Computing at Shotley Bridge Primary School

Reception		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme	Marvellous Me	Celebrating Diversity	Polar Regions	People Who Help Us	The Farm	Our Wonderful World
	Learning Intentions	Follow two-part instructions. (Confident communicators)	Follow two-part instructions. (Confident communicators) Look at England and India on a world map/Google Earth. (Natural World)	Follow three-part (or more) instructions. (Confident communicators) Act out the story of Jack and the Beanstalk using Now Press Play. (Being Imaginative and Expressive) Safer Internet Day – Understand the importance of using age-appropriate websites and games. (PSHE) Safer Internet Day – Understand the importance of being a good friend online by reading the DigiDuck online safety online book. (PSHE)	Follow three-part (or more) instructions. (Confident communicators) Create sound patterns with musical instruments. (Being Imaginative and Expressive) Begin to use an iPad to look at images to inspire children when creating drawings, paintings, and models. (Creating with Materials)	Follow a series of instructions involving several ideas and actions. (Confident communicators) Find Hall Hill Farm on Google Earth and know that it is in the countryside, like Shotley Bridge. (Natural World) Plan and follow and recipe to make vegetable soup. (Creating with Materials)	Follow a series of instructions involving several ideas and actions. (Confident communicators) Find out about minibeasts and their habitats using Now Press Play (Natural World)

Key Stage 1
Pupils should be taught to: • understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions • create and debug simple programs • use logical reasoning to predict the behaviour of simple programs • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school • use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they

Year 1		Autumn	Spring	Summer
	National Curriculum Links	**Computer Science – Coding & Computational Thinking** **Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.** *Y1 - Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand.* **Create and debug simple programs.** *Y1 - Children can work out what is wrong with a simple algorithm when the steps are out of order and can write their own simple algorithm. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code.* **Use logical reasoning to predict the behaviour of simple programs.** *Y1 - When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where a Bee-Bot will end up at the end of the program.* **Computer Science - Theory** **Recognise common uses of information technology beyond school.** *Y1 - Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.* **Information Technology** **Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** *Y1 - Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources.* **Online Safety** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online** *Y1- Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.*		

	Topic	**Autumn 1 –** Exploring Purple Mash and Internet Safety	**Spring 1 –** Maze Explorers	**Summer 1 –** Unplugged – Algorithms
	Prior Learning		Lego building in Reception	Busy Bodies in Reception
	Key Vocabulary	login, avatar, log out, save, username, my work, notification, password, topics, tools, online, feelings, emotions, adult	direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn, debug, instruction, algorithm	program, algorithm, debug, password, secure, strong, poor, personal, safe, respectful
	Learning Intentions	To login safely. To create an avatar. To create a picture and add their name to it, understanding what is meant by 'ownership'. To learn how to find saved work in the online area. To learn how to see messages left by the teacher on Purple Mash. To learn how to find resources. To become familiar with the icons used in the Topics section. To recognise that there may be people online who could make someone feel sad or upset. To give examples of when and how to speak to an adult you can trust.	To understand the functionality and use the direction keys. To understand how to create and debug a set of instructions (algorithm). To understand how to change and extend the algorithm list. To recognise that information can stay online and could be copied. To use the internet to find things out. To know and understand that we can encounter a range of things online.	To use physical programming. To follow an algorithm. To explain how passwords are used to protect information, accounts and devices. To recognise more detailed examples of information that is personal to someone. To explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.
	Topic	**Autumn 2 –** Pictograms	**Spring 2 –** Animated Stories	**Summer 2 –** Technology Outside of School
	Prior Learning	Grouping and sorting in Reception	Exploring Purple Mash in Autumn 1	
	Key Vocabulary	pictogram, data, collate, online, behaviour, permission, technology, internet, respect, feelings	animation, e-book, font, file, sound effect, display board, safe, technology, rules	technology, digital, create, file name, save, electronically
	Learning Intentions	To understand that data can be represented in picture format. To contribute to the collection of class data. To collect data and record the results. To identify behaviour that might upset others online. To recognise being kind online would make someone feel good but being unkind would make someone feel bad. To know how to ask permission to do something online. To understand what being considerate and kind means.	To explore 2Paint a Picture and create impressionist art. To open previously saved work. To add animation to a picture. To add a sound effect. To add a background to a picture. To change the font style and size. To use the copy and paste function to add more pages. To create an e-book. To explain rules to keep yourself safe when using technology both in and beyond the home.	To find and understand examples of where technology is used in the local community. To record examples of technology outside of school. To explain why work you create using technology belongs to you. To say why it belongs to you. To save your work under a suitable title or name so that others know it belongs to you. To understand that work created by others does not belong to you even if you save a copy.

		Autumn	**Spring**	**Summer**
Year 2	**National Curriculum Links**	**Computer Science – Coding & Computational Thinking** **Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.** *Y2 - Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.* **Create and debug simple programs.** *Y2 - Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Children's program designs display a growing awareness of the need for logical, programmable steps.* **Use logical reasoning to predict the behaviour of simple programs.** *Y2 - Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.* **Computer Science – Theory** **Recognise common uses of information technology beyond school.** *Y2 - Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom and can share this knowledge. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.* **Information Technology** **Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** *Y2 - Children demonstrate an ability to organise data using, for example, a database and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.* **Online Safety** **Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online** *Y2 - Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to school social media accounts. They develop an understanding of communicating safely online (e.g. using email safely by using 2Respond activities on Purple Mash) and know ways of reporting inappropriate behaviours and content.*	
	Topic	**Autumn 1 - Creating Pictures**	**Spring 1 - Coding**	**Summer 1 - Unplugged – Algorithms**
	Prior Learning	Exploring Purple Mash and Animated Stories (Year 1)	Lego building (Reception) Maze Explorers (Year 1)	Algorithms (Year 1)

	Key Vocabulary	impressionism, palette, pointillism, share, surrealism, template, appearance, avatar, different	action, algorithm, background, button, collision detection, debug/debugging, design mode, event, key pressed, nesting, object, predict, run, scale, scene, sequence, sound, test, text, timer, information, online	voice activated, search, true, untrue, technology, app, uses, algorithm, physical, password, information, effective, personal, connected, features
	Learning Intentions	To explore 2Paint a Picture. To look at the work of Impressionist artists and recreate them. To look at the work of pointillist artists and recreate them. To look at the work of Piet Mondrian and create a picture based upon his style. To look at the work of William Morris and recreate it using Purple Mash. To create an eCollage. To explain how other people may look and act differently online and offline.	To understand what an algorithm is. To create a program using a given design. To plan an algorithm that includes collision detection. To understand that algorithms follow a sequence. To understand that different objects have different properties. To create a program using a given design. To explain how information put online about someone can last for a long time. To demonstrate how to navigate a simple webpage to get information you need.	To explain what voice activated searching is and how it might be used. To recognise common uses of information technology beyond the classroom. To create a physical algorithm. To explain how passwords can be used to protect information, accounts and devices. To describe and explain some rules for keeping personal information private. To explain how some people may have devices in their homes connected to the internet.
	Topic	**Autumn 2 – Making Music**	**Spring 2 – Spreadsheets**	**Summer 2 – Questioning**
	Prior Learning	Animated Stories (Year 1)	Pictograms (Year 1)	Grouping and Sorting (Reception) Pictograms (Year 1)
	Key Vocabulary	bpm, composition, digitally, instrument, music, sound effects (Sfx), soundtrack, tempo, volume, bullying, online, feelings, permission, advice	backspace, copy and paste, columns, cells, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet, technology, rules, health	pictogram, question, data, collate, binary tree, avatar, database, digital content, internet, belong
	Learning Intentions	To make music digitally. To add sounds to a tune to change and improve it. To change the volume of background sounds. To create, upload and use your own recorded sound. To explain what bullying is, how people may bully others and how bullying someone can make you feel. To explain why anyone who experiences bullying is not to blame. To explain why you should ask a trusted adult before clocking 'yes', 'agree', or 'accept' online.	To explain what rows and columns are in a spreadsheet. To use copying, cutting and pasting shortcuts to help make spreadsheets. To explore the capabilities of a spreadsheet in adding up coins to match the prices of objects. To add and edit data in a table. To explain simple guidance for using technology in different environments and settings. To say how those rules/guides can help anyone accessing online technologies.	To show that the information provided on pictograms is of limited use beyond answering simple questions. To use yes/no questions to separate information. To understand what is meant by a binary tree. To use 2Question (binary tree) to answer questions. To understand what is meant by a database. To identify digital content that belongs to them.

Key Stage 2
Pupils should be taught to: • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 3		**Autumn**	**Spring**	**Summer**
	National Curriculum Links	**Computer Science – Coding & Computational Thinking** **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.** *Y3 - Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.* **Use sequence, selection and repetition in programs; work with variables and various forms of input and output.** *Y3 - Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.* **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.** *Y3 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. In programs they can 'read' programs with several steps and predict the outcome accurately.* **Computer Science – Theory** **Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.** *Y3 - Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails. They can describe appropriate email conventions when communicating in this way.* **Information Technology** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.**		

		Y3 - Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails. **Online Safety** **Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.** *Y3 - Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools. They know more than one way to report unacceptable content and contact.* **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.** *Y3 - Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.*		
	Topic	**Autumn 1 -** Spreadsheets	**Spring 1 -** Email	**Summer 1 -** Coding
	Prior Learning	Questioning and Spreadsheets (Year 2)	Effective Searching (Year 2)	Coding and Questioning (Year 2)
	Key Vocabulary	<, >, =, advanced mode, copy and paste, columns, cells, delete key, equals tool, move cell tool, rows, spin tool, spreadsheet, identity, represent, online, avatar, screen time, graph	personal information, search engine, autocomplete, belief, opinion, fact, password, safe, secure, communication, email, compose, send, report, attachment, address book, draft, password, CC, formatting	action, alert, algorithm, background, button, collision detection, command, debug, develop, event, execute, flowchart, nesting, object, output, plan, predict, procedure, properties, repeat, sequence, scene, sound, test, timer, values
	Learning Intentions	To create a table of data on a spreadsheet. To use the 'more than', 'less than' and 'equals' tools to compare different numbers to work out calculations. To introduce the advanced mode of 2Calculate. To learn about describing cells using their addresses. To set up a graph with a given number of fields. To solve a maths investigation. To explain what is meant by the term 'identity'. To discuss the notion of screen time.	To use a search engine to find information about you and your family. To understand what 'personal' information is. To use key phrases in search engines. To explain the difference between a 'belief', an 'opinion' and a 'fact'. To recognise that passwords protect your reputation and the information you consider important. To list a range of different ways to communicate. To open an email and respond to it. To have written rules about how to stay safe using email. To learn how to use email safely. To attach work to an email. To read and respond to a series of email communications.	To read and explain a flowchart. To use a flowchart to create a computer program. To understand that there are different types of timers. To create a program that uses a timer-after and a timer-every command. To use the repeat command with an object. To create computer programs using prior knowledge. To run, test and debug programs. To design and create an interactive scene. To plan their scene and algorithms before they create their scene.
	Topic	**Autumn 2 –** Touch Typing	**Spring 2 –** Branching Databases	**Summer 2 –** Presenting (MS PowerPoint)
	Prior Learning	Presenting Ideas (Year 2)	Questioning and Spreadsheets (Year 2)	Creating Pictures and Presenting Ideas (Year 2)
	Key Vocabulary	posture, top row keys, home row keys, bottom row keys, space bar, kind, unkind, online, online bullying, support, share, interest, language, communication, permission, offline	branching database, database, question, data, positive, negative, impact, technology, health, online, age restriction, uncomfortable	animation, audio, design templates, entrance animation, font, media, presentation, presentation program, slide, slideshow, stock image, text box, text formatting, transition, WordArt, rights, content, free
	Learning Intentions	To understand the names of the fingers. To understand the correct way to sit at the keyboard. To practice and improve typing for home, bottom and top rows. To touch type using their left hand. To touch type using their right hand. To describe appropriate ways to behave towards other people online and why this is important. To say what bullying behaviour is. To explain what it means to 'know' someone. To explain the importance of giving and gaining permission before sharing things online.	To understand hoe YES/NO questions are structures and answers. To have contributed to a class branching database about fruit. To choose a suitable topic for branching database. To select and save appropriate items. To give examples of and explain the positive impact of using technology and the internet. To explain why some online activities have age restrictions.	To know what PowerPoint is. To create a page in a presentation. To change the design of the slides. To add a new slide. To add and edit pictures. To use animations and transitions in a presentation. To add timings to a presentation. To present effectively using PowerPoint. To understand that we all have rights over the content we create.

Year 4		**Autumn**	**Spring**	**Summer**
	National Curriculum Links	**Computer Science – Coding & Computational Thinking** **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.** *Y4 - When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.* **Use sequence, selection and repetition in programs; work with variables and various forms of input and output.** *Y4 - Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code.* **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.** *Y4 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step through methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.* **Computer Science - Theory** **Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.**		

		Y4 - Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving. **Information Technology** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.** *Y4 - Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software. Children share digital content within their community via a variety of methods.* **Online Safety** **Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.** *Y4 - Children can explore key concepts relating to online safety and can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.* **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.** *Y4 - Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.*	
	Topic	**Autumn 1 -** Effective Searching	**Spring 1 -** Coding	**Summer 1 -** Spreadsheets
	Prior Learning	Online Safety (Years 1-3)	Logo (Year 4) and Coding and Branching Databases (Year 3)	Spreadsheets (Years 2 and 3)
	Key Vocabulary	Easter egg, internet, internet browser, search, search engine, spoof website, website, identity, online, interact, impersonation, reputation, relationships, screen time, safe, responsible	information, online, true, untrue, age rating, action, alert, background, button, code block, command, co-ordinates, debug, execute, flowchart, flowchart, if, else, nesting, number variable, object types, predict, prompt, properties, repeat, repeat until, selection, timer, variable, variable value	average function, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer
	Learning Intentions	To locate information on the search results page. To search effectively to find out information. To analyse the contents of a web page for clues about the credibility of the information. To explain how your online identity can be different to the identity you present in 'real life'. To understand the issue of impersonation and how this can impact on your personal online reputation and relationships. To discuss the notion of 'screen time'.	To understand that others may search your name online to find information about you. To describe what a 'bot' is. To explain how bots are used online. To understand that people online are strangers. To review coding vocabulary and knowledge. To begin to understand selection on computer programming. To create a program that includes an IF statement. To understand how to use co-ordinates in computer programming. To make use of the X and Y properties of objects in their coding. To interpret a flowchart that depicts an IF/ELSE statement. To explain what a variable is in programming. To create a playable game.	To explore how the numbers entered into cells can be set to either currency, decimal or fraction. To add a formula to a cell to automatically make a calculation in that cell. To use the timer, random number and spin button tools. To use a series of data in spreadsheets to create a line graph. To make practical use of a spreadsheet to help them plan actions. To use the currency formatting in 2Calculate. To allocate values to images and use these to explore place value. To explain the reasons why internet use may be monitored.
	Topic	**Autumn 2 –** Logo	**Spring 2 –** Animation	**Summer 2 –** Hardware Investigators
	Prior Learning	Coding and Branching Databases (Year 3)	Animated Stories (Year 1) and Creating Pictures (Year 2)	Effective Searching (Year 4)
	Key Vocabulary	LOGO, BK, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD, input, instructions, follow, create, commands, predict, repeat, safe, online, positive, respectful, disrespectful, content	animation, flipbook, frame, onion skinning, background, play, sound, stop motion, video clip, design, code produce, online, attention, activities, limitations, engagement, solutions	network switch, server, Wireless Access Point (WAP), router, website, use, content, download, share, ownership, permission, motherboard, CPU, RAM, graphics card, network card, monitors speakers, keyboard, mouse, video, music, images
	Learning Intentions	To learn the structure of language on 2Logo. To input simple instructions on 2Logo. To use 2Logo to create letter shapes and to draw patterns of increasing complexity. To use the repeat command in 2Logo to create shapes. To follow 2Logo code to predict the outcome. To use the procedure feature in 2Logo. To create flowers or crystals using 2Logo. To describe what it feels like to be safe online. To understand and can explain what is meant by respect. To explain how content shared online may feel unimportant to one person but may be important to other people's thoughts and feelings and beliefs.	To learn how animations are created by hand. To put together a simple animation using paper to create a flick book. To know what the Onion Skin tool does in animation. To know what stop motion animation is and how it is created. To create their own design and then produce the code for someone else to make their image. To give examples of tech/online activities that effectively hold their attention and engagement. To give examples of tech/online activities that they engage with for extended periods of time.	To describe networked devices and how they connect. To explain that the internet is used to provide many services. To explain that websites and their content are created by people. To name the different parts of a desktop computer. To know what the function of the different parts of the computer is. To create a leaflet to show the function of computer parts. To search on the internet for content to use. To explain why you need to consider who owns it and whether you have the right to reuse it. To give some simple examples of content which you must not use without permission from the owner. To demonstrate ways of recognising who might own online content.

Year 5		**Autumn**	**Spring**	**Summer**
	National Curriculum Links	**Computer Science – Coding & Computational Thinking** **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.** *Y5 - Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.* **Use sequence, selection and repetition in programs; work with variables and various forms of input and output.**		

		Y5 - Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.** *Y5 - When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.* **Computer Science - Theory** **Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.** *Y5 - Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content.* **Information Technology** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.** *Y5 - Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content.* **Online Safety** **Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.** *Y5 - Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.* **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.** *Y5 - Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.*		
	Topic	**Autumn 1 -** Databases	**Spring 1 -** Coding	**Summer 1 -** Word Processing (MS Word)
	Prior Learning	Spreadsheets (Years 2 - 4)	Coding, Logo and Animation (Year 4) and Coding and Branching Databases (Year 3)	Effective Searching (Year 4) and Touch Typing (Year 3)
	Key Vocabulary	avatar, binary tree (branching database), charts, collaborative, data, database, find, record, sort, group, arrange, statistics, report, table, online, identity, impact	action, abstraction, algorithm, button, called, co-ordinates, decomposition, event, function, if, nesting, object, physical system, properties, run, repeat, score, sequence, simplify, simulation, tab, timer, variable, online, information, search engine, promoted, sponsored, boosted, content creator, vlogger, influencer	copyright, cursor, document, font, in-built styles, merge cells, paragraph formatting, readability, template, text formatting, text wrapping, Word Art, word processing tool, strong, password, create, risk, information, account, website, content, fake, online
	Learning Intentions	To understand the different ways to search a database. To design an avatar for a class database. To successfully enter information into a class database. To create their own database on a chosen topic. To add records to their own database. To know what a database field and can correctly add field information. To explain how someone's online identity can be different to their identity in 'real life'. To understand that you can show your online identity in different ways. To know that your online identity can have an impact on others, both positively and negatively.	To use simplified code to make their programming more efficient. To use variables in their coding. To plan an algorithm modelling the sequence of traffic lights. To use a plan to program the simulation to work in 2Code. To make good attempts to break down their task into smaller achievable steps. To create a program which represents a physical system. To create and use strings in programming. To set/change variable values appropriately. To use strings to produce a range of outputs in their program. To use a search engine to search for information about other people and present that information for others to read. To understand that the information they find may not be accurate. To understand that some online content may be commercially promoted. To know what is meant by content that is sponsored or boosted.	To add text boxes and shapes. To consider paragraph formatting such as drop capitals. To add tables to present information. To edit properties of tables including borders, colours, merging cells, adding and removing rows and columns. To use a Word template and edit it properly. To format a page using a combination of images, headers and columns. To identify the risks posed by not protecting and information online. To understand that you cannot always trust what you read online.
	Topic	**Autumn 2 –** Game Creator	**Spring 2 –** Word Processing (MS Word)	**Summer 2 –** Spreadsheets
	Prior Learning	Animation (Year 4) and Creating Pictures and Making Music (Year 2)	Effective Searching (Year 4) and Touch Typing (Year 3)	Spreadsheets (Years 2 and 3) Graphing (Year 3) and Questioning (Year 2)
	Key Vocabulary	animation, computer game, customise, evaluation, image, instructions, interactive, screenshot, texture, perspective, playability, block, platforms, report, bullying, online, risk, responsible, communities	copyright, cursor, document, font, in-built styles, merge cells, paragraph formatting, readability, template, text formatting, text wrapping, Word Art, word processing tool, benefit, risk, information, judgement, research, permission, in-app purchasing	average function, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer, fair, public, permitted, reuse, content, online, fair
	Learning Intentions	To review and analyse a computer game. To describe some of the elements that make a successful game. To design the setting for their own game so that it fits with the selected theme. To upload image or use the drawing tools to create the walls, floor and roof. To design characters for their game. To make their own game more unique by selecting the appropriate options to maximise playability. To write informative instructions for their game so that other people can play it.	To know what a word processing tool is for. To create a word processing document altering the look of the text and navigating around the document. To know how to add images to a Word document. To edit their images within Word to best present them alongside text. To add appropriate text to their document, formatting in a subtle way. To use a style set in Word. To use bullet points and numbering. To differentiate between fact and fake information. To explain what in-app purchasing is. To identify the benefits but also the risks of in-app purchases.	To create a formula in a spreadsheet to convert m to cm. To apply this to creating a spreadsheet that converts miles to km and vice versa. To use a spreadsheet to work out which letters appear most often. To use a spreadsheet to work out the area and perimeter of rectangles. To use the calculations to solve a real-life problem. To create simple formulae that use different variables. To create a formula that will work out how many days there are in x number of weeks and years. To use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied. To recognise fair dealing situations. To understand that some work is in the public domain.

		To evaluate their own and peer's games to help improve their design for the future. To know how to block abusive users on the different platforms, apps and games they use. To know who to speak to if someone they know was being bullied online. To give examples of the online (or offline) communities they belong to.		To give examples of content that is permitted to be reused and know how this content can be found online.

Year 6		Autumn	Spring	Summer
	National Curriculum Links	**Computer Science – Coding & Computational Thinking** **Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.** *Y6 - Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.* **Use sequence, selection and repetition in programs; work with variables and various forms of input and output.** *Y6 - Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.* **Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.** *Y6 - Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.* **Computer Science - Theory** **Understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration.** *Y6 - Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.* **Information Technology** **Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.** *Y6 - Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements.* **Online Safety** **Use technology safely, respectfully and responsibly; recognise acceptable/ unacceptable behaviour; identify a range of ways to report concern about content and contact.** *Y6 - Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety* **Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.** *Y6 - Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.*		
	Topic	**Autumn 1 -** Spreadsheets (MS Excel)	**Spring 1 -** Coding	**Summer 1 -** Blogging and Micro:Bits
	Prior Learning	Spreadsheets (Years 2, 3, 4 and 5)	Coding (Years 2 - 5)	Online Safety (Years 1-6) Word Processing (Year 5)
	Key Vocabulary	alignment, calculate, cell, cell reference, chart, column, formula, function, range, row, spreadsheet, style, sum, text wrapping, value, workbook, media, fender, race, religion, culture, stereotypes, inappropriate, feelings	action, alert, algorithm, background, button, called, command, co-ordinates, debug, decomposition, developer, event, flowchart, function, get input, if, else, launch command, number variable, nested, object, predict, procedure, prompt, properties, repeat, run, scene, selection, simulation, string tab, timer, user input, variable	audience, blog, blog page, blog post, collaborative, icon, micro:bit, edit, code, button, sensor, program, count, tool, record, data
	Learning Intentions	To know some uses of a spreadsheet tool. To navigate around a spreadsheet using cell references. To use a spreadsheet to carry out basic calculations including addition, subtraction, multiplication and division formulae. To use the series fill function. To recognise how using formulae allows the data to change and the calculations to update automatically. To use a spreadsheet to model a situation. To use a spreadsheet to solve a problem. To use the SUM function. To use a variety of methods including flash fill, convert text to tables and splitting cells for organising and presenting their data in a spreadsheet. To describe ways in which media can shape ideas about gender, race, religion, disability, culture and other groups.	To plan a program which includes a timer and a score. To follow their plans to create a program. To create a program that makes use of functions. To create a program that uses multiple functions with the code arranged in tabs. To follow flowcharts to create and debug code, To create flowcharts for procedures. To code programs that take text input from the user and use this in the program. To attribute variables for user input. To follow through the code of hoe a text adventure can be programmed in 2Code. To explain what a digital personality is. To explain strategies anyone can use to protect their 'digital personality' and online reputation. To use search technologies effectively.	To understand how a blog can be used as an informative text. To work collaboratively to plan a blog. To create a blog or post with a specific purpose. To post comments and blog posts to an existing class blog. To explain what the buttons and sensors on the micro:bit do. To program sensors and buttons using the MakeCoder editor. To design and program a counting device using the micro:bits. To use a counting device to record data.

		To describe issues online that might make you or others feel sad, worries, uncomfortable or frightened.	To know ways to report illegal content on different platforms.	
	Topic	**Autumn 2 –** Spreadsheets (MS Excel)	**Spring 2 –** Binary	**Summer 2 –** Spreadsheets
	Prior Learning	Spreadsheets (Years 2, 3, 4 and 5)	Coding (Years 2 - 6)	Spreadsheets (Years 2 and 3) Graphing (Year 3) and Questioning (Year 2)
	Key Vocabulary	alignment, calculate, cell, cell reference, chart, column, formula, function, range, row, spreadsheet, style, sum, text wrapping, value, workbook, bullying, responsible, trust, communication, share, public, private, inappropriate, images, feelings	base 10, base 2, binary, bit, byte, decimal, denary, digit, gigabyte (GB), integer, kilobyte (KB), machine code, megabyte (MB), nibble, switch, terabyte (TB), transistor, variable, data, transfer, web address, peer pressure, media, online	internet, World Wide Web, network, Local Area Network (LAN), Wide Area Network (WAN), router, network cables, wireless, search tool, online content, site, scam, phishing, communication
	Learning Intentions	To know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. To know some shortcuts that help to make data meaningful. To know that there are always ways to represent their data graphically and that Excel can make these calculations for them. To illustrate their data using sparklines and data bars. To understand how a spreadsheet can be used to plan an event. To understand the advantages of using formulae when data is subject to change. To apply new spreadsheet skills to solving problems and making data meaningful. To know you should try and screenshot bullying behaviour. To compare your online lives. To understand the concept of consequence online and give examples. To understand the term inappropriate, give examples, and understand that 'inappropriate' might mean different things to different people.	To recognise that data is transferred using agreed methods. To explain that internet devices have addresses. To recognise the features of a healthy media balance. To explain how all data in a computer is saved in the computer memory in a binary format. To explain that binary uses only the integers 0 and 1. To count up from 0 to 15 in binary. To represent whole numbers in binary form. To convert numbers to binary using the division by two method. To check their own answers using the converter tool. To make use of a variable set to 0 or 1 to control game states	To know how the difference between the World Wide Web and the Internet. To provide examples of the difference between the World Wide Web and the Internet. To know about their school network. To explain the differences between more than two network types such as LAN, WAN, WLAN and SAN. To research some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult. To demonstrate ways of searching reusable content. To select content that is appropriate for reuse in their own work. To demonstrate ways of searching for reusable content. To select content that is appropriate for reuse in their own work. To distinguish between genuine and fake content/sites. To understand some tactics employed by scammers.