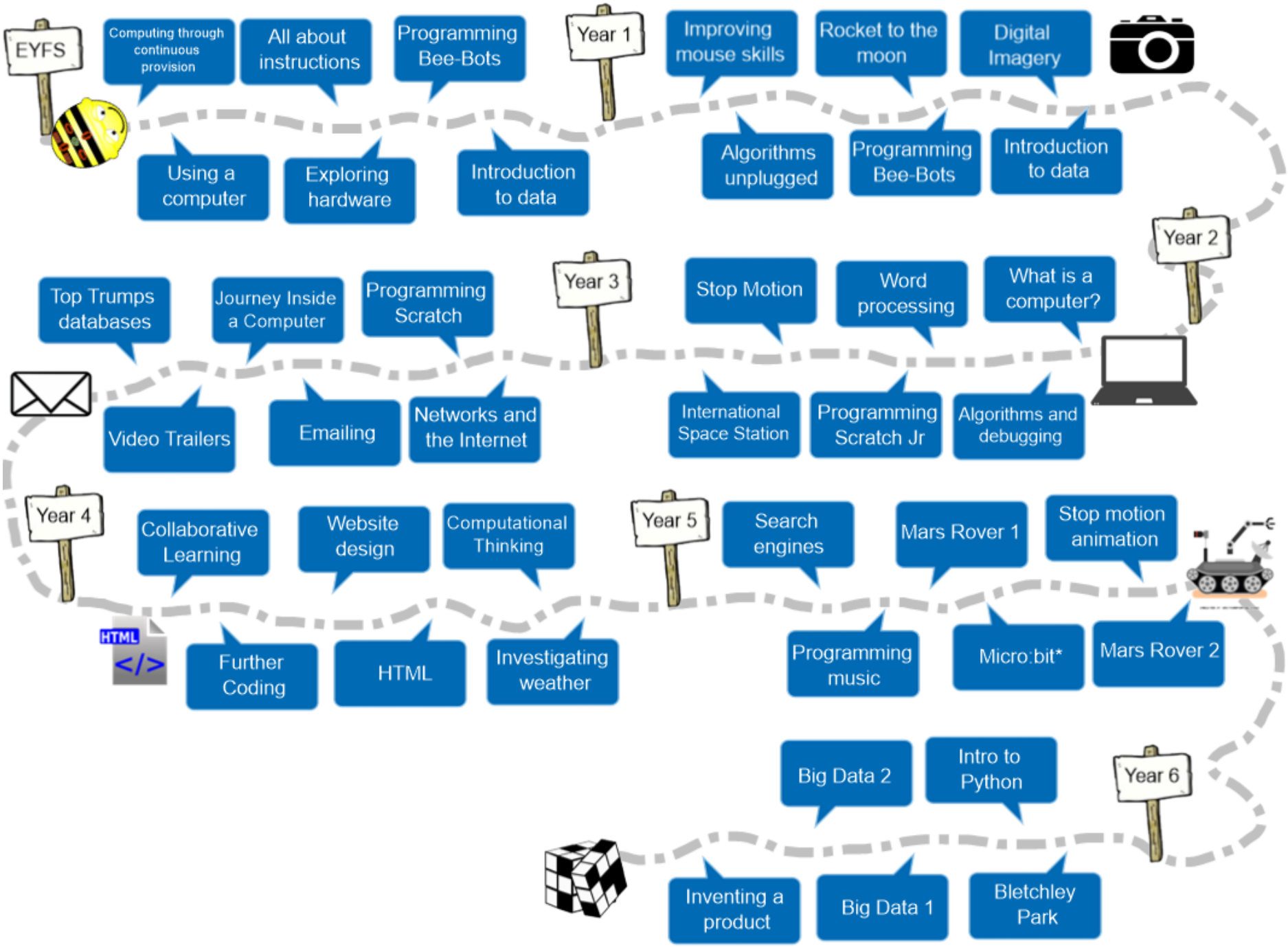
Computing Overview



EYFS: Computing			
Unit	**Setting up continuous provision – Aut1**	**Using a computer – Aut2**	**All about instructions – Spr1**
National Curriculum	*Early years computing does not just mean using a computer. The skills needed can be developed across almost every area of learning and as part of many different play-based activities.* *When setting up continuous provisions for the year, include resources that will help children to develop further and explore the essential foundations of computing.* *This continuous provision can then be complemented with enhanced provision activities as detailed in the rest of the EYFS computing lessons.* *For further guidance:* *https://www.kapowprimary.com/subjects/computing/eyfs/*	**Physical Development** -Develop their small motor skills so that they can use a range of tools competently, safely and confidently. **Literacy** -Spell words by identifying the sounds and then writing the sounds with letter/s. -Re-read what they have written to check that it makes sense. **Mathematics** -Link the number symbol (numeral) with its cardinal number value.	**Communication and Language** -Understand how to listen carefully and why listening is important. -Describe events in some detail. -Use talk to help work our problems and organise thinking and activities, and to explain how things work and why they might happen. **Personal, Social and Emotional Development** -ELG: Self-Regulation> Give focused attention to what the teacher says, responding appropriately even when engaged in activity and show an ability to follow instructions involving several ideas or actions. -ELG: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. -ELG: Building Relationships> Work and play cooperatively and take turns with others. **Physical Development** -Know and talk about the different factors that support their overall health and wellbeing. -Further develop the skills they need to manage the school day successfully
Overview		Learning about the main parts of a computer and how to use the keyboard and mouse. Logging in and out.	The children learn to receive and give instructions and understand the importance of precise instructions.
Progression	When using the internet alongside an adult, or independently, learning what to do if they come across something that worries them or makes them feel uncomfortable	Recognising that a range of technology is used in places such as homes and schools. Learning what a keyboard is and how to locate relevant keys. Learning what a mouse is and developing basic mouse skills such as moving and clicking. Learning to log in and log out.	Using logical reasoning to read simple instructions and predict the outcome

EYFS: Computing

Unit	Exploring hardware – Spr2	Programming Bee-Bots – Sum1	Introduction to data – Sum2
National Curriculum	**Communication and Language** -Learn new vocabulary. -Use new vocabulary throughout the day. -Ask questions to find out more and to check they understand what has been said to them. -Articulate their thoughts and ideas in well-formed sentences. -Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. **Personal, Social and Emotional Development** -See themselves as a valuable individual **Physical Development** -Develop their small motor skills so that they can use a range of tools competently, safely and confidently. -Confidently and safely use a range of large and small apparatus indoors and outside, alone and in a group.	**Personal, Social and Emotional Development** -ELG: Managing Self> Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.	**Communication and Language** -Articulate their thoughts and ideas in well-formed sentences. -Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. -ELG: Listening, Attention and Understanding> Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small. group interactions. -ELG: Listening, Attention and Understanding> Make comments about what they have heard and ask questions to clarify their understanding. -ELG: Speaking> Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
Overview	Tinkering and exploring with different computer hardware and learning to operate a camera.	Children learn about directions, experiment with programming a Bee-bot/Blue-bot and tinker with hardware.	Children sort and categorise data and are introduced to branching databases and pictograms.
Progression	Using a simple online paint tool to create digital art. Participating in group image searches, led by the teacher. Recognising that a range of technology is used in places such as homes and schools	Following instructions as part of practical activities and games and learning to debug when things go wrong. Learning to give simple instructions. Experimenting with programming a Bee-bot and learning how to give simple commands. Learning to debug instructions, with the help of an adult, when things go wrong.	Representing data through sorting and categorising objects in unplugged scenarios. Representing data through pictograms. Exploring branch databases through physical games.

Year 1: Computing			
Unit	**Improving mouse skills – Aut1**	**Algorithms unplugged – Aut2**	**Rocket to the moon– Spr1**
National Curriculum	**Digital Literacy and Online Safety** Recognising common uses of information technology. Logging in and saving work on their own account. Knowing what to do if they have concerns about content or contact online. Understanding of how to create digital art using an online paint tool. **Computers and Hardware** Learning to locate where keys are on the keyboard. Developing basic mouse skills	**Computational Thinking** Understanding how to create algorithms. Learning that computers need information to be presented in a simple and clear way. Understanding how to break a computational thinking problem into smaller parts in order to solve it.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Selecting software appropriately
Overview	Introducing children to logging in and using technology for a purpose, including creating art.	Learning how computers handle information by exploring 'unplugged' algorithms- completing tasks away from the computer	Appreciating the value of computers, understanding that they helped us get to the moon
Progression	Understanding that computers and devices around us use inputs and outputs, identifying some of these. Learning where keys are located on the keyboard. Logging in and out and saving work on their own account.	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.	Recognising common uses of information technology, including beyond school.

Year 1: Computing

Unit	Programming Bee-Bots – Spr2	Digital Literacy – Sum1	Introduction to data – Sum2
National Curriculum	**Computational Thinking** Learning how to explore and tinker with hardware to find out how it works. Constructing a series of instructions into a simple algorithm. Applying computing concepts to real world situation in an unplugged activity.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Knowing what to do if they have concerns about content or contact online. **Computers and Hardware** Using cameras or tablets to take photos. **Computational Thinking** Using logical reasoning to predict the behaviour of simple programs.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content. Selecting software appropriately. **Computers and Hardware** Recognising uses of technology beyond school.
Overview	Using Bee-Bots to navigate an area and constructing simple algorithms, through the story of The Three Little Pigs.	Taking and manipulating digital photographs, including adding images found via a search engine	Learning about what data is and how it can be represented and using these skills to show the findings of a mini beast hunt
Progression	Using logical reasoning to predict the behaviour of simple programs. Learning that an algorithm is a set of step-by-step instructions used to carry out a task, in a specific order. Developing a how-to video to explain how the Bee-bot works.	Learning how to explore and tinker with hardware to find out how it works. Learning how to operate a camera. Understanding how to create digital art using an online paint tool. Developing control of the mouse through dragging, clicking and resizing of images to create different effects. Searching and downloading images from the internet safely. Understanding that we are connected to others when using the internet.	Introduction to spreadsheets. Representing data in tables, charts and pictograms. Sorting data and creating branching databases. Identifying where digital content can have advantages over paper when storing and manipulating data.

Year 1: Computing	
Unit	**Online Safety Unit**
National Curriculum	**Digital Literacy and Online Safety** Understanding that they need to be kind on the internet, as they would in real life. Discovering which devices connect to the internet. Understanding some tips for staying safe and why this is important
Overview	An introduction to online safety: children learn what it means to be 'online' and how to stay safe whilst treating others with respect.
Progression	Understand the importance of a password. 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. Recognising when someone has been unkind online. Learning some top tips for staying safe online. Understanding how we 'share' information on the internet.

Year 2: Computing			
Unit	**What is a computer? – Aut1**	**Algorithms and debugging – Aut2**	**Word processing – Spr1**
National Curriculum	**Computational Thinking** Learning about inputs and outputs and how they are used in algorithms. **Computers and Hardware** Understanding what a computer is and the role of individual components.	**Computational Thinking** Creating and debugging simple programs. Using logical reasoning to predict the behaviour of simple programs. Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.	**Digital Literacy and Online Safety** Using word processing software to type and reformat text. Understanding the importance of staying safe online
Overview	Children explore what a computer is, learning about inputs and outputs, how computers are used in the wider world and designing an invention.	Identifying problems with code using both 'unplugged' and 'plugged' systems to debug (identify and correct) errors in an algorithm	Using their developing word processing skills, pupils write simple messages to friends and learn why we must be careful about who we talk to online
Progression	Understanding what a computer is and that it has made up of different components. Recognising that buttons cause effects, and that technology follows instructions. Learning how we know that technology is doing what we want it to do via its output. Developing confidence with the keyboard and the basics of touch typing.	Using logical thinking to explore software, predicting, testing and explaining what it does. Using an algorithm to write a basic computer program. Learning what loops are. Incorporating loops to make code more efficient.	Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Understanding that personal information should not be shared on the internet. Learning how to be respectful to others when sharing content online.

Year 2: Computing

Unit	Programming: Scratch Jr – Spr2	Stop Motion – Sum1	International Space Station – Sum2
National Curriculum	**Computational Thinking** Creating and debugging simple programs. Using logical reasoning to predict the behaviour of simple programs. Understanding what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. **Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content. **Computers and Hardware** Understanding how to use tablets or computers to take photos.	**Digital Literacy and Online Safety** Using technology to create and label images and to put data into a spreadsheet. **Computational Thinking** Consider inputs and outputs to understand how sensors work.
Overview	Using 'ScratchJr', pupils programme a familiar story and an animation, make their own musical instruments and follow an algorithm to record a joke.	Pupils create simple animations, storyboarding their ideas then decomposing it into small parts of action to be captured.	Building on their understanding of how computers sense the world around us, pupils learn how data is collected and used to keep astronauts safe on the I.S.S.
Progression	Using logical thinking to explore software, predicting, testing and explaining what it does. Using an algorithm to write a basic computer program. Learning what loops are. Incorporating loops to make code more efficient. Articulating what decomposition is. Using decomposition to decompose a story into smaller parts. Learning what abstraction is. Learning that there are different levels of abstraction. Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm.	Using software to create story animations. Creating and labelling images.	Learning how computers are used in the wider world. Collecting and inputting data into a spreadsheet. Interpreting data.

Year 2: Computing	
Unit	**Online Safety Unit**
National Curriculum	**Digital Literacy and Online Safety** Identifying how to keep personal information private. Using technology respectfully by asking for permission before sharing about others online.
Overview	Pupils learn about how to keep personal information safe online, including their right to give or deny permission for information to be shared online.
Progression	Understanding that personal information should not be shared on the internet. Learning how to be respectful to others when sharing content online.

Year 3: Computing			
Unit	**Emailing – Aut1**	**Networks and the internet – Aut2**	**Programming: Scratch – Spr1**
National Curriculum	**Digital Literacy and Online Safety** Learn about cyberbullying and fake emails. Understanding the purpose of emails.	**Computers and Hardware** Identifying network components and understand how they are used to connect to the internet and how data is transferred. **Digital Literacy and Online Safety** Understanding computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.	**Computational Thinking** Using logical reasoning to explain how simple algorithms work. Designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems. Solving problems by decomposing them into smaller parts. Using sequence, selection, and repetition in programs. Working with variables and various forms of input and output.
Overview	Pupils learn how to send emails, including attachments and how to be responsible digital citizens.	To understand how computers communicate, children learn about networks and the internet, and how they are used to share information.	Using Scratch, with its block-based approach to coding, pupils learn to tell stories and create simple games.
Progression	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. Identifying useful terms and phrases for search engines. Understanding the purpose of emails. Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.	Understanding what the different components of a computer do and how they work together. Drawing comparisons across different types of computers. Learning what a server does. Learning what a network is and its purpose. 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.	Using decomposition to explore the code behind an animation. Using repetition in programs. Explaining the purpose of an algorithm. Forming algorithms independently. Using logical thinking to explore more complex software; predicting, testing and explaining what it does. Incorporating loops to make code more efficient. Remixing existing code. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.

Year 3: Computing			
Unit	**Journey inside a computer – Spr2**	**Top Trumps databases – Sum1**	**Digital literacy – Sum2**
National Curriculum	**Computers and Hardware** Understanding what different components of a computer do. **Computational Thinking** Understanding that programs execute by following precise and unambiguous instructions.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve data.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content, including searching for relevant information.
Overview	Children learn about the different parts of a computer through role-play and develop their understanding of how they follow instructions.	Developing their understanding of data and databases, children play with and create their own Top Trumps cards, learning how to interpret information by ordering and filtering	Developing their video skills, pupils create a book trailer, storyboarding their trailers before then filming and editing their videos, adding effects such as transitions, music, voice and text.
Progression	Using decomposition to explain the parts of a laptop computer. Understanding that computers follow instructions. Using an algorithm to explain the roles of different parts of a computer.	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. Creating and interpreting charts and graphs to understand data.	Taking photographs and recording video to tell a story. Using software to edit and enhance their video adding music, sounds and text on screen with transitions.

Year 3: Computing	
Unit	**Online Safety Unit**
National Curriculum	**Digital Literacy and Online Safety** Learn to distinguish between facts, opinions and beliefs on the internet Learn how to deal with upsetting online content. Learn about how to protect our personal information using privacy settings and how to be discerning about what information we share and who with.
Overview	Understanding that you cannot trust everything you read on the internet. Learning about social media platforms including their age-restrictions and privacy settings.
Progression	Learning what a search engine is. Recognising how social media platforms are used to interact. Learning that not all information on the internet is factual. Understanding who personal information should/ should not be shared with. Learning to be a responsible digital citizen; understanding their responsibilities to treat others respectfully and recognising when digital behaviour is unkind.

Year 4: Computing

Unit	Collaborative learning – Aut1	Further coding with Scratch – Aut2	Website design – Spr1
National Curriculum	**Digital Literacy and Online Safety** Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals. Understanding opportunities offered by the World Wide Web for communication and collaboration.	**Computational Thinking** Using logical reasoning to explain how simple algorithms work. Designing, writing and debugging programs that accomplish specific goals, including controlling or simulating physical systems. Solving problems by decomposing them into smaller parts. Using sequence, selection and repetition in programs. Working with variables and various forms of input and output.	**Digital Literacy and Online Safety** Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals. Understanding opportunities offered by the World Wide Web for communication and collaboration.
Overview	Learning to work collaboratively in a responsible way using tools including Google Docs and Sheets.	The coding program Scratch is explored further by revisiting key features and introducing the children to the crucial concept and execution of using 'variables' in code scripts.	Pupils design and create their own websites, considering content and style, as well as understanding the importance of working collaboratively
Progression	Use Google online software for documents, presentations, forms and spreadsheets. Work collaboratively with others. Understanding that software can be used collaboratively online to work as a team.	Solving unplugged problems by decomposing them into smaller parts. Using decomposition to understand the purpose of a script of code. Using decomposition to help solve problems. Identifying patterns through unplugged activities. Using past experiences to help solve new problems. Using abstraction to identify the important parts when completing both plugged and unplugged activities. Creating algorithms for a specific purpose. Coding a simple game. Using abstraction and pattern recognition to modify code. Incorporating variables to make code more efficient. Remixing existing code. Using a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.	Learning about the purpose of routers. Consolidating understanding of the key components of a network. Understanding that websites & videos are files that are shared from one computer to another. Learning about the role of packets. Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. Building a web page and creating content for it. Designing and creating a webpage for a given purpose.

Year 4: Computing			
Unit	**HTML – Spr2**	**Computational Thinking – Sum1**	**Investigative weather – Sum2**
National Curriculum	**Digital Literacy and Online Safety** Recognising that information on the internet might not be true or correct. Using technology safely, by recognising acceptable/ unacceptable behaviour. Knowing what to do when they have concerns about content or contact online. **Computational Thinking** Understanding that websites can be altered by exploring the code beneath the site. Designing, writing and debugging programs that accomplish specific goals. Solving problems by decomposing them into smaller parts.	**Computational Thinking** Understand what decomposition is and how it facilitates problem solving. Designing, writing and debugging programs that accomplish specific goals. Understand abstraction and patterns recognition.	**Digital Literacy and Online Safety** Understanding why some sources are more trustworthy than others. **Computational Thinking** Understanding the role of inputs and outputs in computerised devices.
Overview	Pupils explore the language behind well-known websites, while developing their understanding of how to change the core characteristics of a website using HTML and CSS	Through developing their understanding of the four pillars of computational thinking, children learn to identify them in different contexts	Children investigate the role of computers in forecasting and recording weather as well as how technology is used to present forecasts
Progression	Understanding that websites can be altered by exploring the code beneath the site.	Solving unplugged problems by decomposing them into smaller parts. Using decomposition to understand the purpose of a script of code. Using decomposition to help solve problems. Identifying patterns through unplugged activities. Using past experiences to help solve new problems. Using abstraction to identify the important parts when completing both plugged and unplugged activities. Creating algorithms for a specific purpose.	Designing a weather station which gathers and records sensor data.

Year 4: Computing	
Unit	**Online Safety Unit**
National Curriculum	**Digital Literacy and Online Safety** Be discerning in evaluating content by learning about the techniques that companies use to advertise online. Use technology safely and responsibly by considering the risks of screen-time and technology. Using search technologies effectively, appreciating how results are selected and ranked.
Overview	Pupils develop their understanding of how to identify trustworthy information online and consider the implications of technology.
Progression	Understanding why some results come before others when searching. Understanding that information on the internet is not all grounded in fact. Recognising what appropriate behaviour is when collaborating with others online. Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others. Learning about different forms of advertising on the internet.

Year 5: Computing

Unit	Search engines – Aut1	Programming Music – Aut2	Mars Rover 1 – Spr1
National Curriculum	**Digital Literacy and Online Safety** Recognising that information on the internet might not be true or correct. Know how to use keywords to quickly find accurate information.	**Digital Literacy and Online Safety** Selecting using and combining a variety of software to design and create a range of programs, systems and content that accomplish given goals. **Computational Thinking** Using programming language to create music, including use of loops.	**Digital Literacy and Online Safety** Understanding computer networks including the internet; how they can provide multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration. **Computers and Hardware** Using search technologies effectively, appreciating how results are selected and ranked, and be discerning in evaluating digital content. Recognising that computers transfer data in binary and understand simple binary addition.
Overview	To enable children to quickly and accurately find information and become independent learners, they need to develop their searching skills and learn how to identify trustworthy sources	Composing music using code through Sonic Pi or Scratch pupils can compose simple tunes culminating in a 'battle of the bands' using loops of music.	Pupils explore inputs and outputs as well as Binary numbers to understand how the Mars Rover transmits and receives data and how scientists are able to control it to explore another planet!
Progression	Developing searching skills to help find relevant information on the internet.	Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose. Iterating and developing their programming as they work. Beginning to use nested loops (loops within loops). Debugging their own code. 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.	Learning the vocabulary associated with data: data and transmit. Learning how the data for digital images can be compressed. 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 8 characters and carrying out binary calculations. Understanding how bit patterns represent images as pixels.

Year 5: Computing			
Unit	**Micro:bit – Spr2**	**Stop motion animation – Sum1**	**Mars Rover 2 – Sum2**
National Curriculum	**Computational Thinking** Using block coding to program a device. To explore variables and different forms of input. **Computers and Hardware** Understand how external devices can be programmed by a separate computer.	**Digital Literacy and Online Safety** Using technology purposefully to create, organise, store, manipulate and retrieve digital content. **Computers and Hardware** Understanding how to use tablets or computers to take photos. **Computational Thinking** Consider sequence and selection of frames when editing work.	**Digital Literacy and Online Safety** Developing their CAD skills. **Computers and Hardware** Understanding how image data is transferred.
Overview	Programming a small device called a micro:bit to display animations or messages on its simple LED display using block coding.	Collaboratively creating a stop-motion animation by sharing and then decomposing their ideas. Pupils will develop their ability to edit and improve their creations.	Children learn how the Mars Rover is able to send images all the way back to Earth and experiment with online CAD software to design new tyres for it.
Progression	Learning that external devices can be programmed by a separate computer. Learning the difference between ROM and RAM. Recognising how the size of RAM affects the processing of data. Understanding the fetch, decode, execute cycle.	Decomposing animations into a series of images. Decomposing a program without support. Decomposing a story to be able to plan a program to tell a story. Using video editing software or animation software to animate. Identify ways to improve and edit programs, videos, images etc.	Independently learning how to use 3D design software package TinkerCAD.

Year 5: Computing

Unit	Online Safety Unit
National Curriculum	**Computers and Hardware** Understanding permissions required by apps to access personal information. **Digital Literacy and Online Safety** Considering online judgements that people make and how they treat others online.
Overview	Considering online communication and the effects on mental health and wellbeing.
Progression	Understanding how apps can access our personal information and how to alter the permissions. Understanding how data is collected. Learn about different forms of communication that have developed with the use of technology. Learning about how permissions work and how to change them. Identifying possible issues with online communication. Considering the effects of screen-time on physical and mental wellbeing. Learning about online bullying and where to seek advice.

Year 6: Computing

Unit	Bletchley Park 1 & Bletchley Park 2 – Aut1 & Aut2	Intro to Python – Spr1
National Curriculum	**Digital Literacy and Online Safety** Understanding the importance of secure passwords and using searching and word processing skills to create a presentation. Editing sound recordings for specific purpose. **Computers and Hardware** Learning about the history of computers and how they evolved over time. **Computational Thinking** Using programming software to understand hacking, relating this to computer cracking codes in WWII.	**Computational Thinking** Understanding that websites can be altered by exploring the code beneath the site. Designing, writing and debugging programs that accomplish specific goals. Solving problems by decomposing them into smaller parts.
Overview	Children learn about the history of Bletchley Park, including: key historical figures, how the first modern computers were created at as part of a WWII code breaking team and consider how computers have evolved over time. They then go on to investigate secret codes and how they are created, exploring 'brute force' hacking and learn how to make passwords more secure.	Building on their knowledge of coding from previous years, children are introduced to the text-based programming language Python, which is the language behind many apps and programs, such as Dropbox.
Progression	Learning about the history of computers and how they have evolved over time. Using the understanding of historic computers to design a computer of the future. Understanding that computer networks provide multiple services.	Decomposing a program into an algorithm. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose. Debugging quickly and effectively to make a program more efficient. Remixing existing code to explore a problem. Using and adapting nested loops. Programming using the language Python. Changing a program to personalise it. Evaluating code to understand its purpose. Predicting code and adapting it to a chosen purpose. Altering a website's code to create changes.

Year 6: Computing

Unit	Big Data 1 – Spr2	Big Data 2 – Sum1	Inventing a product – Sum2
National Curriculum	**Digital Literacy and Online Safety** Understanding how learning can be applied to a real-world context. Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data. **Computers and Hardware** Understanding that computer networks provide multiple services. Understanding how barcodes and QR codes work.	**Digital Literacy and Online Safety** Selecting, using and combining a variety of software to design and create a range of programs, systems and content to collect, analyse, evaluate and present data.	**Digital Literacy and Online Safety** Showcasing their digital literacy skills. **Computational Thinking** Demonstrating their computational thinking skills by designing and debugging programs, using different inputs and outputs. **Computers and Hardware** Understanding how search engines work and knowing how to use them safely and effectively.
Overview	Children learn how data is collected and stored by exploring barcodes, QR codes and RFID chips, and investigate how collecting big data can be used to help people in a variety of different scenarios.	Children learn the difference between mobile data and Wi-Fi and how data is transferred and use their understanding of big data to design their own smart school.	Reflecting on and showcasing their computing skills, pupils create an entire project around a specific theme
Progression	Understanding and identifying barcodes, QR codes and RFID. Identifying devices and applications that can scan or read barcodes, QR codes and RFID. Learning about the Internet of Things and how it has led to 'big data'. Learning how 'big data' can be used to solve a problem or improve efficiency.	Acknowledging that corruption can happen within data during transfer (for example when downloading, installing, copying and updating files). Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets.	Using logical thinking to explore software independently, iterating ideas and testing continuously. Using search and word processing skills to create a presentation. Planning, recording and editing a radio play. Creating and editing sound recordings for a specific purpose. Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions to create a video advert. Using design software TinkerCAD to design a product. Creating a website with embedded links and multiple pages.

Year 6: Computing	
Unit	**Online Safety Unit**
National Curriculum	**Digital Literacy and Online Safety** Learning about online reputations and how to go about creating a positive one. Being aware of the threats that face us online such as scammers and phishing emails and how to identify them.
Overview	Learning about the impact and consequences of sharing information online; exploring how to develop a positive online reputation that will benefit the children in the long term; capturing evidence techniques and methods to combat online bullying.
Progression	Understanding the importance of secure passwords and how to create them, along with two-step authentication. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking. Considering their digital footprint and online reputation and future implications they may have. Learning about how to collect evidence and report online bullying concerns.