour includes name calling, picking on, hitting pushing, threatening, spreading rumours, undermining. • It can happen anywhere – at school, at home or online. • It's usually repeated over a long period of time and can hurt a child both physically and emotionally. • Bullying can be carried out by on person or a group of people. • Media is known as methods of communication. • A range of media includes image, video, text, chat. • The most common way for children to be bullied via technology was through text or messaging apps (56%), followed by social media (43%) or online games (30%). • Cyberbullying is the use of technology to harass, threaten, embarrass, or target another person. • Online threats and mean, aggressive, or rude texts, tweets, posts, or messages all count. So does posting personal information, pictures, or videos designed to hurt or embarrass someone else. • Mocking someone online, posting embarrassing photos, and harassing someone on social media can be forms of cyberbullying. • Setting up fake social media accounts to spy on someone and/or to make fun of them is another form of this type of bullying. 	<p>Know how ...</p> <ul style="list-style-type: none"> • Damaging bullying can be to a person's emotional and physical wellbeing. • To report the bullying to the social media site or game or other app, giving them as much of that information as you can. • Media can be used negatively and the impact of this on other people. • To block other children on media so that the bullying can be stopped. • The chat functions work on media.
<p>Vocabulary</p>	<p>Data Data logger Table Layout input device sensor data point interval analyse dataset</p>	

	import export logged collection review conclusion
Enrichment & wider development	



Year 4 - Summer 1

Milestone LO:

I am learning to design and create content.

I am learning to understand that images online are not always representative of real life.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> • The copy command copies the text or image that has been selected and stores it in the virtual clipboard. (Revisit Yr 3, Sum 1) • To copy a piece of text you need to highlight the text you want to copy and press ctrl + c (as a shortcut) or two finger tap the trackpad and select copy. (Revisit Yr 3, Sum 1) • The clipboard is a location on a computer, phone, or tablet memory that temporarily stores cut or copied text or other data. (Revisit Yr 3, Sum 1) • The cut command removes the selected data from its original position and stores it in the virtual clipboard. (Revisit Yr 3, Sum 1) • To cut a piece of text you need to highlight the text you want to copy and press ctrl + x (as a shortcut) or two finger tap the trackpad and select cut. (Revisit Yr 3, Sum 1) • The paste command is used to place the information that has been stored on the virtual clipboard in the location that the mouse curser has been placed. (Revisit Yr 3, Sum 1) • To paste a piece of text, the curser needs to be placed where the copied content needs to be and two finger tap the trackpad and select paste. As a shortcut, press ctrl + v. (Revisit Yr 3, Sum 1) • different colour effects make you think and feel different things • An image is a picture or visual representation that was created or copied and stored in electronic form. • Edit means to modify a file. • To 'crop' an image is to remove or adjust the outside edges of an image. 	<p>Know how...</p> <ul style="list-style-type: none"> • To crop an image using photo editing software • Improve an image by rotating it • To experiment with different colour effects • To add to the composition of an image by cloning • How to edit an image to improve it • To remove parts of an image • To select and copy parts of an image • Choose suitable images to fit the learning • Describe the image that is desired • Combine text and image to complete learning

	<ul style="list-style-type: none"> • To crop an image, you right click on the image and select 'crop'. • Rotate means to turn. To turn an image, you click on the image and press the rotate icon. • The undo button lets you remove the last actions that had taken place. • To undo, press ctrl + Z on the keypad. • Adjustment layers are a special type of layer that manipulate the colour and tone of the layers beneath them. • Hue is referring to its pure colour, or the visible spectrum of basic colours that can be seen in a rainbow. • Saturation describes the intensity of the colour. For example, a full colour photo is extremely saturated. • Sepia is a warm brown colour that can give photos an antique look. • Retouch is the process of improving the appearance of an image. • 	
Online Safety	<p>Know that ...</p> <ul style="list-style-type: none"> • Images are visual representations of something • Being online means having a device which is connected to the internet. • Examples of devices include: computers, tablets, and smartphones. • Photographs do not represent reality accurately. • The way cameras capture images is very different from the way our eyes perceive the world, and as such, the photographs we take are flat representations of a 3D world. • Photoshop is an image creation, graphic design and photo editing software. • It is widely used for image editing, retouching and creating image compositions. • Photos online may have been altered without being obvious. • Not everything you see online is real. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To explore tools that hide likes from other accounts and look for other ways you can help build their self-confidence. • Editing tools are used and talk about how this makes them feel. • This could influence someone to start editing their photos. • To explore or mute accounts so that these images are not seen. • To regularly review what they are seeing online and unfollow/ stop looking at people who don't make them feel good about themselves. • To spot errors in photo editing. • Images are altered. • Easy it is for someone to edit their photos. •

	<ul style="list-style-type: none"> • By constantly seeing pictures of flawless people, some may start to believe that these pictures are real. • This type of harmful thinking can lead to all sorts of mental and emotional health concerns. • When filters or tools are used to enhance or alter physical features, this can lead young people to compare themselves to others online and have an unrealistic view of acceptable beauty standards. • It's not always easy to recognise when someone is using a filter, for example there are tools available that enable you to edit your appearance during a livestream or video call. • They can effect young people's self-esteem and body image. • Young people may feel pressure to post certain images to 'fit in'. • They can effect young people's overall wellbeing. • Young people may feel disappointment or embarrassment if they don't get enough 'likes' or comments. • Seeing a friend, influencer or celebrity posting an edited image or video online can also negatively affect a young person's self-esteem and put pressure on them to post certain types of images. • 	
Vocabulary	Image Edit Digital Crop Rotate Undo Save Adjustments Effects Colours Hue saturation,	

	sepia image retouch clone select combine made up real composite cut copy paste alter background foreground zoom undo font
Enrichment & wider development	



Year 4 - Summer 2

Milestone LO:

I am learning to use software to create content that accomplish given goals.

I am learning to understand, explain and give examples of fake news.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> • Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (revisit, Yr 4 Spr 1) • A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. (revisit, Yr 4 Spr 1) • Scratch is a block-based visual programming language. (revisit, Yr 4 Spr 1) • Blocks are puzzle-piece shapes that are used to create code in Scratch. The blocks connect to each other vertically like a jigsaw puzzle. (revisit, Yr 4 Spr 1) • Code is a set of instructions used to communicate with computers. (revisit, Yr 4 Spr 1) • A sprite is the main character in Scratch. (revisit, Yr 4 Spr 1) • Sequencing is the specific order in which instructions are performed in an algorithm. (revisit, Yr 4 Spr 1) • An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 4 Spr 1) • A bug is an unexpected problem with software. (revisit, Yr 4 Spr 1) • Debugging is the process of finding and correcting errors or bugs in a computer program. (revisit, Yr 4 Spr 1) 	<p>Know how...</p> <ul style="list-style-type: none"> • To modify a snippet of code to create a given outcome • To predict the outcome of a snippet of code • To modify loops to produce a given outcome • To decide when a count-controlled loop is suitable • To decided when an infinite loop is suitable • To evaluate the effectiveness of repeated sequences • To explain what the outcome the repeated action should be • Parts of a loop can be changed • To re-use existing code snippets on new sprites • To develop their own design and explain what the outcome will be • To evaluate the use of repetition in a project • To build a project which follows a design • To refine the algorithm

	<ul style="list-style-type: none"> • A command is an instruction given to a computer to perform a specific task. (revisit, Yr 4 Spr 1) • Repetition is lines of code which are run multiple times. (revisit, Yr 4 Spr 1) • A count-controlled loop is a loop in which you know beforehand how many times it will be repeated. (revisit, Yr 4 Spr 1) • An infinite loop (or forever loop) is one that runs over and over again until the end of the program. 	
Online safety	<p>Know that</p> <ul style="list-style-type: none"> • Fake news is false information that is shared pretending to be news in order to mislead or deceive others. • Fake news is often designed to deceive readers and manipulate public opinion. • Mislead means to give someone the wrong idea or impression. • Deceive means to convince someone of untrue information. • Bias is an underlying opinion, point of view, or perspective of the world that guides your actions. • An example of fake news is that the queen is a lizard. • Fake news may be perceived as being the truth. • Fake news can be hard to uncover. • There are different ways to spot fake news. • Fake news can be reported in different ways such as film, TV, social media, books, newspapers. • Fake news can be spread through various media platforms, including social media, websites, and messaging apps. • Fake news may use sensational headlines, fabricated quotes, misleading images, or misleading statistics to appear credible. • Fake news can misinform the public, influence elections, create social division, and harm individuals' reputations. • Identifying and debunking fake news is crucial to maintaining informed and responsible citizenship. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To spot fake news. • To spot misinformation through checking for accidental errors such as pronoun usage, statistics, and whether the dates look accurate. The spelling, punctuation, and grammar (SPaG) is also a good way to detect whether a site is trustworthy. • Look through the site for information that is contradicted by other articles released by the site is one good way of checking its reliability. You could also decide whether the site looks professional, if there are lots of pop-up adverts, and if they have any legitimate contact information. • Check whether a story is biased or not by looking at a different publication to see how the topic has been represented. If the author of the text has missed out certain facts or presented certain pieces of information particularly positively or negatively, then it could be biased. • To evaluate the credibility of news sources by checking the reputation of the website or author, examining the publication date, and cross-referencing with other reliable sources. • To fact-check information by verifying details, searching for corroborating evidence, and using fact-checking websites or tools.

	<ul style="list-style-type: none"> • Examples of common fake news stories, such as false health claims, political hoaxes, celebrity gossip, or conspiracy theories. • Recognize red flags that may indicate a news story is fake, such as lack of credible sources, sensational language, or inconsistencies in the story. 	<ul style="list-style-type: none"> • To distinguish between opinion pieces, satire, and legitimate news reporting. • To critically analyse news stories by questioning the motives behind the information, considering bias or agenda, and identifying logical fallacies. • To consider multiple perspectives and seek out diverse sources of information to gain a balanced understanding. • To responsibly share news stories by verifying information before reposting or sharing with others. • To use social media and digital platforms responsibly to prevent the spread of fake news and misinformation.
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Vocabulary	Scratch Programming Sprite Blocks code loop repeat value infinite loop count-controlled loop costume repetition forever event block duplicate modify
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FEDERATION



	design algorithm debug refine evaluate
Enrichment & wider development	



Year 5 Autumn 1

Milestone LO:

I am learning to understand computer systems and how information is transferred between systems and devices.

I am learning to explain what a strong password is and how to create one.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
<p>Digital Literacy</p>	<p>Know that...</p> <ul style="list-style-type: none"> • Input is data that is sent to a program to be processed. (Revisit Yr 4, Aut 2) • Input devices include a keyboard, mouse, microphone, button. (Revisit Yr 4, Aut 2) • An <u>output</u> device is a <u>piece of hardware</u> used to receive data from the computer and convert it into a human-perceptible form. (Revisit Yr 4, Aut 2) • An example of an output device is a set of speakers. They take the data from the computer and turn it into an audible sound. (Revisit Yr 4, Aut 2) • Software is the programs that run on a computer in order to use it. (Revisit Yr 4, Aut 2) • A computer system features inputs, outputs, processes and outputs • Computer systems communicate with other devices • Systems are built using a number of parts. • A search engine follows rules to rank results. • A search engine is a software program that helps people find the information they are looking for online using keywords or phrases. • To give you the most useful information, Search algorithms look at many factors and signals, including the words of your query, relevance and usability of pages, expertise of sources, and your location and settings. • Refine means to make an improvement • Indexing is the process by which search engines organize information before a search to enable super-fast responses to queries • An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 4 Sum 1) 	<p>Know how...</p> <ul style="list-style-type: none"> • To compare results from different search engines • To make use of a web search to find specific information • To refine a web search • Web crawlers create an index • To relate a search term to the search engine's index • Search engines rank results • Search results can be influenced • Search engines make money

	<ul style="list-style-type: none"> • Search engine optimisation (SEO) is the process of improving your website to increase its visibility in Google. • A web crawler, or spider, is a type of bot that is typically operated by search engines like Google and Bing. Their purpose is to index the content of websites all across the Internet so that those websites can appear in search engine results. • A bot is an automated software application that performs repetitive tasks over a network. • Rankings in SEO refers to a website's position in the search engine results page. 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • Passwords are used to keep our private information safe • Passwords stop other people from accessing our personal information • You should use a different password for every app, website or game that you use. • Password vaults or lockers on devices can help us to keep our passwords secure • You should change your passwords regularly for extra security. • A strong password is a combination of letters (both uppercase and lowercase), numbers, and special characters. • A strong password is at least 8-12 characters long to increase security. • A strong password does not contain easily guessable information like names, birthdates, or common words. • Strong passwords help protect personal information and accounts from unauthorised access. • Using strong passwords reduces the risk of identity theft, fraud, and cyberattacks. • Different accounts should have unique passwords to prevent widespread compromise if one account is breached. • Examples of weak passwords such as "password," "123456," "qwerty," or common words. 	<p>Know how...</p> <ul style="list-style-type: none"> • To combine uppercase and lowercase letters, numbers, and special characters to create a strong password. • To create a passphrase that includes multiple words and symbols, making it easier to remember but harder to guess. • To avoid using personal information such as names, birthdays, or addresses in passwords. • To use acronyms or substitutions for letters in familiar phrases to create complex passwords (e.g., "P@ssw0rd" for "Password"). • To ensure the password length meets or exceeds recommended guidelines (e.g., 12 characters or more). • To store passwords securely, such as using password managers or encrypted storage solutions. • To update passwords regularly and avoid reusing passwords across multiple accounts.



	<ul style="list-style-type: none"> Using easily guessable sequences or personal information as passwords compromises security. 	<ul style="list-style-type: none"> To enable two-factor authentication (2FA) where available to add an extra layer of security to accounts. To explain the importance of strong passwords to friends, family, and peers. To encourage others to create strong passwords and practice good password hygiene.
Vocabulary	System Connection Digital Input Process Storage Output Search search engine refine index ordering links algorithm search engine optimisation (SEO) web crawler content creator selection ranking	
Enrichment & wider development		

FEDERATION



Year 5 - Autumn 2

Milestone LO:

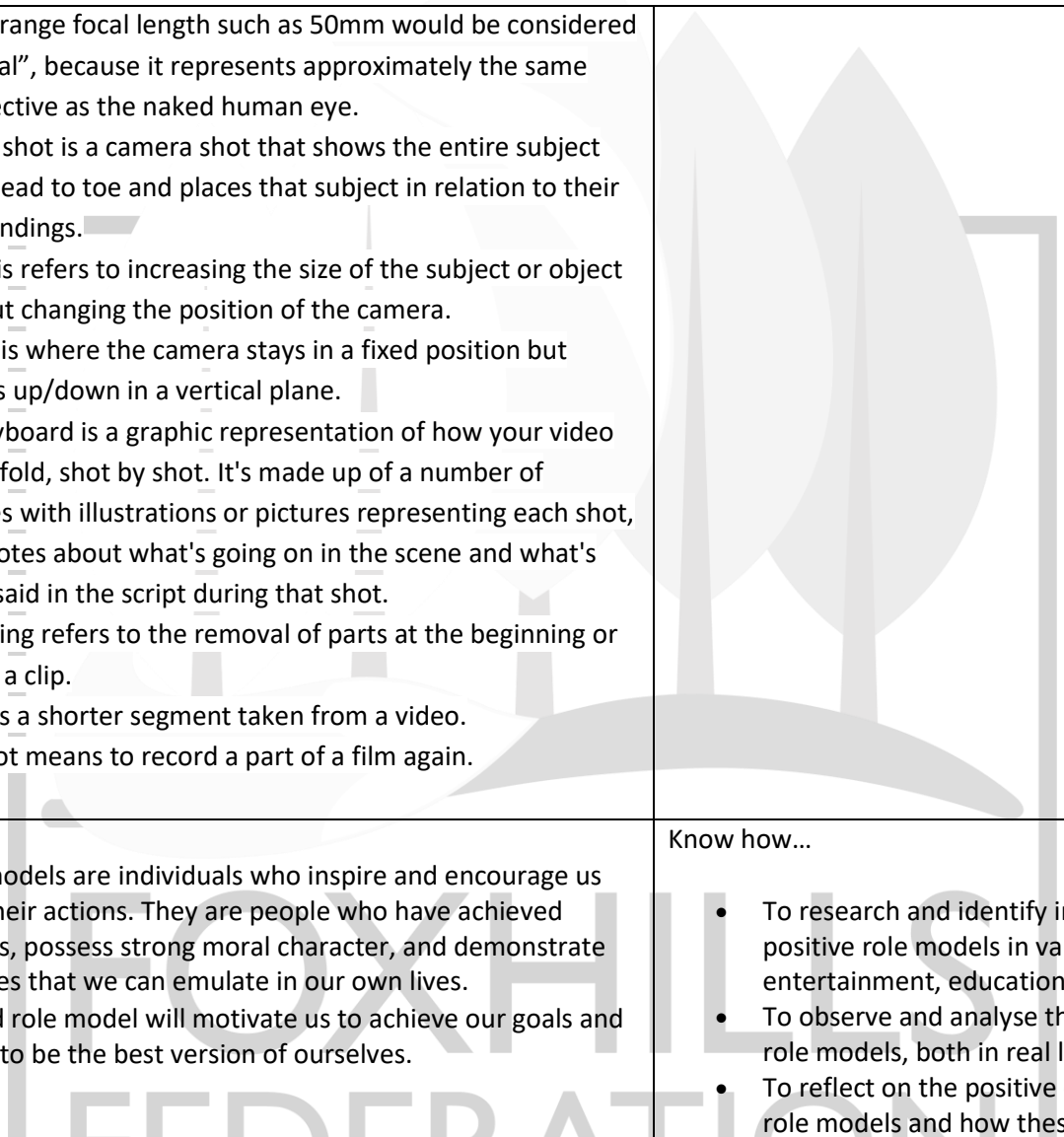
I am learning to use technology to design, create and edit video content.

I am learning to identify role models who manage a positive identity.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> • Video is a visual media format • Audio is any sound. (Revisit Yr4 Aut 2) • A microphone is an input device which sends audio information to a computer. (Revisit Yr4 Aut 2) • Export is when you can transfer data to a file. (Revisit Yr4 Aut 2) • Import is when you bring data into a file. (Revisit Yr4 Aut 2) • Edit means to modify a file. (Revisit Yr4 Sum 1) • A camera is an instrument used to capture and store images and videos. • A talking head is a term that describes a camera set-up that only features a person's head and shoulders. • Panning means swivelling a still or video camera horizontally from a fixed position. • A close up shot is a photograph or movie shot taken of a subject or object at close range intended to show greater detail to the viewer. • A microphone is a device that converts sound waves into an electrical signal. • A camera lens allows you to control the amount of light that enters a camera. 	<p>Know how...</p> <ul style="list-style-type: none"> • To experiment with different camera angles • To find features on a digital video recording device • To make use of a microphone • Capture video using a range of filming techniques • Create and save video content • To outline the scenes of a video • To improve a video by reshooting and editing • To select the correct tools to make edits to a video • To store, retrieve, and export recordings to a computer

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	<ul style="list-style-type: none"> • A mid-range focal length such as 50mm would be considered “normal”, because it represents approximately the same perspective as the naked human eye. • A long shot is a camera shot that shows the entire subject from head to toe and places that subject in relation to their surroundings. • Zoom is refers to increasing the size of the subject or object without changing the position of the camera. • Tilting is where the camera stays in a fixed position but rotates up/down in a vertical plane. • A storyboard is a graphic representation of how your video will unfold, shot by shot. It's made up of a number of squares with illustrations or pictures representing each shot, with notes about what's going on in the scene and what's being said in the script during that shot. • Trimming refers to the removal of parts at the beginning or end of a clip. • A clip is a shorter segment taken from a video. • Reshoot means to record a part of a film again. • 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • Role models are individuals who inspire and encourage us with their actions. They are people who have achieved success, possess strong moral character, and demonstrate qualities that we can emulate in our own lives. • A good role model will motivate us to achieve our goals and aspire to be the best version of ourselves. 	<p>Know how...</p> <ul style="list-style-type: none"> • To research and identify individuals who are considered positive role models in various fields, such as sports, entertainment, education, or community service. • To observe and analyse the behaviours and actions of these role models, both in real life and through online platforms. • To reflect on the positive qualities and behaviours exhibited by role models and how these contribute to a positive identity.



	<ul style="list-style-type: none"> • An online presence is just one part of who we are and so it is important for role models to conduct themselves in a positive way in the real world as well. • A positive identity involves traits like self-respect, honesty, kindness, resilience, and empathy. • Individuals with a positive identity demonstrate respect for themselves and others both online and offline. • Positive role models exemplify behaviours and values that contribute positively to their communities. • Role models can be celebrities, athletes, community leaders, fictional characters, or even peers who exhibit positive qualities. • Role models can influence others through their actions, words, and how they present themselves online. • Positive role models demonstrate integrity by acting consistently with their values and beliefs. • They exhibit resilience in overcoming challenges and setbacks. • They show empathy and kindness in their interactions with others. • They use their influence to inspire and uplift others. 	<ul style="list-style-type: none"> • To consider the impact of these role models' actions on their own behaviour and attitudes. • To apply lessons learned from positive role models to their own lives, including their online interactions and behaviours. • To emulate positive traits such as respect, kindness, and resilience in their daily interactions, both online and offline. • To use social media and digital platforms to promote positive messages and behaviours. • To avoid behaviours that could negatively impact their own or others' online identities.
Vocabulary	Video Audio Camera talking head panning close up video camera microphone lens	





	<p>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 export evaluate share</p>
Enrichment & wider development	

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Year 5 - Spring 1

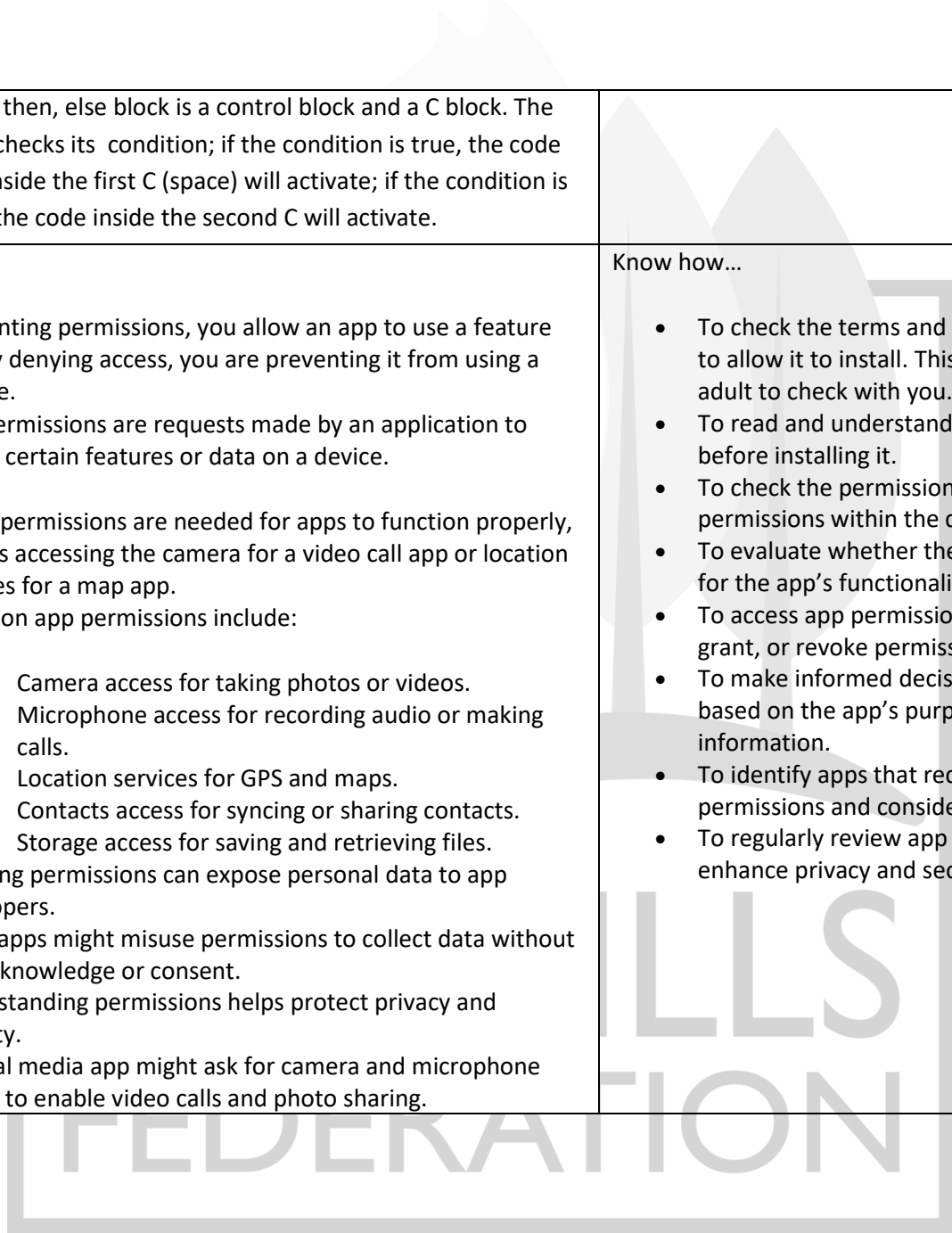
Milestone LO:

I am learning to use sequencing, selection and repetition to create a quiz using Scratch.

I am learning to explain what app permissions are, giving examples.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> • Conditional statements have slots that are shaped with points on either side which evaluate to a true or a false value and execute if the statement is true. • A condition is either true or false. • A condition being met can start an action. • A count-controlled loop is a loop in which you know beforehand how many times it will be repeated. (revisit, Yr 4 Sum 2) • Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (revisit, Yr 4 Sum 2) • An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 4 Sum 2) • A bug is an unexpected problem with software. (revisit, Yr 4 Sum 2) • Debugging is the process of finding and correcting errors or bugs in a computer program. (revisit, Yr 4 Sum 2) • Input is data that is sent to a program to be processed. (Revisit Yr 5, Aut 1) • The Operators blocks are used to compare variables and values, do calculations with numbers, and work with strings (text). 	<p>Know how...</p> <ul style="list-style-type: none"> • To modify a condition in a program • To create a program with different outcomes using selection • To use selection in an infinite loop to check a condition • To design a program which contains 'if... then... else' • To share the program with others • To test the program

	<ul style="list-style-type: none"> The if, then, else block is a control block and a C block. The block checks its condition; if the condition is true, the code held inside the first C (space) will activate; if the condition is false, the code inside the second C will activate. 	
<p>Online Safety</p>	<p>Know that...</p> <ul style="list-style-type: none"> By granting permissions, you allow an app to use a feature and by denying access, you are preventing it from using a feature. App permissions are requests made by an application to access certain features or data on a device. These permissions are needed for apps to function properly, such as accessing the camera for a video call app or location services for a map app. Common app permissions include: <ul style="list-style-type: none"> Camera access for taking photos or videos. Microphone access for recording audio or making calls. Location services for GPS and maps. Contacts access for syncing or sharing contacts. Storage access for saving and retrieving files. Granting permissions can expose personal data to app developers. Some apps might misuse permissions to collect data without users' knowledge or consent. Understanding permissions helps protect privacy and security. A social media app might ask for camera and microphone access to enable video calls and photo sharing. 	<p>Know how...</p> <ul style="list-style-type: none"> To check the terms and permissions of an app before agreeing to allow it to install. This is something you should ask a trusted adult to check with you. To read and understand the permissions requested by an app before installing it. To check the permissions given to an app by checking the app permissions within the device. To evaluate whether the requested permissions are necessary for the app's functionality. To access app permissions settings on their device to review, grant, or revoke permissions. To make informed decisions about which permissions to allow based on the app's purpose and their comfort level with sharing information. To identify apps that request excessive or unnecessary permissions and consider alternatives if privacy is a concern. To regularly review app permissions and adjust them to enhance privacy and security.



	<ul style="list-style-type: none"> • A fitness app might request location access to track workouts and distance. • A messaging app might request contacts access to find and connect with friends. 	
Vocabulary	<p>Selection Condition True False count-controlled loop outcomes conditional statement algorithm program debug question answer task design input implement test operator</p>	
Enrichment & wider development		

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Year 5 - Spring 2

Milestone LO:

I am learning to design and create a solution for collecting and analysing data.

I am learning to explain how anyone can get help if they are being bullied online and identify when to tell a trusted adult.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> • A database is a collection of data that is stored in a computer and that can easily be used and added to. (Revisit Yr 4 Spr 2) • Data is information that consists of facts and figures. (Revisit Yr 4 Spr 2) • Data can be gathered over time. (Revisit Yr 4 Spr 2) • Data can be collected using sensors. (Revisit Yr 4 Spr 2) • A field in a database refers to a set of values arranged in a table and has the same data type. A field is also known as a column or attribute. • A record is simply a set of data stored in a table, for example, a customer record. A record in a database is an object that can contain one or more values. • Data can be grouped using chosen values • There are benefits of using a computer to create charts such as: information is always legible, it saves time, avoid repetition and misspellings, easy to store. • Ordering refers to the process of arranging data in a particular sequence based on one or more criteria. • Grouped data means the data (or information) given in the form of class intervals such as 0-20, 20-40 and so on. 	<p>Know how...</p> <ul style="list-style-type: none"> • To create a database using cards • To order, sort and use data cards • To choose which field to sort data by to answer specific questions • To navigate a flat-file database to compare different views of information • To combine grouping and sorting to answer specific questions • To group information using a database • To choose multiple criteria to answer a given question • To choose which field and value are required to answer a given question • To refine a chart by selecting a particular filter • To present findi Know how... • To speak to a friend or trusted adult if you or a person you know is being bullied online • To report a user within an app • To take screenshots on a computer by using the function button (fn) and pring screen button (prt sc) • To avoid being accused of online bullying by making positive choices and always treating other people as you would want to be treated yourself. • Before posting to always stop and THINK • Is it true? • Is it helpful? • Is it inspiring?

	<ul style="list-style-type: none"> • Graphs are used to pictorially represent data relationships. • Data charts are valuable tools in data analysis as they visually represent information, making it easier to understand trends, patterns, and relationships within the data. The common types of data charts include bar graphs, line graphs, pie charts, scatter plots, and more. • Axes are lines that provide references for measurement. • The filter feature allows you to select and limit the data to be displayed in your tables or graphs. 	<ul style="list-style-type: none"> • Is it necessary? • Is it kind? • ngs to a group
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> • Online bullying can take many different forms. These can include messages, comments, tagging someone, sharing memes, exclusion, harassment and indirect comments. • Online bullying can leave the victim feeling sad, scared, worried and overwhelmed by the situation. • Most of the time a bully is looking for a reaction so the best thing to do is ignore them. • Taking screenshots to share with a friend or trusted adult is a good way to gather evidence. • Reporting the user and blocking them will also help to keep you safe. • Online bullying, also known as cyberbullying, involves using digital platforms to harass, threaten, or humiliate someone. • Cyberbullying can take many forms, including sending mean messages, spreading rumours, sharing embarrassing photos or videos, and creating fake profiles. • Signs of cyberbullying include receiving threatening or mean messages, having personal information or images shared without consent, being excluded from online groups, and experiencing a sudden increase in online negativity. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To recognise when they or someone else is being bullied online and when it is time to seek help. Signs include feeling scared, upset, or unsafe because of online interactions. • To differentiate between a single mean comment and repeated, targeted bullying that needs to be reported. • To identify who a trusted adult might be, such as a parent, teacher, or family member. • To clearly communicate what is happening, providing specific examples and evidence of the bullying, such as screenshots or messages. • To use reporting features on social media platforms and websites to report abusive behaviour and block the bully. • To find and follow the steps for reporting bullying on various platforms. • To support friends or classmates who might be experiencing online bullying by encouraging them to speak to a trusted adult and offering emotional support. • To avoid participating in or encouraging bullying behaviour and how to promote a positive online environment.

	<ul style="list-style-type: none"> • It is crucial to seek help to stop the bullying and to prevent emotional distress or harm. • Seeking help can provide support and resources to deal with the situation effectively. • There are various resources and support systems available, including parents, teachers, trusted adults, and online reporting tools. • Many social media platforms and websites have mechanisms to report and block bullies. 	
Vocabulary	Database Data Information Record Field Sort Order Group Search Value Criteria Graph Chart Axis Compare Filter presentation	
Enrichment & wider development		

FEDERATION



Year 5 - Summer 1

Milestone LO:

I am learning to use a variety of drawing tools to design and create vector drawings

I am learning to make references to and acknowledge sources from the internet.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> • A vector is a mathematical object that has a size, called the magnitude, and a direction. • A vector graphic editor, such as vector drawings, is a computer program that enables its users to create, compose and edit images with the use of mathematical and geometrical commands rather than individual pixels. • Drawing tools include: pen, pencil, brush, rectangle, oval, line, spiral, etc. • Images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. • The toolbar appears at the top of the screen and spans across the laptop interface. • Resize means to either make the image larger or smaller • Each element added to a vector drawing is an object. • Alignment grids and resize handles can be used to improve consistency. • Alignment is when you position your elements relative to each other and to the canvas. • The canvas is the holding area for graphics. • Layers allow you to modify individual elements within your image without changing the other elements or objects. 	<p>Know how...</p> <ul style="list-style-type: none"> • Vector drawings are different from paper-based drawings • To move, resize, and rotate objects which have been duplicated • To modify objects to create a new image • To use the zoom toll to help add detail to drawings • To change the order of layers in a vector drawing • To use layering to create an image • To copy part of a drawing by duplicating several objects • To reuse a group of objects to develop the vector drawing

	<ul style="list-style-type: none"> Grouping is useful when you should rearrange or manage many components on the screen. 	
Online Safety	<p>Know that...</p> <ul style="list-style-type: none"> Referencing means giving credit to the original creator of content, such as text, images, videos, or ideas found online. Acknowledging sources helps avoid plagiarism, which is the act of using someone else's work without giving proper credit. Sources can include websites, articles, videos, images, blogs, and social media posts. Not all sources are equally reliable or credible. Citing sources shows respect for the original creator's work and intellectual property. Providing references allows others to verify information and further explore the topic. Properly citing sources enhances the credibility of their own work. 	<p>Know how...</p> <ul style="list-style-type: none"> To find information from a variety of reliable and credible sources. To evaluate the credibility of a source by checking the author's credentials, publication date, and the domain of the website (e.g., .edu, .gov, .org): To create a basic citation for different types of online sources, including websites, articles, and images. For example: <ul style="list-style-type: none"> Websites: Author's Name, "Title of the Webpage," Website Name, URL, Date Accessed. Articles: Author's Name, "Title of the Article," Website Name, Date Published, URL. Images: Creator's Name, "Title of the Image," Website Name, URL, Date Accessed. To include in-text citations when using specific information or quotes from a source. To create a reference list or bibliography at the end of their work to compile all sources used. To respect copyright laws and understand the concept of fair use, especially for educational purposes. To ask for permission when using content that is not freely available for public use.
Vocabulary	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
Enrichment & wider development	



Year 5 - Summer 2

Milestone LO:

I am learning to use physical computing to explore selection in programming through the use of Crumble.

I am learning to identify ways the internet can draw us to information for different agendas.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> • An infinite loop (or forever loop) is one that runs over and over again until the end of the program. (Revisit Yr 4, Sum 2) • Conditional statements have slots that are shaped with points on either side which evaluate to a true or a false value and execute if the statement is true. (Revisit Yr 5 Sp 1) • A condition is either true or false. (Revisit Yr5 Sp 1) • A condition being met can start an action. (Revisit Yr 5 Sp 1) • Input is data that is sent to a program to be processed. (Revisit Yr 5, Spr 2) • An output device is a piece of hardware used to receive data from the computer and convert it into a human-perceptible form. (Revisit Yr 5, Aut 1) • Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (revisit, Yr 5 Spr 2) • A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. (revisit, Yr 4 Sum 2) • Scratch is a block-based visual programming language. (revisit, Yr 4 Sum 2) 	<p>Know how...</p> <ul style="list-style-type: none"> • To create a simple circuit and connect to a microcontroller • To program a microcontroller to make an LED switch on • To connect more than one output component to a microcontroller • To design sequences that use count-controlled loops • To use a count-controlled loop to control outputs • To program a microcontroller to respond to an input • To use to direct the flow of a program • To test and debug the project • To use selection to produce an intended outcome

- An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 5 Spr 2)
- A bug is an unexpected problem with software. (revisit, Yr 5 Spr 2)
- Debugging is the process of finding and correcting errors or bugs in a computer program. (revisit, Yr 5 Spr 2)
- Repetition is lines of code which are run multiple times. (revisit, Yr 4 Sum 2)
- (revisit, Yr 4 Sum 2) A count-controlled loop is a loop in which you know beforehand how many times it will be repeated. (revisit, Yr 5 Spr 1)
- A microcontroller is a small computer on a single integrated circuit.
- A USB (universal serial bus), is technology used to connect computers with peripheral devices such as printers, scanners, and keyboards.
- A Crumble is a very low-cost electronics controller that connects to a computer using a USB cable.
- An LED is a light-emitting diode, which is a small lightbulb.
- Sparkles are multi-coloured lights made especially for the Crumble microcontroller. A Sparkle contains an electrical component called an RGB LED, which stands for Red, Green, Blue Light Emitting Diode.
- a buzzer is a basic audio device that generates a sound from an incoming electrical signal.

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<p>Online Safety</p>	<p>Know that...</p> <ul style="list-style-type: none"> • Various online content creators, such as companies, individuals, and organisations, may have different motives, including marketing, persuasion, education, entertainment, or misinformation. • Some content is designed to influence opinions, sell products, or promote specific ideas or ideologies. • Advertisements aim to sell products or services. • Political content may aim to influence opinions or votes. • Sensationalist news or clickbait aims to attract views and generate ad revenue. • Sponsored content is paid for by advertisers and might not always be clearly labelled. • Algorithms on social media and search engines show personalized content to keep users engaged. • Emotional appeals, sensational headlines, and eye-catching visuals are used to attract attention. • Misinformation and fake news can spread rapidly due to sensationalism and sharing. • Being drawn to biased or misleading information can shape beliefs and behaviours. • Overexposure to certain types of content can skew perceptions of reality. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To critically evaluate the source of online content by checking the author's credentials and the website's reputation. • To identify bias and recognise when information might be presented to influence opinions rather than inform. • To look for clues that indicate the purpose behind the content, such as who created it, who benefits from it, and whether it is sponsored or paid for. • To differentiate between factual information, opinion pieces, and advertisements. • To use fact-checking websites and cross-reference information with multiple reputable sources to verify accuracy. • To identify and avoid fake news and misinformation by checking for credible sources and evidence supporting the claims. • To use tools and settings on social media and browsers to control and limit exposure to certain types of content. • To create a balanced media diet by seeking information from diverse and reputable sources.
<p>Vocabulary</p>	<p>Microcontroller USB Components Connection infinite loop output component motor</p>	

	repetition count-controlled loop Crumble controller Switch LED Sparkle crocodile clips connect battery box program condition Input Output Selection Action Debug circuit power buzzer
Enrichment & wider development	



Year 6

Year 6 - Autumn 1

Milestone LO:

I am learning to understand how the internet helps us to communicate and collaborate.

I am learning to describe positive ways to interact with others online and understand how this will positively impact on perception.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Digital Literacy	<p>Know that...</p> <ul style="list-style-type: none"> • Internet devices have addresses • All data transferred over the internet is in packets • Data is information that consists of facts and figures. (Revisit Yr 5 Spr 2) • Data is transferred over networks in packets. • A packet is a small segment of a larger message. • The internet allows different media to be shared • Media is used to pass information to many people in a society including television, radio, newspapers, magazines and the internet. (Revisit Yr 3 Aut 2) • The internet enables effective collaboration • Collaboration is people working together • There are different ways in which people communicate on the internet • Examples include email, texts, messages, videos, pictures, audio, social media, video chat, etc. • Communication on the internet may not be private • Network protocols are a set of rules outlining how connected devices communicate across a network to exchange information easily and safely. 	<p>Know how...</p> <ul style="list-style-type: none"> • Computers use addresses to access websites • The internet allows different media to be shared • To access shared files stored online • To send information over the internet • To compare different methods of communicating on the internet • Information should be shared online safely

	<ul style="list-style-type: none"> • An IP address is a unique address that identifies a device on the internet or a local network. • The domain name system (DNS) is a naming database in which internet domain names are located and translated into Internet Protocol (IP) addresses. • Payload is the data to be transmitted. • A slide deck is a collection of slides organised together to form a cohesive presentation. • The internet is a network of networks. (Revisit Yr 4 Aut 1) • Computer networks are a group of connected computing devices. (Revisit Yr 4, Aut 1) • A computer network is formed when two or more computers are connected together. (Revisit Yr 4, Aut 1) • Networks allow people to access the same information from any computer on the network. (Revisit Yr 4, Aut 1) • A public network is a wireless or wired network that computers and devices you don't trust are connected to. A public network is a network to which everyone, i.e. the general public, has access. • A private network is a computer network that uses a private address space of IP addresses. 	
Online safety	<p>Know that ...</p> <ul style="list-style-type: none"> • Positive interactions online include being respectful, kind, and supportive. • Positive interactions contribute to a healthy online community. • The way they interact online can affect how others see them. • Positive interactions can lead to positive perceptions, such as being seen as friendly, trustworthy, and responsible. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To communicate clearly and respectfully in various online platforms (e.g., social media, email, chat rooms). • To give constructive feedback and praise online. • To resolve conflicts online in a positive and respectful manner. • To present themselves positively online by sharing appropriate content and comments.

	<ul style="list-style-type: none"> • Negative interactions can lead to negative perceptions and possible consequences, such as being seen as a bully or unkind. • There are guidelines and rules for interacting online safely and respectfully (e.g., using appropriate language, not sharing personal information). • Cyberbullying is harmful and unacceptable. 	<ul style="list-style-type: none"> • To protect their online reputation by thinking before posting and considering the long-term impact of their online actions. • To recognise cyberbullying and negative interactions. • To respond to negative interactions, including blocking/reporting inappropriate behaviour and seeking help from a trusted adult. • To set privacy settings on social media and other online platforms. • To avoid sharing personal information with strangers online. • To identify and avoid phishing scams and other online threats.
Vocabulary	<p>Communication Protocol Data Address Internet Protocol (IP) Domain Name Server (DNS) Packet data payload chat explore slide deck collaboration internet public private</p>	
Enrichment & wider development		



Year 6 - Autumn 2

Milestone LO:

I am learning to design, create and evaluate an effective webpage.

I am learning to explain that others online can pretend to be someone else and why this might happen.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> A website is a collection of webpages that are accessed with a single domain name. (Revisit Yr 4, Aut 1) Websites are written in HTML. Hypertext Markup Language (HTML) is a standard markup language for web page creation. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, and quotes. It is the foundation of every webpage. A web page is a document on the World Wide Web. (Revisit Yr 4, Aut 1) The World Wide Web contains websites and web pages. (Revisit Yr 4, Aut 1) A web browser is a software application that lets people access the World Wide Web. (Revisit Yr 4, Aut 1) The internet allows different media to be shared. (Revisit Yr 6 Aut 1) Media is used to pass information to many people in a society including television, radio, newspapers, magazines and the internet. (Revisit Yr 6 Aut 1) The layout of a document depends on its purpose. (Revisit Yr 3 Sum 1) Layout describes the way something is designed or arranged on the page. (Revisit Yr 3 Sum 1) A logo refers to an image, emblem, or symbol used to represent something. Usually, a logo represents a company, organization, product, or service. 	<p>Know how...</p> <ul style="list-style-type: none"> To explore a website To draw a webpage layout that suits its purpose To find copyright free images To add content to own webpage To preview what my webpage looks like To make multiple web pages and link them using hyperlinks To create hyperlinks to link to other people's work

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- A header is a term given to a main strip or icon that sits towards the top of a website. Its purpose is to introduce branding and send out a message. Headers usually appear on every single page of a website.
- The term 'fair use' means you can copy and re-use copyrighted work without the artist's permission in certain, limited ways that still are fair to the creator.
- Copyright is a law that gives the owner of a written document, musical composition, book, picture, or other creative work, the right to decide what other people can do with it.
- Copyright laws make it easier for authors to make money by selling their works. Because of copyright, a work can only be copied if the owner of the copyright gives permission.
- A home page is the default or front page of a site.
- Preview means a feature that allows you to see how your site would be displayed in a browser without needing to publish your site.
- Evaluating is the process of deciding if something has been done in the best way and wondering what could be improved.
- Google Sites is a basic website builder.
- A breadcrumb trail reveals the user's location in a website
- Navigation refers to clicking or tapping buttons and menus or making multi-finger gestures to activate functions in an application or to jump to other sections of a website.
- A hyperlink is a bit of text on a web site that takes you to another site when you click on it. Most hyperlinks are highlighted in a different colour from the surrounding text.
- A subpage refers to a lower level web page in a website.
- An external link is a hyperlink that leads to a page outside a particular website.
- Embed means to insert content from a different website onto your own.
- There are implications of linking content owned by others.

<p>Online safety</p>	<p>Know that ...</p> <ul style="list-style-type: none"> • People can create fake profiles or personas online. • These fake profiles can look very convincing and can include fake names, photos, and information. • Some people may pretend to be someone else to deceive others for various reasons, including: <ul style="list-style-type: none"> ○ Malicious Intent: Scammers, predators, or cyberbullies may want to harm, exploit, or manipulate others. ○ Privacy: Some people might want to protect their own identity for safety reasons. ○ Entertainment or Experimentation: Some might do it for fun, as a prank, or to see how others react. • Interacting with someone pretending to be someone else can be dangerous. • Sharing personal information with or trusting someone who isn't who they claim to be can lead to serious consequences like identity theft, fraud, or emotional harm. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To identify signs of fake profiles, such as inconsistencies in information, lack of personal details, or suspicious behaviour. • To verify someone's identity by looking for mutual friends, checking their online history, or asking direct questions. • To keep personal information private by not sharing sensitive details online, such as addresses, phone numbers, and school names. • To use privacy settings on social media and other online platforms to control who can see their information. • To respond if they suspect someone is pretending to be someone else, including not engaging further, blocking the person, and reporting the behaviour to the platform or a trusted adult. • To seek help from a trusted adult if they feel uncomfortable or threatened by someone online
<p>Vocabulary</p>	<p>Website web page browser media Hypertext Markup Language (HTML) Logo Layout Header Media Copyright fair use</p>	

	home page preview evaluate Google Sites breadcrumb trail navigation hyperlink subpage external link embed
Enrichment & wider development	



Year 6 - Spring 1

Milestone LO:

I am learning to explore variables in programming through games in Scratch.

I am learning to explain why we have a collective responsibility to gain consent before sharing or forwarding online.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> A variable is a way of storing information in a computer program. A variable has a name and a value The value of a variable can be changed A value could be numbers, strings or even objects. Events are actions that users do which cause programs to respond in certain ways. An algorithm is a set of precise instructions or rules a computer follows to solve a problem or to complete a task. (revisit, Yr 5 Sum 2) Code is a set of instructions used to communicate with computers. (revisit, Yr 4 Sum 2) Programming is the process of writing computer programs. These are a series of instructions given to a computer in order to carry out certain operations and help the computer to run smoothly. (revisit, Yr 5 Sum 2) A sequence is a series of instructions that must be carried out in order. Without sequences, the steps of an algorithm would be completed out of order and may not achieved the desired goal. (revisit, Yr 5 Sum 2) Scratch is a block-based visual programming language. (revisit, Yr 5 Sum 2) Test refers to running each line of code and verifying if it performs the expected output. 	<p>Know how...</p> <ul style="list-style-type: none"> To create algorithms for my project To create the artwork for my project To test the code that I have written To share my game with others To use variables to extend my game To decide where in a program to change a variable

	<ul style="list-style-type: none"> • Output is the result of the processed data. • Debugging is the process of finding and correcting errors or bugs in a computer program. (revisit, Yr 5 Sum 2) • Evaluate is the process which gives time to think if the results are what was expected and how it could be improved. 	
Online safety	<p>Know that ...</p> <ul style="list-style-type: none"> • Consent means getting permission from someone before sharing or forwarding their personal information, images, or messages. • Consent is a fundamental principle of respect and privacy in both offline and online interactions. • Gaining consent helps to protect the privacy and feelings of others. • Sharing information without consent can lead to unintended consequences, such as embarrassment, bullying, or emotional distress for the person whose information is shared. • There are laws and regulations regarding the sharing of personal information, and breaking these laws can have legal consequences. • Ethical online behaviour includes respecting others' rights to control their own personal information. • Everyone has a role to play in creating a safe and respectful online environment. • Acting responsibly online helps to build trust and respect within the community. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To ask for and give consent clearly and respectfully. For example, asking a friend if it's okay to share their photo before posting it online. • To recognise when consent is given explicitly and when it is not. For example, understanding that silence or lack of response does not imply consent. • To handle personal information responsibly, understanding what kind of information should remain private. • To respect others' decisions about what can and cannot be shared. • To respond if their own information is shared without consent, including speaking to the person who shared it, reporting it to a trusted adult, or contacting the platform. • To support peers whose information has been shared without consent. • To model responsible online behaviour by consistently asking for consent and encouraging others to do the same. • To educate peers about the importance of consent and collective responsibility in online interactions.

Vocabulary	Variable Value Event Algorithm code program test debug evaluate
Enrichment & wider development	



Year 6 - Spring 2

Milestone LO:

I am learning to organise and evaluate data using a spreadsheet.

I am learning to recognise and understand the pressures that technology can place on someone and how this could be managed.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> Data is information that consists of facts and figures. (Revisit Yr 6 Aut 1) Data collection is the process of gathering and analysing accurate data from various sources to find answers to research problems, trends and probabilities. A table is a database object that contain all the data in a database. In tables, data is logically organised in a row-and-column format similar to a spreadsheet. A spreadsheet is a computer program that imitates a paper worksheet. It is a large table, made up of single units called cells. Cells are arranged in rows and columns. Each cell is identified by its column letter and its row number e.g. H5 Or A6. Each cell can hold data in the form of text, numbers or formulas. A cell reference refers to a cell or a range of cells on a worksheet. Formatting text or numbers can make them appear more visible especially when you have a large worksheet. Changing default formats includes things like changing the font colour, style, size. Formulas calculate values in a specific order. 	<p>Know how...</p> <ul style="list-style-type: none"> To collect data To enter data into a spreadsheet To apply an appropriate format to a cell To choose an appropriate format for a cell Construct a formula in a spreadsheet To apply a formula to multiple cells by duplicating it To calculate data using different operations To create a formula which includes a range of cells To apply a formula to calculate the data needed to answer questions To use a spreadsheet to answer questions To produce a chart To use a chart to show the answer to questions

- A formula always begins with an equal sign (=).
- Input means typing something into a cell.
- Output is the result of the use of a formula on a set of information.
- An 'Operator' in Excel is a symbol or function that denotes an operation. This could be a mathematical one like addition or subtraction, or a comparison like equal to or greater than.
- A range represents a single cell or a group of adjacent cells in a spreadsheet.
- Adjacent means side by side or next to.
- Duplicate means the same information populated in multiple cells, sheets or any other objects.
- In traditional spreadsheets, you work in cells, but in a Sigma table, you work in columns.
- A data set is a collection of number or values that relate to a particular subject (Revisit Yr 4 Spr 2)
- Charts are visual representations of data used to make it more understandable.
- Commonly used charts are: Pie chart. Column chart. Line chart.
- The SUM function adds values. You can add individual values, cell references or ranges or a mix of all three. For example: =SUM(A2:A10) Adds the values in cells A2:10.
- Software is the programs that run on a computer in order to use it. (Revisit Yr 5, Aut 1)

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Online safety	<p>Know that ...</p> <ul style="list-style-type: none"> • Technology can create pressure through constant connectivity, leading to a feeling of always being "on." • Social media can create pressure to present a perfect image or lifestyle. • Online games and apps can create pressure through notifications, in-game purchases, and the desire to keep up with friends or trends. • Cyberbullying and negative online interactions can cause emotional stress. • Excessive use of technology can lead to stress, anxiety, and sleep disturbances. • Comparing oneself to others online can affect self-esteem and mental health. • Feeling pressured to respond immediately to messages or notifications can lead to distraction and reduced productivity. • It is important to set boundaries for technology use to maintain a healthy balance between online and offline activities. • Managing screen time and taking breaks from technology can help reduce stress. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To recognise when they are feeling pressured by technology, such as feeling anxious about social media, stressed by constant notifications, or overwhelmed by online interactions. • To reflect on their own technology use and its impact on their well-being. • To set personal limits on screen time, such as using apps to track usage or setting specific times for being offline. • To create a balanced schedule that includes time for offline activities, such as hobbies, sports, and spending time with family and friends. • To manage notifications by adjusting settings to reduce distractions. • To take breaks from social media and other online activities to focus on their mental health. • To talk to a trusted adult or friend if they are feeling overwhelmed by technological pressures. • To use available resources, such as teachers or online safety tools, to get support. • To encourage friends and peers to also practice healthy technology use by sharing tips and strategies. • To model balanced technology use and positive online behaviour.
Vocabulary	<p>Data Collecting Table Spreadsheet Cell cell reference</p>	

	format formula input output operation range duplicate sigma propose question data set organised chart evaluate results sum software
Enrichment & wider development	



Year 6 Summer 1

Milestone LO:

I am learning to plan, develop and evaluate a 3D model using computer software.

I am learning to understand that someone's perception of being playful online may come across as bullying to someone else.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Information technology	<p>Know that...</p> <ul style="list-style-type: none"> Software is the programs that run on a computer in order to use it. (Revisit Yr 6, Spr 2) Tinkercad is a free web app for 3D design A two-dimensional (2D) shape can be defined as a flat figure or a shape that has two dimensions —length and width. Two dimensional or 2D shapes do not have any thickness. 3D, or three dimensional, refers to the three spatial dimensions of width, height and depth. The physical world and everything that is observed in it are three dimensional. A shape is a graphical representation of an object's form or its external boundary, outline, or external surface To select individual objects, click on them with the left mouse button. If you want to select multiple objects at once, select all of the objects in the workspace, you can use the shortcut Command or Ctrl + A, click anywhere on the work plane to deselect. There's a button in Tinkercad that can change the 3D view of your design to a flatter "orthogonal" view. Compared to the default 3D-like appearance of the "perspective" view, orthogonal offers a more natural, birds-eye look at your 	<p>Know how...</p> <ul style="list-style-type: none"> To add 3D shapes to a project To move 3D shapes relative to one another View 3D shapes from different perspectives To lift/lower 3D objects To recolour a 3D object To resize an object in three dimensions To duplicate 3D objects To group 3D objects To rotate objects in three dimensions To accurately size 3D objects To combine 3D objects To analyse a 3D model To construct a 3D model based on a design To modify a 3D model to improve it

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model. To return to the default view, simply press the button again to toggle back.

- You can resize an object in any direction you like by dragging its corners. By holding the shift key as you drag, the object will hold its proportions as it scales up and down in the direction you pull it.
- To lift the shape, select the shape and look for a black cone near the top of your shape. Click and drag this black cone to raise or lower the shape.
- The workplane is the space where you will create and modify objects.
- To change the colour, select the shape you are wanting to change by clicking on it. Once you have selected the shape, press the “Solid” button from the shapes inspector located on the upper right corner panel (marked by a blue square). The colour panel will appear showing a selection of colours that you can choose from.
- Duplicate is used to describe things that have been made as an exact copy of other things, usually in order to serve the same purpose.
- To duplicate: Click and drag a box onto the Workplane. And then up on the toolbar, click on Duplicate.
- Grouping shapes lets you combine shapes into a single object.
- To combine objects, you can press Ctrl + G to group them. This will combine the objects to make a single object. The colour will change to show that this is now one object.

	<ul style="list-style-type: none"> • Evaluate is the process which gives time to think if the results are what was expected and how it could be improved. (Revisit Yr 6, Spr 1) • Modify means to change or alter. 	
Online safety	<p>Know that ...</p> <ul style="list-style-type: none"> • `Playfulness online can include joking, teasing, and playful banter. • Bullying online involves repeated aggressive behaviour intended to harm or intimidate someone. • What one person considers playful or funny might be perceived as hurtful or mean by another person. • Online interactions lack non-verbal cues (like tone of voice and facial expressions) that help convey intentions, making misunderstandings more likely. • Teasing about appearance, skills, or interests, even if meant as a joke, can be hurtful. • Repeated jokes or comments, even if intended playfully, can feel like bullying if they target the same person or subject. • Perceived bullying can lead to emotional distress, anxiety, and a feeling of being unsafe online. • Misunderstandings can damage friendships and trust. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To use clear and respectful language online to avoid misunderstandings. • To recognise when a joke or comment might be taken the wrong way and rephrase it or avoid saying it. • To pay attention to how others respond to their online interactions and recognise signs that someone is upset or uncomfortable. • To ask for feedback if unsure whether a comment or joke was taken the wrong way. • To apologise sincerely if someone feels hurt by their online behaviour, even if it was intended playfully. • To take responsibility for their actions and make amends by stopping the behaviour and showing kindness. • To set personal boundaries for what they consider acceptable in online interactions and communicate these boundaries to others. • To respect others' boundaries and feelings, even if they differ from their own. • To encourage positive and inclusive online interactions among peers. • To intervene or seek help if they witness bullying or hurtful behaviour online.

Vocabulary	TinkerCAD 2D 3D Shapes Select Perspective Resize Lift recolour duplicate group cylinder cube cuboid sphere cone prism pyramid hollow choose combine evaluate modify
Enrichment & wider development	

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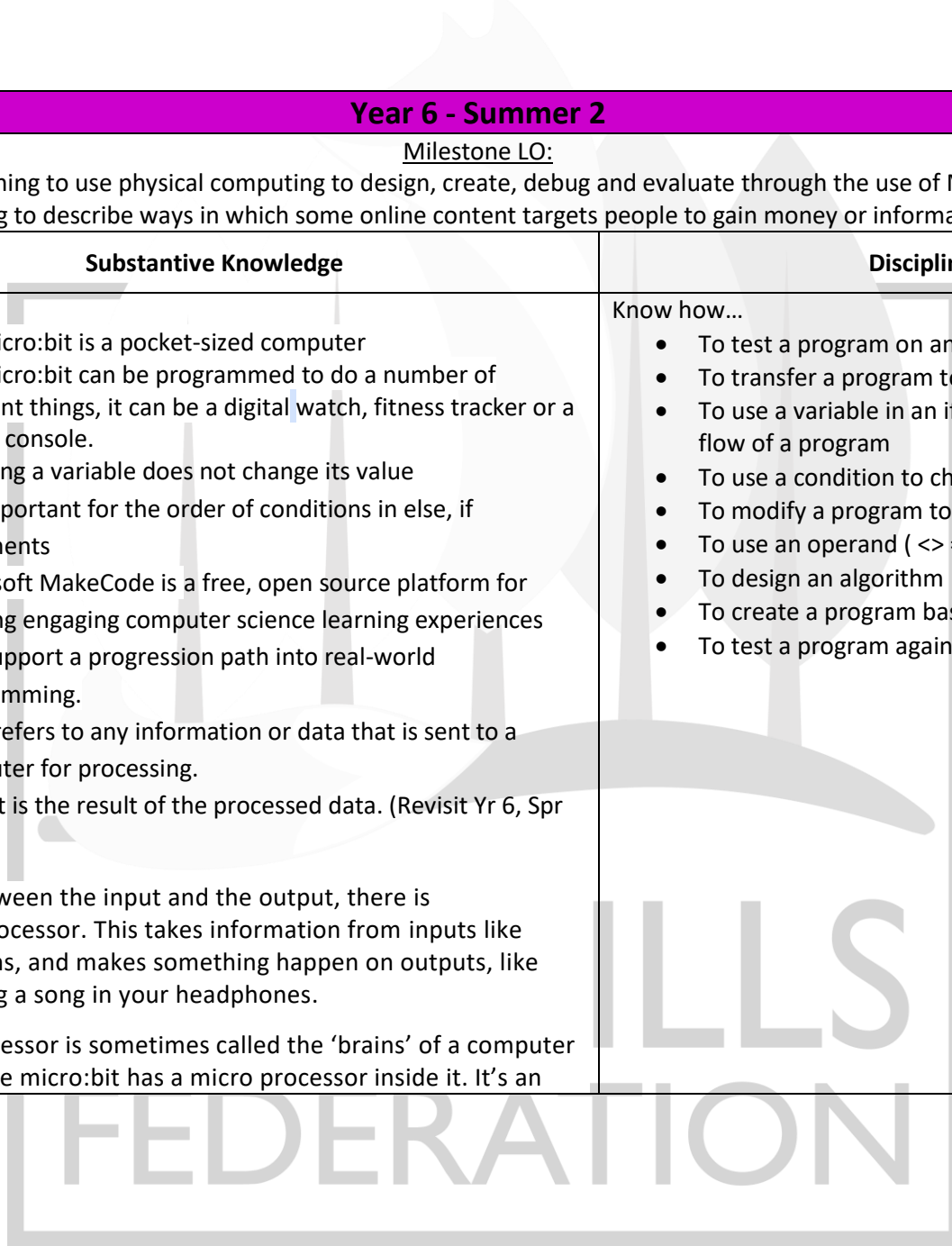


Year 6 - Summer 2

Milestone LO:

I am learning to use physical computing to design, create, debug and evaluate through the use of MicroBits.
I am learning to describe ways in which some online content targets people to gain money or information illegally.

Substantive Concepts	Substantive Knowledge	Disciplinary Knowledge
Computer Science	<p>Know that...</p> <ul style="list-style-type: none"> The micro:bit is a pocket-sized computer The micro:bit can be programmed to do a number of different things, it can be a digital watch, fitness tracker or a games console. Checking a variable does not change its value It is important for the order of conditions in else, if statements Microsoft MakeCode is a free, open source platform for creating engaging computer science learning experiences that support a progression path into real-world programming. Input refers to any information or data that is sent to a computer for processing. Output is the result of the processed data. (Revisit Yr 6, Spr 1) In between the input and the output, there is the processor. This takes information from inputs like buttons, and makes something happen on outputs, like playing a song in your headphones. A processor is sometimes called the 'brains' of a computer and the micro:bit has a micro processor inside it. It's an 	<p>Know how...</p> <ul style="list-style-type: none"> To test a program on an emulator To transfer a program to a controllable device To use a variable in an if, then, else statement to select the flow of a program To use a condition to change a variable To modify a program to achieve a different outcome To use an operand (<=>) in an if, then statement To design an algorithm To create a program based on a design To test a program against its design



essential part of the micro:bit as it runs the programs you write.

- Flashing is the process of sending a code to a micro:bit via Bluetooth or a USB cable.
- A USB (universal serial bus), is technology used to connect computers with peripheral devices such as printers, scanners, and keyboards.(Revisit Yr 5, Sum 2)
- Selection is a decision or question. At some point, a program may need to ask a question because it has reached a step where one or more options are available. Depending on the answer given, the program will follow a certain step and ignore the others.
- Conditions are basic “if, then” logic statements that modify how code is executed.
- When an If ... Then ... Else statement is encountered, condition is tested. If condition is True , the statements following Then are executed. If condition is False , each Else statement (if there are any) is evaluated in order.
- A variable is a way of storing information in a computer program. (Revisit Yr 6, Spr 1)
- A variable has a name and a value (Revisit Yr 6, Spr 1)
- The value of a variable can be changed (Revisit Yr 6, Spr 1)
- An accelerometer is a motion sensor that measures movement. The accelerometer in the micro:bit detects when it is tilted to the left, right, backwards and forwards and up and down.
- The micro:bit has a compass sensor called a magnetometer that measures magnetic fields. It can sense the Earth's magnetic field and so it can be used as a compass.
- An algorithm is a set of precise instructions or rules a

	<p>computer follows to solve a problem or to complete a task. (revisit, Yr 6 Spr 1)</p> <ul style="list-style-type: none"> • A step counter is a device, usually portable and electronic or electromechanical, that counts each step a person takes by detecting the motion of the person's hands or hips. • To use the micro:bit as a stepcounter, attach the micro:bit and battery pack to a shoe or ankle, place it inside your sock, or just hold it in your hand and shake it when walking. The code uses the micro:bit's accelerometer sensor input to sense when the leg is moving. The code counts how many times the micro:bit has been shaken. • Code is a set of instructions used to communicate with computers. (revisit, Yr 6 Spr 1) • Debugging is the process of finding and correcting errors or bugs in a computer program. (revisit, Yr 5, Sum 2) 	
Online safety	<p>Know that ...</p> <ul style="list-style-type: none"> • Phishing involves sending fake emails or messages that appear to be from legitimate sources to trick people into giving personal information. • Scam websites or ads might promise products, services, or prizes to lure people into providing credit card details or other sensitive information. • Malware can be disguised as legitimate software, which, once downloaded, can steal personal information or money. • Scammers often use urgency, such as claiming there's a limited-time offer or an emergency, to pressure people into making quick decisions. • Scammers might use emotional appeals, such as pretending to be in distress or offering a too-good-to-be-true opportunity, to manipulate people. 	<p>Know how ...</p> <ul style="list-style-type: none"> • To recognise common signs of phishing emails or messages, such as poor grammar, generic greetings, and suspicious links. • To identify fake websites or ads by checking the URL, looking for secure connections (https), and verifying the legitimacy of the site. • To avoid clicking on suspicious links or downloading unknown attachments. • To use strong, unique passwords and enable two-factor authentication to protect online accounts. • To keep software and antivirus programs up-to-date to protect against malware. • To report suspicious emails, messages, or websites to the appropriate authorities or platforms. • To seek help from a trusted adult if they encounter suspicious online content or think they might have fallen for a scam.

	<ul style="list-style-type: none"> • Scammers might impersonate well-known companies, friends, or authority figures to gain trust. • Falling for online scams can lead to financial loss, identity theft, and emotional distress. • Personal information, once stolen, can be used for various illegal activities, such as opening fraudulent accounts or making unauthorised purchases. 	<ul style="list-style-type: none"> • To safely delete or ignore scam messages without responding. • To verify the legitimacy of emails, messages, and websites by contacting the supposed sender through official channels. • To cross-check information and offers with trusted sources before taking any action.
Vocabulary	<p>Micro:bit MakeCode Input Process Output Flashing USB Selection Condition if then else variable accelerometer value compass direction design algorithm step counter code debug</p>	
Enrichment & wider development		

FEDERATION

