



CHJS Curriculum Map for Computing



Let your light shine (Matthew 5:16)

In Computing, children are encouraged to let their light shine by taking delight in learning about the God's wonderful world around them. By appreciating the world of technology, children know how to make positive changes to the world around them and are aware of how computer technology continues to change and influence the world around them. They are also encouraged to make positive changes within their classroom by sharing their knowledge with their peers and supporting each other with their learning.

Substantive Knowledge	Year 3 and 4 Cycle B	Year 3 and 4 Cycle A	Year 5	Year 6
Computer Science	Computer Systems and Networks - To explain how digital devices function, including inputs and outputs. - To follow and describe simple processes. - To explain what makes a secure password - To identify and classify input and output devices - To design a simple digital device system - To explain how digital devices change the way we work - To compare digital and non-digital tools, identifying similarities and differences - To explain how digital devices are used for different activities	Computer Systems and Networks - To describe the internet as a network of networks, including how devices connect and how information is shared across the World Wide Web. - To explain how the World Wide Web works in practice, including how websites are stored, accessed and how different types of media and services are delivered online. - To explain how online content is created, shared, and owned, including how users contribute content and the role of internet services in publishing it	Computer Systems and Networks - To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. - To explain how computer systems are made up of interconnected parts, including input, process, output and communication between devices. - To recognise and explain the role of computer systems in everyday life, including identifying human and digital components and the benefits of different systems. - To use and refine search engines effectively to locate information and compare	Programming - Scratch - To define a variable as something that is changeable. - To identify examples of information that is variable. - To explain how a variable changes and that it can hold numbers or letters. - To explain why variables are used in a program. - To identify a variable as a named placeholder in memory. - To recognise that variables have names and values and that values can be changed. - To design a project based on a given example. - To choose artwork and create algorithms for a project. - To explain design choices.

	• To explain how computer networks share information • To recognise how messages are passed through networks • To explain the role of a network switch • To explain how digital devices are connected in a network • To demonstrate how information is passed between devices • To explain the roles of switches, servers, and wireless access points • To identify network components and how devices are connected • To identify networked devices in everyday life • To explain the benefits of computer networks Programming - Scratch • To explore a new programming environment. • To identify objects in Scratch projects (sprites and backdrops). • To explain that objects have attributes.	• To explain why online content and networks need protecting, including rules, ownership and security considerations. • To evaluate the reliability and consequences of online content, including identifying inaccurate, misleading or unsafe information and considering the impact of sharing or resharing content (including AI-generated content) Programming - Scratch • To develop the use of count-controlled loops and repetition in different programming environments, including writing and predicting simple algorithms • To explain and apply different types of loops, including count-controlled and infinite loops and recognise when multiple processes can run at the same time • To design and implement programs that use repetition effectively, including selecting actions to repeat	results across different search tools. • To explain how search engines work, including the role of web crawlers, indexing and how search terms are matched to stored data. • To explain how search results are ranked and influenced, including the criteria used and how ordering affects what users see. • To evaluate the reliability, influence and limitations of search engines, including how results are prioritised and how search engines generate revenue. Programming - Scratch • To create a simple circuit and connect it to a microcontroller • To program a microcontroller to make an LED switch on • To explain what an infinite loop does • To control a simple circuit connected to a computer • To explain that a loop can stop when a condition is met • To explain that a condition is either true or false • To design a conditional loop	• To use a design to create a project. • To create artwork and use appropriate variable names. • To test and debug code. • To evaluate a project and suggest improvements. • To extend a game or program using variables. Programming - Hour of Code • To break problems into smaller parts to support program design • To compare and refine algorithms to choose effective solutions • To plan programs using iteration and feedback • To work in different roles when collaborating on programming projects • To create programs using sequences, events, loops, conditionals, and variables • To explain, predict, and describe how programs work • To use functions to structure and simplify programs • To modify and remix existing programs to improve or extend them
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	• To recognise that commands in Scratch are represented as blocks. • To identify that commands have outcomes. • To match coding blocks to their actions. • To predict the effect of coding blocks. • To create a program following a design using multiple sprites. • To explain that a program has a start. • To start programs in different ways. • To create sequences of connected commands. • To explain that objects respond exactly to code. • To recognise that a sequence of commands has an order. • To explain what a sequence is. • To create ordered sequences using commands (including sound). • To change the appearance of a project through sequences of commands. • To decide actions for sprites in a program. • To make design choices for digital artwork.	• and evaluating the outcomes of repeated sequences • To modify and refine programs that include loops, including adjusting infinite loops, reusing code and explaining the impact of changes • To develop and evaluate a complete programming project that uses repetition, including designing an algorithm, building the program and reflecting on its effectiveness. Programming - Hour of Code • To break problems into smaller parts to support program design • To compare and improve algorithms to find the best solution • To plan programs using feedback and iterative development • To work in different roles when collaborating on programming tasks • To create programs using sequences, events, loops, conditionals, and variables • To predict and explain how programs will work	• To program a microcontroller to respond to an input • To explain that a loop can be used to repeatedly check whether a condition has been met • To explain that a condition being met can start an action • To identify a condition and an action in a project • To use selection (an 'if...then...' statement) to direct the flow of a program • To identify a real-world example of a condition starting an action • To describe what a project will do • To design a physical project that includes selection • To create a detailed drawing of a project • To write an algorithm that describes what a model will do • To use selection to produce an intended outcome • To create a program that controls a physical computing project • To test and debug a project Programming - Hour of Code	• To design programs for different purposes, including games and interactive projects • To test, debug, and improve programs so they work as intended • To use an iterative process to develop and refine programs • To explain design choices using comments, presentations or demonstrations
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	• To create a project from a task description. • To identify and name the objects needed for a project. • To translate a task into a design and implement it as code. Programming - Hour of Code • To follow and create simple step-by-step algorithms • To decompose problems into smaller steps to support programming • To represent information in programs using numbers or symbols • To create programs using sequences and simple loops • To develop programs to express ideas or solve problems • To plan programs by describing sequences, goals, and outcomes • To debug programs by identifying and fixing errors • To explain steps and choices made during programming using correct terminology.	• To modify and remix existing programs to improve or extend them • To test, debug, and refine programs so they work as intended • To explain design choices using comments, presentations, or demonstrations • To use sequences to organise instructions in programs • To use if/else statements to control program flow • To use different types of loops, including nested, while, and until loops	• To decompose problems into smaller steps to support program design • To compare and refine algorithms to choose the most effective solution • To plan and improve programs using iteration and feedback • To work in different roles when collaborating on programming projects • To create programs using sequences, events, loops, conditionals, and variables • To explain how programs work and predict their outcomes • To use functions to simplify and organise programs • To modify and remix existing programs to improve or extend them • To design programs for different purposes, including games and interactive projects • To test, debug, and refine programs so they work as intended • To use an iterative process to develop and improve programs • To explain design choices using comments,	
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			presentations, or demonstrations • To use data within programs to represent, store, and display information • To organise and present data to support conclusions or outcomes in a program • To use algorithms and programs to solve problems in different contexts • To recognise and use abstraction through functions and reusable code blocks	
Information Technology	Data & Information • To create and investigate yes/no questions about objects • To group objects based on a single attribute • To select and use attributes to classify and sub-group objects • To create and test a branching database using yes/no questions • To use questions to group objects and refine a database structure • To explain the importance of well-structured databases • To compare branching database structures and	Data & Information • To create and use yes/no questions to investigate and classify objects by their attributes. • To identify and use attributes to group and organise objects, including arranging them into hierarchical or tree structures. • To design, build and test a branching database using yes/no questions to classify and identify objects. • To explain and evaluate how structured questioning supports effective	Data & Information • To explain how data is recorded and structured in databases, including fields, records, and the use of both paper-based and computer-based systems. • To organise and analyse data using sorting, grouping, and filtering techniques, including applying criteria such as AND and OR to answer questions. • To navigate and interpret data in databases, selecting appropriate fields, views, and methods to support analysis. • To present and compare data effectively using charts and other visual representations.	Data & Information • To create a dataset in a spreadsheet • To collect and enter data into a spreadsheet • To suggest and apply a suitable structure for data • To explain what an item of data is • To choose and apply appropriate cell formatting • To explain that formulas produce calculated data • To identify data types that can be used in calculations • To construct and use spreadsheet formulas • To recognise that changing inputs changes outputs

	explain the need for ordered questions and balanced groups • To plan and create a branching database that can uniquely identify objects • To represent a branching database physically as a tree structure • To independently create, test, and refine an identification tool • To suggest real-world uses for branching databases Creating Media • To recognise how text and images communicate information • To explain how text and images communicate messages clearly • To identify advantages and disadvantages of using text and images • To use emojis respectfully online • To edit and format text (font, size, colour) for a purpose • To explain how text can be changed to improve communication	classification, including comparing and improving branching database designs. • To independently plan, create and evaluate identification tools and branching databases, including testing and suggesting real-world applications. Creating Media • To explain how digital images can be edited and manipulated, including changes to composition, colour and overall meaning. • To use a range of photo editing techniques, including cropping, rotating, colour adjustment and cloning to modify and improve images. • To combine and composite images using selection and editing tools to create purposeful visual designs. • To plan and create a combined image project, selecting appropriate images and justifying editing choices for a given purpose.	• To use real-world databases to ask and answer questions, refine searches, and communicate findings clearly. Creating Media • To identify that drawing tools can be used to produce different outcomes. • To recognise that vector drawings are made using shapes and consist of objects. • To experiment with shape, line, and modification tools. • To discuss how vector drawings are different from paper-based drawings. • To create a vector drawing by combining shapes and objects. • To identify and manipulate objects within a vector drawing (move, resize, rotate, duplicate). • To explain how individual elements in a vector drawing form part of a layered structure. • To use tools to achieve a desired effect in a vector drawing. • To use zoom, alignment grids, and resize handles to	• To apply formulas to data using different operations • To use ranges of cells within formulas • To apply formulas efficiently across multiple cells by duplicating • To use a spreadsheet to plan and answer questions for an event • To explain why data should be organised • To apply formulas to calculate data needed to answer questions • To choose suitable ways to present data • To produce and interpret charts to answer questions • To decide when to use a table or a chart. Creating Media • To review an existing website and consider its structure • To explore a website and identify its key features • To discuss the different types of media used on websites • To recognise that websites are written in HTML • To plan the features of a web page
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	• To understand page settings such as orientation and placeholders • To create and use templates for a specific purpose • To add and organise text and images in a desktop publishing document • To select appropriate locations for content in a layout • To edit and refine content after it has been added • To identify and choose layouts for different purposes • To match and select suitable layouts for a given task • To explain the benefits and real-world uses of desktop publishing • To compare desktop publishing work with hand-created work	• To evaluate and refine digital images by applying criteria, responding to feedback, and improving the final composition including the use of text and visual elements.	improve accuracy and consistency. • To modify and combine objects to create new images • To recognise that vector drawings consist of layers of objects. • To change the order of layers and use layering to improve a design. • To group, ungroup, and reuse objects to simplify editing and develop a drawing. • To identify when grouping is needed to support efficient design work. • To apply knowledge of vector drawing tools to create a purposeful image. • To create a vector drawing for a specific purpose. • To reflect on and evaluate the tools and skills used. to compare vector drawing software with freehand drawing tools.	• To recognise common features of a web page • To suggest and select appropriate media for a web page • To draw a web page layout to suit a purpose • To consider the ownership and use of images (copyright) • To explain why copyright-free images should be used • To find and use copyright-free images • To describe the meaning of 'fair use' • To use technology respectfully and responsibly • To add content to a web page and preview how it appears • To evaluate and edit a web page based on how it looks on different devices • To outline the need for a navigation path in a website • To explain what a navigation path is and why it is useful • To create multiple web pages and link them using hyperlinks • To recognise the implications of linking to content owned by others
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				• To create hyperlinks to external content • To evaluate the user experience of a website
Digital Literacy	Online Safety • To know that people can represent themselves differently online. • To know the difference between knowing someone online and knowing someone offline • To know how to search online and how to identify if the source is trustworthy. • That for almost everyone the internet is an integral part of life. Pupils should be supported to think about positive and negative aspects of the internet. • To understand what positive, healthy and respectful online relationships look like. • To understand the effect of their and others actions online. • To recognise and display respectful behaviour online.	Online Safety • To know how online identities can be different to those in real life. • How to consider the impact of their online behaviours on others and know how to recognise and display respectful behaviour online. • To know strategies for safe and fun online experiences • To know how to search safely online • To know that abuse, bullying and harassment can take place online and that this can impact wellbeing. How to seek support from trusted adults • To know how to identify fake news. • To know how to maintain a healthy balance between online and offline behaviours	Online Safety • To know that images can be copied, altered and modified online. • That they have rights in relation to sharing personal data, privacy and consent. • To know about stranger danger online • To know that information about others online may not be correct and to know the importance of keeping their own information online as positive. • Pupils should be supported to discuss how online relationships can complement and support meaningful in-person relationships, but also how they might be in tension, and the reasons why online relationships are unlikely to be a good substitute for high quality, in person relationships, looking at the pros and cons of	Online Safety • To know how to recognise stereotypes online. • To know when it is okay to share information online and when it is not. • How to understand the information they find online, including from search engines, and know how information is selected and targeted. • To know how to protect their online reputation. • How to consider the impact of their online behaviours on others and know how to recognise and display respectful behaviour online. • That abuse, bullying and harassment can take place online and that this can impact wellbeing. How to seek support from trusted adults

	• To use technology safely, respectfully, responsibly and securely. • To understand where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Safer Internet Day • To explain that AI-generated information may not always be accurate or reliable. • To compare how human thinking differs from artificial intelligence when making decisions or judging information. • To evaluate when it is appropriate to trust AI-generated content and when to check with other sources	• Pupils should be supported to discuss how online relationships can complement and support meaningful in-person relationships, but also how they might be in tension, and the reasons why online relationships are unlikely to be a good substitute for high quality, in person relationships, looking at the pros and cons of different ways of using online connection. • To know strategies to keep personal information private • That they have rights in relation to sharing personal data, privacy and consent. • To begin to know what copyright and ownership means online. • To understand what positive, healthy and respectful online relationships look like. • To understand the effect of theirs and others actions online.	different ways of using online connection. • How to consider the impact of their online behaviours on others and know how to recognise and display respectful behaviour online. • That abuse, bullying and harassment can take place online and that this can impact wellbeing. How to seek support from trusted adults • How to take a critical approach to what they see and read on line and make responsible decisions about which content , including content on social media and apps, is appropriate for them. • To understand what positive, healthy and respectful online relationships look like. • To understand the effect of theirs and others actions online. • To recognise and display respectful behaviour online.	• Where and how to report concerns and get support with issues online • How to take a critical approach to what they see and read on line and make responsible decisions about which content , including content on social media and apps, is appropriate for them. Safer Internet Day • That there is a minimum age for joining social media sites (currently 13) which protects children from inappropriate content or unsafe contact with older social media users, who may be strangers, including other children and adults. • To explain that AI-generated information may not always be accurate or reliable. • To compare how human thinking differs from artificial intelligence when making decisions or judging information. • To evaluate when it is appropriate to trust AI-generated content and
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		• To recognise and display respectful behaviour online. • To use technology safely, respectfully, responsibly and securely. • To understand where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Safer Internet Day • To explain that AI-generated information may not always be accurate or reliable. • To compare how human thinking differs from artificial intelligence when making decisions or judging information. • To evaluate when it is appropriate to trust AI-generated content and when to check with other sources.	• To use technology safely, respectfully, responsibly and securely. • To understand where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Safer Internet Day • That people should be respectful in online interactions, and that the same principals apply to online relationships as to face-to-face relationships, including where people are anonymous. For example, the importance of avoiding putting pressure on others to share information and images online and strategies for resisting peer pressure. • Online risks, including that any material provided online might be circulated, and that once a picture or words has been circulated there is no	when to check with other sources. • To understand what positive, healthy and respectful online relationships look like. • To understand the effect of theirs and others actions online. • To recognise and display respectful behaviour online. • To use technology safely, respectfully, responsibly and securely. • To understand where to go for help and support when they have concerns about content or contact on the internet or other online technologies. Warning Zones Trip • How to critically evaluate their online relationships and sources of information including awareness of the risks associated with people they have never met. For example, that people sometimes behave differently online, including pretending to be someone else, or pretending to be a child, and this can lead to a dangerous situation. How to recognise harmful content
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			way of deleting it everywhere and no control over where it ends up. • The risks relating to online gaming, video game monetisation, scams, fraud and other financial harms and that gaming can become addictive. • That the internet contains a lot of content that can be inappropriate and upsetting for children and where to go for advice and support when they feel worried or concerned about something they have seen or engaged with online. Pol Ed Lessons – Y5 Keeping Safe How can we use phones sensibly? What are deep fakes?	or harmful contact and how to report this. • The importance of exercising caution about sharing any information about themselves online. Understanding the importance of privacy and location settings to protect information online–
Disciplinary Knowledge	Year 3 and 4 Cycle B	Year 3 and 4 Cycle A	Year 5	Year 6
Computer Science	Computer Systems & Networks • Understand that all digital devices follow an input–process–output model. • Identify common inputs, processes, and outputs in	Computer Systems & Networks • Understand that computer networks connect devices to enable communication and data sharing. • Know that messages can travel between networks,	Computer Systems & Networks • Understand that a system is made up of connected components that work together to complete a task. • Recognise that computer systems include hardware, software, and connections	Programming - Scratch • Understand that variables store information in programs and can hold a single value at a time. • Recognise real-world examples of variables (e.g.

	familiar digital devices and everyday contexts. • Apply understanding of the IPO model to explain how devices function. • Understand that secure practices (e.g. strong passwords) help protect digital devices and data. • Use knowledge of inputs and outputs to create digital work using software and tools. • Compare digital and non-digital methods of producing the same outcome, identifying similarities and differences in process and efficiency. • Understand how different tools and processes affect the creation and quality of work. • Understand that digital devices can be connected to share information. • Explain how and why devices are connected to form networks. • Identify key network components (e.g. servers, wireless access points) and describe their roles. • Understand how networked devices	forming a global system known as the internet. • Identify key network hardware (e.g. routers) and explain their role in moving data between networks. • Understand the importance of network boundaries and security in keeping systems and users safe. • Understand that the World Wide Web is a service that runs on top of the internet and consists of websites and web pages. • Describe how the internet and World Wide Web are connected but different. • Know that websites are stored on servers and accessed across a range of internet-connected devices. • Understand how users access and interact with web content through Create and publish digital content using web-based tools. • Understand that online content is owned by individuals or organisations and is subject to rules about use and sharing. • Recognise what is and is not permitted when using or reusing online content.	that interact to process information. • Understand that digital systems rely on physical and electronic connections to communicate and function. • Describe how devices and processes are linked within larger computer systems. • Understand that search engines help users find information on the World Wide Web. • Use search engines and address bars to find information online. • Write and refine search queries to improve the accuracy of results. • Understand that different searches produce different results depending on how they are written. • Understand that search engines use automated systems to scan and index web content. • Recognise how web content affects how search results are ranked. • Understand that keywords and page content influence search visibility. • Explore how search results are generated and why some	score, time) and how they change. • Identify that variables can store numbers or text (strings). • Understand that variables must be named clearly to be used effectively in a program. • Create, name, and update variables in Scratch programs. • Use variables to store and change values during program execution. • Predict and test how changing variable values affects program behaviour. • Use variables in different parts of a program to control outcomes. • Apply variables to enhance and extend game-based Scratch projects. • Debug and refine programs by testing variable behaviour. • Use comments to explain how programs meet design requirements. • Design games at a planning level, including sprites, backgrounds, and algorithms.
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	communicate and share data in real-world contexts. - Recognise examples of network infrastructure in everyday environments and relate them to how networks function. Programming - Scratch - Understand that still images can be sequenced to create the illusion of movement. - Know that animation is created by showing a series of slightly different images in sequence. - Explore simple animation techniques such as flip books to understand how motion is represented. - Create simple animations using frame-by-frame drawing techniques (e.g. flip books). - Understand that planning is important in animation to ensure a clear sequence of events. - Develop ideas for animations by considering characters, settings, and actions. - Plan a stop-frame animation using a	- Develop awareness that online information may be inaccurate, misleading, or false. - Evaluate the reliability of digital content, including images and search results. - Understand how quickly information can spread online and the challenges of controlling it once shared. - different devices. - Analyse the structure and features of websites, including layout, content, and purpose. - Understand what types of content can be published online and the considerations needed before publishing. Programming - Scratch - Understand that Logo is a text-based programming language used to control on-screen drawings. - Know that algorithms are step-by-step instructions that can be turned into code. - Read and write basic Logo commands to create simple shapes and patterns. - Use debugging to find and fix errors in code.	pages appear higher than others. - Understand that search results can be influenced by both user behaviour and content design. - Recognise how websites can be designed to improve visibility in search results. - Identify limitations of search engines and understand that not all information can be found through searching. Programming - Scratch - Understand that Scratch is a block-based programming language used to create interactive programs and animations. - Know that programs are built using sequences of instructions (algorithms) that control sprites and backgrounds. - Use loops (including infinite and count-controlled repetition) to repeat actions efficiently. - Create and implement programs that control movement, looks, and actions of sprites. - Use repetition to simplify code and create patterns or continuous actions.	- Translate planned algorithms into working Scratch programs. - Identify and add variables to improve or extend existing projects. - Evaluate and improve projects through testing and feedback. - Recognise strengths and areas for improvement in both own and peer work.
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	storyboard to organise ideas and sequence events. • Understand that animators plan carefully before producing animations. • Apply understanding of sequencing to structure a narrative for animation. • Create a stop-frame animation using digital tools, ensuring consistency between frames. • Understand the importance of small, controlled changes between frames to achieve smooth motion. • Use technology to capture, review, and adjust animated sequences. • Evaluate completed animations and identify ways to improve them. • Apply feedback to refine and re-create animations with improved quality. • Enhance animations by adding additional media such as sound, text, and effects. • Understand how multimedia elements can improve the impact and meaning of an animation.	• Create and implement algorithms to draw shapes and patterns (e.g. letters). • Recognise repeated patterns within shapes and designs. • Understand that repeated instructions can be identified and simplified in code. • Use count-controlled loops to repeat instructions in programming. • Trace and predict the output of code that uses loops. • Modify loop values to change the output of programs. • Understand decomposition as breaking problems into smaller parts. • Create, name, and use procedures to reuse code efficiently. • Design, write, and debug programs that use loops and procedures to create shapes and patterns. • Apply programming skills to create a final product (e.g. a patterned design). • Evaluate programs against a design brief and improve where needed.	• Understand that programs can include multiple sprites that interact. • Understand that conditions can be used to make decisions in programs. • Identify conditions and use inputs (e.g. keys, clicks, sensors) to control program flow. • Use selection (e.g. “if...then”) to control outcomes based on conditions. • Combine selection and repetition to continuously check for changes or inputs. • Design and build interactive Scratch projects based on a given brief. • Plan algorithms before coding and translate them into Scratch blocks. • Test, debug, and refine programs to improve functionality and fix errors.	
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Information Technology	Data & Information • Understand that yes/no questions can be used to describe and sort objects by their features (attributes). • Use simple yes/no questions to group objects into categories. • Create questions that help identify and compare different objects. • Understand that objects can be sorted using more than one yes/no question in a sequence. • Represent sorting using a branching (tree) structure. • Know that the order of questions affects how easy it is to find an object. • Build and test branching databases using digital tools. • Use attributes to create clear yes/no questions that correctly sort objects. • Understand that databases need clear structure to work properly. • Compare different branching databases and explain which are more efficient.	Data & Information • Understand that data can be collected from the real world and used to answer questions. • Identify what information can be collected and how it might be gathered over time. • Recognise that some questions can be answered using data, while others cannot. • Understand the importance of collecting relevant and accurate data to answer a question. • Understand that computers can automatically collect data from the environment using sensors. • Know that sensors are input devices that capture information from the physical world. • Understand that computers can record data at set intervals over time. • Collect data over time and understand that data points are recorded at regular intervals. • Connect recording equipment to a computer to transfer and access collected data.	Data & Information • Understand that data can be stored in records and that each record is made up of fields. • Create and use simple datasets to record information about a group of objects. • Organise and sort data to answer questions. • Understand that databases can be paper-based or computer-based. • Use sorting and grouping to organise records and identify patterns in data. • Compare paper-based and digital databases and understand their similarities and differences. • Use search techniques to find specific information within a database. • Search using more than one field to refine results and answer questions more accurately. • Apply both unplugged and digital methods to explore how searching works. • Create and interpret simple charts to represent and compare data.	Data & Information • Understand that data can be collected, organised, and structured in tables before being entered into a spreadsheet. • Enter and organise data accurately in a spreadsheet format. • Understand the structure of a spreadsheet, including cells, rows, columns, and cell references. • Apply formatting to data to improve clarity and presentation. • Recognise that different types of data require different formats. • Use formulas with cell references to perform calculations in a spreadsheet. • Understand that changing input data changes calculated results automatically. • Recognise the importance of using correct data types for calculations. • Use arithmetic operations (+, −, ×, ÷) within spreadsheet formulas. • Apply formulas across multiple cells using duplication.
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	• Explain why the order of questions matters in a database. • Plan and create a branching database to sort a set of objects. • Test and improve a branching database to make sure it works correctly. • Recognise how branching databases are used in real life. Creating Media • Understand that text, images, and emojis are used to communicate messages, and must be chosen carefully for clarity and purpose. • Identify advantages and disadvantages of different ways of communicating using text and images. • Use desktop publishing software to create and edit page layouts. • Understand how font, colour, and layout choices affect meaning and readability. • Use basic keyboard and editing skills to add, move,	• Open and view existing data files using software tools. • Analyse simple datasets to identify patterns and answer questions (e.g. changes over time). • Use collected data to draw conclusions and respond to a specific question. • Plan a data collection process based on a chosen question. • Set up and test equipment to ensure data can be recorded correctly. • Review collected data and evaluate whether the method worked effectively. • Reflect on the benefits and limitations of using automated data collection methods. Creating Media • Understand that digital images can be edited and that editing can change meaning, appearance, and authenticity. • Know that composition (cropping, rotating, layout) affects how an image communicates. • Recognise ethical issues around editing images and	• Understand that charts help make patterns and differences in data easier to see. • Use data to answer questions and draw conclusions. • Use a real-world database to search for information based on set criteria. • Apply knowledge of records, fields, sorting, grouping, and searching to solve a practical problem. • Present findings clearly and explain how decisions were made using data. Creating Media • Creating images in a drawing program by using layers and groups of objects. • Understand that vector drawings are created using simple geometric shapes and lines. • Know that each part of a vector image is called an <i>object</i>. • Recognise that vector drawing software uses shape tools to construct images. • Understand key differences between vector drawings	• Understand the benefit of using consistent formulas across datasets. • Use spreadsheets to model real-world scenarios (e.g. planning and costing an event). • Select and input relevant data to solve problems and answer questions. • Use formulas to calculate and analyse outcomes. • Create charts from spreadsheet data to represent information visually. • Interpret charts to answer questions and draw conclusions. • Understand that spreadsheets include multiple tools for analysing and presenting data. Creating Media • Understand that websites are created using HTML code and have structured layouts. • Evaluate existing websites by looking at their content, layout, and purpose.
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	and change content on a page. • Know that content can be rearranged to improve layout and design. • Understand the role of an editorial designer in planning and organising page content. • Use key desktop publishing features such as templates, orientation, and placeholders. • Create structured page designs using templates. • Combine text and images to create a purposeful layout. • Select and place appropriate images and text within a design. • Recognise different types of page layouts and understand how layout changes depending on purpose. • Understand what desktop publishing is and how it is used in the real world.	when editing may or may not be appropriate. • Understand the role of a photographer in planning, capturing, and improving images through editing. • Use image editing tools to adjust composition, including cropping, rotating, and repositioning. • Apply filters, colours, and effects to change mood and purpose. • Use selection tools to copy, paste, combine, and rearrange parts of images. • Use cloning tools to remove or duplicate parts of an image for retouching. • Select and justify editing choices based on purpose and audience. • Understand how different edits can make images appear more real, enhanced, or manipulated. • Combine multiple images and effects to create a planned visual outcome. • Plan, create, and refine a digital image project using a range of editing tools. • Evaluate and improve work based on review. • Add text to images to support meaning and	and hand-drawn or bitmap-style images. • Use basic vector tools to create and edit objects (move, resize, rotate, recolour). • Understand and apply duplication to replicate objects efficiently. • Identify common shapes used within vector artwork and combine them to form images. • Develop precision using zoom tools, grids, and resize handles to improve accuracy and consistency. • Modify existing objects to create new visual elements. • Understand how increasing complexity improves detail and quality in vector drawings. • Understand the concept of layers in vector graphics. • Know that objects exist on layers that can be reordered (front/back) to change appearance. • Apply layering to organise and improve the structure of designs. • Select, duplicate, group, and ungroup multiple objects to improve efficiency and control.	• Identify similarities and differences between websites. • Plan a web page layout, considering structure and design features. • Take on the role of a web designer by designing web pages before building them. • Understand copyright, fair use, and the importance of using appropriate and licensed images. • Select and use copyright-free or Creative Commons images responsibly. • Understand how to search for, reuse, and reference online content correctly. • Create and edit web pages using a website creation tool. • Build web pages based on a design plan and improve layout for different devices. • Evaluate and improve user experience across different screen sizes. • Plan the structure of a website, including navigation and page linking. • Create multiple linked web pages using hyperlinks. • Understand how navigation affects usability and user experience.
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		complete a final published design.	• Apply grouping to manage complex designs and support editing. • Plan and create a vector drawing for a specific purpose (e.g. logo design). • Apply a range of learned skills independently to produce a finished design. • Reflect on design choices and evaluate the effectiveness of tools used. • Understand the role of a graphic designer and compare vector drawings with freehand/digital paint programs.	• Evaluate websites (including their own) in terms of usability, design, and navigation. • Understand the implications of linking to external content. • Reflect on how design choices impact the effectiveness of a website.
Digital Literacy	Online Safety • Understand that identity is how someone presents themselves online and offline, and that it can be represented in different ways. • Recognise that people may change how they present themselves online depending on context and purpose. • Understand that knowing someone online is different from knowing someone in person and may involve	Online Safety • Understand that online identity can be different from offline identity and can be shaped by what is shared and how it is presented. • Recognise that people online may not always be who they say they are, including impersonation of friends, and understand possible reasons for this. • Understand that technology (e.g. bots) can imitate people and that this has both risks and benefits.	Online Safety • Understand that online identity can be copied, modified, or altered, and should be managed carefully depending on context. • Make responsible choices about how to present and protect an online identity, including degrees of anonymity. • Understand that technology enables different forms of communication (e.g. emojis, memes, gifs) that can affect meaning.	Online Safety • Evaluate online content critically, including representations of identity, culture, and protected characteristics, and understand why stereotypes and harmful content should be challenged. • Understand how online content and sharing can influence perceptions and have positive or negative consequences for individuals and others.

	limited or incomplete information. • Understand that trust online must be built carefully and that not all people or information online are reliable. • Recognise the importance of protecting personal information and deciding what is safe to share. • Understand that permission is required before sharing information or content about others online. • Identify what types of personal information people may or may not choose to share online. • Understand how online behaviour can affect others, including how messages and posts can impact feelings. • Describe appropriate and respectful behaviour when communicating online. • Recognise examples of online bullying and know that support is available. • Understand how to search for information about people and use search tools effectively.	• Understand that online behaviour affects how others perceive us and how we make others feel. • Recognise and describe respectful, healthy, and unhealthy online interactions. • Identify when someone may be upset, hurt, or angry online and understand the impact of online communication on feelings. • Understand that carefully chosen online behaviour supports positive relationships and wellbeing. • Understand how online information about people can be created, copied, shared, and changed by others. • Use online searching to find information about people across different digital technologies. • Evaluate the likely accuracy and reliability of online information. • Understand that online content and opinions can be influenced by others, including advertising and repeated viewpoints.	• Understand that not all people online have positive intentions and that harm online is not the learner's fault. • Recognise when to seek help and identify trusted adults or services for support. • Know how to access reporting tools and block abusive users online. • Understand how to support others who are experiencing difficulties or abuse online. • Understand that online bullying can differ from offline bullying and recognise these differences. • Search for and summarise information about individuals online. • Understand how online reputation is formed and how it can be positively developed. • Use strategies to protect online reputation and manage digital identity. • Understand that search technologies have benefits and limitations in finding accurate information. • Recognise sponsored, boosted, or commercially influenced content online.	• Recognise that online identity and shared content can be copied, reshared (e.g. screenshots), and may have unintended or long-term impacts. • Understand the importance of respectful behaviour online, including boundaries around sharing, consent, and the impact of inappropriate content sharing. • Make informed decisions about what to share online, considering audience, consent, and consequences. • Identify, evidence, and report harmful or inappropriate content, and respond appropriately to online bullying in different contexts. • Understand what hoaxes are and how false or misleading information can spread online. • Understand how search engines rank and present information, and evaluate the reliability of online content. • Distinguish between misinformation and disinformation, and understand that repetition
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	• Use search strategies (including key phrases) to find accurate information online. • Understand the difference between fact, opinion, and belief, and that not all online content is reliable or fair. • Understand the importance of keeping passwords private and using basic strategies to protect accounts. • Recognise that copying or using others' work without permission is unfair and can cause problems.	• Recognise that popularity of an opinion does not make it true. • Understand what fake news is and why it can be misleading. • Understand that online services may use age restrictions and consent requirements (digital age of consent). • Recognise how consent affects access to online platforms and services. • Understand that content online is owned and may not be used without permission. • Identify examples of content that must not be reused without consent.	• Understand how stereotypes can be created and reinforced online. • Understand how fake or misleading content can affect emotions and behaviour. • Understand how strong passwords protect accounts and how to create them. • Recognise how apps and services may collect, read, or share personal data. • Understand app permissions and their purpose. • Understand when it is appropriate to use or reuse the work of others. • Identify and locate content that is allowed to be reused legally and ethically.	or popularity does not equal truth. • Understand how influence, persuasion, advertising, and targeted content shape what users see online, including persuasive design techniques. • Understand how to protect personal information and accounts, including responding to lost or compromised passwords. • Understand the importance of software updates for security and use privacy settings to control online presence. • Recognise that some online services and content are designed to exploit users for data or financial gain. • Use search tools to find and access content that is legal, appropriate, and reusable.
Vocabulary	Year 3 and 4 Cycle B	Year 3 and 4 Cycle A	Year 5	Year 6
Computer Science (Computer systems and networks/Programming)	Digital device, input, process, output, secure, password, cyber attack, program, digital, non-digital, connection, network, network switch, Server,	Internet, network, router, network security, network switch, server, Wireless Access Point (WAP), website, web page, web address, routing, web browser, World Wide	System, connection, digital, input, process, output, search, search engine, refine, index, crawler, bot, ordering, ranking, links, algorithm, Search Engine Optimisation	Variable, change, name, value, set, design, event, algorithm, code, Task, artwork, program, project, test, debug, prototype, Improve, evaluate, share.

	wireless access point, Network cables, network sockets, Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, Sprites, programming blocks, motion, turn, point in direction, go to, glide, Sequence, event, task, design, run the code, order, note, chord, Design, algorithm, bug, debug, sprite	Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, adverts, programming, scratch, sprite, Algorithm, code snippet, commands, count, count-controlled loop, debug, decompose, design, logo, pattern, procedure, program, repeat, repetition, trace, turtle, value.	(SEO), searching, web crawler, content creator, selection, programming, scratch, sprite, microcontroller, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug	
Information Technology (Data and Information/Creating media)	Attribute, value, questions, table, objects, branching database, database, equal, even, separate, structure, compare, order, organise, selecting information, decision tree, text, images, advantages, disadvantages, communicate, Font, font style, template, landscape, portrait, orientation, placeholder, layout, content, desktop publishing, copy, paste, purpose, benefits.	Data, table, layout, input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion, image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, retouch, clone, select, copy, paste, combine, made up, real, composite, alter, background, foreground, zoom, font.	Database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation, vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, Zoom, select, align, modify, layers, order, Copy, paste, group, ungroup, reuse, reflection.	Data, collecting, table, structure, spreadsheet, Cell, cell reference, data item, format, formula, calculation, data, input, output, cells, calculate, operation, formula, cell, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, comparison, questions, software, tools, website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage,

				implication, external link, embed.
Digital Literacy (Online Safety)	Online safety, Identity, online, reputation, avatar, sharing, trusted adult, discussion, response, cyberbullying, follower, add, block, report, autocomplete, suggestion, prediction, safe, Wi-Fi, devices, information, passwords, copy, copyright, breach.	Identity, trusted adult, online community, online social environment, websites, information, search, screengrab, screenshot, intimidate, trusted grown-up, search engine, advertising, purchase, pop-up, fake news, URL, healthy, moderation, lifestyle, self-regulation, passwords, private, personal, convince, images, creative commons licence, commercial license	Identity, copy, modify, alter, original, responsible, trusted adult, block, report, reputation, bullying, cyberbullying, continuous, repetitive, long period of time, virtual, physical, face to face, digital content, trustworthy, search, sceptical, URL, genuine, positive, negative, mindfulness, well-being, mental health, personal information, privacy settings, strong password, apps, share, content, usage rights, permission	Identify, evaluate, representation, stereotype, inclusivity, privacy, consent, respect, reputation, digital personality, screenshot, screengrab, evidence, digital content, fake news, opinion, fact, information, misinformation, persuade, trusted adult, content, targets, illegally, scams, phishing, copyright, ownership, usage rights.
Cross-curricular links	- History – Stone age - Geography – Weather forecasts - Maths – Computing Systems & Networks - Art – Computing Systems and Networks - English (Spring 2) - History – Egyptians (Summer 2)	- PSHE – Computer Systems and Networks - History – The Romans - Science – Famous Scientists	- Internet safety – Data and Information - Geography - Fieldwork - Geography – Maps - Art – Creating Media	- English – Creating Media - Geography – Trade and Economics - Maths – Data and Information
Christian Values	Courage – Children develop courageous advocacy to make positive changes in the world. They show the courage to take risks and learn from mistakes by using technology and learning about technology around the world.			

	Fairness: Through Computing, children learn about the importance of fairness and how to treat people fairly both online and in the real world. Children are made aware of who they can contact if they believe they or someone they know is being treated unfairly. Kindness: Children are able to compare both their prior knowledge and learning in school with each other within computing lessons. Mutual respect is always demonstrated within computing lessons when sharing ideas, findings or presenting their projects. Children are also given the opportunity to show compassion to other countries around the world who do not have access to the same technology that they do in school. Koinonia: Through this subject, children can demonstrate understanding and respect of other cultures and beliefs, and how these can be shared through technology. They also show compassion for other countries who do not have the same technologies as we do. Responsibility: Children develop the discipline for seeking wisdom. They know that they are caretakers of the planet and how our everyday actions and small changes can make a difference. Children understand that it is their responsibility to keep personal information secure and safe when using online platforms. They also know that what they choose to do, say and share online is their responsibility. Thankfulness: Children show thankfulness for the world of technology and how it is constantly changing and developing and they are thankful for the wonder of creation.
Spiritual Development	We highly encourage the children to develop their awe and wonder of computing. Children are able to question and debate the different technologies across the world and how they are used in our everyday lives. Through our Computing lessons children are able to explore and discover different elements of computing including computer science, information technology and digital literacy. Children explore the beliefs in computing and the faith we have in the computing world around us. The children are given many opportunities and experiences within computing and are able to understand the impact of technology on how we live our lives today.