



# Computing Long Term Planning

'Achieve Excellence'



What does it mean to get better at Computing at William Stockton?

At William Stockton, to 'get better at Computing' means that children learn to develop a wide range of fundamental skills, knowledge and understanding that will help equip them in computing for the rest of their lives, using a wide range of media.

Computing is split into three strands and these are developed progressively as the children move through the school: **digital literacy**; **information technology**; and **computer science**. Essentially, **e-safety** is weaved throughout the curriculum.

Substantive Knowledge - I know that...

Conceptual knowledge - I know how to ...

## EYFS

*Throughout the year, through high quality continuous provision, the children in Foundation stage will be given the opportunity to explore a large range of different technological equipment including, computers, laptops, iPads, recording devices and coding resources. They will also look at devices familiar to them, including technology in the home. There will also be a strong focus on our children becoming digitally literate and able to use technology respectfully and responsibly.*

| <i>Nursery</i>    | <i>Digital Literacy</i>  |  | <i>Information Technology</i>   |   | <i>Computer Science</i>   |  |
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| <i>End Points</i> | <p>Can identify a device that uses technology.<br/>           Ask permission before using the Internet.<br/>           Tell an adult if something worrying or unexpected happens whilst using technology.<br/>           Talk about technology that is used at home, in school and in the world around them.<br/>           Use a safe part of the Internet to explore, play and learn</p> |  | <p>Talk about different kinds of information such as pictures, videos, text and sound.<br/>           Use a mouse and touch screen to move objects on a screen.<br/>           Create shapes and text on a screen</p> |   | <p>Be able to give a floor robot instruction to make it move.<br/>           Use simple software and explain what you are doing.<br/>           Understand what happens when you click a button or touch an icon.</p> |  |
| <i>Reception</i>  | <i>Unit 1. I am a Super Surfer</i>   |  | <i>Unit 2. Look What I Can Do</i>   |   | <i>Unit 3. I Am a Computer Scientist</i>  |  |
| <i>End Points</i> | <p>Can identify a device that uses technology.<br/>           Ask permission before using the Internet.<br/>           Tell an adult if something worrying or unexpected happens whilst using technology.<br/>           Talk about technology that is used at home, in school and in the world around them.<br/>           Use a safe part of the Internet to explore, play and learn</p> |  | <p>Talk about different kinds of information such as pictures, videos, text and sound.<br/>           Use a mouse and touch screen to move objects on a screen.<br/>           Create shapes and text on a screen</p> |   | <p>Be able to give a floor robot instruction to make it move.<br/>           Use simple software and explain what you are doing.<br/>           Understand what happens when you click a button or touch an icon.</p> |  |
| <i>Year 1</i>     | <i>Unit 1:1 Basic Skills</i>   | <i>Unit 1:2- Using Word and Other Programs to Process and Format Text Images</i>   | <i>Unit 1.3 Unplugged Algorithms Understanding and Building a Basic Algorithm</i>   | <i>Unit 1. 4 Programming, Coding and Robotics</i>   | <i>1.5 Data Collection and Representing Data using Proctograms</i>  | <i>1.6 Producing Digital Media</i>   |
| <i>End Points</i> | <p>Pupils will learn how to log in and shut down a computer and begin to understand the importance of a password.<br/><br/>           Begin to understand how to use technology safely and respectfully.</p>   | <p>To begin to process and format text and images.<br/><br/>           To begin to understand how to use the keyboard; <b>backspace;</b> <b>capslock;</b> <b>enter;</b> <b>shift</b></p> | <p>To begin to understand how to create unplugged algorithms and apply them to an on screen programme.</p>  | <p>Give instructions to a friend and follow their instructions to move around a space.<br/><br/>           Describe what happens when buttons are pressed</p> | <p>To begin to use technology to collect information<br/><br/>           To begin to sort different kinds of information and present it to others<br/><br/>           To begin to add</p>                             | <p>Use software to create digital content<br/><br/>           Use the keyboard to input text<br/><br/>           Understand some of the basic functions of a keyboard (backspace, space etc)</p> |

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|            |  |   |  | <p>on a robot</p> <p>Press buttons in the correct order to make a robot follow a sequence</p> <p>Begin to predict what will happen for a short sequence of instructions</p> <p>Begin to understand what an algorithm is and be able to create a simple algorithm</p>   | <p>information into a pictogram and talk about their findings</p> <p>To begin to talk about the different ways in which data / information can be shown</p>   |  |
| Year 2     | <i>Unit 2.1 What is a Computer?</i>  | <i>2.2 Unplugged Algorithms</i>   | <i>Unit 2.3 Programming with Scratch</i>   | <i>Unit 2.4 Sorting and Presenting Data</i>  | <i>Unit 2.5 Modifying Text and Images</i>   | <i>Unit 2.6 Presenting Information</i>   |
| End Points | <p>Children can explain why they use technology in the classroom, in their homes and in the community.</p> <p>Identify the benefits of using technology, such as creating content and communicating efficiently.</p> <p>Can identify a computer by knowing that it has inputs, a processor and outputs.</p> <p>Can identify parts of a computer including what an input and output is.</p> | <p>Use logical reasoning to predict and debug more complex programs.</p> <p>Can create and debug with improved confidence and efficiency.</p> <p>Begin to program using simple block code. Programme a robot or software to do a particular task.</p> <p>Be able to explain the order needed to do something happen and</p> | <p>Use logical reasoning to predict and debug more complex programs.</p> <p>Can create and debug with improved confidence and efficiency.</p> <p>Begin to program using simple block code.</p> <p>Programme a robot or software to do a particular task.</p> <p>Be able to explain the order needed to do things to make</p> | <p>Identify the benefits of using technology, such as creating content and communicating efficiently.</p> <p>Create a graph or chart using data collected on a specific topic area.</p> <p>Talk about the data that is shown in their chart or graph.</p> <p>Use a variety of software to manipulate and</p> | <p>Demonstrate the use of technology responsibly in terms of how we use it and the time we spend using it.</p> <p>Know how to report inappropriate content or contact online. Children can explain why they use technology in the classroom, in their homes and in the community.</p> <p>Use the keyboard on their device to add, delete, edit and format</p> | <p>Know how to report inappropriate content or contact online.</p> <p>Use a variety of software to manipulate and present digital content in different ways with increasing independence.</p> <p>Save and open files on the device they use from a specific file location.</p> |

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|                   |  | <p>to talk about it as an algorithm.</p> <p>Understand what an algorithm is and demonstrate simple linear algorithms.</p>   | <p>something happen and to talk about it as an algorithm.</p> <p>Understand what an algorithm is and demonstrate simple linear algorithms.</p>   | <p>present digital content in different ways with increasing independence.</p>   | <p>text.</p> <p>Save and open files on the device they use from a specific file location.</p>   |  |
| <b>Year 3</b>     | <p>Unit 3.1 Emails<br/>(Y3/4 Spring 1)</p>   | <p>Units 3.2 Introduction to Scratch<br/>(Y3/4 Summer 1)</p>  | <p>Unit 3.3 Prediction and Debuggings<br/>(Y3/4 Summer 2)</p>  | <p>Unit 3.4 Altering Media<br/>(Y3/4 Spring 2)</p>   | <p>Unit 3.5 Inside a Computer</p>   | <p>Unit 3.6 Publishing Content Online</p>  |
| <b>End Points</b> | <p>Understand the difference between data and information.</p> <p>Be able to effectively use a spell checker.</p> <p>Children consider their responsibilities and actions to others online.</p> <p>Understand how to use a search engine responsibly and safely.</p> <p>Save and retrieve work online, on the school network and their own device.</p> | <p>Understand how an algorithm is implemented using a sequence of precise instructions.</p> <p>Can predict the outcome of a sequence of precise instructions.</p> <p>Repeatedly test a program and recognise when they need to debug it.</p> <p>Detect a problem in an algorithm, which could result in a different outcome to the one intended.</p> <p>Understand what inputs and outputs are, how they can be used.</p> | <p>Understand how an algorithm is implemented using a sequence of precise instructions.</p> <p>Can predict the outcome of a sequence of precise instructions.</p> <p>Repeatedly test a program and recognise when they need to debug it.</p> <p>Detect a problem in an algorithm, which could result in a different outcome to the one intended.</p> <p>Designs, writes, executes and debugs programs of increasing complexity that accomplish a</p> | <p>Children consider that all of the media they see could have been altered.</p> <p>Save and retrieve work online, on the school network and their own device.</p> <p>Think about whether they can use images that they find online in their own work.</p> | <p>To identify components within a PC/Laptop and what each component does.</p> <p>To understand the basic fundamentals of how a computer works.</p> | <p>Combine a mixture of text, graphics and sound to share ideas and learning.</p> <p>Use appropriate keyboard commands to amend text.</p> <p>Be able to effectively use a spell checker.</p> <p>Evaluate their work and improve its effectiveness.</p> <p>Use an appropriate tool to share their work online</p> |

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|                   |  | <p>Provide examples of how to use inputs and outputs effectively.</p> <p>Designs, writes, executes and debugs programs of increasing complexity that accomplish a specific goal.</p> <p>Use logical reasoning to predict and debug more complex programs including inputs and outputs.</p>                              | <p>specific goal.</p> <p>Use logical reasoning to predict and debug more complex programs</p>  |  |   |  |
| <b>Year 4</b>     | <b>Unit 4.1 Branching Databases</b>  | <b>Unit 4.2 Repetitions and Loops in Scratch</b>  | <b>Unit 4.3 Designing a game in scratch using repeat loops</b>   | <b>Unit 4.4. Making a special effects Movie</b>  | <b>Unit 4.5 Smarter Searches and Online Safety</b>  | <b>Unit 4.6 Pixel Art</b>  |
| <b>End Points</b> | <p>Demonstrate the different ways data can be organised.</p> <p>Demonstrate the different ways data can be converted into information.</p> <p>Make a branching database.</p> <p>Collect data and identify where it could be inaccurate.</p> <p>Plan, create and search a database.</p> <p>Select the best way to present</p> | <p>Understand how an algorithm is implemented using a sequence of precise instructions.</p> <p>Can predict the outcome of a sequence of precise instructions.</p> <p>Repeatedly test a program and recognise when they need to debug it.</p> <p>Detect a problem in an algorithm, which could result in a different</p> | <p>Understand how an algorithm is implemented using a sequence of precise instructions.</p> <p>Can predict the outcome of a sequence of precise instructions.</p> <p>Repeatedly test a program and recognise when they need to debug it.</p> <p>Detect a problem in an algorithm, which could result in a different outcome to the one</p> | <p>Use photos, video and sound to create an atmosphere when presenting to different audiences.</p> <p>Be confident to explore new media to extend what they can achieve.</p> <p>Change the appearance of text to increase its effectiveness depending on the audience or mood.</p> | <p>Understand that media can be edited online for advertising and other purposes.</p> <p>Recognise what is acceptable and unacceptable behaviour when using online services</p> <p>Understand that attachments may harm our computers and some messages may be "too good to be true".</p> <p>Know how to send an email to a known</p> | <p>Use paint tools and cell highlighters to create pixel art</p> <p>Use an appropriate tool to share their work and collaborate online.</p> <p>Be able to evaluate other people's work and give them constructive feedback to help them improve their work.</p> <p>Be confident to explore new media to extend what they can achieve</p> |

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|                             | data to a specific audience  | <p>outcome to the one intended.</p> <p>Understand what inputs and outputs are, how they can be used.</p> <p>Provide examples of how to use inputs and outputs effectively.</p> <p>Designs, writes, executes and debugs programs of increasing complexity that accomplish a specific goal.</p> <p>Use logical reasoning to predict and debug more complex programs including inputs and outputs.</p> | <p>intended.</p> <p>Understand what inputs and outputs are, how they can be used.</p> <p>Provide examples of how to use inputs and outputs effectively.</p> <p>Designs, writes, executes and debugs programs of increasing complexity that accomplish a specific goal.</p> <p>Use logical reasoning to predict and debug more complex programs including inputs and outputs.</p> | <p>Create, modify and present documents for a particular purpose and audience.</p>  | <p>person sensibly and responsibly.</p>   |   |
| <b>Year 5/6<br/>Cycle 1</b> | <b>Unit 6.3 Programming a Game</b>   | <b>Unit 5.2 Variables</b>   | <b>Unit 5.3 Coding with Micro-bits</b>   | <b>Unit 5.4 Stop Motion Animation</b>   | <b>Unit 5.5 The Internet and the World Wide Web</b>   | <b>Unit 5.6 3D Modelling</b>  |
| <b>End Points</b>           | <p>Understand the importance of planning, testing and correcting algorithms.</p> <p>Demonstrate a range of different strategies to solve a problem including: abstraction, decomposition, logic &amp; evaluation.</p> <p>Understand why sequence &amp; patterns are important when</p> | <p>Use a variable to increase programming possibilities.</p> <p>Use a variable and relational operators (e.g. &lt; = &gt;) within a loop to stop a program.</p> <p>Evaluate the effectiveness and</p>   | <p>To program a Micro:Bit to display a message or design using scroll and forever loops.</p> <p>To program an event based on an input</p> <p>To create a variable</p> <p>To program a variable to</p>  | <p>Select, use and combine the appropriate technology tools to create effects in media.</p> <p>Select an appropriate online or offline tool to create</p> | <p>Select, use and combine the appropriate technology tools to create effects in media.</p> <p>Select an appropriate online or offline tool to create and share ideas</p> <p>Understand the</p> | <p>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</p> |

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|   | <p>creating simple algorithms that are part of a more complex program.</p> <p>Gives reasoning for each step within algorithms and applies them to a program.</p> <p>Use a variable to increase programming possibilities.</p> <p>Use variable and relational operators (e.g. &lt; = &gt;) within a loop to stop a program.</p> <p>Evaluate the effectiveness and efficiency of an algorithm while continually testing the programming.</p> <p>Use logical reasoning to predict and debug more complex programs e.g. selection, variables and operators.</p> | <p>efficiency of an algorithm while continually testing the programming of that program.</p> <p>Use logical reasoning to predict and debug more complex programs including: selection, variables and operators</p> | <p>be randomly selected</p> <p>To control variables based on conditional algorithms</p> | <p>and share ideas</p> <p>Understand the dangers of building online relationships.</p> | <p>dangers of building online relationships.</p> | <p>Use different online tools for different purposes.</p> <p>Be able to use a variety of familiar and unfamiliar software by using a pre-existing skill set</p> <p>Select, use and combine the appropriate technology tools to create effects in media.</p> |
| <p><b>Year 5/6</b><br/><b>Cycle 2</b></p> | <p>Unit 5.1 Create and Search Databases</p>   | <p>Unit 6.1 Creating Formula</p>   | <p>Unit 6.2 Edublocks Introduction</p>  | <p>Unit 6.5 Creating a website using HTML</p>  | <p>Unit 6.4 Creating a Podcast</p>               | <p>Unit 6.6 Social Media being safe online</p>  |

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| <p><b>End Points</b></p> | <p>Use a spreadsheet and database to collect, record and evaluate data.</p> | <p>Enter and organise data appropriately</p> <p>Use the 'Formula' method to make calculations</p> <p>Interpret and present the data they collect.</p> <p>Use the skills developed to interrogate a spreadsheet</p> | <p>Understand the importance of planning, testing and correcting algorithms.</p> <p>Demonstrate a range of different strategies to solve a problem including: abstraction, decomposition, logic &amp; evaluation.</p> <p>Understand why sequence &amp; patterns are important when creating simple algorithms that are part of a more complex program.</p> <p>Gives reasoning for each step within algorithms and applying them to a program.</p> <p>Use a variable to increase programming possibilities.</p> <p>Use a variable and relational operators (e.g. &lt; = &gt;) within a loop to stop a program.</p> <p>Evaluate the effectiveness and efficiency of an algorithm while continually testing the programming.</p> <p>Use logical reasoning to predict and debug more complex programs</p> | <p>To identify features of websites and their purposes</p> <p>To understand how html is used to code websites</p> <p>To create a basic website outline using html</p> <p>To design the site structure and page navigation for a basic website</p> <p>To source the information needed for their website</p> | <p>To use a variety of familiar and unfamiliar software by using their existing skills</p> <p>Select, use and combine appropriate technology tools to create effects in media</p> <p>Evaluate and improve your own work and support others</p> | <p>Explain Internet services they need to use for different purposes.</p> <p>Manage their conduct and contact appropriately and safely when using technology and online services.</p> <p>Be digital Discerning When evaluating the effectiveness of their own work and the work of others.</p> <p>Combine a range of media, recognising the contribution of each to achieve a particular outcome.</p> <p>Use a range of strategies to increase the accuracy of keyword searches. Makes confident inferences about their effectiveness.</p> |
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|  |  |  | including: selection,<br>variables and operators |  |  |  |
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