



Aspect	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science						
Hardware	<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *Understand what the different components of a computer do and how they work together. *Draw comparisons across different types of computers. *Learn what a server does. 	<ul style="list-style-type: none"> *Learn about the purpose of routers. 	<ul style="list-style-type: none"> *Learn that external devices can be programmed by a separate computer. *Learn the different between ROM and RAM and recognise how the size of RAM affects the processing data. *Understand the fetch, decode, execute cycle. 	<ul style="list-style-type: none"> *Learn about the history of computers and how they have evolved. *Investigate the history of computers and use this knowledge to design a computer for the future. *Identify barcodes, QR codes and RFID and recognise the devices and applications that can scan or read them. *Acknowledge that corruption can happen within data during transfer e.g. downloading, copying, installing and updating.
Networks and representation			<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *Consolidate understanding of the key components of a network. *Understand that websites and videos are files that are shared from one device to another. *Learn about the role of packets. *Understand that computer networks provide multiple services, such as the World Wide Web, and opportunities for communication and collaboration. 	<ul style="list-style-type: none"> *Learn vocabulary associated with data and transmit. *Learn how the data for digital images can be compressed. *Recognise that computers transfer data in binary and understand simple binary addition. *Relate binary signals (Boolean) to the simple character based language. *Learn that messages can be sent by binary code, reading binary up to 8 characters and carrying out binary calculations. *Understand how bit patterns represent images as pixels. 	<ul style="list-style-type: none"> *Understand that computer networks provide multiple services.



Computational thinking	<ul style="list-style-type: none"> *Understand the term decomposition and use it to solve unplugged challenges. *Using logical reasoning to predict the behaviour of simple programs. *Develop the skills associated with sequencing in unplugged activities. *Learn that an algorithm is a set of instructions and follow a basic algorithm. *Assemble instructions into a simple algorithm. 	<ul style="list-style-type: none"> *Articulate what decomposition is. *Decompose a game to predict the algorithms used to create it. *Use decomposition to decompose a story into smaller parts. *Learn what abstraction is and that there are different levels. *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. 	<ul style="list-style-type: none"> *Use decomposition to explain the parts of a laptop computer. *Use decomposition to explore the code behind an animation. *Use repetition in programs. *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. *Use logical reasoning to explain how simple algorithms work. 	<ul style="list-style-type: none"> *Solve unplugged problems by decomposing them into smaller parts and use decomposition to understand the purpose of a script of code. *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. 	<ul style="list-style-type: none"> *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. *Predict how software will work based on previous experiences. *Write more complex algorithms for a purpose. 	<ul style="list-style-type: none"> *Decompose a program into an algorithm. *Use past experiences to help solve new problems. *Write increasingly complex algorithms for a purpose.
Programming	<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *Use logical thinking to explore more complex software; predicting, testing and explaining what it does. *Incorporate loops independently to make code more efficient. *Remix existing code. *Use a more systematic approach to debugging code, justifying what is wrong and how it can be corrected. 	<ul style="list-style-type: none"> *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. 	<ul style="list-style-type: none"> *Programme an animation. *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. *Use repetition within a program. *Amend code within a live scenario. 	<ul style="list-style-type: none"> *Debug quickly and effectively to make a program more efficient. *Remix existing code to explore a problem. *Use and adapt nested loops. *Program using the language python. *Changed a program to personalise it. Predict, adapt and evaluate code to understand its purpose. *Alter a website's code to create changes.
Information Technology						
Using software	<ul style="list-style-type: none"> *Use basic tools within graphic editing software. *Take and edit photographs. *Understand how to create 	<ul style="list-style-type: none"> *Develop word processing skills, including altering text, copying and pasting, and using keyboard shortcuts. 	<ul style="list-style-type: none"> *Confidently take photographs and record videos. *Use software to edit and 	<ul style="list-style-type: none"> *Design, build and create a webpage and create content for it. *Use Google online software 	<ul style="list-style-type: none"> *Using logical thinking to explore software more independently, making predictions based on their 	<ul style="list-style-type: none"> *Use logical thinking to explore software independently, iterating ideas and testing continuously.



	digital art using a paint tool. *Develop control of the mouse through dragging, clicking and resizing images to create effects. *Develop an understanding of different software tools.	*Use word processing software to type and reformat text. *Use software to create story animations. *Create and label images.	enhance their videos, adding transitions, music, sounds and text on screen.	for documents, presentations, forms and spreadsheets. *Work collaboratively with others.	previous experience. *Use software to create music. *Identify ways to improve and edit images, videos and programs. *Learn how to use 3D design software.	*Use search and word processing skills to create presentations. *Plan, record and edit a radio play. *Create and edit videos, adding multiple elements. *Use design software to design a product. *Create a website with embedded links and multiple pages.
Using email and the internet	*Search and download images from the internet safely.	*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. *Reply to an email.		*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. *Sort data and create branching databases.	*Collect and input data into a spreadsheet. *Interpret data.	*Understand the vocabulary associated with databases. *Identify where digital content can have advantages over paper when storing and manipulating data. *Sort and filter databases to easily retrieve information. *Create and interpret charts and graphs to understand data.	Design a weather station which gathers and records sensor data.	*Understand how data is collected.	*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 purpose of email.	*Understand that software can be used collaboratively online to work as a team.	*Understand and describe what a search engine 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

<p>Using technology safely and responsibly</p>	<ul style="list-style-type: none"> *Understand how to log in and out and save work on their own account. *Understand the importance of a password. *Understand and follow simple rules for online safety and know who to tell if something online concerns them. 	<ul style="list-style-type: none"> *Understand how to stay safe online, including: password protection; keeping personal information private; being respectful and being able to identify where to go for help and support when they have concerns about content or contact on online platforms. 	<ul style="list-style-type: none"> *Learn to be responsible digital citizens; understanding their responsibilities to treat others respectfully and recognising when digital behaviour is unkind. *Understand what cyberbullying is and how to report it. *To recognise that not all emails are genuine and how to deal with this. 	<ul style="list-style-type: none"> *Recognise what appropriate behaviour is when collaborating with others online. *Recognise that the information on the internet might not be true and that some sources can be trustworthy or untrustworthy. 	<ul style="list-style-type: none"> *Use technology safely, respectfully and responsibly. *Be able to judge the level of risk online and when to answer questions online and when not to. *Recognise that information on the internet might not be true or correct and learn ways to check the validity. 	<ul style="list-style-type: none"> *Use technology safely, respectfully and responsibly; recognise acceptable and unacceptable behaviour; identify a range of ways to report concerns about content and contact. *Recognise that strong passwords and update software can help to prevent data corruption and hacking.
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