Computing Progression Plan Years 1 – 6

Aspect	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science						
Hardware	*Explore and tinker with hardware to understand how it works. *Understand that computers and devices use inputs and outputs. *Learn where keys are located on the keyboard. *Learn how to operate a camera.	*Understand what a computer is and that it is made up of different components. *Recognise that buttons cause effects and technology follows instructions. *Learn how we know that technology is doing what we want it to via its output. *Use greater control when operating a camera and taking photographs. *Developing confidence with the keyboard and the basics of touch typing.	*Understand what the different components of a computer do and how they work together. *Draw comparisons across different types of computers.	*Learn about the purpose of servers and routers.	*Learn that external devices can be programmed by a separate computer. *Describe the difference between ROM and RAM.	*Describe the difference between ROM and RAM and recognise how the size of RAM affects the processing data.
Networks and representation				*Learn what a network is and its purpose. *Identify key components within a network, including whether they are wired and wireless. *Recognise links between networks and the internet. *Learn how data is transferred.	*Learn vocabulary associated with data and transmit. *Learn how the data for digital images can be compressed. *Recognise that computers transfer data in binary code and read simple binary.	*Understand that computer networks provide multiple services. *Identify the purpose of binary code and read and write binary code.
Computational thinking	*Understand the term decomposition and use it to solve unplugged challenges. *Using logical reasoning to predict the behaviour of simple programs.	*Use decomposition to decompose a story or a game into smaller parts. *Learn what abstraction is and that there are different levels.	*Use decomposition to explain the parts of a laptop computer. *Use decomposition to explore and understand code.	*Solve unplugged problems by decomposing them into smaller parts and use decomposition to understand the purpose of a script of code.	*Decompose animations into a series of images. *Decompose a program without support. *Decompose a story to be able to plan a program to tell a story.	*Decompose a program into an algorithm. *Use past experiences to help solve new problems. *Write increasingly complex algorithms for a purpose.

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	*Develop the skills associated with sequencing in unplugged activities. *Learn that an algorithm is a set of instructions and follow a basic algorithm.	*Explain what an algorithm is, follow an algorithm and create a clear and precise algorithm. *Learn that computers use algorithms to make predictions. *Learn that programs execute by following precise instructions.	*Understand that computers follow instructions. *Use an algorithm to explain the roles of different parts of a computer; explain the purpose of an algorithm and form algorithms independently.	*Identify patterns through unplugged activities. *Use past experiences to solve new problems. *Use abstraction to identify the important parts when completing both plugged and unplugged activities. *Create algorithms for a specific purpose.	*Predict how software will work based on previous experiences. *Write more complex algorithms for a purpose.	
Programming	*Program a Beebot to follow a planned route and explain how the Beebot works. *Learn to debug instructions when things go wrong. *Learn to debug an algorithm in an unplugged scenario.	*Use logical thinking to explore software, predict, test and explain what it does. *Use an algorithm to write a basic computer program. *Learn what loops are and incorporate them to make a code more efficient.	*Use logical thinking to explore more complex software; predicting, testing and explaining what it does. *Incorporate loops independently to make code more efficient. *Use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.	*Understand that websites can be altered by exploring the code beneath the site. *Code a simple game. *Use abstraction and pattern recognition to modify code. *Incorporate variables to make code more efficient. *Use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected.	*Iterate and develop their programming as they work. *Begin to use nested loops. *Debug their own code and write code to create a desired effect. *Use a range of programming commands, including repetition.	*Debug quickly and effectively to make a program more efficient. *Remix existing code to explore a problem. *Use and adapt nested loops. *Changed a program to personalise it. Predict, adapt and evaluate code to understand its purpose.
Information Technology						
Using software	*Use basic tools within graphic editing software. *Take and edit photographs. *Understand how to create digital art using a paint tool. *Develop control of the mouse through dragging, clicking and resizing images to create effects.	*Develop word processing skills, including altering text, copying and pasting, and using keyboard shortcuts. *Use word processing software to type and reformat text. *Use software to create story animations. *Take and label photographs.	*Confidently take photographs and record videos. *Use software to edit and enhance their photographs or videos, adding transitions, music, sounds and text on screen.	*Identify the features of a website. *Design a website, using the appropriate features. *With support, learn how to use 3D design software.	*Using logical thinking to explore software more independently, making predictions based on their previous experience. *Use software to create music. *Use 3D design software for a specific purpose.	*Use logical thinking to explore software independently, iterating ideas and testing continuously. *Use search and word processing skills to create presentations. *Plan, record and edit videos, adding multiple elements. *Use design software to design a realistic product.

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Using email and the internet	*Search and download images from the internet safely. *Recognise and read emails.	*Independently search and download images from the internet safely. *Send and receive emails with an adult.	*Learn to log in and out of an email account. *Write an email, include a subject, to and from. *Send an email with an attachment.	*Developing searching skills to help find relevant information on the internet.	*Learn how to use search engines effectively to find information, focussing on keyword searches and evaluating search returns.	*Understand how search engines work.
Using data	*Pupils are introduced to spreadsheets. *Represent data in tables and pictograms.	*Collect and input data into a spreadsheet. *Interpret and sort data and create branching databases	*Understand the vocabulary associated with databases. *Create and interpret charts and graphs to understand data.	*Identify where digital content can have advantages over paper when storing and manipulating data. *Sort and filter databases to easily retrieve information.	*Understand how data is collected and its advantages. *Identify barcodes, QR codes and RFID and how they are used. *Begin to c reate formulas and sort data within spreadsheets.	*Understand how barcodes, QR codes and RFID work. *Gather and analyse data in real time. *Create formulas and sort data within spreadsheets.
Wider use of technology	*Recognise some common uses of information technology, in and beyond school.	*Learn how computers are used in the wider world.	*Understand the advantages of email.	*Understand that software can be used collaboratively online to work as a team.	*Understand and describe what a search engine is. *Know what 'big data' is.	*Learn about the Internet of Things and how it has led to 'big data.' Understand how this data can be used to solve problems or improve efficiency.
Digital Literacy and Online Safety						
Using technology safely, respectfully and responsibily	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership	*Self-image and identity *Online Relationships *Online Reputation *Online Bullying *Managing Online Information *Health, wellbeing & lifestyle *Privacy and security *Copyright and ownership