Concept	EYFS	Key Stage 1 Years 1 and 2	Lower Key Stage 2 Years 3 and 4	Upper Key Stage 2 Years 5 and 6
Computer science This concept involves hardware, networks and data representation, computational thinking, and programming.	Personal, social and emotional development: Managing self • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge • Explain the reasons for rules, know right from wrong and try to behave accordingly Expressive arts and design: Creating with materials • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	• Learning how to explore and tinker with hardware to find out how it works. •Understanding what a computer is and that it's made up of different components • Understanding that computers and devices use inputs and outputs, identifying some of these • Using greater control when taking photos with tablets or computers • Developing confidence with the keyboard and the basics of touch typing • Learning about and using decomposition • Learning that there are different levels of abstraction • Following an algorithm • Creating a clear and precise algorithm • Learning to debug • Use loop blocks.	• Understanding what the different components of a computer do and how they work together • Drawing comparisons across different types of computers • Learning about the purpose of routers and servers • Understanding key components of computer networks • Understanding that computer networks provide multiple services • Learning how data is transferred • Understanding that websites & videos are files that are shared from one computer to another • Learning about the role of packets • Using decomposition to explain the parts of a laptop computer • Using decomposition to explore the code behind an animation	• Learning that external devices can be programmed by a separate computer • Recognising how the size of RAM affects the processing of data • Learning the vocabulary associated with data: data and transmit • Recognising that computers transfer data in binary and understanding simple binary addition • Relating binary signals (Boolean) to the simple character-based language, ASCII • Learning that messages can be sent by binary code, reading binary up to eight characters and carrying out binary calculations • Using the understanding of historic computers to design a computer of the future • Predicting how software will work based on previous experience • Decomposing a program into an algorithm

			• Using decomposition to solve a problem and understand the purpose of a script of code • Using repetition in programs •Creating algorithms for a specific purpose • Explain the purpose of an algorithm • Coding a simple game • Use abstraction and patterns recognition to modify code • Using logical thinking to explore more complex software; predicting, testing and explaining what it does • Incorporating variables to make code more efficient • Incorporating loops to make code more efficient • Continuing existing code •Remixing existing code • Making reasonable suggestions for how to debug their own and others' code.	• Writing more complex algorithms for a purpose • Iterating and developing their programming as they work • Using a systematic approach to debugging code, justifying what is wrong and how it can be corrected • Debugging quickly and effectively to make a program more efficient •Programming using the language Python • Using a range of programming commands •Changing a program to personalise it • Predicting code and adapting it to a chosen purpose • Using repetition within a program • Amending code within a live scenario •Remixing existing code to explore a problem •Using and adapting nested loops •Evaluating code to understand its purpose.

Information technology This concept involves using software, using email and the internet, using data and the wider use of technology.		• 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 • Creating and labelling images • Recognising devices that are connected to the internet. • Understanding that we are connected to others when using the internet. • Representing data in tables, charts and pictograms • Sorting data and creating branching databases • Collecting and inputting data into a spreadsheet • Interpreting data • Recognising common uses of information technology,	• 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 • Recognising how social media platforms are used to interact • Building a web page and creating content for it • Use online software for documents, presentations, forms, and spreadsheets • Using software to work collaboratively as a team •Understanding that software can be used collaboratively online to work as a team. • Understanding why some results come before others when searching • Understanding that information found by searching the internet is not all grounded in fact.	• Using a software programme (Sonic Pi/ Scratch) to create music •Using logical thinking to explore software independently, making predictions and testing ideas •Identify ways to improve and edit programs, videos, images etc •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 •Understanding how barcodes, QR codes and RFID work and identify devices that scan or read them •Learning how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns •Creating formulas and sorting data within spreadsheets •Gathering and analysing data in real time •Understanding how data is collected in remote or dangerous places

		including beyond school • Understanding some of the ways we can use the internet • Learning how computers are used in the wider world		•Understanding how data might be used to tell us about a location •Learning how 'big data' can be used to solve a problem or improve efficiency •Learn about different forms of communication that have developed with the use of technology.

Digital literacy This concept includes internet safety.		•Identifying whether information is safe or unsafe to be shared online. • Logging in and out and saving work on their own account • Understand the importance of a strong password and how to create one • Learning what to do if they come across something online that worries them or makes them feel uncomfortable • Understand how to interact safely with others online • Understanding that personal information should not be shared on the internet. • Learning strategies for checking if something they read online is true • To be able to recognise what a digital footprint is and how to be careful about what we "post" •Learning to be respectful of others when sharing online and ask for their permission before sharing content.	• Recognising that different information is shared online including facts, beliefs, and opinions •Learning how to identify reliable information when searching online •Make judgements about the accuracy of online searches •Recognising that information on the Internet might not be true or correct and that some sources are more trustworthy than others •Learning how to stay safe on social media •Considering the impact technology can have on mood •Identifying forms of advertising online •Recognising what appropriate behaviour is when collaborating with others online •Reflecting on the positives and negatives of time online •Identifying respectful and disrespectful online behaviour	•Identifying possible dangers online and learning how to stay safe •Evaluating the pros and cons of online communication •Learning about the positive and negative impacts of sharing online •Learning strategies to create a positive online reputation •Recognising that information on the Internet might not be true or correct and learning ways of checking validity •Using search engines safely and effectively •Learning what to do if they experience cyber bullying •Learning to use an online community safely •Learning strategies to capture evidence of cyber bullying in order to seek help •Understanding the importance of secure passwords and how to create them •Recognising that updated software can help to prevent data corruption and hacking.