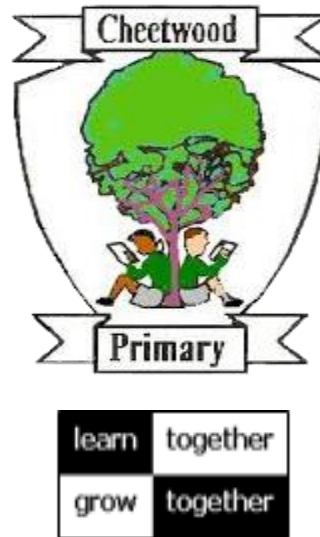


Cheetwood Community Primary School



Computing Skills, Knowledge and Knowledge Categories

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
It is important in the EYFS that we give children a broad, play-based experience of ICT in a range of contexts, including outdoor play. Computing is not just about computers. Early years learning environments should feature ICT scenarios based on experience in the real world, such as in role play. Children gain confidence, control and language skills through opportunities to explore using non-computer-based resources such as programmable toys, controllable traffic lights and walkie-talkie sets. Recording devices can support children to develop their communication skills. This is particularly useful with children who have English as an additional language.					
Nursery			- To begin to recognise different devices within the environment (IPad, Camera, Phone, Whiteboard) - With support, take a picture on a device - Follow a one-step instruction (no technology) - Talk about and use 'make believe' technology in play.	- Name and identify different devices - Start to collect simple data - With adult support, understand and talk about data	Computer Systems and Networks Data Handling Programming
Reception			- Operate a camera or Ipad to take photos and videos. - Recognise and identify familiar letters and number on a keyboard - Recognise a range of devices used in school and at home - Recognise and compare digital devices - Complete a repeated pattern - Collect simple data in different ways e.g. sorting objects	- A computer has a keyboard which has all of the letters and the numbers on it. - A mouse can help you click on things and move things on the screen - Understand a phone is used to communicate with those not in the same location - To use a computer you have to log in and log out - Name different types of technology found at home and in school	Computer Systems and Networks Programming Data Handling

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			• Represent data through sorting and grouping items and objects • Follow a two-step instruction (no technology) • Give simple instructions to others • Follow instructions as part of practical activities and games • Understand how to find what has gone wrong with instructions if they don't work	• Understand how a pattern works and can fill in missing parts • Collect and analyse simple data in different ways. • Sorting objects into categories can help you find things quickly • Give and follow simple instructions (these are important in computing) • Instructions have to be in the right order to work properly • Instructions can go wrong if they are not clear • Understand following an instruction it will result in an outcome (beebots/ positional grids) • Have a basic understanding of the ways we can use the internet. • If a person feels unsafe or worried (online) – tell a trusted adult.	

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
1	Autumn	Improving mouse skills	• Explore hardware to find out how it works. • Use a basic range of tools within graphic editing software. • Control the mouse through dragging, clicking and resizing images to create different effects. • Begin to understand the use of different software tools. • Recognise devices that are connected to the internet. • Log in and out of a computer and save work on my own account. • Learn where keys are located on a keyboard	• A Keyboard is a set of buttons (keys) used on a computer that you press to make it work. • A Key is something you press on a computer keyboard to make letters, numbers or symbols on the screen. • “login” and “logout” means to begin and end a connection with a computer. • A computer and a 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.	Computer Systems and Networks

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
		Algorithms unplugged	• Explain what an algorithm is • Know some devices are input devices and others are output devices, and know the difference. • Use decomposition to solve unplugged challenges. • Develop skills associated with sequencing in unplugged activities. • Follow basic instructions • Assemble instructions into a simple algorithm. • Understand debug means to find and fix mistakes. • Debug instructions when things go wrong. • Debug an algorithm in an unplugged scenario.	• A computer input device is any hardware that allows people to interact with a device e.g. keyboard, gamepads, touch screen, microphones – put information in • A computer output device is hardware that sends information from the computer to the person e.g. monitor, printer, speakers – get information out • An algorithm is when instructions are put in an exact order. • Decomposition means breaking a big problem into smaller manageable chunks and that it is important in computing. • Errors (mistakes) in an algorithm are called ‘bugs’ and fixing these ‘debugging’.	Programming
	Spring	Rocket to the moon	• I can use logical reasoning to predict the behaviour of simple programs. • Develop the skills associated with sequencing in unplugged activities. • Use a basic range of tools within graphic editing software. • Take and edit photographs. • Input simple data into a spreadsheet • Develop an understanding of different software tools.	• When something is created on a computer it can be more easily saved and shared than a paper version. • Basic tools in graphic design software include – changing text colour and size, stickers, clip art, drawing and painting tools, filters and image editing • Technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. • A spreadsheet is an electronic ‘table’ for sorting data.	Skills Showcase

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			Learn where keys are located on a keyboard		
		Programming Bee-bots	- Recognise robots are controlled by humans - Write clear, sequenced algorithms for familiar tasks - Change their simple instructions into code that the robot will understand. - Use decomposition to solve unplugged challenges. - Use logical reasoning to predict the behaviour of simple programs. - Debug a set of instructions when things go wrong.	- Humans need to give robots instructions to follow and they will follow these even if they are wrong. - An algorithm is a set of instructions used to carry out a task, - Algorithms must give every step of the task as clear, sequenced instructions - If there is a mistake in a set of instructions (an algorithm) it will not give the expected result.	Programming
	Summer	Digital imagery	- Use a basic range of tools within graphic editing software. - Take and edit photographs. - Control the mouse through dragging, clicking and resizing of images to create different effects. - Develop an understanding of different software tools. - Search and download images from the internet safely. - Learn where keys are located on a keyboard	- Holding the camera or device still and considering angles and light are important to take good pictures. - Photographs can be edited, cropped and filtered - A search engine is a way to find information on the internet using key words and phrases. - Searching safely for images online is important. - If an internet search shows something worrying or upsetting, close the site and report it to a grown up	Creating Media
		Introduction to data	Use data representations to answer questions about data.	Technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.	Data Handling

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			• Use software to explore and create pictograms and branching databases. • Learn where keys are located on a keyboard	• Charts and pictograms can be created using a computer quickly and accurately • A Branching database is a way of classifying a group of objects. • I know that computers understand different types of 'input'. • 'input' is information or commands given to a computer e.g. typing, clicking mouse, voice commands	
	All Year	Online Safety	• Recognise some devices that are connected to the internet. • Understand we are connected to others when using the internet. • Know how to interact safely with others online. • Recognise how actions on the internet can affect others. • Recognise what a digital footprint is and how to be careful about posting online. •	• The internet is many devices connected to one another. • People you do not know on the internet (online) are strangers and are not always who they say they are. • To stay safe online it is important to keep personal information safe. • Personal information is any details that can be used to identify a person – full name, address, school, phone number, passwords etc... • 'Sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.	Online Safety

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
2	Autumn	What is a computer?	• Recognise and explain the difference between input and output devices • Label the different components of a computer. • Recognise that buttons cause effects and that technology follows instructions. • Explain how we know that technology is doing what we want it to do via its output. • Use greater control when taking photos with cameras, tablets or computers. • Discuss how computers are used in the wider world	• A desktop computer is fixed in one place and often has separate parts like a keyboard, mouse and monitor • A laptop computer is portable, with a built-in screen, trackpad and it folds together to close. • People control technology by inputting instructions and information. • Input devices that give a computer an instruction about what to do (output). • Computers often work together.	
		Algorithms and debugging	• Understand the meaning of Decomposition, breaking a big problem into smaller manageable chunks • Decompose a game to predict the algorithms used to create it. • Explain and follow algorithms. • Create a clear and precise algorithm. • Use programs that execute by following precise instructions. • Incorporate loops within algorithms. • Use logical thinking to explore software, predicting, testing and explaining what it does.	• Machine learning is when a computer learns to do things by itself by looking at lots of examples instead of having step by step instructions. • Machine learning enables computers to make predictions. • Loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times. • Abstraction is the removing of unnecessary detail, making complex processes simpler to help solve a problem.	Programming

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			Use an algorithm to write a basic computer program.		
	Spring	Word Processing	- Develop more confident with the keyboard and the basics of touch typing. - Develop my word processing skills, including altering text, copying and pasting and using keyboard shortcuts. - Use word processing software to type and reformat text. - Search for appropriate images to use in a document. - Explain what online information is. - Identify whether information is safe or unsafe to be shared online.	- Touch typing is the fastest way to type. - Text can be made into different styles, sizes and colours. “copy and paste” is a quick way of duplicating text. - I can copy and paste using Ctrl C to copy and Ctrl V to paste or by using right click on a mouse	Computer Systems and Networks
		Programming : Scratch Jr	- I can use loops within algorithms. - Use logical thinking to explore software, predicting, testing and explaining what it does. - Use an algorithm to write a basic computer program. - Use loop blocks when programming to repeat an instruction more than once. - Use software to create story animations.	- Coding is writing instructions in a special language so that the computer understands what to do. - A program is a set of instructions a computer can run – programs can be made in different ways - Programming blocks in Scratch Jr are used to give the character instructions - Programs can be written to ask the computer to do different things such as create musical instruments or tell jokes - The computer will only follow the instructions it is given	Programming

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
	Summer	Stop Motion	• Use greater control to take more precise photos with cameras, tablets or computers. • Use logical thinking to explore software, predicting, testing and explaining what it does.	• Animation is made up of a sequence of still photographs all linked together. • Small changes in each frame will create a smoother looking animation. • Software can create simple animations and has different features to help e.g. onion skinning (where you can see a semi-transparent image of the previous picture at the same time as the current picture).	Creating Media
		International Space Station	• Create and label images. • Collect and input data into a spreadsheet. • Interpret data from a spreadsheet. • Present data in different ways on a spreadsheet. • Answer questions by interpreting data in a spreadsheet. • Explain how computers are used in the wider world.	• Simple data such as words and numbers can be entered into a spreadsheet. • Different data in a spreadsheet can be used to answer certain questions. • The steps in an algorithm have to be in the right order for it to work. • Computers can be used to monitor and organise data.	Data Handling
	All Year	Online Safety	• Identify whether information is safe or unsafe to be shared online. • Create a strong password. • Explain how to be respectful of others when sharing online. • Understand the importance of asking permission before sharing specific content online. • Explain strategies used for checking if something read online is true.	• Online – means things that are done on the internet • Offline means activities done away from the internet • Some information should not be posted online, this includes personal information, nasty or rude comments, things that are not true. • There are techniques are for creating a strong password which includes letters, numbers and special characters.	Online Safety

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			Explain how to stay safe when talking to people online and what to do if something is seen or heard online that makes people feel upset or uncomfortable.	- People must always have permission from others before sharing about them online and that they have the right to say 'no.' - Not everything that can be seen or read online is true.	
3	Autumn	Networks	- Understand and explain the role of the key components of a network. - Understand that websites and videos are files that are shared from one computer to another. - Identify the key components within a network, including whether they are wired or wireless. - Explain how data is transferred.	- A network is a group of interconnected devices. - The components that make up a network are: Wireless access point/WAP, Network switch, Router, Server and devices. - A server is central to a network and responds to requests made. - A router connects us to the internet and the internet connects all the networks around the world.	Computer Systems and Networks
		Programming : Scratch	- Use decomposition to explore the code behind an animation. - Use repetition in programs. - Explain the purpose of an algorithm. Forming algorithms independently. - Use logical thinking to explore more complex software; predicting, testing and explaining what it does. - Incorporate loops to make code more efficient. - Continue an existing code. - Looking at small chunks of code at time helps to find bugs and errors.	- Scratch is a programming language built on coding blocks; it can create different outputs. - Loops can be used in programming to tell the computer how many times you want to repeat an instruction. - Decomposition is used in programming to break complex tasks into smaller parts. - It is possible to remix and adapt existing code.	Programming

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
	Spring	Emailing	- Log in and out of an email account. - Write an email including a subject, 'to' and 'from'. - Send an email with an attachment. - Reply to an email.	- Email stands for 'electronic mail.' - An attachment is an extra file added to an email e.g. a document, a picture. - Emails should contain appropriate and respectful content. - Cyberbullying is using electronic devices to bully/abuse other people - Not all emails are genuine, when an email might be fake it should not be opened and an adult should be told.	Computer Systems and Networks
		Journey inside a computer	- Explain what the different components of a computer do and how they work together. - Draw comparisons and identify differences across different types of computers. - Use decomposition to explain the parts of a laptop computer.	- Inputs allow people to put information into a computer and outputs are the information people receive from a computer. - There are different components inside a computer which all work together: - CPU – this is the brain of the computer and follows instructions from programs - RAM- is the computers short term memory which temporarily holds information - Hard drive – long term memory which holds digital information. - A tablet is a computer device which is thin and light and uses a touch screen for input. - Tablets, laptops and desktops are all different.	Computer Systems and Networks

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
	Summer	Video Trailers	• Use logical thinking to explore more complex software; predicting, testing and explaining what it does. • Take photographs and record a video to tell a story. • Use software to edit and enhance their video adding music and text on screen with transitions.	• Different types of camera shots can make photos or videos look more effective. • Photos and videos can be edited and changed using film editing software. • Transitions (connections between two parts of the video) and text can be added to videos	Creating Media
		Comparison Cards Databases	• Understand and use the vocabulary associated with databases: field, record, data. • Learning about the pros and cons of digital versus paper databases. • Sort and filter databases to easily retrieve information. • Create and interpret charts and graphs to understand data.	• A database is a collection of data stored in a logical, structured and orderly manner. • Computer databases can be useful for sorting and filtering data. • Sorting data means putting things into groups • Filtering data means looking only at the pieces of information you need. • Different visual representations of data can be made on a computer.	Data Handling
	All Year	Online Safety	• Recognise how social media platforms are used to interact. • Recognise that different information is shared online, including facts, beliefs and opinions. • Understand how to identify reliable information when searching online. • Understand how to stay safe on social media.	• Not everything on the internet is true: people share facts, beliefs and opinions online. • The internet can affect people's moods and feelings. • Privacy settings limit who can access important personal information, such as names, ages, gender etc. • An age restriction is a rule that someone has to be a certain age before they can have accounts on social media sites	Online Safety

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
				Social media are platforms where people can connect with others and share ideas/information, they have age restrictions.	
4	Autumn	Collaborative Learning	- Use online software for documents, presentations, forms and spreadsheets (google - Docs, Forms, Sheets, Slides). - Use software to work collaboratively with others. - Recognise what appropriate behaviour is when collaborating with others online.	- Software can be used collaboratively online to work as a team. - Comments and suggestions on a collaborative document need to be positive, about key issues with structure and content, specific and actionable so they can be helpful. - Different images, text, transitions and animation can be used in presentation slides.	Computer Systems and Networks
		Further Coding with Scratch	- Understand how to create algorithms for a specific purpose. - Use code to create a simple game - Incorporate variables to make code more efficient. - Recognise the relationship between what is happening in the program and the written (block) code - Remix a code to alter and add to an existing program.	- A variable is information that can change e,g numbers or text - Conditional statements tell a computer what to do next based on the users input. - Using decomposition to solve a problem by breaking code down into smaller parts helps identify mistakes and errors. - Errors in a program could result from sequencing errors, coding errors or missing code. - Loops are used to save time when writing code by reducing repetition of instructions.	Programming
	Spring	Website Design	Design and create a webpage for a given purpose.	A website is a collection of pages that are all connected.	Creating Media

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			• Use software to work collaboratively with others. • Understand how to build a web page and create content for it. • •	• Websites usually have a homepage and subpages as well as clickable links to new pages. • A hyperlink is a clickable part of a webpage which sends you to a new place so you can travel from one place to another quickly. • Websites should be informative and interactive.	
		HTML	• Understand how to remix existing code. • Build a web page and create content for it. • Understand HTML and its role in websites identify examples of HTML tags.	• HTML is the language used by webpages – it tells a computer how to display a web page. • HTML tags are always enclosed in <angle brackets> • Changing the HTML alters the structure and content of websites (reorganising it, deleting or changing content, changing functions). • Copyright means that those images are protected and to understand that people should do a “creative commons” image search if they wish to use images from the internet. • “fake news” is made up misinformation which some websites display as real. to spot fake news check the information in reliable websites. • The “inspect” elements tool is a way of exploring and altering text and images.	

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
	Summer	Computational Thinking	- Identify patterns through unplugged activities. - Use past experiences to help solve new problems. - Use decomposition to understand the purpose of a script of code - Use abstraction to identify the important parts when completing both plugged and unplugged activities. - Use abstraction and pattern recognition to modify code.	- Computational Thinking skills are the elements used in computer science for problem solving and designing. - Decomposition – breaking problems down into smaller parts - Pattern recognition – identifying patterns to help them work out how the code works. - Abstraction – identifying important details and ignoring other information - Algorithms – step by step instructions - Combining computational thinking skills can help you to solve a problem. - Recap: - loops are used to save time when writing code by reducing repetition - It is important to identify where mistakes are in the program as part of the debugging process.	Programming
		Investigating Weather	- Use tablets or digital cameras to film a weather forecast. - Use keywords to effectively search for information on the internet. - Design a device that gathers and records sensor data. - Record data in a spreadsheet independently.	- Computers can use different forms of input to sense the world around them so that they can record and respond to data ('sensor data'). - A weather machine is an automated machine that responds to sensor data. - Weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films.	Data Handling

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
				Weather stations use sensors to gather and record data that predicts the weather.	
	All Year	Online Safety	- Understanding why some results come before others when searching. - Make judgments about the accuracy of online searches. - Identify forms of advertising online. - Reflect and discuss the positives and negatives of time online. - Identify respectful and disrespectful online behaviour. - Recognise that information on the internet might not be true or correct and that some sources are more trustworthy than others.	- There are a range of methods used to encourage people to buy things online. - Technology can be designed to act like or impersonate living things. - Technology can be a distraction people might need to limit the amount of time spent using technology. - Appropriate in order to stay safe and be respectful online include: keeping privacy setting up to date, thinking before posting, not saying anything online that would not be said in person, following age restrictions and rules on app and websites, being respectful to others, being selective about followers and friends on sites and apps. - Information found by searching the internet is not all grounded in fact.	Online Safety
5	Autumn 1	Search Engines	- Develop searching skills to help find relevant information on the internet. - Use search engines effectively to find information, focussing on keyword searches and evaluating search returns. - Recognise that information on the internet might not be true or correct and learn ways of checking validity.	- Anyone can create a website and therefore people should take steps to check the validity of websites. - Web crawlers are computer programs that crawl through the internet to collect information (also known as Bots or spiders). - Copyright is the law that protects peoples original creative work such as stories, songs, pictures, computer programs, art	Computer Systems and Networks

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
				work etc... it lets them have control over how the work is used.	
		Programming Music	- Predict how software will work based on previous experience. - Write more complex algorithms for a purpose. - Use loops to make code more efficient in block-based programs - Explain what a program does and how it works referring to inputs and outputs - Use a systematic approach to debugging code, justifying what is wrong and how it can be corrected. - Use a range of programming commands and use repetition within a program. - Use a software programme (Scratch) to create music. - Identify ways to improve and edit programs, videos, images etc.	- Music can be created on computer programming software. - Loops can make the process of writing music simpler and more effective. - Nested Loops and smaller loops within loops - Running a program to identify errors should be done before checking code – this helps identify where errors occur - Errors in a program could be the result of forgetting to end a loop	Programming
	Spring	Mars Rover	- Understand that external devices can be programmed by a separate computer and that computers transfer data in binary and understand simple binary addition. - Recognise how the size of RAM affects the processing of data.	- The Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. - Binary code is made up of only the numbers 1 and 0 - Binary code acts like a torch – 1 means on and 0 means off	Data Handling

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			• Relate binary signals (Boolean) to the simple character-based language, ASCII. • Send messages by binary code, read binary up to eight characters and carry out binary calculations.	• Computers use the patterns of binary code (the on/off patterns) to understand and process information. • RAM is Random Access Memory and acts as the computer's working memory (short term memory). • Simple operations can be used to calculate bit patterns (the patterns of 1s and 0s and what they mean)	
		Micro-Bit	• Understand how to decompose a program without support. • Predict how software will work based on previous experience. • Program a physical system which has the capability for sensory input (Micro:bit) • Plan a program to be downloaded to a physical system/device to solve a problem • Confidently use loops in my programming and develop as I work. • Use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. •	• Code may need to be downloaded onto a device/system to run that system e.g. traffic lights • Devices with sensors (thermostats, light sensors, security systems) are programmed to perform tasks in reaction to the input from the sensor • Micro:bit uses a block coding language similar to Scratch. • Typing and spacing are very important when coding and can cause errors if they are not used correctly. • Different techniques can be used to create a program for a specific purpose. • Running a program to identify errors will help find mistakes before checking the code. •	Programming

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
	Summer	Stop Motion	- Decompose animations into a series of images. - Decompose a story to be able to plan a program to tell a story. - Use video editing software to animate.	- The decomposition of an idea (breaking it down into smaller parts) is important when creating stop-motion animations. - Stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. - Editing is an important feature of making and improving a stop motion animation.	Creating Media
		Mars Rover 2	- Run instructions on the fetch, decode, execute cycle. - Understand and explain how the data for digital images can be compressed. - Recognise that computers transfer data in binary and understand simple binary addition. - Use the 3D design software package, TinkerCAD.	- Bit patterns represent images as pixels. - Data for digital images can be compressed (made smaller). - ROM is read only memory – it's a special part of a computer that holds permanent instructions like how the computer starts up. - RAM is random access memory – the computers short term memory that only holds the data it is working on at the time. - Software (for example CAD software – computer aided design) has improved peoples ability to design 3D objects accurately and quickly. - Different forms of communication have developed with the use of technology over time.	
	All Year	Online Safety	Know how to search for simple information about a person, such as their birthday or key life moments.	Passwords need to be strong and apps require some form of passwords.	Online Safety

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			- Recognise when health and wellbeing are being affected in either a positive or negative way through online use. - Recognise different types of online communication and evaluate the pros and cons of each - Know what bullying is and that it can occur both in the real world and online.	- Passwords should never be shared and if they are then they must be changed straight away. - There are many possible dangers online but there are simple ways to stay safe. - Information on the Internet might not be true or correct and should always be checked for validity. - Online bullying is not acceptable, if it happens people need to keep evidence such as screen shots and report it to an adult.	
6	Autumn	Bletchley Park	- Understand and discuss the history of computers and how they have evolved over time. - Use past experiences to solve new problems - Write increasingly complex algorithms for a purpose. - Debug quickly and effectively to make a program more efficient. - Remix existing code to explore a problem. - Create and edit sound recordings for a specific purpose - Use search and work processing skills to create presentations.	“Brute force hacking” is a trial-and-error method used to gain access to an account by trying every possible password. - The first computers were created at Bletchley Park to crack the Enigma code to help in World War 2 - Significant people that contributed to technological advances in computing include Alan Turing who helped crack the Enigma code. - Presentations can be created using appropriate software such as Microsoft PowerPoint - Sound can be recorded using recording software - editing software can be used to edit and trim sound clips.	Computer Systems and Networks

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
		Exploring AI	- Identify different types of AI and their applications in everyday life. - Exploring text-based and image-based AI tools to understand how they generate content. - Applying coding skills like decomposition and pattern recognition to interact with AI applications. - Analysing the effectiveness of prompts and refining them for improved AI outputs. - Exploring ethical considerations around AI use and its impact on society	- AI means artificial intelligence - AI is used in everyday life and is included in a lot of everyday devices such as phones, televisions and computers - AI is trained on data to recognise patterns and generate outputs. - AI can be used to create written content and visual content such as pictures. - There are ethical issues surrounding AI, including data privacy, bias and responsible use.	Creating media
	Spring	Big Data	- Understand and identify barcodes, QR codes and Radio Frequency Identification (RFID) and how they work. - Identify devices and applications that can scan or read barcodes, QR codes and RFID. - Gather and analyse data in real time - Create formulas and sort data within spreadsheets.	- RFID (radio frequency identification) is a more private way of transmitting data. - Data contained within barcodes and QR codes can be used by computers. - Infrared waves are a way of transmitting data. - Data is often encrypted so that even if it is stolen it is not useful to the thief.	Data Handling
		Introduction to Python	Understand how to decompose a program into an algorithm.	There are text-based programming languages such as Logo and Python.	

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
			• Debug quickly and effectively to make a program more efficient & remix existing code to explore a problem. • Use and adapt nested loops. • Use Python programming language. • Use logical thinking to explore software independently, iterating ideas and testing continuously.	• A text-based programming language uses words, symbols and codes to write instructions rather than blocks (like scratch) • Nested loops are loops inside of loops. • It is possible to remix and change a python code to modify it to make something new or create a different action. • Checking and debugging algorithms is vital to solve problems in code.	
	Summer	Big Data	• Understand that computer networks provide multiple services. • Understand the internet of things and how it has led to 'big data' • Understand how corruption can happen during data transfers e.g. when downloading a file.	• During transfer, data can become corrupted within a network but this is less likely to happen if it is sent in 'packets'. • Data Packets are small, self-contained units of data which break down larger pieces of information into smaller chunks. • Devices that are not updated are most vulnerable to hackers. • WiFi connects to the internet through a wireless router – this has a limited range but is safer for data transfers. • Mobile data connects to the internet through mobile phone networks and allows access to the internet in a wider area. • The internet of things is a vast network of everyday objects that can connect with each other and share information – smart products, computers, phones etc...	Data Handling

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
		Inventing a product	• Use logical thinking to explore software independently, iterating ideas and testing continuously. • Create and edit videos, adding multiple elements: music, voiceover, sound, text and transitions. • Use the design software TinkerCAD to design a product. • Create a website with embedded links and multiple pages.	• Designing an electrical product follows many steps including– conceptualization (idea), design and function, schematics and circuit design, process/programming, testing for safety • Different Programming software/language achieve different purposes, its important to select which is best to achieve a purpose. • The building blocks of computational thinking are: sequence, selection, repetition, variables and inputs and outputs.	Programming Creating media
	All Year	Online Safety	• Understand and employ different strategies to create a positive online reputation. • Understand and develop strategies to capture evidence of online bullying in order to seek help. • Understand the concept of online scams and how to avoid them. •	• A digital footprint means the information that exists on the internet as a result of a person's online activity. • The steps required to capture bullying content as evidence include: Taking screenshots, including information that can identify the perpetrator e.g. username, phone number, record time and date, log the website address and the platform, do not delete evidence, report to the platform, report to a trusted adult, report to the police if needed. • It is important to manage personal passwords effectively and change them regularly. • There are lots of different ways to have a positive online reputation.	Online Safety

Year group	Term	Scheme of Work	Key Skills in unit	Key Knowledge in unit	Knowledge Categories
				Online scams can be anywhere so people need to be careful accepting links, opening emails which are not verified and accessing websites which are not well known.	