National Curriculum (POS)
(S1) Strand 1- Fundamental Principles- abstraction (DFD / Cryptography) logic (Boolean logic) algorithms, data (binary)
(S2) Strand 2-Analyse problems- writing code to solve problems (scratch, HTML, CSSS, Python)
(S3) Strand 3- Evaluate and apply IT (using appropriate software)
(S4) Strand 4- Creative confident Users of ICT (safely and respectfully and responsibly)

KS3-3 Year Plan (XRef to KS4: Journey- DIT & CS)

Total: 108	Year 9- 1 hr week (36)	Year 8 – 1 hr week (36)	Year 7 -1 hr week (36)
	Embed	***Develop***	***Introduce***
Aims	With our year 9 Students we will look back at prior knowledge in Year 8 as well as new knowledge and skills that enable learners to make the right choices out of the two offerings at KS4. Students follow a variety of project based activities to see which of the area's best suits their style. Learners will study 2 key area's that make up the option choices available in Year 10: Digital Information Technology, & Computer Science. allowing students to get a good understand of the key differences between the two offerings @KS4. Time will also be used for students to continue to improve their digital literacy skills to help them in their further studies in other subjects chosen in Year 10.	With our year 8 students we aim to build upon the principles and foundations made clear in Y7 but a more technically advanced and refined approach is required. Software is approached in a more demanding and deepening way allowing students to understand the more advanced features of the software used but also started to familiarise themselves with a system life cycle (ADITE) and being able to develop their own systems that meet the user requirements (target audience). Students Peer to Peer and test, redevelop and evaluate their final output.	At Y7 the IT department aims to give students a basic introduction to IT fundamentals of digital literacy. Y7 students still have limited IT experience @ KS2 knowledge and skills in using a server based infrastructure as well as use of online resources such as: OneNote/OneDrive, TeachICT.com- online tutorials, Code.org Online graphic block based coding, using a Cloud based approach to learning, use of the MLE (SMHWK/Email)- when they arrive at secondary school, so Digital literacy is main aim in their first year of learning at SHS enabling students to build confidence and suitable foundations in this crucial year We encourage students to be critical and reflective throughout their experiences and seek to develop their technical skills The department provides students with solo taxonomy- students can pick the tasks that they feel comfortable with or tasks that will push them still further.
Core knowledge/key concepts	(S1) (CSUK 7) Hardware- Explains the hardware required to create a modern day computer system (S4) (CSUK 9) Back to the Future-Introducing students to previous Computer Scientists and how Computing has developed over time (S2) (CSUK 9) Networking-Students learn about networking, form local area networks to the workings of the internet. (S1) (CSUK 8) Binary Bits & Bobs- Introduces students to the binary number system and how a variety of data is represented in computer systems (S2) (SHS R Drive & CSUK 8/9) Python Advanced- Introduces students to a variety of programming techniques using the Python programming language	Again the department provides students with solo taxonomy- students can pick the tasks that they feel comfortable with or tasks that will push them still further. (S1) -Introduction to Computing- Students in this Unit of work are taught many of the theoretical concepts that commonly appear in the KS4 exam paper. These components are also used in the design stage before implementing a coding solution to a client brief, "Computational thinking". Key concepts taught include: Cryptography, Binary, Data Flow Diagram / Algorithms and Data Control (S4) -History of Computing- Students in this Unit will discover the history of Computing and leading figures during this process. They will be able to characterise peripherals into I/P/O. Students will also be taught not only hardware needed for Computers but also how software in categorised into 3 main types.	(S4) Online Safety – Understanding the importance of your digital Footprint **Using a network infrastructure safely and competently- file management, version management** (S3) Using Cloud computing & the MLE effectively (SMHK/Outlook/OneDrive/OneNote) Viruses- Protecting your data Focusing on two strands from the Computer Science POS (Digital Literacy & Information Technology): (S4) ECDL- Key concepts in the use of Modelling (Spreadsheets), Word-processing, Data Handling (Database use), DTP/Presentation (Communication- PowerPoint/Publisher)) Third strand of Computer Science POS (fundamentals of coding) (S2) Block Coding, through the use of a graphical based program (Scratch, Code.org) for understanding of Output/ test / using the necessary commands without syntax (If's/loops/Variables) Python- using a text based program to input code to generate output.

		(S2) Python Introduction- Student will learn how to code via a more complex Interface: Python. Students will learn how to use a Text editor (IDLE) as well as running their generate code in the shell. Solo Taxonomy- Students use the **text editor** to save a number of differing coding programs. F5 to execute, understand lines of syntax and correct the code accordingly. Test, Modify, Evaluate their solution. Short computer-based tasks focussed on specific areas on Programming with regards to the use of a text based computer language (Python) the SOW enables students to practice new skills and demonstrate their understanding of key concepts. Student build up their confidence to make a more complicated programme's run. Students can use the input function, maths functions, learn how to use loops and if statements. Develop solutions to problems without a worksheet from the design stage through to implementation testing and evaluation (S2) HTML/CSS/JavaScript- (Dreamweaver &Notepad) Students to learn how websites are essentially for the end user however websites are generally written in source code (HTML / CSS)- by programmers. Notepad is one method used in order to make these HTML pages. Students learn how CSS can make this task more efficient. Students will use their option choices as topics for each HTML page link via html tags, suitability of content and images needs to be discussed	
Skills and knowledge developed	**Strand 1- Fundamental principles** **HT1:** (CSUK 7) Hardware- Explains the hardware required to create a modern day computer system 1-What is a computer Understand what a computer is and how they can come in various forms. Understand how computers receive commands and data Understand what 'processing' means Understand how computers can output information 2-What is inside a computer Remember what a computer is and how it processes inputs to produce outputs. Understand that a computer is made up of a range of components.	**Strand 1- Fundamental principles** **HT1:** Overview-Introduction to Computing 1-To be able to identify two early methods of encryption. To be able to create their own cipher code. To develop a logical and original cipher code of their own and use it to encrypt their own message. 2-Know What Binary numbers are. Understand why Binary is used in Computing. Be Able to convert Denary (Decimal) into Binary numbers / Binary into Denary. 3-Flowchart is a diagram made up of specific shapes Flowcharts have processes (actions or instructions) Flowcharts also contain 'decisions. Students can Complete flowcharts for specific set tasks. 4-Students know what an algorithm is, understand why algorithm accuracy is important, practise creating concise algorithms and realise some of the difficulties associated with doing so. 5-Testing- Understand the importance of testing software Identify the different techniques of software testing Be able to explain the bugs of a Scratch and identify the solutions	**Strand 4- Creative users of ICT** **Strand 3- Evaluate and apply IT** **HT1**: Overview- Using MLE/Using Email/Online Safety/Target Audience/Design/ Implement/Test/Evaluate 1-Good practice- folders, file names, file management, ICT acceptable use on a network 2-Using ShowMyhomework 3-Opening saving resources appropriately. 4-Formatting documents correctly 5-Using the MLE confidently 6-Email etiquette- sending attaching, replying 7-Protecting your data- against Viruses, backup, hardware v's software 8-Project system life cycle: Analysis of brief, Designing work via storyboards Implementation-Video editing- captions, text, formatting, credits, editing length, using timelines, Testing & Evaluation progress against set criteria Strand 3-Evaluate and apply IT Strand 4- Creative users of ICT Strand 1- Fundamental principles

	Understand the purpose / function of these components Understand their relative importance 3-How it all works 4- The CPU Remember that a computer is made up of a range of components and remember their purpose / function. Understand the role of the CPU, RAM and Hard Drive Understand how the CPU, RAM and Hard Drive work together. Understand how the input and output devices work with the CPU 5- Revision 6- Assessment **Strand 4- Creative users of ICT** **HT2:** (CSUK 9) Back to the Future-Introducing students to previous Computer Scientists and how Computing has developed over time 1-Alan Turing and Code Breaking To understand who Alan Turing was To understand how messages can be encrypted using ciphers. To understand how to use a cipher key to decipher codes 2- Sir Tim Berners Lee and WWW To understand who Sir Tim-Berners-Lee is To understand what the World Wide Web (WWW) is and how it differs from the Internet To understand how the WWW was born. To understand how to write a simple web page 3- George Boole and Logic Gates To understand who George Boole was To understand what Boolean Logic is To understand what logic gates are and how they are used in a CPU 4- Charles baggage and Sorting Alogorithms To understand who Charles Babbage was To understand what Charles Babbage did To understand how 'problem solving' and 'logical thought' underpins Computer Science 5- Revision 6- Assessment	Strand 4- Creative users of ICT **HT2:** Overview-History of Computing Students in this Unit will discover the history of Computing and leading figures during this process. They will be able to characterise peripherals into I/P/O. Students will also be taught not only hardware need for Computers but also how software in categorised into 3 main types. 1- History of Computing. Students to understand the fundamentals of Computing Input/Output/Process 2- Understand the difference between Application Software/ Operating software/Utility software 3: Students research the Development of Computers over time, creating a timeline of the key factors and changes that have occurred. 4- Students can explain the importance of Cloud Computing and the impact of the Digital Divide 5-: Students can Evaluate all of the Practical tasks and learning that has taken place within this unit of work and develop using software of their choice present their findings appropriately (Movie/DTP/Presentation/Video blog/Audio blog) **Strand 2- Analyse problems** **HT3:** Overview-HTML/CSS/JavaScript Students to learn how websites are essentially for the end user however websites are generally written in source code (HTML / CSS)- by programmers. Notepad is one method used in order to make these HTML pages. Students learn how CSS can make this task more efficient Students will use their option choices as topics for each HTML page link via html tags, suitability of content and images needs to be discussed 1- Introduction to HTML using Notepad. How to save as .HTML how to save edit preview on IE. Make a simple HTML page 2-Using tags, insert images via HTML code, insert hyperlinks via code 3-Understand how a CSS (style sheet) can be used to format multiple webpages much more efficiently 4- Students generate their own style sheet, students create a option choice website researching topics that will be learnt in the subjects that they have chosen for their options 5- Linking Css file to HTML pages (subjects chosen for their options) L7- Project Summary / Evaluation of their HTML & CSS style sheet **Strand 2- Analyse problems** **HT4/5:** Advanced Block Coding (Scratch) 1-The basic skills needed in order to manipulate sprites. 2-Design of game 3-Using Commands: If/When/Touching Take pictures that meet the criteria of chosen genre	**H2/3**: Overview- Introduction to Cloud Computing/Using Video tutorials/Showcasing learning/Self-assessment student progress Using OneNote- content library, personal space. Copying editing snipping annotating work. Using video tutorials showcasing their learning on OneNote. **5 Lessons** 1-ECDL. Presentation key skills. On completion of this module students will be able to: Work with presentations and save them in different file formats. Choose built-in options, such as the Help function, within the application to enhance productivity. Understand different presentation views and when to use them; choose different slide layouts and designs. Enter, edit, and format text in presentations. Recognise good practice in applying unique titles to slides. Choose, create, and format charts to communicate information meaningfully. Insert and edit pictures, images, and drawn objects. Apply animation and transition effects to presentations. Check and correct presentation content before finally printing and giving presentations. **5 Lessons** 2-ECDL. Word Processing key skills. Students will be able to: Work with documents and save them in different file formats. Choose built-in options, such as the Help function, to enhance productivity. Create and edit small-sized word processing documents that will be ready to share and distribute. Apply different formats to documents to enhance them before distribution; recognise good practice in choosing the appropriate formatting options. Insert tables, images, and drawn objects into documents. Prepare documents for mail merge operations. Adjust document page settings. Check and correct spelling before finally printing documents. **5 Lessons** 3-ECDL. Modelling key skills: Students will be able to: Work with spreadsheets and save them in different file formats. Choose built-in options, such as the Help function, within the application to enhance productivity. Enter data into cells; use good practice in creating lists. Select, sort and copy, move and delete data. Edit rows and columns in a worksheet. Copy, move, delete, and appropriately rename worksheets. Create mathematical and logical formulas using standard spreadsheet functions; use good practice in formula creation; recognise error values in formulas. Format numbers and text content in a spreadsheet. Choose, create, and format charts to communicate information meaningfully. Adjust spreadsheet page settings. Check and correct spreadsheet content before finally printing spreadsheets Strand 2- Analyse problems **HT5/HT6**: Overview- Introduction to Programming: Introduction to block coding.

	Strand 2- Analyse problems **HT3:** (CSUK 9) Networking-Students learn about networking, form local area networks to the workings of the internet. 1-Introduction to Networking Review the importance of certain learning habits for success in the lesson Understand what a network is Understand what advantages and disadvantages networking brings Understand the devices needed to produce a computer network 2-Introduction to the Internet Review the importance of certain learning habits for success in the lesson Understand the difference between a Local Area Network and a Wide Area Network Understand what the internet actually is Understand how data travels around the internet 3-Assessment **Strand 1- Fundamental principles** (CSUK 8) Binary Bits & Bobs- Introduces students to the binary number system and how a variety of data is represented in computer systems 1-The Binary Number system Understand the binary number system Understand why it is important in computing 2-Adding Binary numbers Remember how the binary number system works Understand how to add binary number together 3-ASCII Characters and code breaking Remember how the binary number system works Understand that computers ONLY KNOW BINARY Understand that in a computer system, characters are represented by binary numbers. 4-Bitmap images and Cryptic Pictures	4-Advanced commands: Forever if/ ELSE/ Operators, X & Y Coordinates, Variables. 5-Make Game 6-Evaluated final Game against set criteria and suggested how I could improve them **Strand 2- Analyse problems** **HT6:** Overview- Coding Python (Textual coding) Short computer-based tasks focussed on specific areas on Programming with regards to the use of a text based computer language (Python) the SOW enables students to practice new skills and demonstrate their new skills and knowledge gained through this unit of work. 1.Python Refresh Students Using Idle as a text editor / running code in the shell / saving code version management 2.Being able to use Strings and variable's using numbers & decimal numbers 3. Understanding the different text styles, join strings together, Basic If statements, Operators 4. Using Complex if statements: else if, import random number generator 5. Challenges- Student build up their confidence to make a more complicated programme's run. Students can use the input function, maths functions, learn how to use loops and if statements. Develop solutions to problems without a worksheet from the design stage through to implementation testing and evaluation	Introduction to Solo Taxonomy. Students to carry out a number of tasks in order to build up necessary skills in order to generate their own interactive computer game Short computer-based tasks focussed on specific areas to enable students to practice new skills and demonstrate their understanding of concepts. Extended computer-based projects which require students to draw on and demonstrate a range of knowledge, skills and understanding of key ICT concepts and processes 1-Graphical based software (Scratch)Use several commands using Scratch using to make a basic game work. Completion of a basic game in Scratch. Move a Sprite without looking at the worksheet. Know how the IF, WHEN and TOUCHING commands work in Scratch. Used and completed higher level tutorials. Used FOREVER IF and ELSE statements. Use of OPERATORS and show how X and Y CO-ORDINATES are used in scratch. Use VARIABLES effectively. No longer need a worksheet to show me how to create games using Scratch, make game A<D<I<T<E Lesson 1-5 2-Text based interface (MSW Logo)- Make own role playing game via procedures. Be able to sequencing instructions, use of flowcharts for design purposes, using a variety of commands to generate desired output, understand use of procedures to improve speed efficiency, Lesson 1-5 3- Text based interface 2 (Python) drawing with Python. Students to understand how to use how to use IDLE (shell & editor), how to run code, how to find and rectify syntax and importance of version management and testing code. Students will learn how to use for loops and functions, drawing shapes with variables with for loops, repeating patterns through the use of functions Lesson 1-5

	Remember that everything thing the computer represents (numbers, characters, images, sound) is done so with binary. Understand that bitmap images are made up of pixels Understand how binary is used to represent shades and colours of images – and therefore used to represent images 5- How Computer Represent Sound Understand that sound is represented by binary numbers in a computer system Understand the process of sampling Understand that digital processing is the process of applying mathematical calculations on the binary values which represent the recorded sound. **Strand 2- Analyse problems** **HT5/6:** (SHS R Drive & CSUK 8) Python Advanced- Introduces students to a variety of programming techniques using the Pythoin programming language Recap Building on Year 8 knowledge 1-Basics Understand what Python is Understand how to program outputs in python, Understand how to program inputs in python, Understand the need to store inputs in python, Understand how to store inputs into variables in python, 2-Outputs Inputs Variables Remember how to program outputs in python, Remember how to program inputs in python, Remember the need to store inputs in python, Remember how to store inputs into variables in python 3-Data types and Maths Understand which data type a variable is. Understand why a computer needs to know what the data type is for a given input/variable. Learn how to change the data type of a variable. 4-Selection Remember how we program inputs/outputs/variables Remember what a variable's data type means		

	Remember how to tell the computer which data type a variable is Learn how programs make decisions in Python 5- Consolidation Reflecting on our progress so far in Computer Studies Reflecting on our progress so far in programming Understand the importance of certain learning habits for successful programming 6-Revision/ Assessment 1 NEW knowledge (CSUK 9) 7-Remember Python Remember what Python is Remember how to program outputs in python, Remember how to program inputs in python, Remember how to store inputs in python using variables, Understand the need to change data types when working with numbers in python, 8-Remember If statements Remember how programs make decisions Remember how to program IF statements Understand how to program multiple IF Statements 9-Iterations 1- while Loops Review the importance of certain learning habits for successful programming Understand what a loop is in a program and where we may use one each time we go on the computer. Understand how to program a while loop in program 10-Iterations for Loops 2- Continuation of above Learning Intent **(Approx. 30)**	**(Approx. 30)**	**(Approx. 38)**

Wider curriculum links to CC/SMSC/PD and CEIAG	CC/SMSC/PD and Project based learning on two differing subjects to allow students to think about option choices and possible careers @K34. Understanding the digital divide of other countries and how this impacts society Good communication with others Investigate case studies / client briefs	CC/SMSC/PD and CEIAG Graphics understanding laws /legislation image rights primary secondary sources copyright free acknowledging sources. Understanding the role of Technology in society and how it changes ideas and cultures Discussing ideas and appreciating other's opinions Being self-critical Building confidence to express ideas and communicate	CC/SMSC/PD and CEIAG Observing and understanding the world around us and daily lives through the use of technology Using technology safely understanding digital footprint Improving communication skills and helping others Digital literacy improving self confidence Resilience and overcoming Computer problems both hardware & software Identify strengths and weaknesses Taking risks Researching ideas Investigating possible solutions to personal and emotional issues faced through the use of social networking