

**Computing Curriculum Justification.**

Year 7		HT1	HT2	HT3	HT4	HT5	HT6
Computing	<b>Topic</b>	<b>Topic 1</b>	<b>Topic 2</b>	<b>Topic 3</b>	<b>Topic 4</b>	<b>Topic 5</b>	<b>Topic 6</b>
	Big Idea/Question	Using the Network effectively. Collaborating online respectfully, E-Safety, Digital Applications	Gaining support for a cause. Using applications appropriately	Networks – From Semaphores to The Internet	Using spreadsheets effectively	Block Coding – Using Scratch effectively part 1	Block Coding – Using Scratch effectively part 2
	<b>Why this and why now?</b>  What is the content doing here? How does it integrate to prior learning or prepare students for future learning? Is it an opportunity for cumulative learning or to achieve proficiencies? Does it provide a step to collective sufficiency?	Start of the KS3 curriculum. Will give students an understanding of Health and Safety requirements and staying safe online. Will also allow student to improve basic Presentation skills.	During this unit, learners develop their understanding of information technology and digital literacy skills. They will use the skills learnt across the unit to create a blog post about a real-world cause that they would like to gain support for. Learners will develop software formatting skills and explore concerns surrounding the use of other people's work, including licensing and legal issues.	Imagine a world without computer networks, and how different your life would be. There would be no more YouTube, Google, instant messaging, online video gaming, Netflix, and iTunes. There would be no online shopping, or quickly looking up directions to a location at the click of a button. There would be no more sharing of files or peripherals such as a printer, and no more central backups of information. As networks have evolved, society has become increasingly reliant on the services that they provide. They have changed the way we learn, work, play, and communicate. This unit begins by defining a network and addressing the benefits of	The spreadsheet unit for Year 7 takes learners from having very little knowledge of spreadsheets to being able to confidently model data with a spreadsheet. The unit uses engaging activities to progress learners from using basic formulas to writing their own COUNTIF statements. This unit will give learners a good set of skills that they can use in computing lessons and in other subject areas.	This unit is the first programming unit of KS3. The aim of this unit and the following unit ('programming 2') is to build learners' confidence and knowledge of the key programming constructs. Importantly, this unit does not assume any previous programming experience, but it does offer learners the opportunity to expand on their knowledge throughout the unit.	Programming II follows on from the foundations built in 'Programming I'. It is vital that learners complete 'Programming I' before beginning this unit.  This unit begins right where 'Programming I' left off. Learners will build on their understanding of the control structures' sequence, selection, and iteration (the big three), and develop their problem-solving skills. Learners will learn how to create their own subroutines, develop their understanding of decomposition, learn how to create and use lists, and build upon their problem-solving skills by working through a larger project at the end of the unit.

			<p>networking, before covering how data is transmitted across networks using protocols. The types of hardware required are explained, as is wired and wireless data transmission. Learners will develop an understanding of the terms 'internet' and 'World Wide Web', and of the key services and protocols used. Practical exercises are included throughout to help strengthen understanding.</p>			
<p><b>What is the essential knowledge that needs to be remembered?</b></p> <p>What are the key facts, skills, and experiences that you want students to remember? What are the substantive and disciplinary concepts? Does the knowledge selected mean students leave with a good understanding? <u>Substantive – key facts</u></p>	<p>Learners will be able to login to the school system both in and outside of school.</p> <p>Learners will start to familiarise themselves with learning and working remotely if the school is not accessible through reasons of closure or sickness.</p> <p>Learners will know and understand how to use computers safely both in the classroom and online.</p> <p>Learners will gain an understanding of and explain the following: Online bullying Online relationships</p>	<p>Learners will use word processing software to explore a range of formatting tools, and then they will be given a document to format using these tools. Learners will look at a selection of images and discuss which image they think would be appropriate for the given scenarios.</p> <p>Learners will be introduced to copyright law, and then they will watch a video about Creative Commons licensing. Learners will need to know the difference between each aspect.</p>	<p>Learners will learn what a computer network is, along with the meaning of the word 'protocol'. Learners will identify different greeting protocols. Learners will make a connection between non-networking and networking protocols.</p> <p>Learners will be able to identify network cables, hubs, servers and routers and learners then use their knowledge of each component to build a series of increasingly complicated network diagrams.</p> <p>Learners will explore the different wireless</p>	<p>Learners will navigate a spreadsheet via its rows and columns, and become familiar with the cell referencing system. They will locate and select ranges of cells and change cells' background colour and border properties.</p> <p>Learners will practise entering text into cells of a spreadsheet and then learn how to perform calculations on the data using basic formulas and cell references. They will learn how to use the autofill tool to duplicate cells and continue a linear pattern, and then combine the autofill tool with basic formulas to</p>	<p>Learners will be taught the song Frère Jacques before working in pairs to place blocks of code into the appropriate subroutines so that their program will play the song correctly.</p> <p>Learners will be introduced to variables as well as the opportunity to get more confident with sequences. Learners have to replace the variable names with the values they refer to when they reach the relevant places in the story. Learners will then be given a Scratch program where they will work in pairs to predict, run, investigate, and modify.</p>	<p>Learners will formalise the use of subroutines, a technique that has been introduced gently over the previous unit. Learners will create a dance battle game by decomposing dance moves and creating subroutines for each move. Learners are introduced to the concept of condition-controlled loops by using the PRIMM approach. They will predict, run, investigate, and modify code in order to build confidence with using condition-controlled loops. Learners should have a grasp of each type of</p>

<p><u>Disciplinary- Methods of subjects</u> <u>Procedural- Skills</u></p>	<p>Privacy and security</p>	<p>Learners will look at techniques to use to help determine the credibility of a source, and then apply these skills by writing an article that could be real or fake. Learners will then look at each other's work and try to determine whether the article is credible.</p> <p>Learners will use their research document from the previous lesson to create their blog.</p> <p>Learners will spend time giving feedback on each other's work. Learners will review their work based on the success criteria and will have a chance to make final changes to their work based on the peer feedback that they received in the previous lesson.</p> <p>Learners will finish the unit by completing an end-of-unit assessment</p>	<p>technologies, and how bandwidth varies between these technologies. Learners will discuss the mobile technologies of 3G, 4G, and 5G. Learners should be able to identify whether a wired or wireless network should be used in a number of given scenarios.</p> <p>Learners will gain an appreciation of the vastness of the internet. It is truly global, with 99% of data transmitted through oceanic cables spanning all continents, the longest of which is 39,000 kilometres. Learners will develop an understanding of packet structure and packet switching.</p> <p>Learners will understand the difference between the internet and the World Wide Web and how each came about. Learners will also understand that many different services are provided across the internet. Email and Voice over Internet Protocol (VoIP) will be explained.</p> <p>Learners will look at the different components that make up the internet</p>	<p>quickly populate a results column with calculations.</p> <p>Learners will discover the difference between data and information, and between primary and secondary sources of data. They will then design a survey to collect some data of their own for use in the next lessons.</p> <p>Learners will discover how to use functions to analyse data in a spreadsheet. As well as learning how to automatically create charts from data, they will be introduced to four functions: SUM, MAX, MIN, and COUNTA.</p> <p>Learners will use — COUNTIF, AVERAGE, and IF — and to how they can sort and filter a spreadsheet. Learners will work on a larger data set to get a feel for analysing real-world data using spreadsheets.</p> <p>Learners will discover how to use conditional formatting, whereby the appearance of a cell changes automatically depending on the data it contains, according to</p>	<p>Learners are introduced to the concept of selection statements and how they can be used to control the flow of a program. Learners will be able to understand expressions that evaluate to 'true' or 'false'.</p> <p>Learners will build on the previous lesson by introducing the use of logical and comparison operators to use in selection statements. The learners will start by following Scratch code and working out what the program will output given different inputs. They will be introduced to logical and comparison operators before taking part in an activity where they are given a playing card and have to decode if it evaluates to 'true' or 'false' using various different expressions.</p> <p>Learners will be introduced to the concept of iteration, the examples will be specifically focused on count-controlled iteration. Learners will then use pair programming to create a Scratch version of the nursery rhyme Ten Green Bottles using</p>	<p>iteration available to them in Scratch</p> <p>Learners will evaluate skills to implement iteration in their own programs as they start to develop them. Learners are introduced to lists during this lesson. There is initially an educator-led demonstration on a simple shopping list application created in Scratch. Learners then dig deeper into lists by navigating through a treasure hunt game</p> <p>Learners should use their investigation skills to discover the essential tools that Scratch can offer surrounding lists. Learners are given a scenario to create a translation quiz for a Modern Foreign Languages teacher. The learners will decompose the problem and start to build a Scratch program to meet the requirements.</p>
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			and WWW. Learners will develop an understanding of the difference between HTTP and HTTPS protocols. Learners will also gain an understanding of URLs and their structures.	rules the learners themselves set.	count-controlled iteration. Learners will be introduced to the concept of debugging, and they will be given a program to debug by tracing the value of the variables.	
<p><b>What is the assessment intent and how will you assess?</b></p> <p>What types of assessments and question stems are being used to demonstrate students are learning and progressing to produce ever higher standards of work? What formative assessment is there for component learning and summative for composite learning?</p>	<p>Learners will demonstrate prior knowledge of ICT from KS2 through completing an online baseline assessment in the first lesson.</p> <p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>	<p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>	<p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>	<p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>	<p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>	<p>Assessment will be in a variety of forms.</p> <p>There will also be an ongoing formative assessment based on student work. This will be in the form of presentations and questioning. This will be both Peer and Teacher led</p> <p>Summative assessment will take place at the end of the unit of work based on topics learned. This will be a paper test.</p> <p>Each lesson will start with a mini quiz on forms. This will identify and test knowledge from the previous lesson and from previous topics covered. At the end of each lesson there will be a plenary on forms, and this will test knowledge and learning from the lesson.</p>

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<p><b>What does the end point look like?</b></p> <p>What is the impact of this component on the student's learning? What should the learning now look like via the assessment? Is disciplinary language used?</p>	<p>Learners will demonstrate prior knowledge of ICT from KS2 through completing an online baseline assessment.</p> <p>Learners will be able to identify aspects of computer safety and use Microsoft applications such as Word &amp; PowerPoint.</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> <li>• Create a memorable and secure password for an account on the school network</li> <li>• Remember the rules of the computing lab</li> <li>• Find personal documents and common applications</li> <li>• Recognise a respectful email</li> <li>• Construct an effective email and send it to the correct recipients</li> <li>• Describe how to communicate with peers online</li> <li>• Plan effective presentations for a given audience</li> <li>• Describe cyberbullying</li> </ul>	<p>Learners will be able to effectively use Microsoft word and identify that there are similarities between Word and other applications. A continuation from the last units work.</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> <li>• Select the most appropriate software to use to complete a task</li> <li>• Identify the key features of a word processor</li> <li>• Apply the key features of a word processor to format a document</li> <li>• Evaluate formatting techniques to understand why we format documents</li> <li>• Select appropriate images for a given context</li> <li>• Apply appropriate formatting techniques</li> <li>• Demonstrate an understanding of licensing issues involving online content by applying appropriate Creative Commons licences</li> </ul>	<p>Learners will be able to identify the different hardware devices that make up a network. They will be able to explain how those hardware devices are connected and along with the software create an effective wired and wireless network.</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> <li>• Define what a computer network is and explain how data is transmitted between computers across networks</li> <li>• Define 'protocol' and provide examples of non-networking protocols</li> <li>• List examples of the hardware necessary for connecting devices to networks</li> <li>• Compare wired to wireless connections and list examples of specific technologies currently used to implement such connections</li> <li>• Define 'bandwidth', using the appropriate units for measuring the rate at which data is</li> </ul>	<p>Learners will be able to identify the different aspects of a spreadsheet. They will be able to model a scenario successfully. Learners will be able to use functions successfully.</p> <p>Learners will be able to :</p> <ul style="list-style-type: none"> <li>• Identify columns, rows, cells, and cell references in spreadsheet software</li> <li>• Use formatting techniques in a spreadsheet</li> <li>• Use basic formulas with cell references to perform calculations in a spreadsheet (+, -, *, /)</li> <li>• Use the autofill tool to replicate cell data</li> <li>• Explain the difference between data and information</li> <li>• Explain the difference between primary and secondary sources of data</li> <li>• Collect data</li> <li>• Analyse data</li> </ul>	<p>Learners will be able to perform basic block coding in scratch. Learners will be able to code, modify, debug a program. Learners will be able to identify variables.</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> <li>• Compare how humans and computers understand instructions (understand and carry out)</li> <li>• Recognise that computers follow the control flow of input/process/output</li> <li>• Define a sequence as instructions performed in order, with each executed in turn</li> <li>• Predict the outcome of a simple sequence</li> <li>• Modify a sequence</li> <li>• Define a variable as a name that refers to data being stored by the computer</li> <li>• Recognise that computers follow the control flow of</li> </ul>	<p>Learners will be able to perform basic block coding in scratch. Learners will develop skills they have learned in the previous unit. Learners will be able to use the PRIMM approach to coding.</p> <p>Learners will be able to:</p> <ul style="list-style-type: none"> <li>• Define a subroutine as a group of instructions that will run when called by the main program or other subroutines</li> <li>• Define decomposition as breaking a problem down into smaller, more manageable subproblems</li> <li>• Identify how subroutines can be used for decomposition</li> <li>• Identify where condition-controlled iteration can be used in a program</li> <li>• Implement condition-controlled iteration in a program</li> <li>• Evaluate which type of iteration is</li> </ul>

		<ul style="list-style-type: none"> <li>• Explain the effects of cyberbullying</li> <li>• Check who you are talking to online</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate the ability to credit the original source of an image</li> <li>• Critique digital content for credibility</li> <li>• Apply techniques to identify whether a source is credible</li> <li>• Apply referencing techniques and recognise the concept of plagiarism</li> <li>• Evaluate online sources for use in own work</li> <li>• Construct a blog using appropriate software</li> <li>• Create content for a blog based on credible sources</li> <li>• Apply referencing techniques that credit authors appropriately</li> <li>• Design the layout of the content to make it suitable for the audience</li> <li>• Construct a blog using appropriate software</li> <li>• Create content for a blog based on credible sources</li> <li>• Apply referencing techniques that credit authors appropriately</li> </ul>	<p>transmitted, and discuss familiar examples where bandwidth is important</p> <ul style="list-style-type: none"> <li>• Define what the internet is</li> <li>• Explain how data travels between computers across the internet</li> <li>• Describe key words such as 'protocols', 'packets', and 'addressing'</li> <li>• Explain the difference between the internet, its services, and the World Wide Web</li> <li>• Describe how services are provided over the internet</li> <li>• List some of these services and the context in which they are used</li> <li>• Explain the term 'connectivity' as the capacity for connected devices ('Internet of Things') to collect and share information about me with or without my knowledge (including microphones, cameras, and geolocation)</li> </ul>	<ul style="list-style-type: none"> <li>• Create appropriate charts in a spreadsheet</li> <li>• Use the functions SUM, COUNTA, MAX, and MIN in a spreadsheet</li> <li>• Use a spreadsheet to sort and filter data</li> <li>• Use the functions AVERAGE, COUNTIF, and IF in a spreadsheet</li> <li>• Use conditional formatting in a spreadsheet</li> </ul>	<p>input/process/output</p> <ul style="list-style-type: none"> <li>• Predict the outcome of a simple sequence that includes variables</li> <li>• Trace the values of variables within a sequence</li> <li>• Make a sequence that includes a variable</li> <li>• Define a condition as an expression that will be evaluated as either true or false</li> <li>• Identify that selection uses conditions to control the flow of a sequence</li> <li>• Identify where selection statements can be used in a program</li> <li>• Modify a program to include selection</li> <li>• Create conditions that use comparison operators (&gt;, &lt;, =)</li> <li>• Create conditions that use logic operators (and/or/not)</li> <li>• Identify where selection statements can be used in a program that include comparison and logical operators</li> </ul>	<p>required in a program</p> <ul style="list-style-type: none"> <li>• Define a list as a collection of related elements that are referred to by a single name</li> <li>• Describe the need for lists</li> <li>• Identify when lists can be used in a program</li> <li>• Use a list</li> <li>• Decompose a larger problem into smaller subproblems</li> <li>• Apply appropriate constructs to solve a problem</li> </ul>
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			<ul style="list-style-type: none"> <li>Design the layout of the content to make it suitable for the audience</li> </ul>	<ul style="list-style-type: none"> <li>Describe how internet-connected devices can affect me</li> <li>Describe components (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together</li> </ul>		<ul style="list-style-type: none"> <li>Define iteration as a group of instructions that are repeatedly executed</li> <li>Describe the need for iteration</li> <li>Identify where count-controlled iteration can be used in a program</li> <li>Implement count-controlled iteration in a program</li> <li>Detect and correct errors in a program (debugging)</li> <li>Independently design and apply programming constructs to solve a problem (subroutine, selection, count-controlled iteration, operators, and variables)</li> </ul>	
<p><b>How does it cover the NC?</b></p> <p>Refer explicitly to the NC or KS4 Assessment Objectives.</p>	The topic meets the NC statement requirements for strands 3.8/3.9	The topic meets the NC statement requirements for strands 3.7/3.8	The topic meets the NC statement requirements for strands 3.5	The topic meets the NC statement requirements for strands 3.1/3.7/3.9	The topic meets the NC statement requirements for strands 3.2/3.3/3.4/3.8	The topic meets the NC statement requirements for strands 3.2/3.3/3.4/3.8	

