Computing

Intent

At Hyde Park Schools, we know that computing is a vital part of children's education in an ever-changing world. It provides them with opportunities to develop a range of ways in which they can explore their world, share, and express their thoughts and ideas, whilst learning about and making links with a

wide spectrum of different types of information. Computing contributes to children's personal development in creativity, independence, judgement, and self-reflection. Moreover, it enables pupils to explore their natural sense of wonder and curiosity about the world around them and therefore links strongly to our school values. The focus is in developing digitally literate individuals who are able to mitigate the pitfalls and hazards that may present to them in today's digital world through an understanding of the technology used and being able to manipulate this through basic skills, computing science and safe practise.

The computing curriculum will develop children's abilities in coding and in error correction of their own and others' code through block code coding apps. It will also develop the children's skills in basic computer use through the use of word processing, data handling, presentation, email and graphics handling applications. Additionally, it provides opportunities to learn through modelling and simulation. Children will develop a digital intelligence by the explicit teaching of e-safety that enables understanding of the motives behind, and mitigation of, potential online threats. They will also develop critical evaluation of information that is accessed.

Implementation

At Hyde Park Schools, we teach a coherently sequenced procedural and non-procedural knowledge-based computing curriculum, which allows children to practise the skills needed as well as providing them with opportunities to practise and develop mastery in the key processes of computing. This starts with a curriculum based on the areas of the 2021 EYFS Framework. From year 1 it is aligned to the national curriculum and is taught through discrete skills lessons teaching basic skills which are then utilised through activities in other subject areas such as the foundation subjects and writing and maths. This allows children to embed their skills until they are second nature. Each year group has a progressive computing curriculum, building year on year starting with a basic skills unit and every year has an e-safety unit to compete building upon previous year's work. The children are given constructive verbal feedback and next steps, with further opportunities to improve their work and ensure that their skills are being developed. Work is shared with peers at different stages in the year to allow for peer evaluation. Children follow a progression aligned to the national curriculum objectives and skills building on those taught in EYFS and key stage 1 and building these further in key stage 2 to prepare them for key stage 3. These objectives are underpinned by a progression of both procedural and non-procedural knowledge indicators. These enable teachers and children to plan and track progress throughout the key stage. Each unit is assessed through observations, quizzes and applied use within other subjects.

Impact

Pupils' basic skills are assessed at entry and any shortfalls addressed in initial sessions. App skills are assessed against given tasks set within computing and other areas of the curriculum. In digital literacy and e-safety the children are assessed continuously during computer use with reminders throughout the year. The use of computing is recommended for home learning and the option of using computing for this is always given.

Progression

	EYFS					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**

Key Vocabulary (repeated throughout the year through taught sessions and continuous provision)	Technology, computer, laptop, interactive board, Purple Mash, Mini Mash, avatar, touch, select, back, exit, save, iPad, CD player, monitor, speaker, type, choices, internet, safety, equipment, screen, mouse, image, keyboard, create, share, instructions, invention, forwards, backwards, go, stop, Beebot, click, apps, download, undo, search	
Skills (repeated throughout the year through taught sessions and continuous provision)	**Digital Literacy** Recognise technology that is used at home and in school Understand what a computer is and the different uses of computers i.e., learning, communicating, finding information, playing games Select an avatar to identify their login and understand the importance of Online Safety Use simple programs to complete an activity (Purple Mash/Mini Mash)	**Computer Science** Give commands/instructions e.g. forward, backwards, go, stop, when using simple software/hardware Make choices about the buttons/icons to press, touch or click on when using simple software/hardware Use a recording device to dictate a sentence Describe what they think a program will do Identify algorithms used in everyday life. Recognise that a string of instructions or commands placed together can create a simple program. Record the program used using symbols.
		Information Technology Manage a device by correctly closing websites or apps and safely turning on and off. Input commands using the space bar, backspace, enter, letters and numbers on a keyboard on any device (including on a tablet). Input commands using a mouse to control a cursor and use the left click to select options OR use finger control to interact with a tablet/interactive boar (double tap, swipe) Experience simple apps and software and use these to present ideas.
Knowledge Built on throughout the year	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.	Children can understand how to create, follow, and input a simple instruction
		Children can follow simple instructions to safely explore digital content

Year 1					
Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**

		Online Safety & exploring Purple Mash (4 sessions)	Grouping and Sorting (2 sessions), Pictograms (3 sessions)	Lego Builders (3 sessions) and Maze Explorers (3 sessions)	Coding (6 sessions)	Spreadsheets (3 sessions) and Technology Outside of School (2 sessions)	Animated Story Books (5 sessions)
Key Vocabulary		alert, device, log, in, my, work, area, avatar, button, file, name, icon, log, out, menu, notification, private, password, save, search, resources, password, website, criteria, groups, sort, icon,	criteria, groups, sort, collect, data, compare, data, pictogram, record, results, title,	algorithm, code, computer, debugging, instructions, program, challenge, command, direction, instruction, left, and, right, route, undo, unit,	action, algorithm, background, code, coding, command, debug/debugging, event, execute, instruction, object, output, plan, programmer, properties, run,	button, calculations, cell, clipart, column, count tool, data, delete, image, lock cell, move cell, row, speak tool, spread sheet, value, computer, technology	animation, background, clip art gallery, E-book, edit, font, sound, sound effect, text
Skills		• To log in safely. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources. • To become familiar with the icons and types of resources available in the Topics section. • To start to add pictures and text to work. • To explore the Tools and Games section of Purple Mash. • To learn how to open, save and print. • To understand the importance of logging out. • To sort items using a range of criteria. • To sort items on the computer using the 'Grouping' activities in Purple Mash.	• To sort items using a range of criteria. • To sort items on the computer using the 'Grouping' activities in Purple Mash. • To understand that data can be represented in picture format. • To contribute to a class pictogram. • To use a pictogram to record the results of an experiment	• To compare the effects of adhering strictly to instructions to completing tasks without complete instructions. • To follow and create simple instructions on the computer. • To consider how the order of instructions affects the result. • To understand the functionality of the direction keys. • To understand how to create and debug a set of instructions (algorithm). • To use the additional direction keys as part of an algorithm. • To understand how to change and extend the algorithm list. • To create a longer algorithm for an activity. • To set challenges for peers.	• To understand the functionality of the direction keys. • To understand how to create and debug a set of instructions (algorithm). • To use the additional direction keys as part of an algorithm. • To understand how to change and extend the algorithm list. • To create a longer algorithm for an activity. • To set challenges for peers. • To access peer challenges set by the teacher as 2Dos.	• To know what a spreadsheet program looks like. • To locate 2Calculate in Purple Mash. • To enter data into spreadsheet cells. • To use 2Calculate image tools to add clipart to cells. • To use 2Calculate control tools: lock, move cell, speak, and count. • To walk around the local community and find examples of where technology is used. • To record examples of technology outside school.	• To introduce e-books and the 2Create a Story tool. • To add animation to a story. • To add sound to a story, including voice recording and music the children have composed. • To work on a more complex story, including adding backgrounds and copying and pasting pages. • To share e-books on a class display board.

			• To access peer challenges set by the teacher as 2Dos.			
Knowledge Repeated throughout the year	• 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.	• 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, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.	• 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. • Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g., Colouring in a Bird activity. • Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code. • When looking at a program, children can read code one line at a time and make good attempts to envision the bigger	• 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. • Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g., Colouring in a Bird activity. • Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code. • When looking at a program, children can read code one line at a time and	• 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, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count. • 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.	• 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, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.

picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.	make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.

Year 2					
Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Coding (6 sessions)	Online safety (3 sessions) and spreadsheets (4 sessions)	Questioning (5 sessions)	Effective searching (3 sessions) and making music (3 sessions)	Creating pictures (5 sessions)	Presenting ideas (4 sessions)

Key Vocabulary	action, algorithm, background, bug, button, click, events, collision detection, command, debug/debugging, event, execute, implement, instructions, interaction, interval, object, output, properties, run	attachment, digital, filter, email, filter, internet, personal, information, private, information, search, secure, sharing block, graph, cell, column, copy, count, tool, data, drag, equals, equals, tool, label, row, speak, tool, total, table	binary, tree, data, database, field, pictogram, question, record, search, sort	digital, footprint, domain, internet, network, search, engine, web, address, world, wide, web, we, page, web, site, beat, compose, note, tune, sound effect, soundtrack, speed, tempo, volume	art, fill, impressionism, palette, pointillism, style, surrealism	E-Book, fact file, fiction, mind map, node, non-fiction, presentation, quiz
Skills	• To understand what an algorithm is. • To create a computer program using an algorithm. • To create a program using a given design. • To understand the collision detection event. • To understand that algorithms follow a sequence. • To design an algorithm that follows a timed sequence. • To understand that different objects have different properties. • To understand what different events, do in code. • To understand the function of buttons in a program. • To understand and debug simple programs.	• To know how to refine searches using the Search tool. • To use digital technology to share work on Purple Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. • To understand how we should talk to others in an online situation. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To identify the steps that can be taken to keep personal data and hardware secure. • To use 2Calculate image, lock, move cell, speak, and count tools to make a counting machine. • To learn how to copy and paste in 2Calculate. • To use the totalling tools. • To use a spreadsheet for money calculations.	• • To learn about data handling tools that can give more information than pictograms. • To use yes/no questions to separate information. • To construct a binary tree to identify items. • To use 2Question (a binary tree database) to answer questions. • To use a database to answer more complex search questions. • To use the Search tool to find information.	• To understand the terminology associated with searching. • To gain a better understanding of searching on the Internet. • To create a leaflet to help someone search for information on the Internet. • To make music digitally using 2Sequence. • To explore, edit and combine sounds using 2Sequence. • To edit and refine composed music. • To think about how music can be used to express feelings and create tunes which depict feelings. • To upload a sound from a bank of sounds into the Sounds section. • To record and upload environmental sounds into Purple Mash. • To use these sounds to create tunes in 2Sequence.	• • To learn the functions of the 2Paint a Picture tool. • To learn about and recreate the Impressionist style of art (Monet Degas Renoir). • To recreate Pointillist art and look at the work of pointillist artists such as Seurat. • To learn about the work of Piet Mondrian and recreate the style using the lines template. • To learn about the work of William Morris and recreate the style using the patterns template. • To explore surrealism and eCollage.	• To explore how a story can be presented in different ways. • To make a quiz about a story or class topic. • To make a fact file on a non-fiction topic. • To make a presentation to the class.

		• To use the 2Calculate equals tool to check calculations. • To use 2Calculate to collect data and produce a graph.				
Knowledge	• 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. • Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g., Debug Challenges: Chimp. • Children's program designs display a growing awareness of the need for logical, programmable steps. • 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.	• Children know the implications of inappropriate online searches. • Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult. • Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. • Children are able to edit more complex digital data such as music compositions within 2Sequence. • 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.	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. • Children are able to edit more complex digital data such as music compositions within 2Sequence. • 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.	• Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. • They can share this knowledge, e.g., 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g., animations, interactive code and programs. • Children know the implications of inappropriate online searches. • Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult. • Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can	• Children demonstrate an ability to organise data using, for example, a database such as 2Invesitigate and can retrieve specific data for conducting simple searches. • Children are able to edit more complex digital data such as music compositions within 2Sequence. 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.	• 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. • Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g., Debug Challenges: Chimp. • Children's program designs

				retrieve specific data for conducting simple searches.		display a growing awareness of the need for logical, programmable steps.
				• Children are able to edit more complex digital data such as music compositions within 2Sequence.		• 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.
				• 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.		

		Year 3					
		Autumn 1 **Coding**	**Autumn 2** **Online safety** **Spreadsheets**	**Spring 1** **Touch typing** **Email**	**Spring 2** **Email (cont.)** **Branching databases**	**Summer 1** **Simulations** **Graphing**	**Summer 2** **Presentations** **(MS PPT online version)**
Key Vocabulary		algorithm, background, object, implement, predict, run, flowchart, properties, when, clicked, when, key, timer, sequence, nested, repeat, input, command, button, right-angle, degrees, nesting, test, debug, actions, object, type, alert, actions, object, type,	password, personal, information, blog, permission, vlogs, appropriate, Internet, website, spoof, verify, reputable, source, Inappropriate, permission, pie chart, data table, bar graph, Spinner tool, more than, less than, & equal, tool, advanced mode, cell address, quiz tool,	posture, typing, keys, spacebar, communication, mind, mapping, node, link, email, compose, address, book, inbox	trusted contact, personal information, password, save to draft, attachment, CC - carbon copy, BCC - blind carbon copy, data, database, branching database, binary tree, debugging	simulation, modelling, advantages, disadvantages, point-of-view, solution, realistic, unrealistic, analysis, decision, evaluation, graph, chart, title, sort, axis, data, row, column	textbox, presentation, font, formatting, media, slide, editing, video, animation, transition, preview, review
Skills		• To understand what a flowchart is and how flowcharts are used in computer programming. • To understand that there are different types of timers. • To be able to select the right type of timer for a purpose. • To understand how to use the repeat command.	• To know what makes a safe password how to keep passwords safe and the consequences of giving your passwords away. • To understand how the Internet can be used to help us to communicate effectively. • To understand how a blog can be used to	• To understand typing terminology. • To understand the correct way to sit at the keyboard. • To learn how to use the home, top and bottom row keys. • To practice and improve typing for home, bottom, and top rows.	• To learn how to use email safely. • To add an attachment to an email. • To explore a simulated email scenario. • To sort objects using just YES/NO questions. • To complete a branching database using 2Question.	• To find out what a simulation is and understand the purpose of simulations. • To explore a simulation, making choices and discussing their effects. • To work through and evaluate a more complex simulation.	• To create a page in a presentation. • To add media to a presentation • To add animations into a presentation • To use the skills learnt in previous weeks to design and present an effective presentation.

		• To use coding knowledge to create a range of programs. • To understand the importance of nesting. • To design and create an interactive scene. • To design and create an interactive scene.	help us communicate with a wider audience. • To consider if what can be read on websites is always true. • To create a 'spoof' webpage. • To think about why these sites might exist and how to check that the information is accurate. • To learn about the meaning of age restrictions symbols on digital media and devices. • To discuss why PEGI restrictions, exist. • To know where to turn for help if they see inappropriate content or have inappropriate contact from others. • To add and edit data in a table layout. • To find out how spreadsheet programs can automatically create graphs from data. • To introduce the 'more than' 'less than' and 'equals' tools. • To introduce the 'spin' tool and show how it can be used to count through times tables.	• To practice the keys typed with the left hand. • To practice the keys typed with the right hand. • To think about the different methods of communication. • To open and respond to an email. • To write an email to someone from an address book.	• To create a branching database of the children's choice. • To create a branching database of the children's choice.	• To enter data into a graph and answer questions. • To solve an investigation and present the results in graphic form.	

		• To introduce the Advanced mode of 2Calculate. • To learn about describing cells using their addresses.				
Knowledge	• 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. • 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	• 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 using 2Email. They can describe appropriate email conventions when communicating in this way. • 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	• 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 using 2Email. They can describe appropriate email conventions when communicating in this way. • 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	• 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 using 2Email. They can describe appropriate email conventions when communicating in this way. • 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	• 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.	• 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.

		rather than a repeat command when creating repetition effects.	to emails, e.g., 2Respond.	when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.	to emails, e.g., 2Respond.		
		• Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and some new knowledge of coding structures. For example, repetition and use of timers. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g., In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	• 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. • 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 such as 2Email in Purple Mash. They know more than one way to report unacceptable	• 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, e.g., 2Respond.			

		content and contact.				

		Year 4				
		Autumn 1 **Coding**	**Autumn 2** **Online safety** **Spreadsheets**	**Spring 1** **Spreadsheets (cont)** **Writing for diff.** **audiences**	**Spring 2** **Writing for diff. audiences (cont)** **Logo** **Animation**	**Summer 1** **Animation (cont)** **Effective searching**	**Summer 2** **Hardware investigation** **Making music**
Key Vocabulary		background, button, object, properties, code block, predict, event, debugging, action, selection, if statement, decision, command, coordinate, flowchart, repeat until, if/else statement, inputs, execute, variable, number variable, alert prompt	report, SMART, rules, Spam, attachment, phishing, digital footprint, malware, software, virus, AdFly, ransomware, cookies, plagiarism, watermark, citation, copyright, collaborating, data analysis, collaborative database, formula wizard, percentages, decimal place, format, cell, average, equal, tool, random, number tool, spinner tool, timer, line graph, data chart, resize	budget, totals, calculations, place value, 'is equals to', tool, set, image, genre, format, font, reporter, viewpoint, opinion, viewpoint, opinion, campaign	genre, format, font, reporter, viewpoint, opinion, viewpoint, opinion, campaign, 2Logo, grid, run, speed, Logo, commands, (e.g., FD, BK, RT, LT), prediction, Pen up, Pen down, multi line mode, debugging, Repeat, Procedure, SETPC, SETPS, animation frame, fps, (frames per second), pause	onion, skinning, stop, motion, search, engine, results, page, Internet, key, words, reliability, easter, eggs, balanced, view	hardware, software, components, peripherals, motherboard, CPU, RAM, hard, drive, graphics, card, network, card, monitor, mouse, keyboard, input, output, pulse, rhythm, tempo, pitch, texture, melody, dynamics, bpm, synth, harmonious
Skills		• To create a simple computer program. • To begin to understand selection in	• To understand how children can protect themselves from online identity theft.	• To use the currency formatting tool in 2Calculate. • To use 2Calculate to create a model	• To use a simulated scenario to write for a community campaign. • To learn the structure of the	• To learn about onion skinning in animation. • To add backgrounds and sounds to animations.	• To understand the different parts that make up a desktop computer. • To recall the different parts that

		computer programming.	• To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.	of a real-life situation.	language of 2Logo.	• Introducing 'stop motion' animation.	make up a computer. -
		• To understand how an IF statement works.	• To identify the risks and benefits of installing software including apps.	• To use the functions of allocating value to images in 2Calculate to make a resource to teach place value.	• To input simple instructions in 2Logo	• To share animation the class blog.	• To identify and discuss the main elements of music: Pulse, Rhythm, Tempo, Pitch, Texture
		• To understand how to use co-ordinates in computer programming.	• To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.	• To explore how font size and style can affect the impact of a text.	• To use 2Logo to create letter shapes.	• To locate information on the search results page.	• To understand and experiment with rhythm and tempo.
		• To understand how an IF statement works.			• To use the Repeat command in 2Logo to create shapes.	• To use search effectively to find out information.	• To create a melodic phrase.
		• To understand the Repeat until command.		• To use a simulated scenario to produce a news report.	• To use and build procedures in 2Logo.	• To assess whether an information source is true and reliable.	• To compose a piece of electronic music.
		• To begin to understand selection in computer programming.	• To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.	• To use a simulated scenario to produce a news report.	• To decide what makes a good, animated film or cartoon and discuss favourite animations.		
		• To understand how an IF/ELSE statement works.		• To use a simulated scenario to write for a community campaign.	• To learn how animations are created by hand.		
		• To understand what a variable is in programming.	• To identify the positive and negative influences of technology on health and the environment.		• To find out how 2Animate animations can be created in a similar way using technology.		
		• To use a number variable.					
		• To review vocabulary and concepts learnt in Year 4 Coding.	• To understand the importance of balancing game and screen time with other parts of their lives.				
		• To create a playable game.	• To explore how the numbers entered into cells				

		can be set to either currency or decimal. • To explore the use of the display of decimal places. • To find out how to add formulae to a cell. • To explore how tools can be combined to use 2Calculate to make number games. • To explore the use of the timer, random number, and spin button tools. • To use the line graphing tool in 2Calculate with appropriate data. • To interpret a line graph to estimate values between data readings.				
Knowledge	• 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	• Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. • Children can explore key concepts relating to online safety using concept	• 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 such as 2Connect and	• 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 such as 2Connect and	• Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. • Children can explore key concepts	• 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

attempts to debug their own programs. • 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. • Children's designs for their programs show that they are thinking of the structure of a	mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact. • 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 such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.	2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards. • 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 such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.	2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards. • 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. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact.	of communication is improving. • 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 such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.

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. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.	

	Year 5					
	Autumn 1 **Coding**	**Autumn 2** **Online safety** **Spreadsheets**	**Spring 1** **Spreadsheets (cont)** **Databases**	**Spring 2** **Game creator**	**Summer 1** **3D modelling** **Concept maps**	**Summer 2** **Word Processing**

	Key Vocabulary					
Key Vocabulary	event, key, press, collision, object, action, variable, selection, if/else, statements, coordinates, simplify, efficient, computer, generated, variable, simulation, physical, system, algorithm, properties, decomposition, abstraction, friction, function, predict, , string, variables, values, tabs, text, variable, collision, when, key, random, output, concatenation, print, to, screen, tabs, 'if', statement, 'if/else', statement	responsibility, SMART, rules, encrypt, critical, thinking, image, manipulation, avatar, citation, validity, reliability, plagiarism, bibliography, copyright, creative, commons, licence, communication, formula, formulae, conversion, advanced, mode, copy, and, paste, advanced, mode, 'How, many?', tool, Variable, perimeter, area, modelling	perimeter, area, modelling, text, variables, cell, format, totalling, tool, budget, profit, database, search, record, field, sort, group, arrange, statistics, reports, charts, avatar, collaborative	evaluation, theme, scene, textures, images, screenshot, quest, instructions, feedback, promotion	net, template, 3D, view, pattern, fill, points, design, brief, 3D, Printing, concept, node, connections, story, mode, heading, sub-heading, collaborate, presentation, mode	Word , Processing , Tool , document , front , screen , zoom , selecting\highlighting , font , formatting , page , orientation , copy , and , paste , copyright , creative , commons , attributing , image , editing , cropping , image , transparency , text , wrapping , styles , bulleted , list , numbered , list , drop , capital , text , box , caption , hyperlink , WordArt , merge , cells , column , row , distributing , columns , , grammar , check , spell , check , template , columns
Skills	- To review existing coding knowledge. - To be able to simplify code. - To create a playable game. - To understand what a simulation is. - To program a simulation using 2Code. - To know what decomposition and abstraction are in Computer Science. - To take a real-life situation, decompose it and think about the level of abstraction. - To use decomposition	- To gain a greater understanding of the impact that sharing digital content can have. - To review sources of support when using technology. - To review children' responsibility to one another in their online behaviour. - To know how to maintain secure passwords. - To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and the reasons for this. - To be aware of appropriate and	- To use a spreadsheet to model a real-life problem. - To use formulae to calculate area and perimeter of shapes. - To create formulae that use text variables. - To use a spreadsheet to help plan a school cake sale. - To learn how to search for information in a database. - To contribute to a class database. - To create a database around a chosen topic.	- To Introduce the 2DIY 3D tool. - To begin planning a game. - To design the game environment. - To design the game quest to make it a playable game." - To finish and share the game. - To self- and peer-evaluate.	- To be introduced to the 2Design and Make tool. - To explore the effect of moving points when designing. - To design a 3D model to fit certain criteria. - To refine and print a model. - To understand the need for visual representation when generating and discussing complex ideas. - To understand the uses of a 'concept map'. - To understand and use the correct vocabulary when	- To know what a word processing tool is for - To add and edit images to a word document. - To know how to edit images and use word wrap with images and text. - To change the look of text within a document. - To add features to a document to enhance its look and usability. - To use tables within MS Word to present information.

	to make a plan of a real-life situation. • To understand how to use friction in code. • To begin to understand what a function is and how functions work in code. • To understand what the different variable types are and how they are used differently. • To understand how to create a string. • To begin to explore text variables when coding. • To understand what concatenation is and how it works.	inappropriate text, photographs and videos and the impact of sharing these online. • To learn about how to reference sources in their work. • To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. • Ensuring reliability through using different methods of communication. • To use formulae within a spreadsheet to convert measurements of length and distance. • To use the count tool to answer hypotheses about common letters in use.			creating a concept map. • To create a concept map. • To understand how a concept map can be used to retell stories and information. • To create a collaborative concept map and present this to an audience.	• To introduce children to templates. • To consider page layout including heading and columns.
Knowledge	• Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable	• Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a	• Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and	• Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable	• Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently	• Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently

	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. • 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. • When children code, they are beginning to think about their code structure in	• 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. • 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, e.g., 2Blog, 2Email, Display Boards. • 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	can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g., 2Blog, 2Email, Display Boards.	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. • 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. • When children code, they are beginning to think about their code structure in	comment on the success of the solution. e.g., creating their own program to meet a design brief using 2Code. 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, i.e. 2Blog, Display Boards and 2Email.	comment on the success of the solution. e.g., creating their own program to meet a design brief using 2Code. 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, i.e. 2Blog, Display Boards and 2Email.	

		terms of the	the information it		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.	contains.		ability to debug and interpret the code later, e.g., the use of tabs to organise code and the naming of variables.		
					• Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g., creating their own program to meet a design brief using 2Code. 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, i.e., 2Blog, Display Boards and 2Email.		

	Year 6					
	Autumn 1 Coding	**Autumn 2** Online safety Spreadsheets	**Spring 1** Blogging Text adventures	**Spring 2** Text adventures (cont) Networks	**Summer 1** Quizzing Understanding binary	**Summer 2** Spreadsheets

Key Vocabulary	action, output, selection, variables, repeat, timer, launch, command, debug, alert, string, x, and, y, properties, coordinates, decomposition, object, event, algorithm, action, output, selection, variables, repeat, timer, launch, command, debug, alert, string, x and y, properties, coordinates, decomposition, object, event, function, turtle, object, text, object, execute, function, call, tabs, flowchart, simulation, procedure, input, concatenation, text, adventure,	secure, websites, location, sharing, spoof, websites, phising, password, PEGI, digital, footprint, inappropriate, , print, screen, screen, time, data, analysis, count, tool, dice, tool, chart, , Formula, wizard, computational, model, percentage, format, move, tool, budget, Advanced, mode, profit, expenses, profit, expenses, data, analysis, count, tool, dice, tool, chart, , Formula, wizard, computational, model, percentage, format, move, tool, budget, Advanced, mode, profit, expenses, profit, expenses	blog, vlog, archive, blog, post, collaborate, nodes, connections, commenting, approval, text, adventure, sprite, link	functions, selection, variables, repeat, functions, selection, variables, repeat, debugging, QR, code, Internet, World, Wide, Web, website, network, web, server, web, page, hosting, data, LAN, WAN, WLAN, router, switch, hub, ethernet, Wi-Fi, search, engine, ip, address, ISP, DNS	quiz, audience, copy\paste, selfie, undo\redo, audio, clipart, image, image, filter, preview, case-sensitive, clone, preview, case-sensitive, close, database, record, field, statistics, input, decimal, binary, integer, denary, base, 10, base, 2, transistor, microprocessor, chip, nanotechnology, bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, sequence, switch, remainder, game, states, variable	spreadsheet, cell, cell, reference, data, column, row, workbook, sheet, categories, ribbon, formula, formulae, calculation, formula, bar, series, computational, model, template, budget, expense, formatting, currency, delimiter, sorting, flash, fill, auto-fit, filter, average, minimum, maximum, graph, chart, horizontal, axis, vertical, axis, conditional, formatting, budget, profit,
Skills **These are not specific to each term as the skills are repeated and built upon in each step.**	• To design a playable game with a timer and a score. • To plan and use selection and variables. • To understand how the launch command works. • To use functions and understand why they are useful. • To understand how functions are created and called. • To use flowcharts to	• To identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g., apps accessing location. • To identify secure sites by looking for privacy seals of approval, e.g., https, padlock icon. • To identify the benefits and risks of giving personal information and device access to different software.	• To identify the purpose of writing a blog. • To identify the features of successful blog writing. • To plan the theme and content for a blog. • To understand how to write a blog and a blog post. • To consider the effect upon the audience of changing the visual properties of the blog. • To understand how to contribute	• To introduce an alternative model for a text adventure which has a less sequential narrative. • To use written plans to code a map-based adventure in 2Code. • To find out what a LAN and WAN are. • To find out how we access the internet in school. • To research and find out about	• To learn how to use the question types within 2Quiz. • To learn how to use the question types within 2Quiz. • To explore the grammar quizzes. • To make a quiz that requires the player to search a database. • To make a quiz to test your teachers or parents. • To examine how whole numbers are used as the	• To know what a spreadsheet looks like. • To navigate and enter data into cells. • To introduce some basic data formulae in Excel. • To demonstrate how the use of Excel can save time and effort when performing calculations. • To use a spreadsheet to model a situation.

		test and debug a program. • To create a simulation of a room in which devices can be controlled. • To understand the different options of generating user input in 2Code. • To understand how user input can be used in a program. • To understand how 2Code can be used to make a text-based adventure game.	• To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. • To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. • To begin to understand how information online can persist and give away details of those who share or modify it. • To understand the importance of balancing game and screen time with other parts of their lives, e.g., explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on	to an existing blog. • To understand the importance of commenting on blogs. • To peer-assess blogs against the agreed success criteria. • To understand how and why blog posts and comments are approved by the teacher. • To find out what a text-based adventure game is and to explore an example made in 2Create a Story. • To use 2Connect to plan a 'Choose your own Adventure' type story. • To use 2Connect plans for a story adventure to make the adventure using 2Create a Story.	the age of the internet. • To think about what the future might hold. • To create a picture-based quiz for young children.	basis for representing all types of data in digital systems. • • To recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems). • To understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics. • To examine how whole numbers are used as the basis for representing all types of data in digital systems. • To recognise that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11	• To demonstrate how Excel can make complex data clear by manipulating the way it is presented. • To use formulae for percentages, averages, max and min in spreadsheets. • To create a variety of graphs in Excel. • To use a spreadsheet to model a real-life situation. • To apply spreadsheet skills to solving problems.

			their health.			• To represent whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.
			• To identify the positive and negative influences of technology on health and the environment. • To use a spreadsheet to investigate the probability of the results of throwing many dice. • To use a spreadsheet to calculate the discount and final prices in a sale. Create a formula to help work out the prices of items in the sale. • To use a spreadsheet to plan how to spend pocket money and the effect of saving money. • To use a spreadsheet to plan a school charity day to maximise the money donated to charity. • To use a spreadsheet to plan a school charity day to maximise the money donated to charity.			• To examine how whole numbers are used as the basis for representing all types of data in digital systems. • To represent the state of an object in a game as active or inactive using the respective binary values of 1 or 0.

Knowledge						
	• 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. • Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of	• 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. • 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. • Children understand and	• 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. • 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. • Children make clear connections	• 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. • 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.	• 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.	• 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 and improving understanding of variables in coding, outputs such as sound and movement

		how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays and 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. • 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.	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.	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.			