WESTON ST MARY C OF E PRIMARY SCHOOL

Long term Computing Plan 2024-25 Cycle A

EYFS - Technology						
Autumn A	**Autumn B**	**Spring A**	**Spring B**	**Summer A**	**Summer B**	**Early Learning Goal**
To show an interest in technological toys such as IWB, iPads, toys with knobs, pulleys and buttons	To know how to operate simple equipment To draw pictures on IWB and begin to change colours To use the iPad to take pictures	To access, understand and interact with a range of technology within the Year R environment To draw pictures on IWB, changing colour and pen size	To learn about e-safety To use the IWB, changing games and programmes	To explore how a Bee-Bot works To use the internet with adult supervision to find and retrieve information	To begin to give reasons why we need to stay safe online To use the Bee-Bots and program them to go forwards and backwards To type their name using an iPad or notebook	*There are no early learning goals that directly relate to computing objectives, though it is still expected that children will be introduced to appropriate technology and use it within their provision.*

Year 1/2	**Autumn A**	**Autumn B**	**Spring A**	**Spring B**	**Summer A**	**Summer B**
	Computing systems and networks/E-Safety	**Programming 1**	**Skills showcase**	**Programming 2**	**Creating media**	**Data handling**
	Improving mouse skills / E-Safety	**Algorithms unplugged**	**Rocket to the moon**	**Bee-Bots**	**Digital imagery**	**Introduction to data**
Key Skills	• Learning how to explore and tinker with hardware to find out how it works. • Learning where keys are located on the keyboard. • Using a basic range of tools within graphic editing software. • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools. • Recognising devices that are connected to the internet. • Logging in and out and saving work on their own account. • Recognising devices that are connected to the internet.	• Recognising that some devices are input devices and others are output devices. • Learning that decomposition means breaking a problem down into smaller parts. • Using decomposition to solve unplugged challenges. • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Learning to debug instructions when things go wrong. • Learning to debug an algorithm in an unplugged scenario.	• Learning where keys are located on the keyboard. • Learning how to operate a camera to take photos and videos. • Using logical reasoning to predict the behaviour of simple programs. • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Learning to debug instructions when things go wrong. • Learning to debug an algorithm in an unplugged scenario. • Using a basic range of tools within graphic editing software.	• Learning how to explore and tinker with software to find out how it works. • Learning how to operate a camera to take photos and videos. • Using decomposition to solve unplugged challenges. • Using logical reasoning to predict the behaviour of simple programs. • Developing the skills associated with sequencing in unplugged activities. • Following a basic set of instructions. • Assembling instructions into a simple algorithm. • Programming a virtual robot to follow a planned route. • Learning to debug instructions when things go wrong.	• Learning how to explore and tinker with hardware to find out how it works. • Learning where keys are located on the keyboard. • Learning how to operate a camera to take photos and videos. • Developing the skills associated with sequencing in unplugged activities. • Using a basic range of tools within graphic editing software. • Taking and editing photographs. • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools.	• Learning how to explore and tinker with hardware to find out how it works. • Recognising that some devices are input devices and others are output devices. • Learning where keys are located on the keyboard. • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools. • Recognising devices that are connected to the internet. • Understanding that technology can be used to represent data in different ways: pictograms, tables, pie

	• Understanding that we are connected to others when using the internet. • Understanding some of the ways we can use the internet. • When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. • Understanding how to interact safely with others online. • Recognising how actions on the internet can affect others. • To be able to recognise what a digital footprint is and how to be careful about posting online.		• Taking and editing photographs. • Developing control of the mouse through dragging, clicking and resizing of images to create different effects. • Developing understanding of different software tools. • Recognising devices that are connected to the internet. • Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. • Logging in and out and saving work on their own account.	• Using programming language to explain how a virtual robot works. • Learning to debug an algorithm in an unplugged scenario. • Taking and editing photographs	• Searching and downloading images from the internet safely. • When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.	charts, bar charts, block graphs etc. • Using data representations to answer questions about data. • Using software to explore and create pictograms and branching databases.
Key Knowledge	• "Log in" and "log out" means to begin and end a connection with a computer • A computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art. • Passwords are important for security and to keep us safe. • To know that the internet is many devices connected to one another. • To know what to do if you feel unsafe or worried online – tell a trusted adult. • To know that people you do not know on the internet (online) are strangers and are not	• To understand that an algorithm is when instructions are put in an exact order. • To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing. • To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing. • To know that we call errors in an algorithm 'bugs' and fixing these 'debugging'.	• To know that when we create something on a computer it can be more easily saved and shared than a paper version. • To know some of the simple graphic design features of a piece of online software. • To know that a spreadsheet is an electronic 'table' for sorting data.	• To understand the basic functions of a virtual Bee-Bot. • To know that you can use a camera/tablet to make simple videos. • To know that algorithms move a virtual Bee-Bot accurately to a chosen destination.	• To understand that holding the camera or device still and considering angles and light are important to take good pictures. • To know that you can edit, crop and filter photographs. • To know how to search safely for images online.	• To know that charts and pictograms can be created using a computer. • To understand that a branching database is a way of classifying a group of objects. • To know that computers understand different types of 'input'.

	always who they say they are. • To know that to stay safe online it is important to keep personal information safe. • To know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.						
Vocabulary	Log in Login Log out /off Mouse Mouse pointer Click Keyboard Screen Password Account Software Duplicate Ctrl Tools Right click Menu Layers Username Drag Drag and drop Digital photograph Undo Cursor	Communicate Connect Connection Consoles Devices Digital footprint Emotion Feelings Instructions Internet Internet safety Laptop Mood Online Personal information Phone Posting Respect Sharing Smartphone Smart TV Smartwatch Strangers Tablet Trust Wired Wireless	Algorithm Automatic Bug Chunks Clear Code Debug Decompose Decomposition Device Directions Input Instructions Manageable Motion Order Organise Output Precise Programming Problem Robot Sensor Sequence Solution Specific Steps	Annotate Cells Components Create Data Debug Designing Digital content Digital image Document E-document Edit Editing program Evaluate Folder Input Instructions Log in Photo Program Order Robot Save Sequence Share Software Spreadsheet	Algorithm Artificial intelligence Bee-Bot Clear Code Debug Demonstration Emulator Filming Inputting Instructions Pause Precise Predict Program Tinker Video Video recording Virtual	Background Blurred Camera Clear Crop Delete Device Digital camera Download Drag and drop Edit Editing software Filter Image Import Internet Keyword Online Photograph Resize Save as Screen Search engine Sequence Software Storage space Visual effects	Bar chart Block graph Branching database Categorise Chart Click and drag Compare Count Data Data collection Data record Data representation Edit Input Keyboard Line graph Mouse Information Label Pictogram Pie chart Process Record Resize Sort Table Tally
Why this, Why now?	Knowing how to log in and navigate around a computer, developing mouse skills, learning how to drag, drop, click and control a cursor to create works of art inspired by Kandinsky and self-portraits. • Learning about online safety, including using useful tips to stay safe when online; how to manage feelings and emotions when someone or something has upset		Using an unplugged approach so that algorithms, decomposition and debugging are made relatable to familiar contexts, such as dressing up and making a sandwich, while learning why instructions need to be very specific.	Developing keyboard and mouse skills through designing, building and testing individual rockets by creating a digital list of materials, using drawing software and recording data.	Building on the knowledge of Bee:Bots in Reception, children develop early programming skills using either the Bee:Bot or virtual Bee:Bot.	Using creativity and imagination to plan a miniature adventure story and capturing it using developing photography skills. Children learn to enhance photos using a range of editing tools as well as searching for and adding other images to a project, resulting in a high-quality photo collage showcase.	Learning what data is and the different ways that it can be represented as well as developing an understanding of why data is useful, how it can be used and ways in which it can be gathered and recorded both by humans and computers.

	us online; learning about the responsibility we have as online users; exploring the idea of a 'digital footprint'.					
Unit Outcomes	• Use computers more purposefully • Log in and navigate around a computer • Drag, drop, click and control a cursor using a mouse • Use software tools to create art on the computer • Discuss what the internet is and how it can be used. • Recognise that the internet may affect mood or emotions. • Recognise how internet use can affect and upset others. • Identify which information is appropriate to share and post online and which is not.	• Explain what an algorithm is • Write clear algorithms • 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	• Use a computer to make a list • Explain the benefits of making a list on the computer • Use a basic range of tools on graphics editing software to design a rocket • Sequence instructions • Follow instructions to build their model rocket • Input data about their rockets into a table or spreadsheet	• Recognise cause and effect when pressing 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	• Plan a pictorial story using photographic images in sequence. • Explain how to take clear photos. • Take photos using a device. • Edit photos by cropping, filtering and resizing. • Search for and import images from the internet. • Explain what to do if something makes them uncomfortable online. • Organise images on the page, orientating where necessary	• Represent animal-themed data in different ways, using 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.

Year 3/4	**Autumn A**	**Autumn B**	**Spring A**	**Spring B**	**Summer A**	**Summer B**
	Computing systems and networks/E-Safety	**Programming**	**Computing systems and networks/E-Safety**	**Computing systems and networks/E-Safety**	**Creating media**	**Data handling**
	Networks and the internet/E-Safety	**Scratch**	**Emailing**	**Journey inside a computer**	**Video trailers**	**Comparison card databases**
Key Skills	• Learning about the purpose of routers. • Understanding the role of the key components of a network. • Understanding that websites and videos are files that are shared from one computer to another. • Learning about the role of packets. • Understanding how networks work and their purpose.	• Using decomposition to explore the code behind an animation. • Using repetition in programs. • Using logical reasoning to explain how simple algorithms work. • Explaining the purpose of an algorithm. • Forming algorithms independently. • Using logical thinking to explore more complex software; predicting,	• Learning to log in and out of an email account. • Writing an email including a subject, 'to' and 'from'. • Sending an email with an attachment. • Replying to an email. • Understanding the purpose of emails. • Learning about cyberbullying. • Learning that not all emails are genuine, recognising when an	• Understanding what the different components of a computer do and how they work together. • Drawing comparisons across different types of computers. • Using decomposition to explain the parts of a laptop computer. • Explaining the purpose of an algorithm	• Using logical thinking to explore more complex software; predicting, testing and explaining what it does. • Taking photographs and recording video to tell a story. • Using software to edit and enhance their video adding music and text on screen with transitions.	• Using logical thinking to explore more complex software; predicting, testing and explaining what it does. • Understanding the vocabulary associated with databases: field, record, data. • Learning about the pros and cons of digital versus paper databases. • Sorting and filtering databases to easily retrieve information.

	• Identifying the key components within a network, including whether they are wired or wireless. • Recognising links between networks and the internet. • Learning how data is transferred. • Recognising how social media platforms are used to interact. • Recognising that different information is shared online including facts, beliefs and opinions. • Learning how to identify reliable information when searching online. • Learning how to stay safe on social media. • Considering the impact technology can have on mood.	testing and explaining what it does. • Incorporating loops to make code more efficient. • Continuing existing code. • Making reasonable suggestions for how to debug their own and others' code.	email might be fake and what to do about it.			• Creating and interpreting charts and graphs to understand data.
Key Knowledge	• To understand that a network is a group of interconnected devices. • To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices). • To know that a server is central to a network and responds to requests made. • To know that the internet connects all the networks around the world. • To know that a router connects us to the internet. • To know what a packet is and why it is important for website data transfer. • To know that not everything on the internet is true: people	• To know that Scratch is a programming language and some of its basic functions. • To understand how to use loops to improve programming. • To understand how decomposition is used in programming. • To understand that you can remix and adapt existing code.	• To understand that email stands for 'electronic mail.' • To know that an attachment is an extra file added to an email. • To understand that emails should contain appropriate and respectful content. • To know that cyberbullying is bullying using electronics such as a computer or phone.	• To know the roles that inputs and outputs play on computers. • To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together. • To know what a tablet is and how it is different from a laptop/desktop computer.	• To know that different types of camera shots can make my photos or videos look more effective. • To know that I can edit photos and videos using film editing software. • To understand that I can add transitions and text to my video.	• To know that a database is a collection of data stored in a logical, structured and orderly manner. • To know that computer databases can be useful for sorting and filtering data. • To know that different visual representations of data can be made on a computer.

	share facts, beliefs and opinions online. • To understand that the internet can affect your moods and feelings. • To know that privacy settings limit who can access your important personal information, such as your name, age, gender etc. • To know what social media is and that age restrictions apply.						
Vocabulary	Device File Internet Network Network switch Packet data Router Server The cloud User Wifi Wired Wireless Wireless access point Accurate Age-restricted Autocomplete Beliefs Block Content Digital devices Fact Fake news Internet Opinion Password Persuasive Privacy settings Reliable Report Requests Search engine Security questions Sharing Smart devices Social media platforms Social networking Wellbeing	Algorithm Animation Application Code Code block Coding application Debug Decompose Interface Game Loop Predict Program Remixing code Repetition code Review Scratch Sprite	Attachment Bcc (Blind carbon copy) Cc (Carbon copy) Compose Content Cyberbullying Document Domain Download Email Email account Email address Emoji Emotions Fake Font Genuine Hacker Icons Inbox Information Link Log in Log out Negative language Password Personal information	Data Decompose Desktop Disassemble GPU (graphics processing unit) Hard drive HDD (hard disk drive) Infinite loop Input Keyboard Laptop Memory Microphone Monitor Mouse Output Photocopier Program QR Code RAM (random access memory) ROM (read only memory) Storage Tablet device Technology	Application Camera angle Clip Cross dissolve Edit Fade to black Fade to white Film Film editing software Graphics Import Key events Music Photo Plan Recording Slide Sound effects Storyboard Time code Trailer Transition Video Voiceover Wipe	Categorise Category Chart Data Database Excel Fields Filter Graph Information Interpret PDF Questionnaire Record Representation Sort Spreadsheets
Why this, Why now?	Building on What is a Computer, an introduction to the concept of networks, learning how devices communicate. From identifying components, learn how information is shared and deepen this understanding by exploring examples of real-world networks. Learning about online safety: 'fake news', privacy settings, ways to deal with upsetting online content, protecting our	Building on the use of the 'ScratchJr' application in Year 1/2, progressing to using the more advanced computer-based application called 'Scratch', learning to use repetition or 'loops' and building upon skills to program; an animation, a story and a game.	Learning how to send and edit emails, add attachments and how to be a responsible digital citizen by thinking about the contents of what is sent.	Assuming the role of computer parts and creating paper versions of computers helps to consolidate an understanding of how a computer works, as well as identifying similarities and differences between various models.	Developing filming and editing video skills through the storyboarding and creation of book trailers.	Using the theme of a 'Comparison card game' to understand what a database is. Learning the meanings of records, fields and data. Further exploration will lead to the development of the ideas of sorting and filtering.	

	personal information on social media.					
Unit Outcomes	• Recognise that a network is two or more devices connected and its purpose. • Identify key components that make up the school's network. • Explain the difference between wired and wireless connections. • Recognise that files are saved on a server. • Understand the role of the server in a network when requesting a website. • Identify parts of a website's journey to reach your computer. • Recognise that routers connect to send information. • Understand that data is broken into packets. • Differentiate between fact, opinion and belief online. • Explain how to deal with upsetting online content. • Recognise that digital devices communicate with each other to share personal information. • Explain what social media platforms are used for. • Recognise why social media platforms are age-restricted.	• Explain what some of the blocks do in Scratch. • Explain what a loop is and include one in their program. • Suggest possible additions to an existing program. • Recognise where something on screen is controlled by code. • Use a systematic approach to find bugs. • Explain what an algorithm is and its purpose.	• Log in and out of email. • Send a simple email with a subject plus 'To' and 'From' in the body of the text. • Edit an email. • Type in the email address correctly and send the email. • Add an attachment to an email. • Write an email using positive language, with an awareness of how it will make the recipient feel. • Recognise unkind behaviour online and know how to report it. • Offer advice to victims of cyberbullying. • Recognise when an email may be fake and explain how they know.	• Recognise inputs and outputs and that the computer sends and receives information. • Explain that the parts of a laptop work together and the purpose of each part. • Explain what an algorithm is. • Suggest what memory is for inside a computer. • Make comparisons between different types of computer.	• Describe the purpose of a trailer. • Create a storyboard for a book trailer. • Consider camera angles when taking photos or videos. • Import videos and photos into film editing software. • Add text to a video. • Incorporate transitions between images. • Evaluate their own and others' trailers.	• Explain what is meant by 'field,' 'record,' and 'data.' • Compare paper and computerised databases. • Put values into a spreadsheet. • Sort, filter and interpret data in a spreadsheet. • Create a graph on Microsoft Excel. • Explain the purpose of visual representations of data.

Year 5	**Autumn A**	**Autumn B**	**Spring A**	**Spring B**	**Summer A**	**Summer B**
	Computing systems and networks/E-Safety	**Programming 1**	**Data handling**	**Programming 2**	**Creating media**	**Skills showcase**
	Search engines/E-Safety	**Music**	**Mars Rover 1**	**Micro:bit**	**Stop motion**	**Mars Rover 2**
Key Skills	• Developing searching skills to help find relevant information on the internet.	• Predicting how software will work based on previous experience.	• Learning that external devices can be	• Decomposing a program without support.	• Decomposing animations into a series of images.	• Learning the difference between ROM and RAM.

	• Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns. • Learn about different forms of communication that have developed with the use of technology. • Recognising that information on the Internet might not be true or correct and learning ways of checking validity. • 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.	• Writing more complex algorithms for a purpose. • Iterating and developing their programming as they work. • Confidently using loops in their programming. • Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. • Writing code to create a desired effect. • Using a range of programming commands. • Using repetition within a program. • Amending code within a live scenario. • Using logical thinking to explore software more independently, making predictions based on their previous experience. • Using a software programme (Scratch) to create music. • Identify ways to improve and edit programs, videos, images etc.	programmed by a separate computer. • Recognising how the size of RAM affects the processing of data. • Learning the vocabulary associated with data: data and transmit. • Recognising that computers transfer data in binary and understanding simple binary addition. • Relating binary signals (Boolean) to the simple character-based language, ASCII. • Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations. • Understanding how data is collected in remote or dangerous places. • Understanding how data might be used to tell us about a location. • Learn about different forms of communication that have developed with the use of technology.	• Predicting how software will work based on previous experience. • Writing more complex algorithms for a purpose. • Programming an animation. • Iterating and developing their programming as they work. • Confidently using loops in their programming. • Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. • Writing code to create a desired effect. • Using a range of programming commands. • Using repetition within a program. • Using logical thinking to explore software more independently, making predictions based on their previous experience. • Identify ways to improve and edit programs, videos, images etc.	• Decomposing a story to be able to plan a program to tell a story. • Using video editing software to animate.	• Recognising how the size of RAM affects the processing of data. • Understanding the fetch, decode, execute cycle. • Learning how the data for digital images can be compressed. • Recognising that computers transfer data in binary and understanding simple binary addition. • Understanding how bit patterns represent images as pixels. • Using logical thinking to explore software more independently, making predictions based on their previous experience. • Independently learning how to use 3D design software package TinkerCAD. • Learn about different forms of communication that have developed with the use of technology.
Key Knowledge	• To know how search engines work. • To understand that anyone can create a website and therefore we	• To know that a soundtrack is music for a film/video and that one way of composing these	• To know that Mars Rover is a motor vehicle that collects data from space by taking photos and	• To know that a Micro:bit is a programmable device. • To know that Micro:bit uses a block coding	• To know that decomposition of an idea is important when creating stop-motion animations.	• To understand that bit patterns represent images as pixels.

	should take steps to check the validity of websites. • To know that web crawlers are computer programs that crawl through the internet. • To understand what copyright is. • Identifying possible dangers online and learning how to stay safe. • Evaluating the pros and cons of online communication. • Recognising that information on the Internet might not be true or correct and learning ways of checking validity. • Learning what to do if they experience bullying online. • Learning to use an online community safely.		is on programming software. • To understand that using loops can make the process of writing music simpler and more effective. • To know how to adapt their music while performing.	examining samples of rock. • To know what numbers using binary code look like and be able to identify how messages can be sent in this format. • To understand that RAM is Random Access Memory and acts as the computer's working memory. • To know what simple operations can be used to calculate bit patterns.	language similar to Scratch. • To understand and recognise coding structures including variables. • To know what techniques to use to create a program for a specific purpose (including decomposition).	• To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. • To know that editing is an important feature of making and improving a stop motion animation.	• To understand that the data for digital images can be compressed. • To know the difference between ROM and RAM. • To understand various techniques that will improve the design of a 3D object (using CAD software).
Vocabulary	Algorithm Appropriate Copyright Correct Credit Data leak Deceive Fair Fake Inappropriate Incorrect Index Information Keywords Network Privacy Rank Real Search engine TASK Web crawler Website	Accurate information Advice App permissions Application Apps Bullying Communication Emojis Health In-app purchases Information Judgement Memes Mental health Mindfulness Mini-biography Online communication Opinion Organisation Password Personal information Positive contributions Private information Real world Strong password	Beat Bugs Coding Command Debug Decompose Error Instructions Loop Melody Mindmap Music Output Performance Pitch Plan Play Predict Programming Repeat Rhythm Scratch Soundtrack Spacing Tempo Timbre Tinker Tutorials Typing	8-bit binary Addition ASCII Binary code Boolean Byte Communicate Construction CPU Data transmission Decimal numbers Design Discovery Distance Hexadecimal Input Instructions Internet Mars Rover Moon Numerical data Planet Radio signal RAM Research Scientist Sequence Signal Simulation Space	Animation App Blocks Bluetooth Code block Connection Create Debug Decompose Designing Desktop Device Download Images Input Instructions Laptop Load Loop Micro:bit Outputs Pairing Pedometer Polling Predict Program Repetition Reset Sabotage Scoreboard	Animation Animator Background Character Decomposition Design Digital device Edit Evaluate Flip book Fluid movement Frames Model Moving images Onion skinning Still images Stop motion Storyboard Thaumatrope Zoetrope	3D Algorithm Binary image CAD Compression CPU Data Drag and drop Fetch, decode, execute ID card Input JPEG Memory Online community Operating system Output Pixels RAM Responsible RGB ROM Safe

		Summarise Support Technology Trusted adult Wellbeing		Subtraction Technology Transmit	Screen Systematic Tablet Tinkering USB Variables Wifi Wireless		
Why this, Why now?	Children build on their understanding of understanding of computer networks and develop their research skills; finding accurate information. Children build on their e-safety knowledge and learn about potential online dangers and safety.		Applying previously learnt programming skills to create sounds and melodies leading to a battle of the bands performance.	Identifying some of the types of data that the Mars Rover collects and explaining how the Mars Rover transmits the data back to Earth. Children will read binary numbers, and understand binary addition as well as identifying input, processing and output on the Mars Rovers. This unit builds on the data handling skills from previous years.	Building on programming in Year 3/4, children will clip blocks together in a program and predict what will happen while making connections with previously used programming interfaces. Children create animations, recognise inputs/outputs, choose appropriate blocks, and break programs down into smaller steps.	Building on Video Trailers in Year 3/4, children will be Storyboarding ideas, taking photographs and editing to create a video animation.	Following on from the Mars Rover 1 unit. Children will be learning about pixels and binary, creating a pixel picture and saving a JPEG as a bitmap to understand the transfer of image data. Children will learn about the 'fetch, decode, execute' cycle and its real-world applications while beginning to use 3D design tools.
Unit Outcomes	• Explain what a search engine is, suggesting several search engines to use and explain how to use them to find websites and information. • Suggest that things online aren't always true and recognise what to check for. • Explain why keywords are important and what TASK stands for, using these strategies to search effectively. • Recognise the terms 'copyright' and 'fair use' and combine text and images in a poster. • Make parallels between book searching and internet searching, explaining the role of web crawlers and recognising that results are rated to decide rank. • Understand that passwords need to be strong and that apps require some form of passwords.		• Iterate ideas, testing and changing throughout the lesson. Explain what the basic commands do. • Explain how their program links to the theme. Include a loop in their work. Correct their own simple mistakes. • Explain their scene in the story. Link musical concepts to their scene. Include a repeat and explain its function to enhance music. • Code a piece of music that combines a variety of structures. Use loops in their programming. • Recognise that programming music is a way to apply their skills	• Identify some of the types of data that the Mars Rover could collect (for example, photos). • Explain how the Mars Rover transmits the data back to Earth and the challenges involved in this. • Read any number in binary, up to eight bits. • Identify input, processing and output on the Mars Rovers. • Read binary numbers and grasp the concept of binary addition. • Relate binary signals (Boolean) to a simple character-based language, ASCII.	• 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.	• Create a toy with simple images with a single movement. • Create a short stop motion with small changes between images. • Think of a simple story idea for their animation then decompose it into smaller parts to create a storyboard with simple characters. • Make small changes to the models to ensure a smooth animation and delete unnecessary frames. • Add effects such as extending parts and titles. • Provide helpful feedback to other groups about their animations.	• Create a pixel picture, explaining that a pixel is the smallest element of a digital image and that binary is used to code and transfer this data. • Save a JPEG as a bitmap and recognise the difference in file size as well as explaining how pixels are used to transfer image data. • Explain the 'fetch, decode, execute' cycle in relation to real-world situations. • Create a profile with a safe and suitable username and password and begin to use 3D design tools. • Independently take tutorial lessons, applying what they have learnt to their design and understand the importance of using an online community responsibly.

	• 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.					