Computing Progression of Knowledge

Reception	Relationships	Health and wellbeing
Online safety	To understand that we can communicate online.	To understand that screen time can affect our sleep. To understand that we need to decide which games to play and what to watch.

Core Themes Year 1						
Computer Science				Information Technology		Digital Literacy
Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively		Use technology safely, respectfully and responsibly
Lego Builders Maze Explorers Coding				Grouping and Sorting Animated Story Books		Relationships Living in the wider world Health and wellbeing

Year 1	Grouping and sorting (2 weeks)	Lego Builders (3 weeks)	Maze Explorers (3 weeks)	Animated Story Books (5 weeks)	Coding (6 weeks)	Spreadsheets (3 weeks)
Core knowledge	• To sort using a range of criteria • To sort items on the computer using grouping activities	• To emphasise the importance of following 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 access peer challenges set by the teacher as 2dos.	• 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 understand what coding means. • To use design mode to set up a scene. • To add characters. • To use code blocks to make the character perform actions. • To use collision detection. • To save and share work. • To know the save, print, open and new icon.	• To know what a spreadsheet program looks like. • How to open 2Calculate in Purple Mash. • How 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.
Key vocabulary	Sort, criteria	Instruction, Algorithm, Computer, Program, Debug	Direction, Rewind, Left turn, Challenge, Forward, Debug, Arrow, Backwards, Instruction, Undo, Right turn, Algorithm	Animation, Font, Sound Effect, E-Book, File, Display Board	Action, Character, Coding, Background, Code block, Collision detection, Button, Code Design, Command, Design mode.	Arrow keys, Backspace key, Cursor, Columns, Cells, Clipart, Count tool, Delete key, Image toolbox, Lock tool, Move cell tool, Rows, Speak tool, Spreadsheet
Online safety	Safe relationships: Understand why we shouldn't share personal information.		Media Literacy and digital resilience: Understand the basics of what the internet are.		Physical health and mental wellbeing: Understand that we need to have a healthy balance of online and offline activities and understand that some online activities can be detrimental to our mental health. Keeping safe: Understand that we must decide what to do and what not to do online	

	Core Themes Year 2				
	Computer Science			**Information Technology**	**Digital Literacy**
	Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively	Use technology safely, respectfully and responsibly
	Coding				Spreadsheets / Questioning / Making Music / Presenting ideas	Relationships / Living in the wider world / Health and wellbeing

Core Themes Year 2		
Computer Science	**Information Technology**	**Digital Literacy**
Design, write and debug programs | Sequencing and repetition | Logical reasoning with algorithms | Understanding computer networks	Using technologies purposefully and effectively	Use technology safely, respectfully and responsibly
Coding	Spreadsheets Questioning Making Music Presenting ideas	Relationships Living in the wider world Health and wellbeing

Year 2	Coding (5 weeks)	Spreadsheets (4 weeks)	Questioning (5 weeks)	Making Music (5 weeks)	Presenting Ideas (4 weeks)
Core knowledge	• To understand what an algorithm is. • To design algorithms and then code them. • To compare different object types. • To use the repeat command. • To use the timer command. • To know what debugging is and debug programs.	• 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 use the 2Calculate equals tool to check calculations. • To use 2Calculate to collect data and produce a graph.	• 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 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 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.
Key vocabulary	Action, Algorithm, Bug, Character, Code block, Code design, Command, Debug/Debugging, Design mode, Input, Object, Properties, Repeat, Scale, Timer, When clicked, When key	Backspace key, Copy and paste, Columns, Cells, Count tool, Delete key, Equals tool, Image toolbox, Lock tool, Move cell tool, Rows, Speak tool, Spreadsheet	Pictogram, Collate, Avatar, Question, Binary tree, Data, Database	BPM, Composition, Digitally, Intrument, Music, Sound Effects, Soundtrack, Tempo, Volume	Concept map (mind map), Node, Animated, Quiz, Non-fiction, Presentation, Narrative, Audience
Online safety	Safe relationships: Understand how they might use technology to communicate with others that they don't know well.		Media Literacy and digital resilience: Understand that we must decide what to do and what not to do online		Keeping safe: Understand how to search safely.

	Core Themes Year 3					
	Computer Science				Information Technology		Digital Literacy

Computer Science				Information Technology		Digital Literacy
Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively	Select, use and combine a variety of software (KS2)	Use technology safely, respectfully and responsibly
Coding				Spreadsheets Touch typing Branching databases Graphing		Relationships Living in the wider world Health and wellbeing

Year 3	Coding (6 weeks)	Spreadsheets (3 weeks)	Touch typing (4 weeks)	Branching Databases (4 weeks)	Graphing (3 weeks)
Core knowledge	• To design algorithms using flowcharts. • To design an algorithm that represents a physical system and code this representation. • To use selection in coding with the 'if' command. • To understand and use variables in 2Code. • To deepen understanding of the different between timers and repeat commands.	• To use the symbols more than, less than and equal to, to compare values. • To use 2Calculate to collect data and produce a variety of graphs. • To use the advanced mode of 2Calculate to learn about cell references.	• To introduce 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 practise typing with the left and right hand.	• To sort objects using just 'yes' or 'no' questions. • To complete a branching database using 2Question. • 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.
Key vocabulary	Action, Algorithm, Bug, Code block, Code design, Command, Control, Debug/Debugging, Design mode, Event, If, Input, Output, Object, Properties, Repeat, Computer Simulation, Selection, Timer, Variable	Greater than, Less than, Equal to, Advance mode, Copy and paste, Columns, Cells, Delete key, Equals tool, Move Cell tool, Rows, Spin tool, Spreadsheet	Posture, Top row keys, Home row keys, Bottom row keys, Space bar	Branching database, Database, Question, Data	Graph, Field, Data, Bar chart, Block graph, Line graph, Pie chart, Row, Column
Online safety	Safe relationships: Understand that people on the internet are not always who they say they are and may have malicious intentions Respecting ourselves and others: Understand how to be kind in online and social environments		Media Literacy and digital resilience: Understand that websites use our age to target advertisements at us		Keeping safe: Understand that not everything on the internet is appropriate of children

Core Themes Year 4						
Computer Science				Information Technology		Digital Literacy
Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively	Select, use and combine a variety of software (KS2)	Use technology safely, respectfully and responsibly
Coding Logo				Spreadsheets Writing for different audiences		Relationships Living in the wider world Health and wellbeing

Year 4	Coding (6 weeks)	Spreadsheets (6 weeks)	Writing for different audiences (5 weeks)	Logo (4 weeks)
Core knowledge	• To use selection in coding with the 'if/ else' command. • To understand and use variables in 2Code. • To use flowcharts for design of algorithms including selection. • To use the 'repeat until' with variables to determine the repeat. • To learn about and use computational thinking terms; decomposition and abstraction.	• Formatting cells as currency, percentage, decimal to different decimal places or fraction. • Using the formula wizard to calculate averages. • Combining tools to make spreadsheet activities such as timed times tables test. • Using a spreadsheet to model a real-life situation. • To add a formula to a cell to automatically make a calculation in that cell.	• To explore how font size and style can affect the impact of a text. • To use a simulated scenario to produce a news report. • To use a simulated scenario to write for a community campaign.	• To learn the structure of the coding language of Logo. • To input simple instructions in Logo. • Using 2Logo to create letter shapes. • To use the Repeat function in Logo to create shapes. • To use and build procedures in Logo.
Key vocabulary	Action,Alert, Algorithm, Bug, Code design, Command, Control, Debug/Debugging, Design mode, Event, If,If/else,Get Input, Output, Object, Repeat, Simulation, Selection, Timer, Variable	Average, Advance mode, Copy and paste, Columns, Cells, Charts, Equals tool, Formula, Formula wizard, Move cell tool, Random tool, Rows, Spin tool, Spreadsheet, Timer	Font, Bold, Italic, Underline	Logo, Bk, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD
Online safety	Respecting ourselves and others: To understand how to build positive friendships online		Media Literacy and digital resilience: Have a more thorough and sophisticated understanding of personal information	Physical health and mental wellbeing: Understand the amount of time we spend and the activities we do online can effect wellbeing

	Core Themes Year 5					
	Computer Science				**Information Technology**	**Digital Literacy**
	Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively	Select, use and combine a variety of software (KS2)	Use technology safely, respectfully and responsibly
	Coding				**Spreadsheets** **Databases** **Concept maps**	**Relationships** **Living in the wider world** **Health and wellbeing**

Year 5	Coding (6 weeks)	Spreadsheets (6 weeks)	Databases (4 weeks)	Concept maps (4 weeks)
Core knowledge	• To represent a program design and algorithm. • To create a program that simulates a physical system using decomposition. • To explore string and text variable types so that the most appropriate can be used in programs. • To use the Launch command in 2Code Gorilla • To program a playable	• Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell. • To copy and paste within 2Calculate. • Using 2Calculate tools to test a hypothesis. • To add a formula to a cell to automatically make a calculation in that cell. • Using a spreadsheet to model a reallife situation and answer questions.	• 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 understand the need for visual representation when generating and discussing complex ideas. • To understand and use the correct vocabulary when creating a concept map. • To create a concept map. • To understand how a concept map can be used to retell stories and present information. • To create a collaborative concept map and present this to an audience.
Key vocabulary	Action,Alert, Algorithm, Bug, Code design, Command, Control, Debug/Debugging, Design mode, Event, If,If/else,Input, Output, Object, Repeat, Sequence, Simulation, Selection, Timer, Variable	Average, Advance mode, Copy and paste, Columns, Cells, Charts, Equals tool, Formula, Formula wizard, Move cell tool, Random tool, Rows, Spin tool, Spreadsheet, Timer	Avatar, Binary tree (branching database), Charts, Collaborative, Data, Database, Find, Record, Sort group and arrange, Statistics and reports, table	Audience, Collaboratively, Concept, Concept map, connection, idea, Node, Thought, Visual
Online safety	<u>Respecting ourselves and others:</u> Understand that people sometimes don't behave online in the way that they would in real life. Know a range of strategies to deal with online abuse.		<u>Media Literacy and digital resilience:</u> Understand the social media can exert pressure on us by making us feel jealous or insecure about our own lives Understand how advertising on the internet allows people to make money from your clicks.	<u>Keeping safe:</u> Recognise that our identities are defined by both our online and offline activities Understand that the online world creates unique issues, which can affect our self-image, mental health and identity

	Core Themes Year 6						
	Computer Science				**Information Technology**		**Digital Literacy**
	Design, write and debug programs	Sequencing and repetition	Logical reasoning with algorithms	Understanding computer networks	Using technologies purposefully and effectively	Select, use and combine a variety of software (KS2)	Use technology safely, respectfully and responsibly
	Coding Text Adventures Networks				Spreadsheets Quizzing		Relationships Living in the wider world Health and wellbeing

Year 6	Coding (6 weeks)	Spreadsheets (5 weeks)	Text Adventures (5 weeks)	Quizzing (6 weeks)	Networks (3 weeks to be complete post SATs)
Core knowledge	• To use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program. • To code, test and debug from these designs. • To use functions and tabs in 2Code to improve the quality of the code. • To code user interactivity using input functions.	• To use a spreadsheet to investigate the probability of the results of throwing many dice. • Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell. • To create graphs showing the data collected. • To type in a formula for a cell to automatically make a calculation in that cell. • Using a spreadsheet to create computational models and answer questions.	• To find out what a text adventure is. • To plan a story adventure. • To make a story-based adventure. • To introduce map-based text adventures. • To code a map-based text adventure.	• To create a picture-based quiz for young children. • 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. • Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.	• To learn about what the Internet consists of. • To find out what a LAN and a WAN are. • To find out how the Internet is accessed in school. • To research and find out about the age of the Internet. • To think about what the future might hold.
Key vocabulary	Action, Alert, Algorithm, Bug, Code design, Command, Control, Debug/Debugging, Design mode, Event, If, If/else, Input, Output, Object, Repeat, Sequence, Simulation, Selection, Timer, Variable	Average, Advance mode, Copy and paste, Columns, Cells, Charts, Count (how many) tool, Dice, Equals tool, Formula, Formula wizard, Move cell tool, Random tool, Rows, Spin tool, Spreadsheet, Timer	Concept map, Debu, Sprite, Function	Audience, Collaboration, Concept map, Database	Internet, World Wide Web, Network, Local Area Network (LAN), Wider Area Network (WAN), Router, Network cables, Wireless
Online safety	**Respecting ourselves and others:** Understand that attention can be both healthy and unhealthy		**Media Literacy and digital resilience:** Understand that we are often exposed to stereotypes in the media, which can affect the way that we see ourselves and other people Understand that stereotypes are sometimes used in the online world and that these are often unfair or discriminatory		**Keeping safe:** Understand that it is easy to edit images using computers, which can make it hard to tell the difference between truth and fake-news Understand how different groups have their own motivations, often based around commercial or ideological reasons Understand how social media tends to limit the number of opposing views that we encounter