

Autumn	Unit 1 - Coding	Unit 2 – Online Safety	Unit 3 – Spreadsheets
<b>Number of Lessons</b>	6	4	5 (Continued in Spring Term)
<b>Outcome</b>	Children will know how to use conditional commands, timers and repeat functions to allow a code to re-run. Children will have a better understanding of the types of code that can be used.	Children will be able to show an awareness of identity theft, malware and viruses, and staying safe online.	Children will create charts and graphs and develop their spreadsheet skills by incorporating more tools.
<b>Curriculum Content: Knowledge</b>	<p><b>Lesson Question</b> How do I create a sketch that represents a program design?</p> <p><b>Substantive Knowledge</b> - A sketch helps me to visually see what a program might look like or do</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I protect myself from identity theft?</p> <p><b>Substantive Knowledge</b> - Identity theft is when someone pretends to be someone else. - Spam is messages sent over the Internet, typically to many users, for the purposes of advertising, phishing or spreading harmful content</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I use formula wizard to create percentages and decimals from data?</p> <p><b>Substantive Knowledge</b> - Formula Wizard is a feature that guides you in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells. - All formula must begin with “=”</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> What is an “if/else” statement?</p> <p><b>Substantive Knowledge</b> -During a test if the condition is not met, then the commands inside the ‘else block’ are run.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> What is malware?</p> <p><b>Substantive Knowledge</b> - Malware is software that is specifically designed to disrupt, damage, or gain unauthorized access to a computer system. - A computer virus is a piece of code which can copy itself and typically has a damaging effect on the device, such as corrupting the system or destroying data. - Cookies are a small amount of data generated by a website and saved by a web browser. Its purpose is to remember information about the user.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How do I use the timer and spin buttons?</p> <p><b>Substantive Knowledge</b> - A timer, when placed in the spreadsheet, adds 1 to the value of the cell to its right every second until it is clicked again. - The spin Tool adds or subtracts 1 from the value of the cell to its right.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> How can I make a character repeat an action?</p> <p><b>Substantive Knowledge</b> - The repeat command can be set to a specific amount or can be set to continuous on a loop</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> What is plagiarism?</p> <p><b>Substantive Knowledge</b> - Plagiarism is when you use someone else's words or ideas and pass them off as your own.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I use data to create a line graph?</p> <p><b>Substantive Knowledge</b> - A chart tool allows users to create different graphs and charts.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>

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	<p><b>Lesson Question</b> How do I use a timer in my coding?</p> <p><b>Substantive Knowledge</b> - Variable Watch tells us what variables exist in the program.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How much “screen-time” is healthy?</p> <p><b>Substantive Knowledge</b> - Screen time is how much time an individual spends looking at a device or laptop.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How do I use a spreadsheet for budgeting?</p> <p><b>Substantive Knowledge</b> - Formula wizard can help keep track of calculations</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> How do I create a control simulation?</p> <p><b>Substantive Knowledge</b> - Simulations can be used to explore options and to test predictions.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>		<p><b>Lesson Question</b> How do I use a spreadsheet to explore place value?</p> <p><b>Substantive Knowledge</b> - The random tool gives a random value between 0 and 9 to a cell.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> What is decomposition and abstraction?</p> <p><b>Substantive Knowledge</b> - Decomposition is breaking a task into its component parts so that each part can be coded separately and brought together in the program - Abstraction is removing unnecessary details to get the program functioning.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>		
<b>Vocabulary</b>	Action, alert, algorithm, bug, code block, code design, command, control, debug, design mode, event, if, if/else, input, object, properties, repeat, simulation, selection, timer, variable	Computer virus, cookies, copyright, digital footprint, email, identity theft, malware, phishing, plagiarism, spam	Average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer.
<b>Resources</b>	2Code	2Connect (MindMap) 2Publish Display boards	2Calculate Microsoft Excel/ Google Sheets
<b>Curriculum Progression (including coverage of National Curriculum)</b>	A unit of work which enables children to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems Pupils will also use sequence, selection and repetition in programs; work with variables and various forms of input and output.	A unit of work where children learn about some of the different ways they can use technology safely. Children will recognise some of the dangers when using technology and will know how to report these.	A unit of work which supports children with entering code into a spreadsheet to achieve a specific purpose/goal.
<b>Coherence (links to other subjects &amp; prior learning)</b>	<b>Prior Learning</b> – Y2 Unit 1- Coding, Y3 Unit 1- Coding, Y3 Unit 7- Simulations <b>Subject Links</b> – English, Maths	<b>Prior Learning</b> – Y1 Unit 1- Online Safety and using Purple Mash, Y2 Unit 2- Online Safety, Y3 Unit 2- Online Safety <b>Subject Links</b> – PSHE	<b>Prior Learning</b> – Y1 Unit 8- Spreadsheets, Y2 Unit 3- Spreadsheets, Y3 Unit 3- Spreadsheets <b>Subject Links</b> – Maths (data handling), PSHE

Spring	Unit 4 – Writing for Different Audiences	Unit 5 – Logo
<b>Number of Lessons</b>	5	4
<b>Outcome</b>	Children will be able to develop their typing skills further by producing text documents for a specific purpose. Children will recognise how to format a document so that it matches a specific genre.	Children will understand how to program a robot (logo/beebot/turtle) to follow a set of instructions which might be for a set time or repeated.
<b>Curriculum Content: Knowledge</b>	<p><b>Lesson Question</b> How can I change the font?</p> <p><b>Substantive Knowledge</b> - Font is the style of writing used when typing on a document. -The size of the font is represented by a number</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I input simple instructions into Logo?</p> <p><b>Substantive Knowledge</b> - BK - move backwards, FD – move forward, RT – turn right, LT – turn left. - When going FD or BK the number refers to the distance, LT or RT the number refers to the number of degrees to rotate.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question (2&amp;3)</b> What should be included in a newspaper report?</p> <p><b>Substantive Knowledge</b> - A template helps format the page to ensure a text matches a specific genre</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I create Logo instructions to draw patterns?</p> <p><b>Substantive Knowledge</b> - PU: lift the pen up off the screen, PD: put the pen back down on the screen.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> What should be included in a campaign letter?</p> <p><b>Substantive Knowledge</b> - Font sizing and the use of tools like bold, italics and underline can help a reader to notice key points better</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I use the repeat function in Logo to create shapes?</p> <p><b>Substantive Knowledge</b> - The repeat function repeats a set of instructions a specified number of times. - RPT stands for repeat.</p> <p><b>Procedural Knowledge</b> -</p> <p><b>Outcome:</b></p>

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	<b>Lesson Question</b> What should be included in a campaign poster? <b>Substantive Knowledge</b> - Images can be added to a text document - A page border creates more of a visual effect on posters <b>Procedural Knowledge</b> - <b>Outcome:</b>	<b>Lesson Question</b> How do I use procedures in Logo? <b>Substantive Knowledge</b> - By creating and naming a procedure, certain shapes can be start automatically. - Pen colour can be changed by using the commands SETPC and SETPS followed by a colour name or number. <b>Procedural Knowledge</b> - <b>Outcome:</b>
<b>Vocabulary</b>	Font, bold, italic, underline, text, document, visual, poster, letter, format, page outline, page border, genre, writing.	Logo, BK, FD, RT, LT, repeat, SETPC, SETPS, PU, PD, command, procedure, instructions, pen, screen, patterns.
<b>Resources</b>	Writing Templates 2Simulate 2Connect (Mind Map) 2Publish Plus Microsoft Word/ Google Docs	2Logo Beebots Probots Turtle
<b>Curriculum Progression (including coverage of National Curriculum)</b>	A unit of work where children will software to create content which provides a reader with information.	A unit of work which enables children to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Pupils will also use sequence, selection and repetition in programs; work with variables and various forms of input and output.
<b>Coherence (links to other subjects &amp; prior learning)</b>	<b>Prior Learning</b> – Y3 Unit 4- Touchtyping, Y3 Unit 5- Email  <b>Subject Links</b> – English	<b>Prior Learning</b> –  <b>Subject Links</b> – Maths (position and direction, English, art and design)

Summer	Unit 6 – Animation	Unit 7 – Effective Searching	Unit 8 – Hardware Investigators
<b>Number of Lessons</b>	3	3	2
<b>Outcome</b>	Children will design, create and evaluate different animations.	Children will be able to search effectively to find out information.	Children will be able to recall the different parts of a desktop computer.
<b>Curriculum Content: Knowledge</b>	<p><b>Lesson Question</b> How can I create a simple flipbook-style animation?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Animation is described as a 'process by which we see still pictures move'.</li> <li>- Pictures are shown at the rate of 24 pictures per second to create an animation moving picture</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I locate information on a search result page?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Results are shown in popularity order with sponsored websites shown first</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> What is hardware?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Hardware refers to the physical parts of a computer or device. The parts inside the computer casing are often called the components.</li> <li>-The parts that are attached to the computer case are called peripherals.</li> <li>-Software describes the programs that run on the computer.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> What is onion skinning?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Onion skinning is process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How can I search effectively to find answers?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Writing keywords about a topic or subject into a search bar is more effective than writing a full question.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> What are the parts of a desktop computer?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- CPU is the part of a computer in which operations are controlled.</li> <li>- A motherboard is a printed circuit board containing the main parts of a computer or other device, with connectors for other circuit boards to be slotted into.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>
	<p><b>Lesson Question</b> How do I create a stop motion animation?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>- Stop motion is a technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	<p><b>Lesson Question</b> How do I know if information is reliable?</p> <p><b>Substantive Knowledge</b></p> <ul style="list-style-type: none"> <li>-Information from reputable sources and websites can be trusted to be fairly reliable; however, you should not always trust everything you read.</li> <li>-An 'Easter egg' is an unexpected or undocumented feature in a piece of computer software or on a DVD.</li> </ul> <p><b>Procedural Knowledge</b></p> <ul style="list-style-type: none"> <li>-</li> </ul> <p><b>Outcome:</b></p>	
<b>Vocabulary</b>	Animation, flipbook, frame, onion skinning, background, play, sound, stop motion, video clip	Easter egg, internet, internet browser, search, search engine, spoof website, website	Motherboard, CPU, RAM, Graphics card, network card, monitor, speaker, keyboard, mouse

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<b>Resources</b>	2Animate	Browser (Google incl safesearch, bing) 2Quiz 2Connect (Mind Map)	2Quiz 2Connect (Mind Map) Writing Templates
<b>Curriculum Progression (including coverage of National Curriculum)</b>	A unit of work where children will use technology to accomplish a specific goal.	A unit of work where children will have a greater understanding of how to use search technology effectively and evaluate the likelihood of the information being true or correct.	A unit of work that supports children to have a greater awareness of computer networks through understanding hardware and software in more detail.
<b>Coherence (links to other subjects &amp; prior learning)</b>	<p><b>Prior Learning</b> – Y1 Unit 6- Animated Story Books</p> <p><b>Subject Links</b> – Art and design, English</p>	<p><b>Prior Learning</b> – Y2 Unit 5- effective searching</p> <p><b>Subject Links</b> – cross curricular (subject specific), English, PSHE</p>	<p><b>Prior Learning</b> –</p> <p><b>Subject Links</b> – PSHE (career aspirations)</p>