Days Lane Computer Programmer

By the end of Days Lane children should be able to:

Vocabulary:

Coding:

Action, background, debug/debugging, decomposition, get input, number variable, predict, alert, button, command, developer, flowchart, if/else, nesting, algorithm, called, co-ordinates, event, function, launch command, object, procedure, prompt, run, simulation, timer, properties, scene, string, user input, repeat, selection, tab, variable

Online Safety:

digital footprint, phishing, password, screen time, PEGI rating, spoof website

Spreadsheets:

average function, columns, count (how many) tool formula, random tool, spreadsheet, advance mode, cells, dice, formula wizard, rows, timer, copy and paste, charts, equals tool, move cell tool, spin tool

Enrichment experiences:

Sphereo bolt robots – enhance coding and STEAM activities in KS2.

Utilise links with Bexley Grammar School and Warren Road Primary School.

Databases: Audience, blog post, blog, collaborative, blog page, icon **Text Adventures:** text-based adventure, sprite, concept map, debug, function **Networks:** internet, Local Area Network (LAN), World Wide Web, Wide Area Network (WAN), network, router, network cables, wireless **Quizzing:** audience, database, collaboration, quiz, concept map **Binary:** base 10, bit, denary, integer, megabyte (MB), tetrabyte (TB), base 2, byte, digit, kilobyte (KB), nibble, transistor, binary, decimal, gigabyte (GB), machine code, switch, variable **Spreadsheets with Microsoft Excel/Google Sheets:** Alignment, cell reference, formula€, range, style, value, calculate, chart, row, sum, workbook, cell, column, function, spreadsheet, text wrapping		

Skills

Coding:
To design a playable game with a timer and a score.
To plan and use selection and variables.
To use functions.
To use flowcharts to create and debug code.
To create simulation of a room in which devices can be controlled.
To turn a complex programming task into an algorithm.
To identify the important aspects of a programming task (abstraction).
To decompose important aspects of a programming task in a logical way, identifying appropriate coding structures that would work.
To test and debug a program as it is being worked on and use logical methods to identify a cause of a bug.
To identify a specific line of code that is causing a problem in a program and attempt to fix it.
To translate algorithms that include sequence, selection and repetition into code and nest these structures within each other.
To use inputs and outputs within coded programs (such as sound, movement and buttons) and represent the state of an object.
To make logical attempts to put separate parts of a program together in an algorithm.
To use filters when searching for digital content.

Online Safety:
To look for privacy seals of approval to identify secure sites.
To demonstrate safe and respectful use of a range of different technologies and online services.
To identify more discrete inappropriate behaviour online (e.g. someone trying to groom).
To use critical thinking to stay safe online.

Blogging:
To plan the theme and content for a blog.
To design and create online blogs.
To write a blog and a blog post.
To contribute to an existing blog.

Networks:
To research and find out about the age of the Internet.

Binary:

To examine how whole numbers are used as the basis for representing all types off data in digital systems.

Spreadsheets:
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.
To use a spreadsheet to plan how to spend pocket money and the effect of saving money.
To use filters when searching for digital content.

Text Adventures:
To use 2Connect to plan a story adventure.
To make a story-based adventure using 2Create a Story.
To use 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.

Quizzing:
To create a picture-based quiz for young children.
To use the questions types within 2Quiz.
To make a quiz that requires the player to search a database.
To make a quiz to test teachers or parents.

Knowledge

Computer Science

- ***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.***

Coding:
To know how the launch command works.
To understand how functions are crated and called.
To understand how user input can be used in a program.
To interpret a program in parts and explain the program as a whole.

Online Safety:
To understand benefits and risks of mobile devices broadcasting the location of the user/device.
To know the benefits and risks of giving personal information.
To understand the meaning of a digital footprint.
To know what appropriate online behaviour is.
To understand how information online can persist.
To know the importance of balancing game and screen time with other parts of life.
To know the positive and negative influences of technology on health and the environment.
To know the difference between the internet and the World Wide Web.
To know what a WAN and LAN is and describe the process of how access to the internet in school is possible.
To explain how accurate and reliable a webpage and its content is.
To know how the launch command works.
To understand how functions are created and called.
To understand how user input can be used in a program.
To know how 2Code can be used to make a text-adventure game.

Blogging:
To know the purpose of writing a blog.
To know the features of a successful blog.
To know the effect upon the audience of changing the visual properties of the blog.
To understand how and why blog posts are approved by the teacher.
To know the importance of commenting on blogs.

Networks:
To understand what the internet consist of.
To know what a WAN and LAN are.
To know how the Internet is accessed in school.
To consider what the future might hold.

Binary:
To understand that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (binary digits).
To know that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware robotics.

Information Technology

- ***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.***

Coding:

To know how the launch command works.
To understand how functions are crated and called.
To understand how user input can be used in a program.
To interpret a program in parts and explain the program as a whole.

Spreadsheets:

To know how to add a formula so that the cell shows the total of a column of cells.
To understand what a computational model is and what it can be used for.
To know what data needs to be collected for the type of spreadsheet being created.

Blogging:

To know the purpose of writing a blog.
To know the features of a successful blog.
To know the effect upon the audience of changing the visual properties of the blog.
To understand how and why blog posts are approved by the teacher.
To know the importance of commenting on blogs.

Text Adventures:

To know what a text adventure is.
To understand why it is important to plan a text based adventure.

Quizzing:

To understand the factors that need to be considered when creating a quiz.
To know question types within 2Quiz.
To know what should be included in a quiz.

Digital Literacy:

- ***Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.***

Online safety:

To know the value of protecting privacy online.

Blogging:

To know the purpose of writing a blog.
To know the features of a successful blog.
To know the effect upon the audience of changing the visual properties of the blog.
To understand how and why blog posts are approved by the teacher.
To know the importance of commenting on blogs.

Vocabulary						
Unit	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Online Safety	adult, upsets, worries, kind	log in, avatar, log out, save, username, my work, notification, password, topics, tools	search, display board, internet, sharing, email, attachment, digital footprint	password, concept map, webpage, internet, username, spoof website, blog, website, PEGI rating	computer virus, digital footprint, malware, spam, cookies, email, phishing, copyright, identity theft, plagiarism	online safety, reputable, shared image, reference, smart rules, encryption, plagiarism, bibliography, password, identity theft, citations
Coding	programming, safe, Internet, online, beebot, robot, instructions, directions, buttons, car	action, algorithm, background, code, command, debug/debugging, event, execute, input, instructions, object, output, properties, run, scale, scene, sound, when clicked	action, algorithm, background, button, collision detection, debug/debugging, design mode, event, key pressed, nesting, object, predict, properties, run, scale, scene, sequence, sound, test, text, timer	action, alert, collision detection, develop, nesting, plan, repeat, sequence, scene, algorithm, blocks of command, debug/debugging, execute, object, predict, properties, sound, test, background, button, command, event, flowchart, output, procedure, timer, values	action, button, debug/debugging, if/else, object types, prompt for input, repeat until, timer, alert, code block, execute, flowchart, nesting, predict, repeat, selection, variable, background, command, co-ordinates, if, number variable, prompt, properties, variable value	action, button, decomposition, nesting, repeat, run, simplify/simplified, tab, abstraction, called, event, function, physical system, score, simulation, timer, algorithm, co-ordinates, if, object, properties, sequence, variable
Spreadsheets		arrow keys, backspace key, cursor, columns, cells, clipart, count tool, delete key, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet	backspace key, copy, paste, columns, cells, count tool, delete key, equals tool, image toolbox, lock tool, move cell tool, rows, speak tool, spreadsheet	copy and paste, delete key, move cell tool, columns, equals tool, rows, advance mode, cells, spin tool, spreadsheet	average, columns, equals tool, move cell tool, spin tool, advance mode, cells, formula, random tool, spreadsheet, copy and paste, charts, formula wizard, rows, timer	average, columns, equals tool, move cell tool, spin tool, advance mode, cells, formula, random tool, spreadsheet, copy and paste, charts, formula wizard, rows, timer

Presenting			concept map, node, animated, quiz, non-fiction, presentation, narrative, audience	animation, design templates, media, slide, text box, entrance animation, presentation, slideshow, text formatting, audio, font, presentation program, stock image, transition		
Effective Searching			internet, search, search engine		Easter egg, search, website, internet, search engine, internet browser, spoof website	Audience, concept map, node, collaboratively, connection, thought, concept, idea, visual
Making Music			bpm, composition, digitally, instrument, music, sound effects (Sfx), soundtrack, tempo, volume		pitch, tempo, rippler, rhythm, dynamics, house music, pulse, melody, texture	
Data Bases (including branching)				branching database, question, data, database		database, avatar, charts, sort, group ad arrange, binary tree, collaborative, find, statistics and reports, data, record, table
Pictograms		pictogram, data, collate				
Lego Builders		instruction, algorithm, computer, program, debug				

Maze Explorers		direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn, debug, instruction, algorithm				
Animated Story Books		animation, e-book, font, file, sound effect, display board				
Questioning			pictogram, question, data, collate, binary tree, avatar, database			
Creating Pictures			impressionism, palette, pointillism, share, surrealism, template			
Touch Typing				posture, bottom row keys, top row keys, space bar, home row keys		
Email				communication, send, formatting, address book, email, CC, report to the teacher, save to draft, compose, attachment, password		
Simulations				Simulation		
Graphing				graph, bar chart, field, block graph, data, line graph		

Writing for different audiences					font, underline, bold, italic	
Logo					LOGO, RT, SETPC, PD, BK, LT, SETPS, FD, REPEAT, PU	
Animation					animation, flipbook, play, background, onion skinning, sound, frame, stop motion, video clip	
Hardware Investigators					motherboard, graphics card, speakers, CPU, network card, keyboard and mouse, RAM, monitor	
Game Creator						animation, evaluation, interactive, perspective, computer game, image, screenshot, customise, instructions, texture, playability
Modelling						CAD, 2D, points, modelling, viewpoint, net, template, 3D, polygon, 3D printing

Word Processing with Microsoft Word/Google Docs						copyright, font, merge cells, readability, text wrapping, cursor, in-built styles, paragraph formatting, template, word art, document, text formatting, word processing tool
Technology in our lives	computer, laptop, tablet, whiteboard, touch, camera, television, technology					
Handling Data	pictures, video					
Multimedia	objects, shape, screen					

Enrichment experiences					
Reception: Sphero indi Safer internet day workshop and activities	**Year 1:** Sphero indi Safer internet day workshop and activities	**Year 2:** Sphero indi Stop-go animation club Safer internet day workshop and activities	**Year 3:** Sphero bolts Safer internet day workshop and activities Programming/green screen club	**Year 4:** Sphero bolts Safer internet day workshop and activities	**Year 5:** Sphero bolts Safer internet day workshop and activities Bexley Grammar girls workshop

Knowledge

Computer Science

- ***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.***
- ***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.***

Unit	Reception	Year 1	Year 2	Year 3	Year 4	Year 5
Online Safety	To know how to tell an adult if something upsets or worries me when I am online. To know how to be kind to my friends. To talk about the amount of time I spend on a device. To know how to be careful with				To understand that network and communication components can be found in many different devices which allow them to join the internet. To know how to protect themselves from online identity theft. To know that information put online leaves a digital footprint or trail and can aid identity theft. To know that copying the work of others and presenting it as their own is called 'plagiarism'.	To understand the impact that sharing digital content can have. 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 know how to reference sources in work. To know how to ensure reliability through using different methods of communication.

	technology devices.				To understand the consequences of plagiarism. To know the importance of balancing game and screen time with other parts of their lives.	To know the importance of computer networks and how they help solve problems and enhance communication. I know the main dangers that can be perpetrated via computer networks. I understand what personal information is and know strategies for keeping this safe.
Coding	To know how to make a floor robot move. To know how to make choices about the buttons/icons I press, click or touch.	To know that an algorithm written for a computer is called a program. To identify that if something does not work how it should it is because the code is incorrect. To read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	To understand that an algorithm is a set of instructions to complete a task. To know that an algorithm needs to be carefully planned so it will work when made into a code. To understand that algorithms follow a sequence. To know what will happen in a programme. To identify the parts of a program that respond to specific events and initiate specific actions. To understand the collision detection event. To know what different events do in code.	To identify the difference in using between the effect of a time or repeat command in a code. To know that a variable stores information while a program is running (executing). To identify 'If' statements, repetition and variables. To understand what a flowchart is and how they're used in computer programming. To understand that there are different types of timers. To understand the importance of nesting.	To understand the selection in computer programming. To know how an IF statement works. To know how an IF/ELSE statement works. To know how to use co-ordinates in computer programming. To understand the purpose of the 'repeat until' command. To know what a variable is in programming. To know how to change the value of variables in a program.	To understand what a simulation is. To know what decomposition and abstraction are in computer science. To know how to use friction in code. To begin to understand what a function is and how functions work in code. To know what the different variable types are and how they are used differently. To understand how to create a sting. To know what concatenation is and how it works.

			To understand the function of buttons in a program. To understand and debug simple programs. To understand different objects have different properties.			
Effective Searching					To understand that network and communication components can be found in many different devices which allow them to join the internet.	
Lego Builders		To explain that an algorithm is a set of instructions. To know that an algorithm written for a computer is called a program. To identify what is wrong when steps are out of order in instructions. To compare the effects of adhering strictly to instructions to completing tasks without complete instructions. To identify how the order of instructions affects the result.				

Maze Explorers		To explain that an algorithm is a set of instructions. To identify what is wrong when steps are out of order in instructions. To understand the functionality of 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.				
Email				To identify different ways that the internet can be used for communication. To describe appropriate email conventions when communicating.		
Logo					To know that Logo is a text-based coding language. To know the structure of the coding language of Logo.	
Hardware Investigators					To know the different parts that make up a computer. To know the main component parts of hardware which allow computers to join and form a network.	

					To understand that network and communication components can be found in many different devices which allow them to join the internet.	
Game Creator						To know what makes a good computer game. To understand why it is important to continually evaluate a game.
Information Technology						
• ***Use technology purposefully to create, organise, store, manipulate and retrieve digital content.***				● ***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.***		
Unit	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Online Safety						To know how accurate, safe and reliable the content is on a webpage.
Coding		To know that an algorithm written for a computer is called a program. To identify that if something does not work how it should it is			To understand the selection in computer programming. To know how an IF statement works. To know how an IF/ELSE statement works.	To understand what a simulation is. To know what decomposition and abstraction are in computer science.

		because the code is incorrect. To read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.			To know how to use co-ordinates in computer programming. To understand the purpose of the 'repeat until' command. To know what a variable is in programming. To know how to change the value of variables in a program.	To know how to use friction in code. To begin to understand what a function is and how functions work in code. To know what the different variable types are and how they are used differently. To understand how to create a sting. To know what concatenation is and how it works.
Spreadsheets		To know what a spreadsheet program looks like.	To identify the role of copy and paste in spreadsheet. To understand how spreadsheet can be used in real life scenarios.	To understand cell references.	To know what a spreadsheet model of a real-life situation is and what I can be sued for. To know which tools can be used to create a timed times tables test (in 2Calculate). To know what type of data can be best represented by a line graph.	To know what a spreadsheet model of a real-life situation is and what it can be sued for.
Presenting			To understand the importance of audience when planning a presentation and the need to plan a presentation first.	To identify what a presentation program is used for. To identify what features can be used to make a presentation more engaging. To understand the purpose of the Slides tool.		
Effective Searching			To understand how to search for information on the internet.		To understand the purpose of a search engine and the main features within it.	

			To identify what a search engine is.			
Making Music			To know how music can be used to express feelings.		To know the main elements of music. To understand rhythm and tempo. To know the difference between melody and rhythm.	
Data Bases (including branching)	To know about different kinds of information such as pictures, video, text and sound.			To understand what is meant by data and what a database is. To identify that a branching database is sued to classify groups of objects.		To know what a database is. To know why the collaborative feature is important. To know how information can be sorted in a database.
Pictograms		To understand that data can be represented in picture format.				
Animated Story Books		To identify what an animated story is. To identify ways an animated story can be improved.				
Questioning			To understand data handling tools that can give more information than pictograms.			

Creating Pictures			To understand the style of a range of artists. To understand the functions of 2Paint a Picture.			
Touch Typing				To understand the correct way to sit at the keyboard.		
Email				To identify different ways that the internet can be used for communication. To describe appropriate email conventions when communicating.		
Simulations				To understand what simulations are and what kind of simulations there are.		
Graphing				To identify that a graph is a diagram representing part of a set of data. To identify what the frame lines on aa graph are called. To identify different kinds of graphs.		
Writing for different audiences					To know how font size and style can affect the impact of a text. To know that changing font when writing can help make things easier to read and highlight import parts of a text.	

Animation					To know what makes a good animated film or cartoon. To understand how animations are created by hand. To know that animation can be created in a similar way using the computer. To understand onion skimming in animation.	
Game Creator						To know what makes a good computer game. To understand why it is important to continually evaluate a game.
Modelling						To know how CAD software is used in industry.
Word Processing with Microsoft Word/Google Docs						To know what a word processing tool is for. To know how to use word wrap with images and text.
Concept Maps						To understand the need for visual representation when generating and discussing complex ideas. To understand the uses of a 'concept map'. To understand and sue the correct vocabulary when creating a concept map.

						To know how a concept map can be used to retell stories and information.
Grouping and Sorting		To identify ways objects can be sorted.				
Multimedia	To know how to create shape and text on a screen.					

Digital Literacy

- ***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 have concerns about content or contact on the internet or other online technologies.***
- ***Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact.***

Unit	Reception	Year 1	Year 2	Year 3	Year 4	Year 5
Online Safety		To understand the importance of keeping information private. To take ownership of work and save this in a private space.	To know the consequences of not searching online safely. To identify where technology is used at school. To know how to refine searches using the Search tool. To understand how to talk to others in an online situation. To understand that information put online	To explain the importance of having a secure password and not sharing it with others. To know what makes a safe password. To know methods for keeping passwords safe. To explain the negative consequences of not keeping passwords safe and secure.	To understand the online safety rules we learn at school. To know they have a right to privacy both on and offline. To know that wellbeing can be affected by the way technology is used. To know immediate strategies to keep safe online.	To know online safety rules taught at school. To know how to relate appropriate online behaviour to their right to have personal privacy. To know how to not let mental wellbeing be affected by use of online technologies and services.

			leaves a digital footprint or trail. To identify the steps that can be taken to keep personal data and hardware secure.	To understand how the internet can be used in effective communication. To understand how a blog can be used to communicate with a wider audience. To know the meaning of ae restrictions symbols on digital media and devices. To understand the importance of keeping safe online, behaving respectfully and the importance of conduct when suing familiar communication tools (such as 2Email). To know more than one way to report unacceptable content and contact.		
Coding			To understand that creations, such as programs, need similar skills to the adult world. To explain that an algorithm is a set of instructions to complete a task. To know that an algorithm needs to be carefully planned so it will work when made into a code. To understand that algorithms follow a sequence.			

			To know what will happen in a programme. To identify the parts of a program that respond to specific events and initiate specific actions. To understand the collision detection event. To know what different events do in code. To understand the function of buttons in a program. To understand and debug simple programs.			
Email				To identify different ways that the internet can be used for communication. To describe appropriate email conventions when communicating.		
Effective Searching			To know the consequences of not searching online safely.			
Technology Outside School	To know technology used at home and at school.	To identify what technology is. To give examples of technology in school. To give examples of technology at home. To distinguish between objects that use modern				

		technology and those that do not e.g. know that a chair uses old technology and a smart phone uses new technology.				

Skills						
Unit	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Online Safety	To ask an adult when I want to use the Internet. To tell an adult if something upsets or worries me when I am online. To be kind to my friends. To talk about the amount of time I spend on a device. To be careful with technology devices. To use a safe part of the internet to play and learn.	To log in safely. To keep login information safe. To save work in a safe place. To find saved work and teacher comments. To search Purple Mash to find resources. To add pictures and text to work. To open, save and print.	To use the Search tool to refine searches. To open and send simple online communications in the form of email. To share work and communicate electronically (on Purple Mash). To report unkind behaviour and things that are upsetting online to a trusted adult. To use Email as a communication tool (using 2Respond simulations). To open and send simple online	To create a secure password. To use communication tools (such as 2Email) respectfully and use good etiquette. To report unacceptable content and contact online in more than one way to a trusted adult.	To use different online technologies safely. To use a few different online services safely. To report any concerns with content and contact online. To use immediate strategies to keep safe. To share digital content using a variety of applications (such as 2Blog, 2Email and Display Boards). To identify appropriate behaviour when	To search the internet with a consideration for the reliability of the results of sources to check validity. To use different methods of communication to ensure reliability. To use the most appropriate form of online communication according to the digital content (e.g. 2Email, 2Blog and Display Boards). To search precisely when using a search engine (e.g. adding additional words or removing words to help find better results). To demonstrate the safe and respectful use of different online technologies and online services.

			communications in the form of email.		participating or contributing to collaborative online projects for learning.	
Coding	To make a floor robot move. To use simple software to make something happen To make choices about the buttons/icons I press, click or touch. To operate simple equipment.	To try and fix a code if it isn't working properly. To predict what is going to happen in a program. To change content on a file such as text, sound and images. To use code to make a computer program. To use an event to control an object. To plan and make a computer program. To name work. To save work. To find work.	To create a computer program using an algorithm. To create a program using a given design. To design an algorithm that follows a timed sequence. To design a simple program using 2Code that achieves a specific purpose. To identify and correct errors. To find and correct some errors in a programme. To spot something in a programme that has an action or effect. To design an algorithm that follows a timed sequence.	To make a real-life situation into an algorithm for a program. To design an algorithm carefully, thinking about what can be done to it and how it can be turned into a code. To identify an error in a program (that prevents it following the desired algorithm) and fix it. To experiment with timers to achieve repetition effects in programs. To read programs with several steps and predict what it will do. To select the right timer type for purpose. To use the repeat command. To design and create an interactive scene.	To turn a real-life situation into an algorithm, using a design in code. To use repetition in a code. To use timers in program designs accurately to create repetition effects. To use selection in programming. To use variables within a program. To use the user inputs and output features within a program. To identify errors in a code by using different methods. To read programs that contain several steps and predict the outcomes with increasing accuracy. To create and improve solutions to a problem based on feedback.	To begin to simplify code. To create a playable game. To program a simulation using 2Code. To make more complex real-life problems into algorithms for a program. To test and debug programs. To convert algorithms that contain sequence, selection and repetition into code that works. To use sequence, selection, repetition and other coding structures in code. To use logical methods to identify the cause of any bug with support to identify the specific line of code.

					To review solutions that others have created, using a checklist of criteria. To work collaboratively to create content and solutions. To use a number variable. To create a playable game.	
Spreadsheets			To organise data using a database. To use image, lock, move cell, speak and count tool (2Calculate) to make a counting machine. To copy and paste (in 2Calculate). To use the totalling tools. To use spreadsheet for money calculations. To use the equals too (2Calculate) to check calculations. To collect data and produce a graph (2Calculate).	To collect data and input it into software (e.g. 2Calculate). To analyse data using features within software to help (such as formula in 2Caculate). To present data and information using different software. To use the symbols more than, less than and equal to, to compare values.	To format cells as currency, percentage, decimal to different decimal places or fraction. To use formula wizard to calculate averages. To combine tools to make spreadsheet activities. To use a spreadsheet to model a real-life situation. To add formula to a cell to automatically make a calculation in that cell. To work collaboratively to create content and solutions.	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. To use a spreadsheet to model a real-life problem. To create 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.

Presenting		To change content on a file such as text, sound and images. To enter data into spreadsheet cells. To use 2Calculate image tools and control tools (lock, move cell, speak and count). To name work. To save work. To find work.	To use several programs to organise information e.g. binary trees or spreadsheets. To include photos, text and sound in creations. 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 present data and information using different software. To collect, analyse, evaluate and present data. To consider what software is most apocopate for a given task. To add slides and media to presentations. To format text appropriately. To add shapes and lines to enhance a presentation. To use skills learn to design and create an engaging presentation.		
Effective Searching			To find information needed using a search engine. To find data using specific searches. To create a leaflet to help someone search for information on the internet.		To make predictions about the accuracy of information contained within the information on a webpage. To locate information on the search results page. To use search effectively to find out information.	

					To assess whether an information source is true and reliable. To share digital content using a variety of applications (such as 2Blog, 2Email and Display Boards).	
Making Music			To edit digital data such as music composition. To make music digitally (using 1Sequence). To edit and combine sounds (using 2Sequence). To edit and refine composed music. To upload a sound from a bank of sounds into the Sounds section. To record and upload environmental sounds into Purple Mash and sue these sounds to create tunes (in 2Sequence).		To create a melodic phrase. To electronically compose a piece of music. To work collaboratively to create content and solutions.	
Data Bases (including branching)	To talk about different kinds of information such as pictures, video, text and sound.			To collect data and input it into software. To analyse data using features within software to help.		To search for information in a database. To contribute to a class database. To create a database around a chosen topic.

				To present data and information using different software (such as 2Question). To sort objects into just 'yes' or 'no' questions. To complete a branching database (2Question). TO create a branching database of the children's voice.		
Pictograms		To change content on a file such as text, sound and images. To contribute to a class pictogram. To use a pictogram to record the results of an experiment. To name work. To save work. To find work.				
Lego Builders		To work out what is wrong when the steps are out of order in instructions. To follow and create simple instructions on the computer.				
Maze Explorers		To work out what is wrong when the steps are out of order in instructions.				

		To predict what is going to happen in a program. To use the additional direction keys as part of an algorithm. To create a longer algorithm for an activity. To set and access peer challenges.				
Animated Story Books		To add sound, pictures and text to a program. To change content on a file such as text, sound and images. To add animation to a story. To share e-books on a class display board. To name work. To save work. To find work.				
Questioning			To organise data using a database. To find data using specific searches. To use several programs to organise information e.g. binary trees or spreadsheets. To use yes/no questions to separate information.			

			To construct a binary tree to identify items. To use a database to answer more complex search questions. To use the Search tool to find information.			
Creating Pictures			To include photos, text and sound in creations. To name, save and find work. To use the functions of the 2Paint a Picture tool. To recreate the Impressionist and Pointillist style of art. To use the style and lines template and patterns template to recreate artwork in the style of Piet Mondrian and William Morris. To use a range of brushes and the water tool to create artwork.			
Touch Typing				To use the home, top and bottom row keys,		

				To practise typing with the left and right hand.		
Email				To use email to respond to other appropriately and attach files (e.g. 2Email). To open and respond to an email using an address book. To create purposeful (appropriate) content and attach this to emails. To use communication tools (such as 2Email) respectfully and use good etiquette. To use email safely. To explore a simulated email scenario.		
Simulations				To analyse and evaluate a simulation.		
Graphing				To collect data and input it into software. To enter data into a graph and answer questions. To analyse data using features within software to help.		

				To present data and information using different software (such as 2Graph). To present the results of an investigation in graphic form.		
Writing for different audiences					To use a simulated scenario to produce a news report. To use a simulated scenario to write for a community campaign. To work collaboratively to create content and solutions. To share digital content using a variety of applications (such as 2Blog, 2Email and Display Boards).	
Logo					To input simple instructions in logo. To create letter shapes (using 2Logo). To use the Repeat function in Logo to create shapes. To use and build procedures in logo.	

Animation					To add backgrounds and sounds to animations. To share animation on a class display board and by blogging.	
Hardware Investigators					To recall the different parts that make up a computer.	
Game Creator						To test and debug programs. To plan a game. To design and create a game environment. To design and create a game quest. To finish and share a game. To self and peer evaluate.
3D Modelling						To design a 3D Model to fit certain criteria. To refine and print a model.
Concept Maps						To create a concept map. To create a collaborative concept map and present this to an audience. To use collaborative modes (such as 2Connect) to work with others and share it.
Word Processing with Microsoft Word/Google Docs						**Google Docs:** To add and edit images to a word document. To know how to 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 the sharing capabilities in Google Docs. To use tables within to present information. **Microsoft Word:** To add and edit images to a word document. 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 explore templates. To consider page layout including heading and columns.
Technology outside school	To talk about technology used at home and at school.	To find examples I the local community of where technology is used. To record examples of technology outside school.				
Grouping and Sorting		To sort items using a range of criteria. To sort sound, pictures and text. To name work.				

		To save work. To find work.				
Multimedia	To move objects on a screen. To create shape and text on a screen. To use technology to show my learning.					

Online Safety						
Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge						
To know how to tell an adult if something upsets or worries me when I am online. To know how to be kind to my friends. To talk about the amount of time I spend on a device. To know how to be careful with technology devices.	To understand the importance of keeping information private. To take ownership of work and save this in a private space.	To know the consequences of not searching online safely. To identify where technology is used at school. To know how to refine searches using the Search tool. To understand how to talk to others in an online situation. 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 explain the importance of having a secure password and not sharing it with others. To know what makes a safe password. To know methods for keeping passwords safe. To explain the negative consequences of not keeping passwords safe and secure. To understand how the internet can be used in effective communication. To understand how a blog can be used to communicate with a wider audience. To know the meaning of ae restrictions symbols on digital media and devices. To understand the importance of keeping safe online, behaving	To understand that network and communication components can be found in many different devices which allow them to join the internet. To know how to protect themselves from online identity theft. To know that information put online leaves a digital footprint or trail and can aid identity theft. To know that copying the work of others and presenting it as their own is called 'plagiarism'. To understand the consequences of plagiarism. To know the importance of balancing game and	To understand the impact that sharing digital content can have. 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 know how to reference sources in work. To know how to ensure reliability through using different methods of communication. To know the importance of computer networks and how they help solve problems and enhance communication.	To understand benefits and risks of mobile devices broadcasting the location of the user/device. To know the benefits and risks of giving personal information. To understand the meaning of a digital footprint. To know what appropriate online behaviour is. To understand how information online can persist. To know the importance of balancing game and screen time with other parts of life. To know the positive and negative influences of technology on health and the environment. To know the difference between the internet

			respectfully and the importance of conduct when suing familiar communication tools (such as 2Email). To know more than one way to report unacceptable content and contact.	screen time with other parts of their lives. To understand the online safety rules they learn at school. To know that they have a right to privacy both on and offline. To know that wellbeing can be affected by the way technology is used. To know immediate strategies to keep safe online.	I know the main dangers that can be perpetrated via computer networks. I understand what personal information is and know strategies for keeping this safe. To know how accurate, safe and reliable the content is on a webpage. To know online safety rules taught at school. To know how to relate appropriate online behaviour to their right to have personal privacy. To know how to not let mental wellbeing be affected by use of online technologies and services.	and the World Wide Web. To know what a WAN and LAN is and describe the process of how access to the internet in school is possible. To explain how accurate and reliable a webpage and its content is. To know how the launch command works. To understand how functions are created and called. To understand how user input can be used in a program. To know how 2Code can be used to make a text-adventure game.
Skills						
To ask an adult when I want to use the Internet. To tell an adult if something upsets or worries me when I am online. To be kind to my friends.	To log in safely. To keep login information safe. To save work in a safe place. To find saved work and teacher comments. To search Purple Mash to find resources. To add pictures and text to work.	To use the Search tool to refine searches. To open and send simple online communications in the form of email. To share work and communicate electronically (on Purple Mash). To report unkind behaviour and things	To create a secure password. To use communication tools (such as 2Email) respectfully and use good etiquette. To report unacceptable content and contact online in more than one way to a trusted adult.	To use different online technologies safely. To use a few different online services safely. To report any concerns with content and contact online. To use immediate strategies to keep safe. To share digital content using a variety of	To search the internet with a consideration for the reliability of the results of sources to check validity. To use different methods of communication to ensure reliability. To use the most appropriate form of	To look for privacy seals of approval to identify secure sites. To demonstrate safe and respectful use of a range of different technologies and online services. To identify more discrete inappropriate behaviour online (e.g. someone trying to groom).

To talk about the amount of time I spend on a device. To be careful with technology devices.	To open, save and print.	that are upsetting online to a trusted adult. To use Email as a communication tool (using 2Respond simulations). To open and send simple online communications in the form of email.		applications (such as 2Blog, 2Email and Display Boards). To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.	online communication according to the digital content (e.g. 2Email, 2Blog and Display Boards). To search precisely when using a search engine (e.g. adding additional words or removing words to help find better results). To demonstrate the safe and respectful use of different online technologies and online services.	To use critical thinking to stay safe online.