

Whole School Progression Map – Computing

EYFS

Computing			
Three and Four-Year-Olds	Personal, Social and Emotional Development		1. Remember rules without needing an adult to remind them.
	Physical Development		1. Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		1. Explore how things work.
Reception	Personal, Social and Emotional Development		1. Show resilience and perseverance in the face of a challenge. 2. Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Physical Development		1. Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		1. Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, <u>Social and</u> Emotional Development	Managing Self	1. Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. 2. Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	1. Safely use and explore a variety of materials, tools and techniques, experimenting with <u>colour</u> , design, texture, form and function.

Year 1 and 2 – Even Year: 2022 – 2023

Internet Legends: Sharp, Alert, Secure, Kind, Brave

	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Online Safety (Year 2)	Computing systems and networks 1: What is a computer?	Computing systems and networks 2: Word processing (Year 2)	Digital imagery (Year 1 unit)	Creating media: Stop-motion (Year 2 unit)	Programming 1: Algorithms unplugged (Year 2)
Substantive knowledge	<p>Explain what is meant by online information.</p> <p>Recognise what information is safe to be shared online.</p> <p>Explain why we need passwords and what makes a strong password.</p> <p>Understand that they need to ask permission before sharing content online and explain why.</p> <p>Understand that they have the right to deny their permission to information about them being shared online.</p> <p>Say who they can ask for help with online worries.</p> <p>Use some strategies to work out if online information is reliable or not.</p>	<p>Name some computer peripherals and their function.</p> <p>Recognise that buttons cause effects.</p> <p>Explain that technology follows instructions.</p> <p>Recognise different forms of technology.</p> <p>Design an invention which includes inputs and outputs.</p> <p>Explain the role of computers in the world around them and how to use them safely.</p>	<p>Explain which are the home row keys and how to find them for typing.</p> <p>Use the spacebar and backspace correctly.</p> <p>Type and make simple alterations to text using buttons on a word processor.</p> <p>Search for, import and alter appropriate images for a text document.</p> <p>Modify text in a document.</p> <p>Use copy and paste to copy text from one document to another.</p> <p>Explain what information is safe to be shared online.</p>	<p>Plan a pictorial story using photographic images in sequence.</p> <p>Explain how to take clear photos.</p> <p>Take photos using a device.</p> <p>Edit photos by cropping, filtering and resizing.</p> <p>Search for and import images from the internet.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Organise images on the page, orientating where necessary.</p>	<p>Create a flip book animation.</p> <p>Decompose a story into smaller parts to plan a stop motion animation.</p> <p>Create stop motion animations with small changes between images.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Understand copyright.</p>	<p>Decompose a game to predict the algorithms.</p> <p>Give a definition for 'decomposition'.</p> <p>Write clear and precise algorithms.</p> <p>Create algorithms to solve problems.</p> <p>Use loops in their algorithms to make their code more efficient.</p> <p>Explain what abstraction is.</p> <p>Explain what to do if something makes them uncomfortable online.</p>

Disciplinary knowledge	LH: To connect This concept involves developing an understanding of how to safely connect with others.		LH: To communicate This concept involves using apps to communicate one's ideas.		LH: To collect This concept involves developing an understanding of databases and their uses. LH: To code This concept involves developing an understanding of instructions, logic and sequences.	
Vocabulary	Consent Content Offline Online Password Permission Personal information Share Trusted adult	Computer Device Digital Function Input Keyboard Monitor Mouse Output System Technology	Backspace Bold Copy Cut Delete Image Import Keyboard shortcut Keyword Navigate Paste Redo Search Text Underline	Crop Delete Device Download Edit Filter Image Import Internet Keyword Online Save as Search engine Sequence Software	Algorithm Data Decomposition Abstraction Digital	Algorithm Data Digital Abstraction Artificial intelligence Bug Debug Decompose

Year 1 and 2 – Odd Year: 2023 – 2024

Internet Legends: Sharp, Alert, Secure, Kind, Brave

	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Online Safety (Y1)	Programming 1: Algorithms unplugged (Year1)	Bee Bots Year 2	Programming Scratch Junior (Y2)	Introduction to Data (Y1)	Summer 1: Data handling: International Space Station
Substantive knowledge	Discuss what the internet is and how it can be used.	Explain what an algorithm is. Write clear algorithms.	Recognise cause and effect when pressing	Explore a new application independently.	Represent animal-themed data in different ways, using	Describe and explain how astronauts' survival needs are met aboard the ISS.

	<p>Recognise that the internet may affect mood or emotions. Recognise how internet use can affect and upset other.</p> <p>Identify which information is appropriate to share and post online and which is not.</p>	<p>Follow an algorithm. Explain what inputs and outputs are. Create an achievable program. Decompose a design into steps. Identify bugs in an algorithm and how to fix them.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>buttons on a Bee-Bot. Discuss and demonstrate how the Bee-Bot works. Record video ensuring everyone is in the shot. Give a a number of clear instructions in sequence. Program a Bee-Bot to reach a destination. Identify and correct mistakes in their programming.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Explain what the blocks on Scratch Jr do and use them for a purpose. Recognise a loop in coding and why it is useful. Use a code to create an animation of an animal moving. Use code to follow and create an algorithm. Program code to run 'on tap'. Explain the role of the blocks in a program they have created.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>objects and technology. Log in and use mouse and keyboard skills to navigate the computer. Represent the same data as a pictogram and a table or chart. Collect data about minibeasts using a tally chart and represent their data digitally. Click and drag objects to sort data using a branching database. Consider the types of input that would be used to gather different forms of data when designing an invention.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Identify which information is appropriate to share and post online and which is not.</p> <p>Understand copyright.</p>	<p>Identify and digitally draw items which fulfil basic human needs when aboard the ISS. Read the correct temperature on a thermometer. Design a display showing everything that needs to be monitored by sensors on the ISS. Create an algorithm that addresses all plants' needs. Explain how space exploration can benefit life on Earth. Read data to identify whether a planet might be habitable.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Identify which information is appropriate to share and post online and which is not.</p> <p>Understand copyright.</p>
Disciplinary knowledge	<p>LH: To connect This concept involves developing an understanding of how to safely connect with others.</p> <p>LH: To code</p>	<p>LH: To communicate This concept involves using apps to communicate one's ideas.</p> <p>LH: To code</p>	<p>LH: To collect This concept involves developing an understanding of databases and their uses.</p> <p>LH: To communicate This concept involves using apps to communicate one's ideas.</p>			

	This concept involves developing an understanding of instructions, logic and sequences.		This concept involves developing an understanding of instructions, logic and sequences.			
Vocabulary	Communicate Connect Connection Devices Digital footprint Instructions Online Personal information Respect Strangers	Algorithm Automatic Bug Code Debug Decompose Decomposition Device Directions Input Instructions Motion Order Organise Output Programming Problem Robot Sensor Sequence Solution	Algorithm Artificial intelligence Bee-Bot Code Debug Demonstration Filming Inputting Instructions Predict Tinker Video	Algorithm Animation Blocks Bug CGI Code Debug Imitate Instructions Loop Repeat Sequence	Bar chart Block graph Categorise Chart Compare Count Data Line graph Label Pictogram Pie chart Table Tally Maths link - vocabulary	Algorithm Data Digital Experiment Galaxy Insulation Interactive map International Space Centre International Space Station Interpret Laboratory Planet Satellite Sensor Space Temperature Thermometer Science and Maths link - vocabulary

Year 3 and 4 – Eve Year: 2022 – 2023

Internet Legends: *Sharp, Alert, Secure, Kind, Brave*

	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Online Safety (Year 4 Unit)	Emailing (Year 3 Unit)	Data handling: Comparison cards databases	Further coding with Scratch (Year 4 Unit)	Computational Thinking (Year 4 Unit)	Collaborative Learning (Year 4 Unit)

Substantive knowledge	<p>Describe how to search over multiple platforms and are aware of the accuracy of the results presented.</p> <p>Describe some of the methods used to persuade people to buy online.</p> <p>Explain the difference between fact, opinion and belief and recognise these online.</p> <p>Explain what a bot is and give examples of different bots.</p> <p>Explain some positive and negative distractions of using technology and small strategies on how to reduce the amount of time spent on technology.</p>	<p>Log in and out of email.</p> <p>Send a simple email with a subject plus 'To' and 'From' in the body of the text.</p> <p>Edit an email.</p> <p>Type in the email address correctly and send the email.</p> <p>Add an attachment to an email.</p> <p>Write an email using positive language, with an awareness of how it will make the recipient feel.</p> <p>Recognise unkind behaviour online and know how to report it.</p> <p>Offer advice to victims of cyberbullying.</p> <p>Recognise when an email may be fake and explain how they know.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Explain what is meant by 'field,' 'record,' and 'data.'</p> <p>Compare paper and computerised databases.</p> <p>Put values into a spreadsheet.</p> <p>Sort, filter and interpret data in a spreadsheet.</p> <p>Create a graph on Google Sheets.</p> <p>Explain the purpose of visual representations of data.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Understand how to create a simple script in Scratch – be able to change sprite and prevent the sprite from rotating.</p> <p>Use decomposition to identify key features and understand how to decipher actions that make the quiz game work.</p> <p>Understand what a variable is and how to use the 'say' and 'ask' blocks.</p> <p>Create a variable and be able to use a variable to record a score.</p> <p>Understand what a variable is and how it works within a program.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Understand that problems can be solved more easily using computational thinking.</p> <p>Understand what the different code blocks do and create a simple game.</p> <p>Understand the terms 'pattern recognition' and 'abstraction' and how they help to solve a problem.</p> <p>Create a Scratch program which draws a square and at least one other shape.</p> <p>Understand how computational thinking can help to solve problems and apply computational thinking to problems they face.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Understand the need to be thoughtful when working on a collaborative document.</p> <p>Use comments to suggest changes to a document and understand how to resolve comments.</p> <p>Use a variety of different slide styles to convey information including images and transitions.</p> <p>Create a Google Form with a range of different questions types that will provide different types of answers, e.g. text, multiple choice or numerical values.</p> <p>Export data to a spreadsheet, highlighting data, using conditional formatting and calculating averages and sums of numbers.</p> <p>Explain what to do if something makes them uncomfortable online.</p>
Disciplinary knowledge	<p>LH: To connect This concept involves developing an understanding of how to safely connect with others.</p> <p>LH: To communicate This concept involves using apps to communicate one's ideas.</p>		<p>LH: To communicate This concept involves using apps to communicate one's ideas.</p> <p>LH: To collect This concept involves developing an understanding of databases and their uses.</p>		<p>LH: To communicate This concept involves using apps to communicate one's ideas.</p>	

			LH: To code This concept involves developing an understanding of instructions, logic and sequences.			
Vocabulary	Accuracy Advantages Advertisements Belief Bot Fact Hashtag In-app purchases Influencer Opinion Program Reliable Risks Screen time Search results Trustworthy	Attachment Bcc (Blind carbon copy) Cc (Carbon copy) Compose Content Cyberbullying Document Download Email Inbox Information Link Log in Log out Password Personal information	Categorise Chart Data Database Excel Fields Filter Graph Interpret Sort Maths link.	Broadcast block Code blocks Conditional Coordinates Decomposition Features Information Negative numbers Orientation Parameters Position Program Project Script Sprite Stage	Abstraction Algorithm Code Computational thinking Decomposition Input Output Pattern recognition Script Sequence	Animations Average Bar chart Collaboration Comment Contribution Data Email account Icon Images Insert Link Multiple choice Numerical data Pie chart Presentations Resolved Share Software Spreadsheets Survey Teamwork

Year 3 and 4 – Odd Year: 2023 – 2024

Internet Legends: Sharp, Alert, Secure, Kind, Brave

	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Online Safety (Year 3 Unit)	Programming Scratch (Year 3 Unit)	Investigating Weather (Year 4 Unit)	Networks and the Internet (Year 4 Unit)	Creating media: Video trailers	Website Design (Year 4 Unit)

Substantive knowledge	<p>Differentiate between fact, opinion and belief online.</p> <p>Explain how to deal with upsetting online content.</p> <p>Recognise that digital devices communicate with each other to share personal information.</p> <p>Explain what social media platforms are used for.</p> <p>Recognise why social media platforms are age-restricted.</p>	<p>Explain what some of the blocks do in Scratch.</p> <p>Explain what a loop is and include one in their program.</p> <p>Suggest possible additions to an existing program.</p> <p>Recognise where something on screen is controlled by code.</p> <p>Use a systematic approach to find bugs.</p> <p>Explain what an algorithm is and its purpose.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Search the web efficiently to find temperatures of different cities and record this accurately.</p> <p>Design a weather station that gathers and records sensor data, explaining how it works and the units of measurement it would use.</p> <p>Design an automated machine that uses selection to respond to sensor data.</p> <p>Search for and record weather forecast information in a spreadsheet and explain how this data is collected.</p> <p>Create a video which includes weather forecast information.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Recognise that a network is two or more devices connected.</p> <p>Explain how information moves around a network and the role of the server.</p> <p>Understand that networks connect to the internet via a router.</p> <p>Explain some of the journey a website goes through to reach your computer.</p> <p>Explain that websites are split into small pieces (packets) to be sent via the internet.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Describe the purpose of a trailer.</p> <p>Create a storyboard for a book trailer.</p> <p>Consider camera angles when taking photos or videos.</p> <p>Import videos and photos into film editing software.</p> <p>Record sounds and add these to a video.</p> <p>Add text to a video.</p> <p>Incorporate transitions between images.</p> <p>Evaluate their own and others' trailers.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Understand copyright.</p>	<p>Use most of the tabs (e.g. insert, pages, themes) on Google Sites on their website.</p> <p>Create a clear plan for their web page and begin to create it.</p> <p>Create a professional looking web page with useful information and a clear style, which is easy for the user to read and find information from.</p> <p>Create a clear plan by referring back to their checklist.</p> <p>Create four web pages with a range of features on their website.</p> <p>Explain what to do if something makes them uncomfortable online.</p> <p>Understand copyright.</p>
Disciplinary knowledge	<p>LH: To connect</p> <p>This concept involves developing an understanding of how to safely connect with others.</p> <p>LH: To code</p>		<p>LH: To communicate</p> <p>This concept involves using apps to communicate one's ideas.</p> <p>LH: To collect</p> <p>This concept involves developing an understanding of databases and their uses.</p>		<p>LH: To communicate</p> <p>This concept involves using apps to communicate one's ideas.</p> <p>LH: To connect</p> <p>This concept involves developing an understanding of how to safely connect with others.</p>	

	This concept involves developing an understanding of instructions, logic and sequences.					
Vocabulary	Accurate Age-restricted Autocomplete Beliefs Content Digital devices Fact Fake news Internet Opinion Password Persuasive Privacy settings Reliable Report Search engine Security questions Sharing	Algorithm Animation Application Code Code block Debug Decompose Interface Loop Predict Program Remixing code Repetition code Sprite	Accurate Backdrop Cold Collaboration Condensation Degrees Evaporation Extreme weather Forecast Heat sensor Measurement Presenter Satellite Script Sensor data Solar panel Temperature Thermometer Weather Maths, Geography and Science link	Cables Component Connection Corrupted Data Device DSL Fibre File Laptop Network Network map Network switch Packets Radio waves Router Server Submarine cables Tablet Text map The Cloud Web server Website Website trackers WiFi Wired	Application Camera angle Cross blur Cross fade Cross zoom Digital device Dip to black Directional wipe Edit Film Graphics Import Key events Photo Plan Recording Sound effects Storyboard Time code Trailer Transition	Assessment Audience Checklist Collaboration Content Create Design Embed Evaluate Features Homepage Hyperlinks Images Insert Online Plan Style Subpage Tab Theme Web page

Year 5 and 6 – Even Year: 2022 – 2023						
Internet Legends: <i>Sharp, Alert, Secure, Kind, Brave</i>						
	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Data handling 1: Big Data 1	Creating media: History of computers	Computing systems and networks: Bletchley Park	Y5 – Online Safety From 2024-2025 this will be in Autumn 1	Data handling 2: Big Data 2	Programming 2: Micro:bit

<p>Substantive knowledge</p>	<p>Understand why barcodes and QR codes were created. Create (and scan) their own QR code using a QR code generator website. Explain how infrared can be used to transmit a Boolean type signal. Explain how RFID works, recall a use of RFID chips, and type formulas into spreadsheets. Take real-time data and enter it effectively into a spreadsheet. Presenting the data collected as an answer to a question. Recognising the value of analysing real-time data. Analyse and evaluate transport data and consider how this provides a useful service to commuters. Explain what to do if something makes them uncomfortable online.</p>	<p>Explain how to record sounds and add in sound effects over the top. Produce a simple radio play with some special effects and simple edits which demonstrate an understanding of how to use the software. Create a document that includes correct date information and facts about the computers and how they made a difference. Demonstrate a clear understanding of their device and how it affected modern computers, including well-researched information with an understanding of the reliability of their sources. Describe all of the features that we'd expect a computer to have including RAM, ROM, hard drive and processor, but of a higher specification than currently available.</p>	<p>Explain that codes can be used for a number of different reasons and decode messages. Explain how to ensure a password is secure and how this works. Create a simple website with information about Bletchley Park including the need to build electronic thinking machines to solve cipher codes. Explain the importance of historical figures and their contribution towards computer science. Present information about their historical figure in an interesting and engaging manner. Explain what to do if something makes them uncomfortable online.</p>	<p>Understand that passwords need to be strong and that apps require some form of passwords. Recognise a couple of the different types of online communication and know who to go to if they need help with any communication matters online. Search for simple information about a person, such as their birthday or key life moments. Know what bullying is and that it can occur both online and in the real world. Recognise when health and wellbeing are being affected in either a positive or negative way through online use. Offer a couple of advice tips to combat the negative effects of online use. Explain what to do if something makes them uncomfortable online.</p>	<p>Recognise that data can become corrupted within a network and that data sent in packets is more robust, as well as identify the need to update devices and software. Recognise differences between mobile data and WiFi and use a spreadsheet to compare and identify high-use data activities and low-use data activities. Make links between the Internet of Things and Big Data and give a basic example of how data analysis/analytics can lead to improvement in town planning. Explain ways that Big Data or IoT principles could be used to solve a problem or improve efficiency within the school and prepare a presentation about their idea, considering the privacy of some data. Present their ideas about how Big Data/IoT can improve the school</p>	<p>Clip blocks together and predict what will happen. Make connections with previous programming interfaces they've used, e.g. Scratch. Create their own images to make the animation and recognise the difference between 'on start' and 'forever'. Recognise blocks they've used previously, identifying inputs and outputs used and make predictions about how variables work. Choose appropriate blocks to complete the program and attempt the challenges independently. Break a program down into smaller steps, suggesting appropriate blocks and match the algorithm to the program. Explain what to do if something makes them uncomfortable online.</p>
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		Explain what to do if something makes them uncomfortable online.			and provide feedback to others on their presentations. Explain what to do if something makes them uncomfortable online.	
Disciplinary knowledge	LH: To communicate This concept involves using apps to communicate one's ideas. LH: To collect This concept involves developing an understanding of databases and their uses.		LH: To communicate This concept involves using apps to communicate one's ideas. LH: To connect This concept involves developing an understanding of how to safely connect with others.		LH: To collect This concept involves developing an understanding of databases and their uses. LH: To code This concept involves developing an understanding of instructions, logic and sequences.	
Vocabulary	Algorithms Barcode Binary Commuter Data Encrypted Privacy QR code QR scanner Radio waves Signal Wireless Maths link. History link.	Byte Computer Devices File Gigabyte Graphics Hard drive Kilobytes Megabyte Processor Record Script Maths link. History link.	Brute force hacking Cipher Code Combination Hero Invention Password Secure Trial and Improvement Maths link. History link.	Accurate information Advice App permissions Bullying Communication Emojis Health Judgement Memes Mental health Mindfulness Opinion Personal information Private information Strong password	Big Data Bluetooth Corrupted Data Improve Personal Privacy QR codes Stop motion Wireless Maths link.	Algorithm Animation Blocks Bluetooth Debug Decompose Device Input Instructions Micro:bit Outputs Predict Program Repetition

Year 5 and 6 – Odd Year: 2023– 2024

Internet Legends: Sharp, Alert, Secure, Kind, Brave

	Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2:
Content of learning	Y6 - Online safety	Computing systems and networks: Search engines	Data handling: Mars rover (1)	Programming: Music	Creating Media: Stop motion animation	Programming: Intro to Python
Substantive knowledge	<p>Discuss a range of issues online that can leave pupils feeling sad, frightened, worried or uncomfortable and can describe numerous ways to get help.</p> <p>Explain how sharing online can have both positive and negative impacts.</p> <p>Be aware of how to seek consent from others before sharing material online and can describe how content can still be shared online even if it is set to private.</p> <p>Explain what a 'digital reputation' is and what it can consist of.</p> <p>Understand the importance of capturing evidence of online bullying and can</p>	<p>Explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information.</p> <p>Suggest that things online aren't always true and recognise what to check for.</p> <p>Explain why keywords are important and what TASK stands for, using these strategies to search effectively.</p> <p>Recognise the terms 'copyright' and 'fair use' and combine text and images in a poster.</p> <p>Make parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank.</p>	<p>Identify some of the types of data that the Mars Rover could collect (for example, photos).</p> <p>Explain how the Mars Rover transmits the data back to Earth and the challenges involved in this.</p> <p>Read any number in binary, up to eight bits.</p> <p>Identify input, processing and output on the Mars Rovers.</p> <p>Read binary numbers and grasp the concept of binary addition.</p> <p>Relate binary signals (Boolean) to a simple character-based language, ASCII.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Iterate ideas, testing and changing throughout the lesson. Explain what the basic commands do.</p> <p>Explain how their program links to the theme. Include a loop in their work.</p> <p>Correct their own simple mistakes.</p> <p>Explain their scene in the story. Link musical concepts to their scene. Include a repeat and explain its function to enhance music.</p> <p>Code a piece of music that combines a variety of structures. Use loops in their programming.</p> <p>Recognise that programming music is a way to apply their skills.</p> <p>Explain what to do if something makes</p>	<p>Create a toy with simple images with a single movement.</p> <p>Create a short stop motion with small changes between images.</p> <p>Think of a simple story idea for their animation then decompose it into smaller parts to create a storyboard with simple characters.</p> <p>Make small changes to the models to ensure a smooth animation and delete unnecessary frames.</p> <p>Add effects such as extending parts and titles.</p> <p>Provide helpful feedback to other groups about their animations.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Iterate ideas, testing and changing throughout the lesson and explain what their program does.</p> <p>Use nested loops in their designs, explaining why they need two repeats.</p> <p>Alter the house drawing using Python commands; use comments to show a level of understanding around what their code does.</p> <p>Use loops in Python and explain what the parts of a loop do.</p> <p>Recognise that computers can choose random numbers; decompose the program into an algorithm and modify a program to personalise it.</p> <p>Explain what to do if something makes them uncomfortable online.</p>

	<p>demonstrate some of these methods on the devices used at school.</p> <p>Describe ways to manage passwords and strategies to add extra security such as two-factor authentication.</p> <p>Explain what to do if passwords are shared, lost, or stolen.</p> <p>Describe strategies to identify scams.</p> <p>Explain ways to increase their privacy settings and understand why it is important to keep their software updated.</p> <p>Explain what to do if something makes them uncomfortable online.</p>	<p>Explain what to do if something makes them uncomfortable online.</p>	<p>Maths link.</p> <p>Science link.</p>	<p>them uncomfortable online.</p> <p>Music link.</p>		
<p>Disciplinary knowledge</p>	<p>LH: To connect This concept involves developing an understanding of how to safely connect with others.</p> <p>LH: To communicate This concept involves using apps to communicate one's ideas.</p>	<p>LH: To collect This concept involves developing an understanding of databases and their uses.</p> <p>LH: To code This concept involves developing an understanding of instructions, logic and sequences.</p>	<p>LH: To communicate This concept involves using apps to communicate one's ideas.</p> <p>LH: To code This concept involves developing an understanding of instructions, logic and sequences.</p>			

Vocabulary	Anonymity Antivirus Biometrics Block and report Consent Digital footprint Financial information Hacking Inappropriate Malware Online bullying Password Personal information Phishing Privacy settings Private Reliable source Report Scammers Screengrab Secure	Algorithm Appropriate Copyright Data leak Deceive Fake Inappropriate Information Network Privacy	8-bit binary Addition ASCII Binary code Byte Communicate Construction CPU Data transmission Decimal numbers Hexadecimal Input Instructions Mars Rover Output Research Scientist Sequence	Beat Bugs Coding Command Debug Decompose Instructions Loop Melody Output Performance Pitch Predict Repeat Rhythm Scratch Tempo Timbre	Animation Background Character Decomposition Digital device Evaluate Fluid movement Frames Onion skinning Stop motion Storyboard Thaumatrope Zoetrope	Algorithm Code Design Import Indentation Input Instructions Loop Output Patterns
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