Computing Curriculum Overview

	Computing			
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
Year 1	Bee-Bot (Programming)	Introduction to data (Data Handling)	Improving mouse skills (Computing Systems and Networks)	Online Safety
Year 2	What is a computer? (Computing Systems and Networks)	ScratchJr (Programming)	Stop motion using tablet devices (Creating Media)	Online Safety
Year 3	Networks and the internet (Computing Systems and Networks)	Scratch (Programming)	Video trailers (Creating Media)	Online Safety
Year 4	Collaborative Learning (Computing Systems and Networks)	Further coding with Scratch (Programming)	Investigating Weather (Data Handling)	Online Safety
Year 5	Stop motion animation – Stop Motion Studio (Creating Media)	Search engines (Computing Systems and Networks)	Mars Rover 1 (Data Handling)	Online Safety
Year 6	Bletchley Park (Computing Systems and Networks)	Big Data 1 (Data Handling)	Intro to Python (Programming)	Online Safety

Online Safety

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	• To know that the internet is many devices connected to one another. • To know that you should tell a trusted adult if you feel unsafe or worried online. • To know that people you do not know on the internet (online) are strangers and are not always who they say they are. • To know that to stay safe online it is important to keep personal information safe. • To know that 'sharing' online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.	To understand the difference between online and offline. To understand what information I should not post online. To know what the techniques are for creating a strong password. To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.' To understand that not everything I see or read online is true.	• To know that not everything on the internet is true: people share facts, beliefs and opinions online. • To understand that the internet can affect your moods and feelings. • To know that privacy settings limit who can access your important personal information such as your name, age, gender etc. • To know what social media is and that age restrictions apply.	• To understand some of the methods used to encourage people to buy things online. • To understand that technology can be designed to act like or impersonate living things. • To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology. • To understand what behaviours are appropriate in order to stay safe and be respectful online.	• To know different ways we can communicate online. • To understand how online information can be used to form judgements. • To understand some ways to deal with online bullying. • To know that apps require permission to access private information and that you can alter the permissions. • To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.	• To know that a 'digital footprint' means the information that exists on the internet as a result of a person's online activity. • To know what steps are required to capture bullying content as evidence. • To understand that it is important to manage personal passwords effectively. • To understand what it means to have a positive online reputation. • To know some common online scams.

Hardware - *Computer science*

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• 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 • Learning how to operate a camera • 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 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 • Learning how to operate a camera or tablet to take photos and videos	• 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	• Learning about the purpose of routers.	• 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.	• Learning that external devices can be programmed by a separate computer • Recognising how the size of RAM affects the processing of data	• Learning about the history of computers and how they have evolved over time • Understanding and identifying barcodes, QR codes and RFID • Identifying devices and applications that can scan or read barcodes, QR codes and RFID • Acknowledging that corruption can happen within data during transfer (for example when downloading, installing, copying and updating files)

Networks and data representation - *Computer science*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
N/A	N/A	N/A	• Understanding the role of the key components of a network. • Identifying the key components within a network, including whether they are wired or wireless. •Understanding that websites and videos are files that are shared from one computer to another. • Learning about the role of packets. • Recognising links between networks and the internet. • Learning how data is transferred.	• Understanding that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration	• Learning the vocabulary associated with data: data and transmit • Recognising that computers transfer data in binary and understanding simple binary addition • Relating binary signals (Boolean) to the simple character-based language, ASCII • Learning that messages can be sent by binary code, reading binary up to 8 characters and carrying out binary calculations	N/A

Computational thinking - *Computer science*						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Using logical reasoning to read simple instructions and predict the outcome.	• 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.	• Explaining what an algorithm is. • Following an algorithm. • Creating a clear and precise algorithm. • Learning that computers use algorithms to make predictions. • Learning that programs execute by following precise instructions. • Incorporating loops within algorithms.	• Using decomposition to explore the code behind an animation. • Using repetition in programs. • Using logical reasoning to explain how simple algorithms work. • Explaining the purpose of an algorithm. • Forming algorithms independently.	• Using decomposition to solve a problem by finding out what code was used. • Using decomposition to understand the purpose of a script of code. • Using decomposition to help solve problems. • Identifying patterns through unplugged activities. • Creating algorithms for a specific purpose.	• Decomposing animations into a series of images. • Decomposing a story to be able to plan a program to tell a story.	• Decomposing a program into an algorithm. • Using past experiences to help solve new problems. • Writing increasingly complex algorithms for a purpose.

Programming - *Computer science*

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Following instructions as part of practical activities and games and learning to debug when things go wrong • Learning to give simple instructions • Learning that an algorithm is a set of instructions to carry out a task, in a specific order • Experimenting with programming a Bee-bot/Bluebot and learning how to give simple commands • Learning to debug instructions, with the help of an adult, when things go wrong	• 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	• 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.	• 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.	• Creating algorithms for a specific purpose. • Coding a simple game. • Incorporating variables to make code more efficient.	N/A	• 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.

Using software - *Information technology*

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Using a simple online paint tool to create digital art.	• 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.	• 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.	• 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.	• Use online software for documents, presentations, forms and spreadsheets. • Using software to work collaboratively with others.	• Using video editing software to animate.	• Using logical thinking to explore software independently, iterating ideas and testing continuously. • Using search and word processing skills to create a presentation.

Using email and the internet - *Information technology*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
N/A	• Recognising devices that are connected to the internet. • Understanding that we are connected to others when using the internet	• Understanding that personal information should not be shared on the internet. • Learning how to be respectful to others when sharing content online.	N/A	• 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 on the internet is not all grounded in fact. • Searching the internet for data.	• 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.	• Understanding how search engines work.

Using data - *Information technology*						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
• Representing data through sorting and categorising objects in unplugged scenarios • Representing data through pictograms • Exploring branch databases through physical games	• 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.	• Collecting and inputting data into a spreadsheet • Interpreting data from a spreadsheet.	• 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.	• 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.	• Understanding how data is collected in remote or dangerous places. •Understanding how data might be used to tell us about a location.	• Understanding how barcodes, QR codes and RFID work. • Gathering and analysing data in real time. • Creating formulas and sorting data within spreadsheets.

Wider use of technology - *Information technology*

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
N/A	• Recognising common uses of information technology, including beyond school. • Understanding some of the ways we can use the internet.	• Learning how computers are used in the wider world.	• Recognising how social media platforms are used to interact.	• Understanding that software can be used collaboratively online to work as a team.	• Learn about different forms of communication that have developed with the use of technology.	• Learning how 'big data' can be used to solve a problem or improve efficiency.

Digital literacy

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Recognising that a range of technology is used for different purposes. • Learning to log in and log out.	• Logging in and out and saving work on their own account. • 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.	• 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	• 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.	• 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	• 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 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.

		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.		behaviour is when collaborating with others online. • Reflecting on the positives and negatives of time spent online. • Identifying respectful and disrespectful online behaviour.	• Learning what to do if they experience bullying online. • Learning to use an online community safely.	• Using search engines safely and effectively. • Recognising that updated software can help to prevent data corruption and hacking.