



## Computing at West Cornforth Primary School

“Everybody in this country should learn to program a computer, because it teaches you how to think.” Steve Jobs

Year 1		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – Technology around us (Introduction to iPad use and Seesaw)</b></p> <p><u><a href="https://www.teachcomputing.org/">Computing systems and networks – Technology around us (teachcomputing.org)</a></u></p> <p>Project idea – a poster linked to other area of curriculum</p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Recognise common uses of information technology beyond school</li> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> <li>• 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.</li> </ul>	<p>mouse, technology, cursor, laptop, computer, click, double click, right click, drag, open, keyboard, save, file</p>	<p>Pupils will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse skills. Pupils will also consider how to use technology responsibly.</p> <p>Pupils will know: - Seesaw is a digital (online) journal or diary - It can be used to share work we are proud of - Parents can access their work too</p> <p>Pupils will be able to: - Open Seesaw app and login - Upload/take a photo - Add a page - Add text and change colour/size/position - Add shape and change colour/size/position - Add an audio recording - Add a video recording - How to send work for approval</p>
<p><b>Creating Media – Digital Painting</b></p> <p><u><a href="https://www.teachcomputing.org/">Creating media – Digital painting (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> </ul> <p><b>KS1 Art and Design</b></p> <p>Pupils should be taught:</p> <ul style="list-style-type: none"> <li>• To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space</li> </ul>	<p>digital , painting, artists, art, lines, marks, freehand, shape, tool</p>	<p>Pupils will develop their understanding of a range of tools used for digital painting. They then use these tools to create their own digital paintings, while gaining inspiration from a range of artists' work. The unit concludes with pupils considering their preferences when painting with and without the use of digital devices.</p> <p>Pupils will know that: - Apps can be used to draw on a computer or tablet - Wassily Kandinsky used colourful shapes and lines to paint his art</p> <p>Pupils will be able to: - Make marks on a screen - Explain which tools I used - Draw lines on a screen - Draw a digital picture - Draw shapes - Use the fill and undo tools - Create own painting in style of Kandinsky - Choose appropriate shapes and colours - Explain that different tools do different jobs</p>



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<ul style="list-style-type: none"> <li>About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work</li> </ul>		
<p><b>Programming A – Moving a Robot</b></p> <p><u><a href="#">Programming A – Moving a robot (teachcomputing.org)</a></u></p> <p>Suggested resources: Bee Bots</p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>Create and debug simple programs</li> <li>Use logical reasoning to predict the behaviour of simple programs</li> <li>Recognise common uses of information technology beyond school</li> </ul>	<p>commands, algorithm, robot, left, right, backwards, forwards, debug, program, solution, route</p>	<p>This unit introduces pupils to early programming concepts. Pupils will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. The unit is paced to ensure time is spent on all aspects of programming and builds knowledge in a structured manner. Pupils are also introduced to the early stages of program design through the introduction of algorithms.</p> <p>Pupils will know: - What a robot is - What a command is - That an algorithm is series of commands - That debug means to fix a problem.</p> <p>Pupils will be able to: - Predict what an algorithm will do - Run a command on a device - Predict the outcome of a sequence involving 'forwards' and 'backwards' commands - Follow an instruction – Give directions - Combine 4 directions to make sequences - Debug a program</p>
<p><b>Data and information – Grouping data</b></p> <p><u><a href="#">Data and information – Grouping data (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> <li>Use technology safely and respectfully</li> </ul>	<p>data, labelling, grouping, information, searching, describe</p>	<p>During this unit, pupils will be logging on to the computers, opening their documents, and saving their documents. Depending on how your school's system is set up, additional support and time may be required to facilitate these steps, and consideration should be given as to how this will impact the timings of activities in each lesson.</p>



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		<p>Pupils will know that:- Information can be grouped - In order to search through information on a computer, it must have labels - Data can be grouped - Computers are not intelligent and require input from humans to complete any task</p> <p>Pupils will be able to: - Describe objects using labels - Match objects to a group - Identify the label for a group of objects - Count objects - Group objects - Describe an object - Describe the properties of an object - Find objects with similar properties - Compare groups by thinking about similar and different- Record results - Share results with peers</p>
<p><b>Creating media – Digital writing</b></p> <p><u><a href="#">Creating media – Digital writing (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> <li>• Use technology safely and respectfully, keeping personal information private</li> </ul> <p><b><u>Further national curriculum links</u></b></p> <p><b>English – writing (Y1)</b></p> <p>Write sentences by:</p> <ul style="list-style-type: none"> <li>• saying out loud what they are going to write about</li> <li>• composing a sentence orally before writing it</li> <li>• sequencing sentences to form short narratives</li> <li>• re-reading what they have written to check that it makes sense</li> </ul> <p><b><u>Education for a Connected World links</u></b></p> <p><b>Privacy and security</b></p> <ul style="list-style-type: none"> <li>• I can give reasons why I should only share information with people I choose to and can trust. (Y1)</li> </ul>	<p>computer, word processor, keys, keyboard, text, letter, number, space keys, mouse, cursor, backspace, delete, font, tool, toolbar, undo, right click, double click</p>	<p>Promote your pupils’ understanding of the various aspects of using a computer to create and change text. Pupils will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text.</p> <p>Pupils will know that: - A keyboard can be used to type on a computer - A mouse can control a cursor to select things - Delete means remove or get rid of - You can change the look of text - font, colour, size - Changing the look of the text can change what is more important to the reader.</p> <p>Pupils will be able to: - Open a word processor - Identify and find keys - Add text to their page using the keys on the keyboard - Use the backspace button to delete - Change the look of the text - font, size, colour - Create a ‘Lost Toy’ poster - Click ‘undo’ to remove changes.- Double click and drag using a mouse - Explain which tool from the toolbar they should use.</p>
<p><b>Programming B – Programming Animations</b></p> <p><u><a href="#">Programming B - Programming animations (teachcomputing.org)</a></u></p>	<p>Sprites, backgrounds, commands, program, algorithm, value, block, start, run, add, delete</p>	<p>This unit introduces pupils to on-screen programming through ScratchJr. Pupils will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Pupils will also be</p>



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<p>Suggested resources: Scratch Jr Ipads</p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"><li>• Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li><li>• Create and debug simple programs</li><li>• Use logical reasoning to predict the behaviour of simple programs</li></ul>		<p>introduced to the early stages of program design through the introduction of algorithms.</p> <p>Pupils will know: - What a sprite is - What a background is - That some blocks in ScratchJr have numbers underneath them - that changing these values have an impact - That each sprite has its own programming area and sequence of commands. Needs to be controlled independently - That changing the background and sprites can create a different scene or scenario</p> <p>Pupils will be able to: - Create on-screen characters - Move characters - Use a Start block in a program - Join commands by linking blocks together - Run a command - How to change the value on a block and observe its impact - Add and delete sprites - Use multiple programming areas for different sprites - Control sprites independently - Design a 'Space Race' animation - Change the background - Test whether their programs are effective. - Debug any issues</p>
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Year 2		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – IT around us</b></p> <p><u><a href="http://teachcomputing.org">Computing systems and networks – IT around us (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> <li>• Recognise common uses of information technology beyond school</li> <li>• 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</li> </ul>	<p>IT, network, computing systems, computer, keyboard, printer</p>	<p>How is information technology (IT) being used for good in our lives? With an initial focus on IT in the home, pupils explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it.</p> <p>Pupils will know: - What IT is - Identify devices that are computers - How IT helps at school and beyond - How IT devices work together - How to stay safe online</p> <p>Pupils will be able to: - Find computers in school - Sort items by their function - Talk about uses of IT - Explain how IT devices work together.</p>
<p><b>Creating media – Digital Photography</b></p> <p><u><a href="http://teachcomputing.org">Creating media – Digital photography (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> <li>• Recognise common uses of information technology beyond school</li> <li>• 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</li> </ul> <p><b><u>Further national curriculum links</u></b> <b>Art and design</b></p>	<p>Photo, photograph, camera, iPad, device, portrait, landscape, photographer, composition, light, focus, camera flash, autofocus tool, Adjust tool, colour, purpose,</p>	<p>Pupils will learn to recognise that different devices can be used to capture photographs and will gain experience capturing, editing, and improving photos. Finally, they will use this knowledge to recognise that images they see may not be real.</p> <p>Pupils will know: - Different devices can be used to capture a photograph - Talk about how to take a photo - Explain how to capture a photo - Understand that photos may not be ‘real’ / enhanced in some way</p> <p>Pupils will be able to: - Capture a photo - Edit a photo - Improve a photo - Compose a photo - Adjust the colour of a photo - Question if an image is real or accurate</p>



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<ul style="list-style-type: none"> <li>To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space</li> </ul> <p><b>Education for a Connected World links</b></p> <ul style="list-style-type: none"> <li>To identify that some images are not real (fake)</li> </ul>		
<p><b>Programming A – Robot algorithms</b></p> <p><u>Programing A – Robot algorithms (teachcomputing.org)</u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions</li> <li>Create and debug simple programs</li> <li>Use logical reasoning to predict the behaviour of simple programs</li> </ul>	<p>Commands, algorithm, robot, left, right, backwards, forwards, debug, program, solution, route, debugging, decomposition</p>	<p>This unit develops pupils' understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome. They will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.</p> <p>Pupils will know that: - An algorithm is a set of instructions - A task can be broken into smaller chunks – decomposition</p> <p>Pupils will be able to: - Give and follow instructions - Give clear instructions - Use instructions to create algorithms - Program a floor robot - Predict the outcome of a sequence of commands - Design, create and test a mat for a floor robot - identify different routes around the mat - Test my mat to ensure it is useable - Break down a larger programming task into chunks and create algorithms for each chunk - 'decomposition' - covered in KS2 more.</p>
<p><b>Data and information – Pictograms</b></p> <p><u>Data and information – Pictograms (teachcomputing.org)</u></p> <p><u>JIT5 (j2e.com)</u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> </ul>	<p>Data, pictogram, tally chart, tally count, more than, less than, most/least, organise, compare, scale, block diagram, attribute</p>	<p>This unit introduces the pupils to the term 'data'. Pupils will begin to understand what data means and how this can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Pupils will use the data presented to answer questions.</p> <p>Pupils will know that: - a tally chart groups data into 5s - a pictogram shows information in a clear way so it can be compared - it is alright to say to if someone asks for data - they can report concerns</p> <p>Pupils will be able to: - Collect data - Use a tally chart to organise information - Organise data - Create a pictogram on paper - Create a pictogram on a website -</p>



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<ul style="list-style-type: none"><li>• 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</li></ul> <p><b>Maths</b></p> <p>Building on Year 1 number and place value:</p> <ul style="list-style-type: none"><li>• Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: ‘equal to’, ‘more than’, ‘less than’ (‘fewer’), ‘most’, ‘least’</li></ul> <p>Year 2</p> <ul style="list-style-type: none"><li>• interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li><li>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</li><li>• ask and answer questions about totalling and comparing categorical data</li></ul> <p>Notes and guidance: Pupils record, interpret, collate, organise and compare information (for example, using many-to-one correspondence in pictograms with simple ratios 2, 5, 10).</p> <p><b><u>Education for a Connected World links</u></b></p> <p><b>Self-image and identity</b></p> <ul style="list-style-type: none"><li>• I can recognise that I can say ‘no’/‘please stop’/‘I’ll tell’/‘I’ll ask’ to somebody who asks me to do something that makes me feel sad, embarrassed or upset</li><li>• I can explain how this could be either in real life or online</li></ul>		Compare information using a pictogram - Create a block diagram - Say no to someone asking for
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<ul style="list-style-type: none"> <li>• If something happens that makes me feel sad, worried, uncomfortable, or frightened I can give examples of when and how to speak to an adult I can trust</li> </ul> <p><b>Health, wellbeing and lifestyle</b></p> <ul style="list-style-type: none"> <li>• I can identify rules that help keep us safe and healthy in and beyond the home when using technology</li> <li>• I can give some simple examples</li> </ul> <p><b>Privacy and security</b></p> <ul style="list-style-type: none"> <li>• I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location)</li> <li>• I can describe the people I can trust and can share this with; I can explain why I can trust them</li> <li>• I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family’s names, where I go to school)</li> </ul>		
<p><b>Creating media – Digital music</b></p> <p><u><a href="http://teachcomputing.org">Creating media - Digital music (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>• Use technology purposefully to create, organise, store, manipulate, and retrieve digital content</li> </ul> <p><b>Music</b></p> <ul style="list-style-type: none"> <li>• Play tuned and untuned instruments musically</li> <li>• Listen with concentration and understanding to a range of high-quality live and recorded music</li> <li>• Experiment with, create, select, and combine sounds using the interrelated dimensions of music</li> </ul> <p><b><u>Education for a Connected World links</u></b></p>	<p>Rhythm, melody music, pattern, emotions, notes</p>	<p>Pupils will explore how music can make them think and feel. They will make patterns and use those patterns to make music with both percussion instruments and digital tools. They will also create different rhythms and tunes, using the movement of animals for inspiration. Finally, pupils will share their creations and compare creating music digitally and non-digitally.</p> <p>Pupils will know that: - Music can be used to generate emotions</p> <p>Pupils will be able to: - Discuss emotions that music creates - Identify differences in music - Create a rhythm pattern - Play an instrument following a rhyme pattern - Connect images with sounds - Use a computer to experiment with pitch - Relate an idea to a piece of music - Identify that music is a sequence of notes - Explain how my music can be played in different ways - Create a rhythm on a computer to represent an animal</p>





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<p><b>Copyright and ownership</b></p> <ul style="list-style-type: none"> <li>I know that work I create belongs to me.</li> </ul>		
<p><b>Programming B – Programming quizzes</b></p> <p><u><a href="https://www.teachcomputing.org/">Programming B - Programming quizzes (teachcomputing.org)</a></u></p> <p><b>KS1 Computing</b></p> <ul style="list-style-type: none"> <li>Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions</li> <li>Create and debug simple programs</li> <li>Use logical reasoning to predict the behaviour of simple programs</li> <li>Use technology purposefully to create, organise, store, manipulate and retrieve digital content</li> </ul>	<p>Algorithm, sequence, block, debug, program, project, design</p>	<p>This unit initially recaps on learning from the Year 1 Scratch Junior unit ‘Programming B - Programming animations’. Pupils begin to understand that sequences of commands have an outcome and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr and realise these designs in ScratchJr using blocks of code. Finally, pupils evaluate their work and make improvements to their programming projects.</p> <p>Pupils will know that: - Sequences and commands have an outcome - Which outcomes belong with which block - That debugging means to fix an issue in the algorithm</p> <p>Pupils will be able to: - Start a sequence - Run a program in full screen - Predict the outcome of a program - Match 2 sequences with the same outcome - Change the outcome of a sequence of commands - Work out the actions of a sprite in an algorithm - Decide which blocks to use to meet the design - Build sequences of blocks - Choose appropriate backgrounds for a design - Choose appropriate characters for a design - Compare my project to my design - Improve my project by adding features - Debug my program</p>



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Year 3		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – Connecting computers</b></p> <p><u><a href="http://teachcomputing.org">Computing systems and networks – Connecting computers (teachcomputing.org)</a></u></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>● use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>● 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</li> <li>● 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</li> </ul> <p><b>Maths (Lesson 1)</b></p> <ul style="list-style-type: none"> <li>● <b>Number and place value:</b> solve number problems and practical problems involving these ideas.</li> </ul> <p><b>Art (Lesson 3)</b></p> <ul style="list-style-type: none"> <li>● to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]</li> </ul>	<p>inputs, processes, outputs, digital, non-digital, computer networks , network infrastructure devices, routers, switches</p>	<p>Challenge your pupils to develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. Start by comparing digital and non-digital devices, before introducing them to computer networks that include network infrastructure devices like routers and switches.</p> <p>Pupils will know: - Digital devices accept inputs and produce outputs - That messages are passed through multiple connections - That a network switch is required - A network is made up of a number of devices - includes a server and Pupils will be able to: - Explain inputs and outputs - Follow a process - Identify input and output devices - Design a digital device - Recognise similarities and differences between using digital devices and non-digital tools - Recognise different connections - Explain how messages are passed through multiple connections How does a digital device work? What parts make up a digital device? How do digital devices help us? How am I connected? How are computers connected? What does our school network look like? Inputs, processes, outputs, digital, non-digital, computer networks , network infrastructure devices, routers, switches wireless access points</p> <p>Pupils will be able to: - Explain inputs and outputs - Follow a process - Identify input and output devices - Design a digital device - Recognise similarities and differences between using digital devices and non-digital tools - Recognise different connections - Explain how messages are passed through multiple connections - Explain role of components in a network - Identify networked devices around me - Identify benefits of networks</p>



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<p><b>Creating media – stop – frame animations</b></p> <p><u><a href="http://teachcomputing.org">Creating media - Stop-frame animation (teachcomputing.org)</a></u></p>	<p>stop motion animation, flip book, onscreen, storyboard, onion-skinning, frames</p>	<p>Pupils will use a range of techniques to create a stop-frame animation using tablets. Next, they will apply those skills to create a story-based animation. This unit will conclude with pupils adding other types of media to their animation, such as music and text.</p> <p>Pupils will know: - That animation is a sequence of drawings or photographs - That animations work because they trick your eye into seeing one seamless video</p> <p>Pupils will be able to: - Draw a sequence of pictures - Create an effective flipbook style animation - Explain how an animation/flip book works - Predict what an animation will look like - Explain why little changes are needed for each frame - Create an effective stop-frame animation - Break down a story into settings, characters and events - Describe an animation - Create a storyboard - Use onion skinning to help make small changes between frames - Evaluate effectiveness of own and others' animation - Improve animation based on feedback - Add other media to animation (music/ text)</p>
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<p><b>Computing</b></p> <ul style="list-style-type: none"><li>• 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</li><li>• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li></ul> <p><b><u>Further national curriculum links</u></b></p> <p><b>Literacy links</b></p> <ul style="list-style-type: none"><li>• Pupils should be taught to: draft and write by: in narratives, creating settings, characters and plot</li><li>• Pupils should be taught to: proof-read for spelling and punctuation errors</li></ul> <p><b>History</b></p> <ul style="list-style-type: none"><li>• The Roman Empire and its impact on Britain</li></ul> <p><b><u>Education for a Connected World links</u></b></p> <p><b>Managing online information</b></p> <ul style="list-style-type: none"><li>• I can use key phrases in search engines.</li><li>• I can use search technologies effectively.</li></ul> <p><b>Copyright and ownership</b></p> <ul style="list-style-type: none"><li>• I can explain why copying someone else’s work from the internet without permission can cause problems.</li><li>• I can give examples of what those problems might be.</li><li>• When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</li></ul>		
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<ul style="list-style-type: none"> <li>• I can give some simple examples.</li> <li>• I can give examples of content that is permitted to be reused.</li> <li>• I can demonstrate the use of search tools to find and access online content which can be reused by others.</li> </ul>		
<p><b>ToodleBit – Unit 1</b></p> <p><u>ToodleBit Classroom - lessons plans</u></p> <ul style="list-style-type: none"> <li>• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work, and to detect and correct errors in algorithms and programs</li> <li>• 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</li> </ul>	<p>Decomposition, generalisation, patterns, abstraction, algorithm</p>	<p>Introduce pupils to computational thinking via unplugged activities and block coding. They learn the basic of the MakeCode platform whilst being introduced to coding language; variables, loops, etc. Pupils will experience coding simple programs that accomplish specific goals controlling physical systems.</p> <p>Pupils will know: - how to write an algorithm to control a human robot. Be able to provide a set of instructions in order to tell an alien what to do. How to find common characteristics within a set of characters. How to debug algorithms, identifying and removing features not required to solve the problem. How to use computational thinking to solve various problems. The parts of a computer.</p> <p>Pupils will be able to: - Give precise instructions. Explain what sequencing is and explain how useful it is. Give a set of instructions (decomposition) to get Alien ready for school. Recognise patters. Solve general problem-solving activities using computational thinking. Use external parts of a computer, identifying computers around us.</p>
<p><b>Data and information – Branching databases</b></p> <p><u>Data and information – Branching databases (teachcomputing.org)</u></p>	<p>Attributes, structure, group, branching, database, online</p>	<p>Pupils will develop their understanding of what a branching database is and how to create one. They will use yes/no questions to gain an understanding of what attributes are and how to use them to sort groups of objects. Pupils will create physical and on-screen branching databases. To conclude the unit, they will create</p>



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<ul style="list-style-type: none"> <li>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</li> <li>use technology safely, respectfully and responsibly</li> </ul> <p><b>Further national curriculum links</b> Various contexts are used to create branching databases throughout the unit. You can change these contexts to fit in with other areas of the curriculum.</p>		<p>an identification tool using a branching database, which they will test by using it. They will also consider real-world applications for branching databases.</p> <p>Pupils will know: - That a branching database can help classify objects using a series of yes/no questions - I can be created in real life or online</p> <p>Pupils will be able to: - Investigate questions with yes/no answers - Make up yes/no questions about a collection of objects - Identify and select attributes to collect and separate objects - Arrange objects into a tree structure - Explain that questions need to be ordered carefully to split objects into similarly-sized groups - Create a branching database - Work with a partner to test my identification tool - Suggest real-world uses for branching databases</p>
<p><b>Creating media – Desktop publishing</b></p> <p>Adobe Spark</p> <p><a href="#">Creating media – Desktop publishing (teachcomputing.org)</a></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>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</li> </ul> <p><a href="#">English programmes of study links</a></p>	<p>Desktop publisher, image, text, communicate, template, orientation, placeholder, text, font, layout</p>	<p>During this unit, pupils will become familiar with the terms ‘text’ and ‘images’ and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Pupils will be introduced to the terms ‘templates’, ‘orientation’, and ‘placeholders’ and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Pupils will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.</p> <p>Pupils will know: - That text and image can be used to communicate messages - What the difference between text and image is - Advantages and disadvantages of using text and images - How different fonts / styles / colours impact finished product - That you can change the orientation - What makes an effective magazine cover - The purposes of desktop publishing in the real world - The benefits of using desktop publishing</p> <p>Pupils will be able to: - Explain the differences between text and images - advantages and disadvantages of each - Change font style, size, colours for a purpose - Edit text - Explain that text can be hanged to communicate more clearly</p>



## Computing at West Cornforth Primary School

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<ul style="list-style-type: none"> <li>• Pupils should be taught to draft and write by: in non-narrative material, using simple organisational devices [for example, headings and subheadings]</li> <li>• Evaluate and edit by assessing the effectiveness of their own and others’ writing and suggesting improvements</li> <li>• Proofread for spelling and punctuation errors</li> </ul> <p><u>Education for a Connected World links</u></p> <p><b>Managing online information</b></p> <ul style="list-style-type: none"> <li>• I can use key phrases in search engines</li> <li>• I can use search technologies effectively</li> </ul> <p><b>Copyright and ownership</b></p> <ul style="list-style-type: none"> <li>• When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it</li> <li>• I can demonstrate the use of search tools to find and access online content which can be reused by others</li> </ul>		<p>- Recognise placeholders and why they are important - Create a template for a purpose - Choose locations for content - Paste text &amp; images - Make changes to content - Identify different layouts and their purpose</p>
<p><b>ToodleBit – Unit 2</b></p> <p><u>ToodleBit Classroom - Unit 2 Activities</u></p> <ul style="list-style-type: none"> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<p>MicroBit, LED, input, output, code, program</p>	<p>Introduce pupils to computational thinking via unplugged activities and block coding. They learn the basic of the MakeCode platform whilst being introduced to coding language; variables, loops, etc. Pupils will experience coding simple programs that accomplish specific goals controlling physical systems.</p> <p>Pupils will know: - How to create some code and add it to the Micro:Bit, incorporating the ‘forever’ loop. How to use some variables and random numbers. How to debug an algorithm in coding. Inputs/outputs, connecting external outputs to the Micro:Bit. Including, learning a new method of input, ‘on pin pressed’.</p> <p>Pupils will be able to: - Explain: what the Micro:Bit is and how to make it work. Use loops involving animations. Use variables using random images. Debug algorithms. Create their own Micro:Bit dice game.</p>



## Computing at West Cornforth Primary School

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<ul style="list-style-type: none"><li>• 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</li></ul>		
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Year 4		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – The Internet</b></p> <p><u><a href="http://teachcomputing.org">Computing systems and networks – The Internet (teachcomputing.org)</a></u></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>● 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</li> <li>● Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>● 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</li> <li>● Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul> <p><b>PSHE (Lesson 6)</b></p> <ul style="list-style-type: none"> <li>● Evaluating content for honesty and accuracy</li> </ul> <p><u>Education for a Connected World links</u></p> <ul style="list-style-type: none"> <li>● I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that</li> </ul>	<p>Network, World Wide Web, website, online, media, websites, content, share, re-share</p>	<p>Pupils will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web is part of the internet, and will be given opportunities to explore the World Wide Web for themselves in order to learn about who owns content and what they can access, add, and create. Finally, they will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information. This unit requires devices with an internet connection. Chrome Music Lab is used in one lesson to demonstrate content which can be produced on the World Wide Web.</p> <p>Pupils will know: - That the internet is a network of networks - The World Wide Web is part of the internet - Websites are stored online on WWW - Who owns content - That they can access, add and create content online - That information online is not always reliable - What can be shared online</p> <p>Pupils will be able to: - Describe the internet as a network of networks - Demonstrate how information is shared across the internet - Discuss why a network needs protecting - Explain the types of media that can be shared on the WWW - Access websites on the WWW - Explain how content can be created online - Suggest who owns content - Explain the rules to protect content - Explain not everything on the WWW is true, why this may be the case - Explain why i need to think carefully before I share or reshare content</p>



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<p>my decisions are respected by others.</p> <ul style="list-style-type: none"> <li>• I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.</li> <li>• I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers).</li> <li>• I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.</li> </ul>		
<p><b>Creating media – audio production</b></p> <p><u><a href="https://www.teachcomputing.org/creating-media-audio-production">Creating media - Audio production (teachcomputing.org)</a></u></p> <p>Garage Band</p> <p><b>Computing – KS2</b></p> <ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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</li> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a</li> </ul>	<p>Input, output, microphone, speaker, podcast, layering, edit, record, re-record, save, export</p>	<p>Pupils will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Pupils will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, pupils will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, pupils will evaluate their work and give feedback to their peers.</p> <p>Pupils will know: - What the input and output ports are for - What makes a good audio recording - What to consider with ownership and copyright for recordings - That sound can be recorded - That audio recordings can be edited - The difference between saving and exporting an audio file</p> <p>Pupils will be able to: - Record sound using their voices - Record and re-record voices to improve recordings - Edit recordings to remove pauses and mistakes - Listen to a range of podcasts - Identify the features of a podcast - Add and combine sounds to a podcast - Save a project so it remains editable - Plan appropriate content for a podcast - Open a project to continue working on it - Arrange multiple sounds to create desired effect - Export an audio file - Evaluate effectiveness of audio and suggest improvements</p>



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<p>range of ways to report concerns about content and contact</p> <p><b>Science – Year 4 (Lesson 2)</b></p> <ul style="list-style-type: none"> <li>• <b>Sound:</b> Find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• <b>Sound:</b> Recognise that sounds get fainter as the distance from the sound source increases</li> </ul> <p><b>English – Years 3 and 4 (Lesson 3)</b></p> <ul style="list-style-type: none"> <li>• <b>Writing – composition:</b> Plan their writing by discussing and recording ideas</li> <li>• <b>Writing – draft and write by:</b> In non-narrative material, using simple organisational devices [for example, headings and subheadings]</li> <li>• <b>Writing:</b> Read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear</li> </ul> <p><b><u>Education for a Connected World links</u></b></p> <p><b>Copyright and ownership</b></p> <ul style="list-style-type: none"> <li>• I can explain why copying someone else’s work from the internet without permission can cause problems (Y3)</li> <li>• I can give examples of what those problems might be (Y3)</li> <li>• When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it (Y4)</li> <li>• I can give some simple examples (Y4)</li> </ul>		
<p><b>ToodleBit – Unit 3</b></p> <p><a href="#">ToodleBit Classroom - Unit 3 Activities</a></p>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection</p>	<p>Develop computational thinking (the language, the ability to problem solve, understanding of and the role played by hardware and software and to provide plenty of hands-on, creative coding experiences linked to real life scenarios).</p>



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<ul style="list-style-type: none"> <li>• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>• 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</li> </ul>		<p>Pupils will know: - What an algorithm is and how to create one. The sequence of code blocks and how important these are. How to use physical inputs and outputs. How to use some of the radio code blocks to send messages from one Micro:Bit to another. How to use variables to control notes played. How to code a Micro:Bit to make an electronic spinner.</p> <p>Pupils will be able to: Make an algorithm to play 'Rock, paper, scissors'. Connect an external output to add music. Send Morse code messages using the radio function. Connect external inputs. Design and make a spinner game.</p>
<p><b>Data and information – Data logging</b></p> <p><u><a href="https://www.teachcomputing.org/">Data and information – Data logging (teachcomputing.org)</a></u></p> <p>Arduino on iPads</p> <p><b>Computing – Key stage 2</b></p> <ul style="list-style-type: none"> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• 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</li> </ul>	<p>Data, logging, sensors, input devices, data points, data sets, logging intervals,</p>	<p>In this unit, pupils will consider how and why data is collected over time. Pupils will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.</p> <p>Pupils will know: - How and why data is collected over time - That data can be used to answer questions - That computers use special input devices called sensors to monitor the environment - like humans - A data logger collects 'data points' from sensors over time - A computer can help us analyse data</p> <p>Pupils will be able to: - Choose a data set to answer a given question - Suggest questions that can be answered using a given data set - Use a digital device to</p>



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<p>that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information</p> <p><b>Science – Lower key stage 2/Year 4</b></p> <ul style="list-style-type: none"> <li>• Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</li> <li>• They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.</li> </ul>		<p>collect data automatically - Explain what data can be collected using sensors - Identify that data from sensors can be recorded - Identify the intervals used to collect data - Talk about the data that I have captured - Sort data to find information - Explain different ways to view data - Propose a question that can be answered using logged data - Plan how to use a data logger - Interpret data - Draw conclusions from data - Explain benefits of using a data logger</p>
<p><b>Creating media – Photo editing</b></p> <p><u>Creating media – Photo editing (teachcomputing.org)</u></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul> <p><b>Education for a Connected World links</b></p>	<p>rotate, crop, image, composition, colour, cloning, remove, retouching, duplicated, copy, edited, combining,</p>	<p>Pupils will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.</p> <p>Pupils will know: - How digital images can be changed and edited, resaved and reused. - The impact that editing images can have - How to evaluate the effectiveness of their choices - Cloning can be used to add to an image or retouch it - Editing or retouching an image isn't always ethical</p> <p>Pupils will be able to: - Improve an image by rotating or cropping it - Explain why I might crop an image - Change colours and filters on an image - Choose appropriate effects to fit a scenario - Explain that different colour effects make you think and feel different things - Experiment with different colour effects - Add to a composition of an image by cloning - Retouch a photo to be unnoticeable - Select and copy an area of an image - Use copy and paste to make combined image - Consider when it is appropriate to edit or retouch an image</p>



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<p><b>Self-image and identity</b></p> <ul style="list-style-type: none"> <li>I can describe ways in which people might make themselves look different online</li> </ul>		
<p><b>ToodleBit – Unit 4</b></p> <ul style="list-style-type: none"> <li>design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection,</p>	<p>Develop computational thinking (the language, the ability to problem solve, understanding of and the role played by hardware and software and to provide plenty of hands-on, creative coding experiences linked to real life scenarios).</p> <p>Pupils will know: - Algorithms are controlled using an led using the Micro:Bit. How to install extensions. Sequencing involving traffic lights. Variables in pelican crossing program. How to insert batteries, connect the Micro:Bit. Program to go forward, backwards set distances. Basic driving around courses.</p> <p>Pupils will be able to: - Write an algorithm that uses the buttons (Inputs) to control the LEDs (Outputs) - on and off. Understand that the sequence of the code can have an impact on the outcome. Understand the role of the variable. Work with a greater degree of independence, using skills and knowledge already learnt. Use the light sensor and selection to run the appropriate code. Work with a greater degree of independence, using skills and knowledge already learnt.</p>



## Computing at West Cornforth Primary School

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Year 5		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – Systems and searching</b></p> <p><u><a href="#">Computing systems and networks - Systems and searching (teachcomputing.org)</a></u></p> <p>iMovie</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> </ul> <p><u>Education for a Connected World links</u></p> <ul style="list-style-type: none"> <li>• I am aware that a person’s online activity, history or profile (their ‘digital personality’) will affect the type of information returned to them in a search or on a social media feed, and how this may be intended to influence their beliefs, actions and choices.</li> <li>• I can explain how search engine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results)</li> </ul>	<p>Search engine, World Wide Web, web crawlers, index, search</p>	<p>In this unit, pupils will develop their understanding of computer systems and how information is transferred between systems and devices. Pupils will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. Pupils will also take part in a collaborative online project with other class members and develop their skills in working together online.</p> <p>Pupils will know: - what a system is, considering how larger computer systems work. How to use a search engine and how to use the address bar. Why some searches return more results than others. How search results are ranked. How searches influenced.</p> <p>Pupils will be able to: - explain that computers can be connected together to form systems. Recognise the role of computer systems in our lives. Identify how to use a search engine. Describe how search engines select results. Explain how search results are ranked. Recognise why the order of results is important, and to whom</p>



## Computing at West Cornforth Primary School

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<p><b>Creating media – Video production</b></p> <p><u><a href="https://www.teachcomputing.org/">Creating media - Video production (teachcomputing.org)</a></u></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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</li> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul> <p><b>Internet safety</b></p> <ul style="list-style-type: none"> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour</li> </ul>	<p>Video, media format, production, editing techniques, scenes, script, reshooting</p>	<p>This unit gives pupils the opportunity to learn how to create short videos in groups. As they progress through this unit, they will be exposed to topic-based language and develop the skills of capturing, editing, and manipulating video. Active learning is encouraged through guided questions and by working in small groups to investigate the use of devices and software. Pupils are guided with step-by-step support to take their idea from conception to completion. At the teacher’s discretion, the use of green screen can be incorporated into this unit. At the conclusion of the unit, learners have the opportunity to reflect on and assess their progress in creating a video.</p> <p>Pupils will know: - Video is a visual media format - Video can be filmed, edited, reshot and snipped together to be seamless - Different angles create different feelings</p> <p>Pupils will be able to: - Identify and compare the features of videos - Use a digital device to record video - Experiment with different camera angles - Use a microphone - Use a storyboard to explore a variety of filming techniques - Evaluate effectiveness of techniques - Create a storyboard by outlining the scenes of a video, the script, camera angles and filming techniques - Create and save video content - Store, retrieve and export a recording to an editing program - Explain how to improve by reshooting and editing sections - Remove unwanted content, reorder clips and export finished video - Analyse the effectiveness of the video and share with others</p>
<p><b>ToodleBit – Unit 5</b></p> <p><u><a href="#">ToodleBit Classroom - Unit 5 Lesson Plans</a></u></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>• Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> </ul>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection</p>	<p>Expand pupils understanding of data, how it is stored within a computer and transferred across a network. Continue to develop computational thinking via more complex problem-solving exercises which encourage pupils to apply previous learning to new situations.</p> <p>Pupils will know: - How to revisit computational thinking as an unplugged activity. How data is stored on a computer, binary numbers. How images are stored as data on a computer. The role-played computing simulations. The role played by software in representing real life situations and the benefits offered by using it. How to design a poster that explains how a network communicates. How to use computational thinking strategies to write an algorithm for a lift.</p>





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<ul style="list-style-type: none"> <li>• Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>• Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>• 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</li> </ul>		<p>Pupils will be able to: - Explain computational thinking is. Lift an algorithm. Represent data using images. Use the rollercoaster activity to explain the benefits of using a simulator. Understand the classroom design and the networks within this. Explain the difference between the World Wide Web and the Internet.</p>
<p><b>Data and information – Flat-file databases</b></p> <p><u><a href="https://www.teachcomputing.org/">Data and information – Flat-file databases (teachcomputing.org)</a></u></p> <ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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</li> </ul>	<p>Database, flat-file database, order, sort, group, field, combine, search, chart, parameters</p>	<p>This unit looks at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question, and present their work to others.</p> <p>Pupils will know: - That flat-file databases can be used to organise data in records - What a field and a record is in a database - How ‘AND’ and ‘OR’ can be used to refine a selection - The benefits of using a computer to create charts</p> <p>Pupils will be able to: - Create a paper database using cards - record, orders, sort and group data cards - Navigate a flat-file database to compare different views of information - Choose which field to sort information in order to answer a given question - Group data according to chosen values in a database - Combine grouping and sorting to answer specific questions - Use ‘AND’ and ‘OR’ to refine searches - Select an appropriate chart and refine it to visually compare data - Refine a search in a real-world context (flight searches) - Present my findings to a group</p>
<p><b>Creating media – Introduction to vector graphics</b></p> <p><u><a href="https://www.teachcomputing.org/">Creating media – Introduction to vector graphics (teachcomputing.org)</a></u></p>	<p>Vector, shape, line, image, group, ungroup, layer, duplicate, manipulate, freehand</p>	<p>In this unit, pupils start to create vector drawings. They learn how to use different drawing tools to help them create images. Pupils recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Pupils layer their objects and begin grouping and</p>



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<ul style="list-style-type: none"> <li>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.</li> </ul>		<p>duplicating them to support the creation of more complex pieces of work. This unit is planned using the Google Drawings app, other alternative pieces of software are available.</p> <p>Pupils will know: - That vector drawings are created using shapes and lines - Each individual element is called an object - Objects can be layered, grouped and duplicated to create more complex pieces of work</p> <p>Pupils will be able to: - Experiment with the shape and line tools - Explain how vector drawings are different from paper-based drawings - Identify the shapes used to make vector drawing - Move, resize and rotate individual objects I have duplicated - Use zoom tool to add detail - Explain how alignment grids and resize handles can be used to improve consistency - Modify objects to create a new image - Change the order of objects in layers - Use layering to create an image - Group objects - Copy part of a drawing by duplicating several objects - Recognise when to group and ungroup objects - Create a vector drawing for a specific purpose - Compare vector drawings to freehand paint program drawings</p>
<p><b>Toodlebit – Unit 6</b></p> <p><u>ToodleBit Classroom - Unit 6 Activities</u></p> <p><b>Computing</b></p> <ul style="list-style-type: none"> <li>Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>Select, use, and combine a variety of software (including internet services) on a range of digital devices to design</li> </ul>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection, loop, Iteration</p>	<p>Expand pupils understanding of data, how it is stored within a computer and transferred across a network. Continue to develop computational thinking via more complex problem solving exercises which encourage pupils to apply previous learning to new situations.</p> <p>Pupils will know: - How to control a loop using the ‘while’ code block. How to control a loop using the ‘while’ code block. How to code using selection (if-else), iteration (while and forever loops) and the input ‘on pin pressed’ code block. How to create a simple calculator using two variables. How to create a rotating pattern. Involves the ‘For’ loop and the ‘plot’ ‘unplot’ code blocks. About a new method of input, ‘on pin pressed’. How to use the ‘If-Then’ code block to decide which bit of code will be run.</p> <p>Pupils will be able to: - explain the use of the ‘while’ loop and use this confidently. Code a stopwatch, using the ‘while’ loop – design and make this. Create a calculator using variables and maths. Use the ‘for’ loop with animated patters. Design and make a reaction game, including on ‘pin pressed’. Navigate more complex driving courses, adding red indicators.</p>



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<p>and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information</p> <p><b><u>Science – Electricity (Year 4)</u></b></p> <ul style="list-style-type: none"><li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers</li></ul> <p><b><u>Design and Technology (Key stage 2)</u></b></p> <p>Design</p> <ul style="list-style-type: none"><li>• Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces, and computer-aided design</li></ul> <p>Make</p> <ul style="list-style-type: none"><li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining, and finishing], accurately</li><li>• Select from and use a wider range of materials and components, including construction materials, textiles, and ingredients, according to their functional properties and aesthetic qualities</li></ul> <p>Evaluate</p> <ul style="list-style-type: none"><li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li></ul> <p>Technical knowledge</p> <ul style="list-style-type: none"><li>• Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers, and motors]</li><li>• Apply their understanding of computing to program, monitor, and control their products</li></ul>		
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Year 6		
Topic and NC Links	Key Vocabulary	Key Knowledge /Skills
<p><b>Computing systems and networks – Communication and collaboration</b></p> <p><u><a href="https://www.teachcomputing.org/">Computing systems and networks - Communication and collaboration (teachcomputing.org)</a></u></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• 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</li> <li>• Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul> <p><b>Education for a Connected World links</b></p> <ul style="list-style-type: none"> <li>• I can describe and assess the benefits and the potential risks of sharing information online.</li> <li>• I can assess and justify when it is acceptable to use the work of others</li> <li>• I can give examples of content that is permitted to be reused</li> </ul>	<p>Search engine, World Wide Web, web crawlers, index, search</p>	<p>In this unit, pupils explore how data is transferred over the internet. Pupils initially focus on addressing, before they move on to the makeup and structure of data packets. Pupils then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet. Note: Some of the content in this unit was previously included in the Year 5 – ‘Computer systems and networks’ unit, so some pupils may have already completed similar activities. Where this is the case, the context for the activity has been changed.</p> <p>Pupils will know: - How to find information on the World Wide Web - How search engines work and results are ranked and influenced - That there are different search engines - Search engines make money by selling ranks - The internet can be used to communicate with others - Communication on the internet might not be private</p> <p>Pupils will be able to: - Complete a web search for specific information - Refine my search - Compare results from different search engines - Describe how results are ordered - Recognise role of web crawlers in making an index - Recognise how search engines make money - Recognise limitations of search engines - Explain different methods of communication - Compare methods of communication online - Decide when I should or should not share information</p>



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<p><b>Creating media – Web page creation</b></p> <p><u><a href="https://www.teachcomputing.org/">Creating media – Web page creation (teachcomputing.org)</a></u></p> <p>Google Sites</p> <ul style="list-style-type: none"> <li>• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>• 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.</li> <li>• use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour.</li> </ul> <p><b><u>English links</u></b></p> <ul style="list-style-type: none"> <li>• Writing composition: Identifying the audience for and purpose of the writing, selecting the appropriate form, and using other similar writing as models for their own.</li> </ul> <p><b><u>Education for a Connected World links</u></b></p> <p style="text-align: center;"><b>Online relationships</b></p> <ul style="list-style-type: none"> <li>• I can use the internet with adult support to communicate with people I know. (EY-7)</li> </ul> <p><b>Managing information online</b></p> <ul style="list-style-type: none"> <li>• I can navigate online content, websites, or social media feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). (11-14)</li> </ul> <p><b>Copyright and ownership</b></p>	<p>HTML, webpage, website, copyright infringement, fair use, navigation path, hyperlink</p>	<p>This unit introduces pupils to the creation of websites for a chosen purpose. Pupils identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. Throughout the process learners pay specific attention to copyright and fair use of media, the aesthetics of the site, and navigation paths.</p> <p>Pupils will know:</p> <ul style="list-style-type: none"> <li>- Websites are created for a purpose - That websites are written in HTML - What makes a good webpage - What can be used from someone else’s work - copyright and fair use - What navigation paths are</li> </ul> <p>Pupils will know:</p> <ul style="list-style-type: none"> <li>- Explore a website, discussing its structure and the different types of media used</li> <li>- Recognise common features of a web page - Draw a webpage layout to suit a purpose - Consider the ownership and use of images - Find copyright-free images</li> <li>- Explain what ‘fair use’ means - Add content to a webpage - Preview what my webpage will look like - Evaluate what my webpage looks like on different devices</li> <li>- Suggest and make edits - Explain what a navigation paths is and why they are useful - Create hyperlinks to link multiple web pages - Explain why you should be careful when linking to the work of others - Evaluate the user experience of a website.</li> </ul>
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<ul style="list-style-type: none"> <li>● I can explain why copying someone else’s work from the internet without permission can cause problems.</li> <li>● I can give examples of what those problems might be.</li> <li>● When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.</li> <li>● I can give some simple examples.</li> <li>● I can assess and justify when it is acceptable to use the work of others.</li> <li>● I can give examples of content that is permitted to be reused.</li> <li>● I can demonstrate the use of search tools to find and access online content which can be reused by others.</li> <li>● I can demonstrate how to make references to and acknowledge sources I have used from the internet.</li> <li>● I can explain the principles of fair use and apply this to case studies. (11-14)</li> </ul>		
<p><b>ToodleBit – Unit 7</b></p> <p><u>ToodleBit Classroom - lessons plans</u></p> <ul style="list-style-type: none"> <li>● Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>● Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>● Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> </ul>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection, loop, Iteration</p>	<p>Look at searching algorithms, data checking and continue to develop computational thinking via more complex problem solving exercises. Find different solutions for the same problem. Identify the most effective and explain why?</p> <p>Pupils will know: - How to write an algorithm to control a human robot. To find common characteristics within a set of characters. How to identify and remove features not required to solve the problem. How to solve various problems using computational thinking. The parts of a computer.</p> <p>Pupils will be able to: - search algorithms. Check data and accuracy. Introduce the accelerometer as an input. Use variables to control the onboard LEDs. Revisit the ‘while’ loop and random numbers. Explore new inputs – sensors. Take readings using the on-board temperature sensor.</p>



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<ul style="list-style-type: none"> <li>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</li> </ul>		
<p><b>Data and information – Spreadsheets</b></p> <p><u><a href="https://www.teachcomputing.org/">Data and information – Spreadsheets (teachcomputing.org)</a></u></p> <ul style="list-style-type: none"> <li>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</li> </ul> <p><b><u>National curriculum maths links</u></b></p> <p><b>Number – addition, subtraction, multiplication, and division:</b></p> <ul style="list-style-type: none"> <li>Solve problems involving addition, subtraction, multiplication, and division</li> </ul> <p><b>Statistics:</b></p> <ul style="list-style-type: none"> <li>Interpret and construct pie charts and line graphs, and use these to solve problems</li> <li>Calculate and interpret the mean as an average</li> </ul> <p><b><u>Education for a Connected World links</u></b></p>	<p>Database, spreadsheet, format, data, formula, cell, row, column, input, chart, table</p>	<p>This unit introduces the pupils to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Pupils will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Pupils will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Pupils will use spreadsheets to plan an event and answer questions. Finally, pupils will create charts, and evaluate their results in comparison to questions asked.</p> <p>Pupils will know: - That data can be collected and organised using a spreadsheet - About cell references, data items and formatting cells and data - Changing inputs changes outputs - Formulas can be duplicated for efficiency</p> <p>Pupils will be able to: - Collect data - Suggest how to structure my data in a spreadsheet - Choose and apply an appropriate format for a cell - Construct a formula in a spreadsheet - Identify that changing inputs changes outputs - Calculate data using different operations - Create a formula which includes a range of cells - Apply a formula to multiple cells by duplicating it - Use a spreadsheet to organise information to plan an event and answer questions - Present data in a chart or table</p>





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<p style="text-align: center;"><b>Managing information online</b></p> <ul style="list-style-type: none"> <li>• I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites)</li> <li>• I can use different search technologies</li> <li>• I can evaluate digital content and can explain how I make choices from search results</li> </ul>		
<p><b>Creating media – 3D modelling</b></p> <p><u><a href="http://teachcomputing.org">Creating media – 3D Modelling (teachcomputing.org)</a></u></p> <p>Tinkerkad</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Use technology safely, respectfully, and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact</li> </ul> <p><b>Art and design – KS2</b></p> <ul style="list-style-type: none"> <li>• To improve their mastery of art and design techniques, including drawing, painting, and sculpture with a range of materials</li> </ul> <p><b>Design and technology – KS2</b></p> <ul style="list-style-type: none"> <li>• Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional</li> </ul>	<p>3D, perspective, rotate, resize, duplicate, recolour, lift, lower, move, placeholder, hollow</p>	<p>Pupils will develop their knowledge and understanding of using a computer to produce 3D models. Pupils will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, pupils will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.</p> <p>Pupils will know: - What 3D means and looks like - How placeholders can be used to make a 3D shape hollow</p> <p>Pupils will be able to: - Work in a 3D space, moving, resizing and duplicating objects - View 3D shapes from different perspectives - Lift/lower/rotate 3D objects - Recolour a 3D object - Create hollow objects using placeholders - Combine multiple objects to create a model of a desk tidy. - Group and ungroup 3D objects - Plan, develop and evaluate their own 3D model of a building</p>



## Computing at West Cornforth Primary School

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<p>and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p><b>Mathematics – KS2 (Y6)</b></p> <ul style="list-style-type: none"> <li>Recognise, describe, and build simple 3D shapes, including making nets</li> </ul> <p><b><u>Education for a Connected World links</u></b></p> <p><b>Strand</b></p> <ul style="list-style-type: none"> <li>Lesson 1 and Lesson 3 – Privacy and Security (Y4) – I can describe strategies for keeping my personal information private, depending on context</li> </ul>		
<p><b>Toodlebit – Unit 8</b></p> <p><u>ToodleBit Classroom - Unit 8 Activities</u></p> <ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>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,</li> </ul>	<p>MicroBit, LED, input, output, code, program, sequences, repetition, selection, loop, Iteration, motor, generator, volts,</p>	<p>Look at searching algorithms, data checking and continue to develop computational thinking via more complex problem solving exercises. Find different solutions for the same problem. Identify the most effective and explain why?</p> <p>Pupils will know: - how to search algorithms. – How to use the accelerometer as an input. – how to code using variables and the ‘while’ loop.</p> <p>Pupils will be able to: - search algorithms. Check data and accuracy. Introduce the accelerometer as an input. Use variables to control the on-board LEDs. Revisit the ‘while’ loop and random numbers. Explore new inputs – sensors. Take readings using the on-board temperature sensor.</p>



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analysing, evaluating and presenting data and information		
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