Computing Curriculum Overview

Beacon Primary Academy

Curriculum Intent

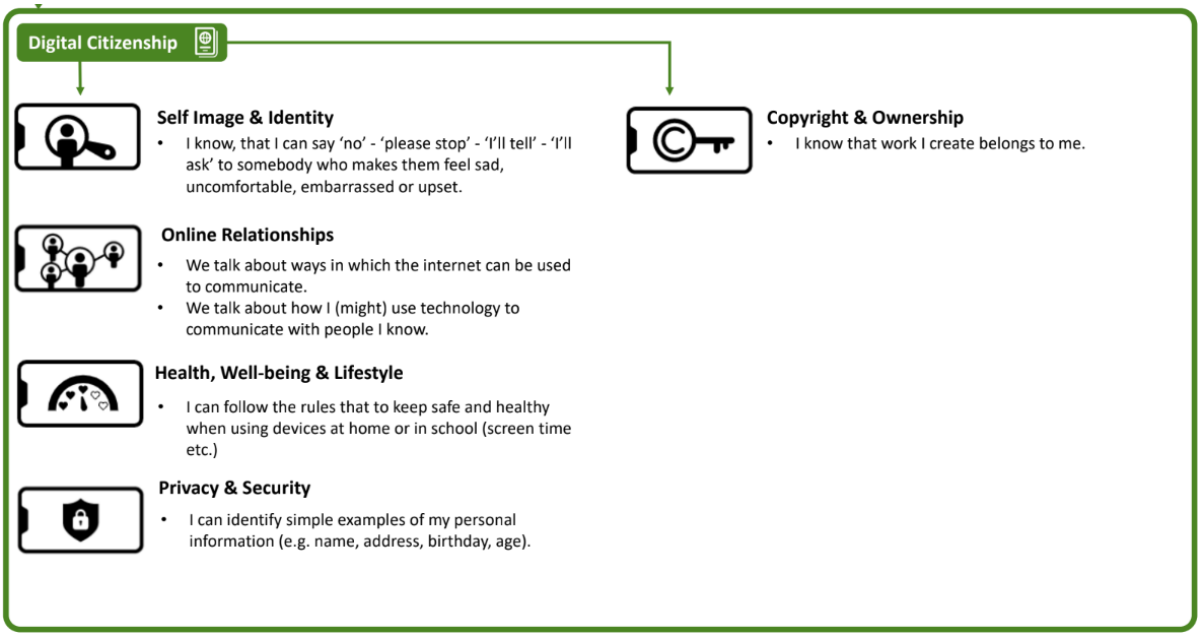
Our purpose is to embed a key understanding of how to keep themselves safe online, for children to have the skills and confidence to be able to use computers effectively in their lives, and for them to develop their knowledge and understanding of computer programs and computer systems.
Computing and IT skills are taught discretely throughout the curriculum, and staff demonstrate the safe and sensible use of computer systems, but our approach is to integrate computing into all lessons: the use of laptops and other hardware such as cameras and iPads is as much part of our learning tools as pencils and pens. Subject specific software, from one-off programmes to learning platforms, support teaching and learning across all years.

Learners	Citizens	Contributors	Individuals
Resilient & Capable	Respectful & Informed	Enterprising & Creative	Healthy & Confident
Children can think logically about a problem Children can think creatively about how to solve problems that they encounter. Children are unafraid when using new or different technology, being able to adapt when something is new or if something changes Children have a range of skills from the basic skills police, built up year on year in school Children using a foundation of computing knowledge bto build and develop skills in different areas Children can use technology to support their own learning and independence	Online safety is an important element, that is crucial for ensuring that children can use the internet and other technologies safely, and without fear. Children are knowledgeable about how they can keep themselves and their personal information safe online. Children know how to be a responsible digital citizen Children can be discerning with online content, knowing how to use the internet to find or develop their knowledge. Children know how to find a good source of information and can make informed decisions about whether something is trustworthy.	Children can achieve using technology Children are able to make technology work for them, to achieve what they want to, in a range of contexts Children can problem solve and think logically and creatively about how to accomplish something or how to solve a problem Children are developing skills that will support them in the future. Children are able to use technology to support themselves with being independent.	Children are confident in using a range of software to achieve a goal Children are confident with how to keep themselves safe online. Children are confident with how to be responsible online Children can protect their health and wellbeing regarding use of technology and social media.

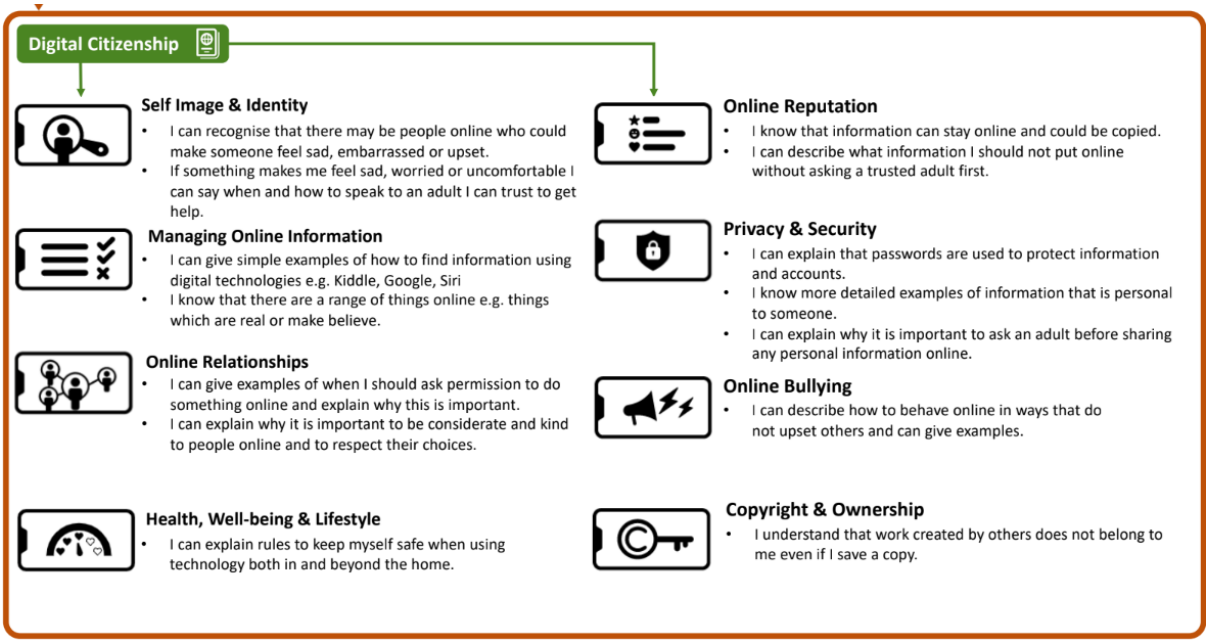
Online Safety

A strong and rigorous teaching of online safety skills in primary school is essential to equip children with the tools they need to navigate the digital world safely and responsibly. By embedding these skills early, pupils become resilient and capable in managing online risks, such as cyberbullying or misinformation. They learn to be respectful and informed digital citizens, understanding the impact of their actions on others and the importance of privacy and consent. This foundation also supports their health and confidence, helping them to make positive choices online, seek help when needed, and engage with technology in a balanced and mindful way.

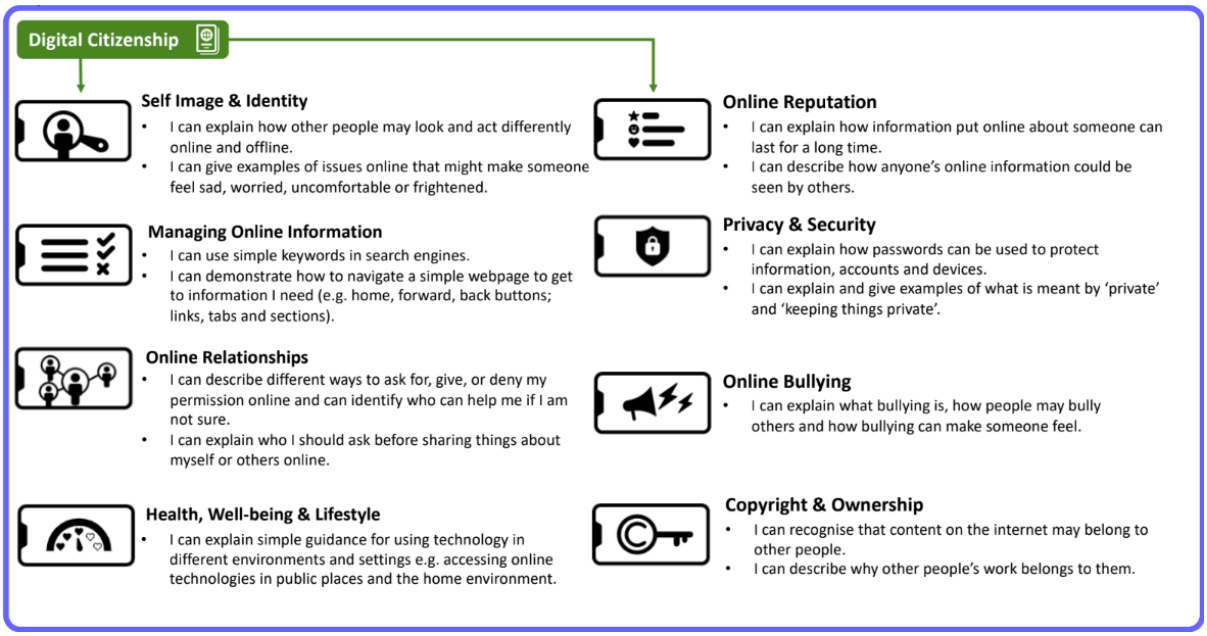
EYFS-Online Safety



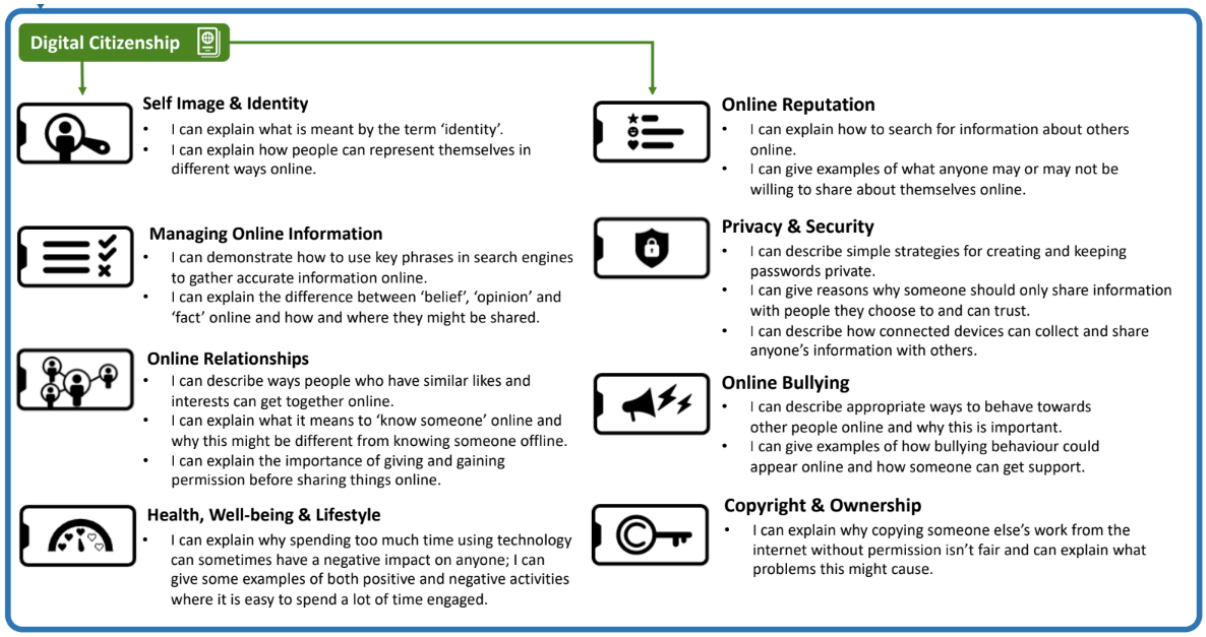
Year 1- Online Safety



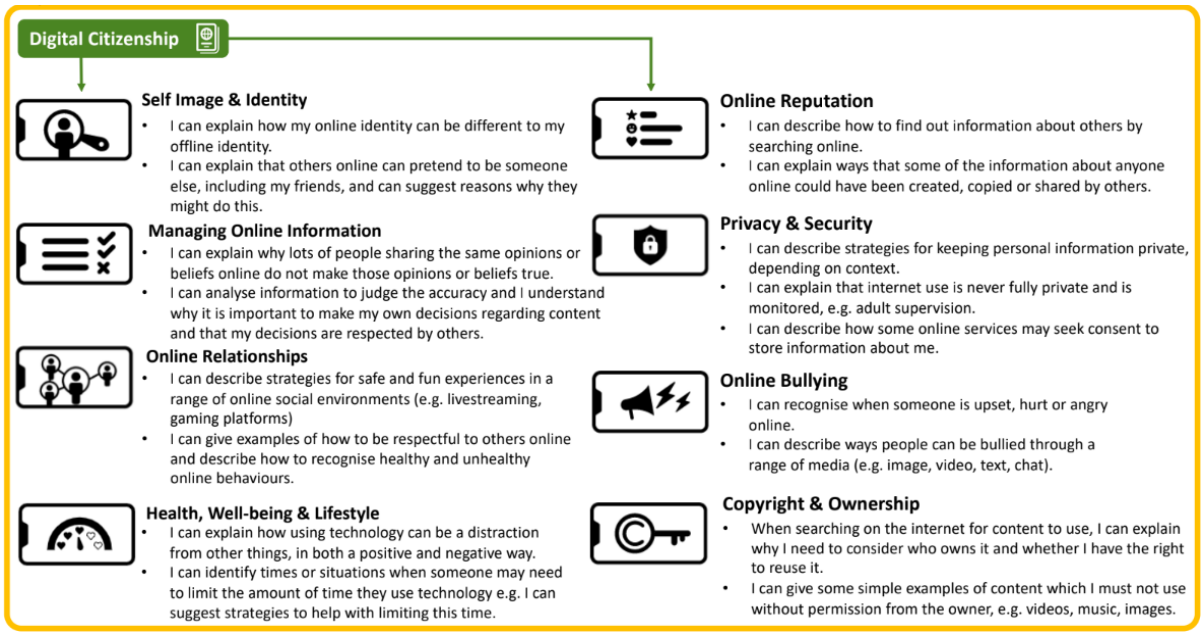
Year 2- Online Safety



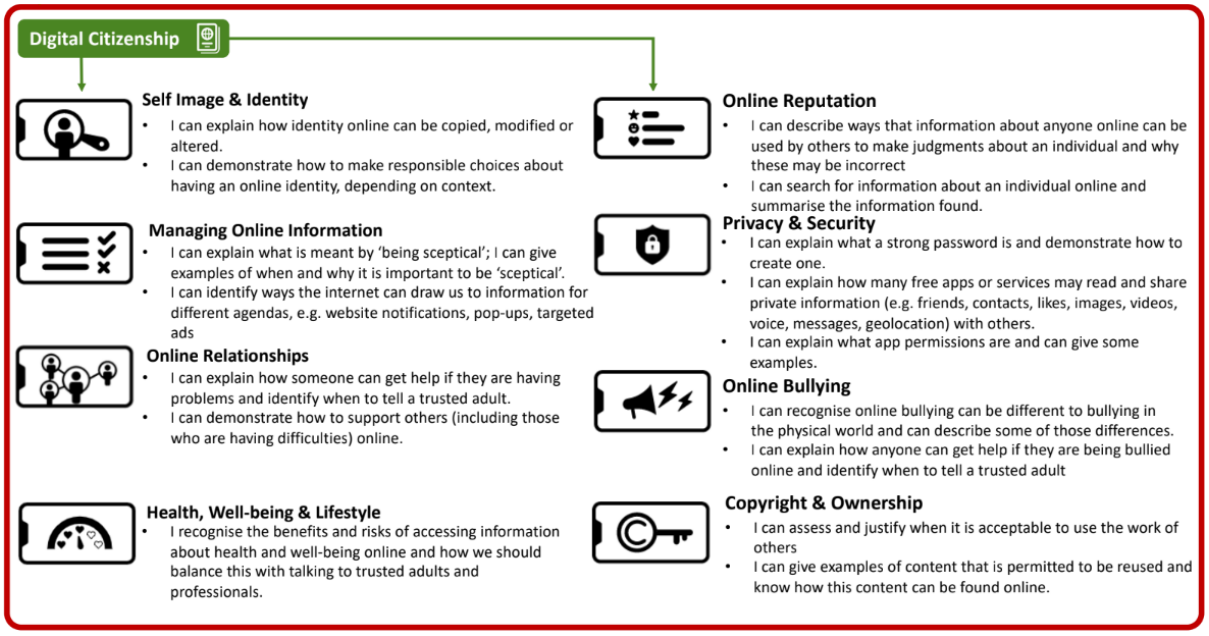
Year 3 Online Safety



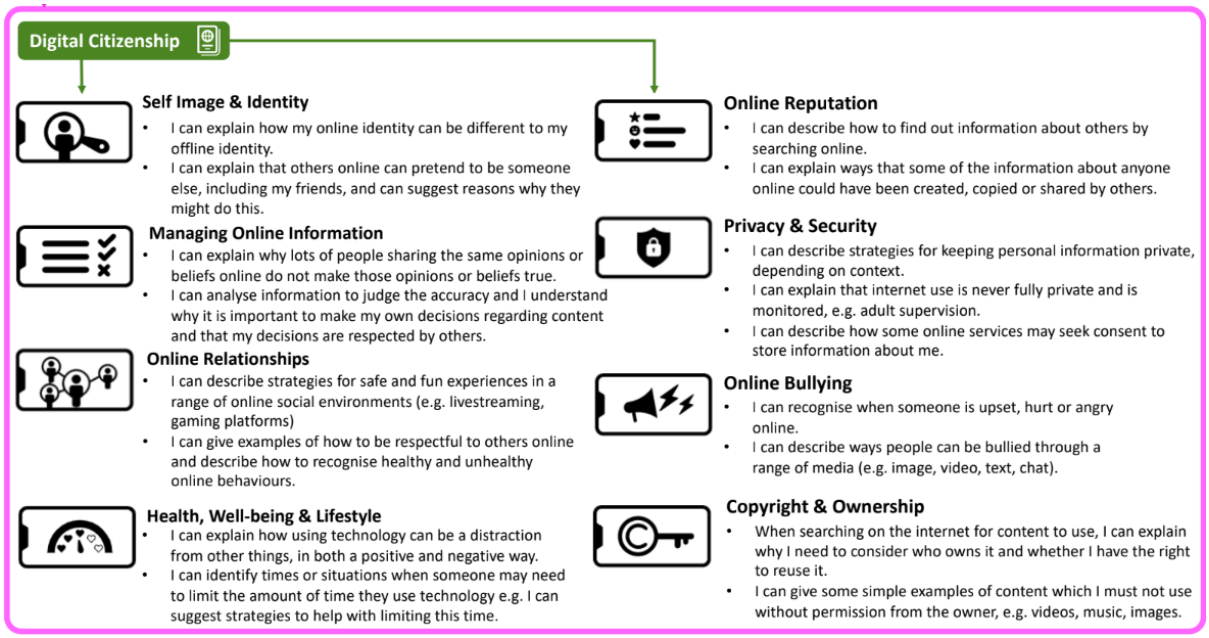
Year 4- Online Safety



Year 5- Online Safety



Year 6- Online Safety



EYFS- Computing Curriculum

Computing: Hardware	Learning how to operate a camera to take photographs of meaningful creations or moments. Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary. Recognising and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking.
Computing: Computational thinking	Using logical reasoning to understand simple instructions and predict the outcome.
Computing: Programming	Following instructions as part of practical activities and games. Learning to give simple instructions. Experimenting with programming a Bee-bot/Blue- bot and learning how to give simple commands. Learning to debug instructions, with the help of an adult, when things go wrong.
Information Technology: Using software	Using a simple online paint tool to create digital art.
Information Technology: Using data	Representing data through sorting and categorising objects in unplugged scenarios. Representing data through physical pictograms. Exploring branch databases through physical games.
Digital Literacy	Being able to log in and log out. Recognising that a range of technology is used for different purposes.

Year 1- Computing Curriculum

Computing: Hardware	Learning how to operate a camera or tablet to take photos and videos. 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.
Computing: Computational thinking	Learning that decomposition means breaking a problem down into smaller parts. 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
Computing: Programming	Programming a Floor robot to follow a planned route. Learning to debug instructions when things go wrong. Using programming language to explain how a floor robot works. Learning to debug an algorithm in an unplugged scenario. Recognising that robots are programmed by humans. Explaining what they are trying to achieve with their algorithms. Writing clear, sequenced algorithms for familiar tasks. Using terms like 'start,' 'end' and 'next' to describe the steps in algorithms. Changing their instructions or algorithms into code that the robot understands. Beginning to identify errors in algorithms. Making suggestions for how to fix errors in algorithms.
Information Technology: Using software	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.
Information Technology: Using email and internet searches	Recognising devices that are connected to the internet. Searching and downloading images from the internet safely. Understanding that we are connected to others when using the internet.
Information Technology: Using data	Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc. Using representations to answer questions about data. Using software to explore and create pictograms and branching databases.
Information Technology: Wider use of technology	Recognising common uses of information technology, including beyond school. Understanding some of the ways we can use the internet.
Digital Literacy	Logging in and out and saving work on their own account. 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. Recognising what a digital footprint is and how to be careful about what we post.

Year 2 Computing Curriculum

Computing: Hardware	Understanding what a computer is and that it's 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. Using greater control when taking photos with cameras, tablets or computers. Developing confidence with the keyboard and the basics of touch typing.
Computing: Computational thinking	Articulating what decomposition is. Decomposing a game to predict the algorithms used to create it. Learning that there are different levels of abstraction. Explaining what an algorithm is. Following an algorithm. Creating a clear and precise algorithm. Learning that programs execute by following precise instructions. Incorporating loops within algorithms
Computing: Programming	Using logical thinking to explore software, predicting, testing and explaining what it does. Using an algorithm to write a basic computer program. Using loop blocks when programming to repeat an instruction more than once
Information Technology: Using software	Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts. Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations. Creating and labelling images.
Information Technology: Using email and internet searches	Searching for appropriate images to use in a document. Understanding what online information is.
Information Technology: Using data	Collecting and inputting data into a spreadsheet. Interpreting data from a spreadsheet.
Information Technology: Wider use of technology	Learning how computers are used in the wider world.
Digital Literacy	Learning how to create a strong password. Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online. Learning to be respectful of others when sharing online and ask for their permission before sharing content. Learning strategies for checking if something they read online is true.

Year 3 Computing Curriculum

Computing: Hardware	To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices). Drawing comparisons across different types of computers. To know that a router connects us to the internet. To know that a server is central to a network and responds to requests made.
Computing: Networks and data representation	Understanding that websites and videos are files that are shared from one computer to another. To know what a packet is and why it is important for website data transfer. Understanding how networks work and their purpose. Recognising links between networks and the internet. Learning how data is transferred
Computing: Computational thinking	Using decomposition to explain the parts of a laptop computer. 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. Working towards a given goal that a program needs to accomplish. Breaking down what they want to achieve into smaller, manageable parts. Tinkering with an existing text-based code to see how it affects a program. Remixing code to alter and add to an existing program. Recognising the relationship between what is happening in a program and the written (block) code. Working backwards, beginning to identify the code they think a program uses. Running small chunks of code at a time to find the error or bug.
Computing: Programming	Using logical thinking to explore more complex software; predicting, 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.
Information Technology: Using software	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.
Information Technology: Using email and internet searches	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.
Information Technology: Using data	Understanding the vocabulary to do 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.
Information Technology: Wider use of technology	Understanding the purpose of emails. Recognising how social media platforms are used to interact.
Digital Literacy	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. Learning about cyberbullying. Learning that not all emails are genuine, recognising when an email might be fake and what to do about it.

Year 4 Computing Curriculum

Computing: Hardware	Using tablets or digital cameras to film a weather forecast. Understanding that weather stations use sensors to gather and record data which predicts the weather.
Computing: Networks and data representation	Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration.
Computing: Computational thinking	Using decomposition to solve a problem by finding out what code was used. Using decomposition to understand the purpose of a script of code. 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. Working towards a given goal that a program needs to accomplish. Breaking down what they want to achieve into smaller, manageable parts. Tinkering with an existing text-based code to see how it affects a program. Using logic, pattern recognition and decomposition to solve simple problems. Remixing code to alter and add to an existing program. Recognising repeating patterns in a program or code. Creating loops to make code more efficient in block-based programs. Beginning to use variables in block-based programming languages to make programs more interactive. Including a conditional statement in block-based programming languages. Recognising the relationship between what is happening in a program and the written (block) code.
Computing: Programming	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.
Information Technology: Using software	Building a web page and creating content for it. Designing and creating a webpage for a given purpose. Use online software for documents, presentations, forms and spreadsheets. Using software to work collaboratively with others.
Information Technology: Using email and internet searches	Understanding why some results come before others when searching. Using keywords to effectively search for information on the internet. Understanding that information found by searching the internet is not all grounded in fact. Searching the internet for data.
Information Technology: Using data	Understanding that data is used to forecast weather. Recording data in a spreadsheet independently. Sorting data in a spreadsheet to compare using the 'sort by…' option. Designing a device which gathers and records sensor data.

Information Technology: Wider use of technology	Understanding that software can be used collaboratively online to work as a team.
Digital Literacy	Recognising that information on the internet might not be true or correct and that some sources are more trustworthy than others. Learning to make judgements about the accuracy of online searches. Identifying forms of advertising online. Recognising what appropriate behaviour is when collaborating with others online. Reflecting on the positives and negatives of time spent online. Identifying respectful and disrespectful online behaviour.

Year 5 Computing Curriculum

Computing: Hardware	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
Computing: Networks and data representation	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 eight characters and carrying out binary calculations. Understanding how bit patterns represent images as pixels.
Computing: Computational thinking	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. Predicting how software will work based on previous experience. Writing more complex algorithms for a purpose.
Computing: Programming	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. Amending code within a live scenario. Recognising examples of programming elements in real-life applications. Looking at programming blocks and considering how they could be used in a program. Decomposing a program independently when given a specific outcome or task to achieve. Altering existing code with a new, specific outcome in mind. Independently using loops to make code more efficient in text-based programs. Using nested loops to make code more efficient.

	Using variables in block-based programming languages and understanding the impact of changing the variables in their code. Explaining what a program does and how it works, referring to the inputs and outputs. Becoming more efficient and effective at debugging their programs. Systematically identify mistakes, problems or 'bugs' in a program.
Information Technology: Using software	Using logical thinking to explore software more independently, making predictions based on their previous experience. Using software programme Sonic Pi/Scratch to create music. Using the video editing software to animate. Identify ways to improve and edit programs, videos, images etc. Independently learning how to use 3D design software package TinkerCAD.
Information Technology: Using email and internet searches	Developing searching skills to help find relevant information on the internet. Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns
Information Technology: Using data	Understanding how data is collected in remote or dangerous places. Understanding how data might be used to tell us about a location.
Information Technology: Wider use of technology	Learn about different forms of communication that have developed with the use of technology.
Digital Literacy	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

Year 6 Computing Curriculum

Computing: Hardware	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 and identifying barcodes, QR codes and RFID. Identifying devices and applications that can scan or read barcodes, QR codes and RFID. Understanding how corruption can happen within data during transfer (for example when downloading, installing, copying and updating files). Identify different types of AI and their applications in everyday life.
Computing: Networks and data representation	Understanding that computer networks provide multiple services.
Computing: Computational thinking	Decomposing a program into an algorithm. Using past experiences to help solve new problems. Writing increasingly complex algorithms for a purpose. Analysing the effectiveness of prompts and refine them for improved AI outputs.

Computing: Programming	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. Applying coding skills like decomposition and pattern recognition to interact with AI applications.
Information Technology: Using software	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 an audio recording. Creating and editing sound recordings for a specific purpose. Creating and editing videos, adding multiple elements: music, voiceover, sound, text and transitions. Using design software TinkerCAD to design a product. Creating a website with embedded links and multiple pages. Using text-based and image-based AI tools to generate content.
Information Technology: Using email and internet searches	Understanding how search engines work.
Information Technology: Using data	Understanding how barcodes, QR codes and RFID work. Gathering and analysing data in real time. Creating formulas and sorting data within spreadsheets.
Information Technology: Wider use of technology	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.
Digital Literacy	Learning about the positive and negative impacts of sharing online. Learning strategies to create a positive online reputation. Understanding the importance of secure passwords and how to create them. Learning strategies to capture evidence of online bullying in order to seek help. Using search engines safely and effectively. Recognising that updated software can help to prevent data corruption and hacking. Exploring ethical considerations around AI use and its impact on society.