

Subject Areas - Computing and Enterprise

The key stage three curriculum focuses on developing student proficiency with the systems, leading to discrete topics around areas such as Programming (Javascript and Python), Esafety, Spreadsheets and the creative areas such as HTML and Graphics Editing. Each of these topics will be assessed via a digital test or with a final practical piece in order to evidence proficiency with the topics and skills covered within the scheme of work. The Creative aspects of the course enable problem solving skills through the use of selecting the correct tools and the correct instruction to generate a particular outcome. These will be useful for the computer science curriculum at KS4, in addition to providing skills that will be required for BTEC Enterprise; such as developing marketing media.

KS3 computing is allocated once per week so there will on average be 4-5 taught episodes culminating in an assessment. Following each assessment there will be an STR activity where students will respond to feedback and either make improvements to their work, or correct mistakes in the test. Lessons will follow a standard format of a Do-Now task which will be a small test based on the knowledge-organiser-homework-task, a main which will feature development activities / video tutorials around a particular skill, and a plenary that will require a reflection / online quiz about the learning objectives. This format will be used consistently in order to engender routines among students, and an expectation of what will be required of them each lesson.

Key Stage 4 will consist of either GCSE Computer Science or the BTEC Tech Award in Enterprise. The Computer Science curriculum will be allocated twice per week. In Year 9, as programming skills will be externally assessed for the first time, students will study one theory lesson and one programming lesson per week. The intention behind this is to develop proficient programmers in addition to developing their knowledge for Component 1. Component 2 will also include computational thinking; therefore the programming lessons will contribute to higher outcomes in this particular component. In Year 10 students will begin the year by continuing to develop their programming skills, leading into completion of the 20 hour programming project. We have decided upon this format as the remainder of Year 10, and Year 11 can be spent focusing on the two exam components. Year 11 will begin with further completion of the programming project, followed by assessment and super teaching of topic areas that require further revision. By Christmas students will be working on strengthening their knowledge of all topics, and regularly testing their understanding in advance of the final exams.

In BTEC Tech Award Enterprise Y9 will begin with students developing three ideas for a potential business; leading to the development of a business plan for the best of the three. Towards the end of the year students will focus on researching two local enterprises in order to develop an understanding of what makes entrepreneurs successful, what businesses do in order to find out about their target market and competition. Year 10 will focus on a continuation of completing sections from Component 1 and Component 2. Both Year 9 and Year 10 students will complete regular independent study on a booklet which provides them with key content and exam questions for the component 3 exam. This will be tested regularly as do now work in lessons, and students will be required to bring their independent study packs with them, regularly to lessons. Year 11 Enterprise students will begin with completion of all learning objectives of Component 1. They will also work on a revision pack for independent study which will prepare them for the exam they will sit in January; there will be a re-sit in June. From January onwards they will re-visit component 2 and complete their business pitches, and final reviews.

Subject – Computing (KS3)

	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 7	<p>The School Systems (Portfolio Project where students will evidence their understanding).</p> <ul style="list-style-type: none"> ● Introduction to systems and effective use of the equipment. ● Google Classroom. ● WWW and browsers ● Google Drive and learner drives. ● Use of Email software. 	<p>Office Applications (Portfolio of 3 business documents to be completed).</p> <ul style="list-style-type: none"> ● Developing a professional letter ● Developing a Business Presentation ● Developing a financial Spreadsheet 	<p>Y7 Esafety Individual lesson activities, whereby students explore online risks and measures they can take to overcome them.</p> <ul style="list-style-type: none"> ● The need for strict privacy settings on the www, especially social media. ● Why not to speak to people you don't know. ● Share Aware. ● Validity of sources + prevent / online extremism. 	<p>Scratch 4 Individual Learning objectives, rolling into 1 in order to make a simple game where the player must collect something but avoid the enemies.</p> <ul style="list-style-type: none"> ● Handling inputs and assigning actions to them. ● Loops for the duration of the game. ● Selection to make decisions. ● Creating variables for score and life / hp 	<p>Graphics Project 5 Individual lessons (including 7 learning objectives). This can be completed at the student's own pace. The project will culminate in students producing a poster in line with the success criteria given.</p> <ul style="list-style-type: none"> ● Eraser / Polygon Lasso ● Blur / Clone / Smudge ● Backgrounds With Masking and gradient ● Text and Text Effects ● Layer effects ● Colour manipulation tools. 	<p>HTML and CSS Students will complete a series of learning objectives as they work towards building a multi-page website. There will be opportunities to develop their skills through software video tutorials.</p> <ul style="list-style-type: none"> ● Basic HTML text elements. ● Hyperlinks ● Images ● CSS Styling effects ● Divs (absolutely positioned) with CSS for layout. ● Extension work to experiment with styling options on W3schools website.
	STR - Assessment Test	STR - Practical Assessment	STR - Assessment Test	STR - Practical Assessment	STR - Practical Assessment (completion of the poster)	STR - Practical and theory assessment.

	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 8	<p>Inside The Computer Students will work through a learning log of differing challenges around the representation of data and the basic components of computer systems.</p> <ul style="list-style-type: none"> ● CPU and Fetch Decode Execute cycle ● HDD and RAM ● Motherboard and other components ● Binary from Denary ● Binary Addition ● Hexadecimal ● Units of storage <p>STR - Assessment Test</p>	<p>Programming With Python Working through a series of learning objectives, students will develop a simple program in the Python programming language.</p> <ul style="list-style-type: none"> ● Outputting data ● Assignment of variables ● Handling input data ● Combining strings and variables in an output ● Simple arithmetic with Python ● Selection ● Iteration ● Functions / subroutines <p>STR - Assessment Test</p>	<p>Spreadsheet Project Working through a series of learning objectives students will develop a financial modeling system, which can be manipulated to generate different outcomes.</p> <ul style="list-style-type: none"> ● Spreadsheet orientation (rows, columns, cells, cell references) ● Formulae ● Functions (SUM, Max, IF, VLOOKUP) ● Validation of data input. ● Formatting features of spreadsheet software. <p>STR - Assessment Test</p>	<p>All about Networks Students will cover a series of different learning objectives, concerning how networks operate and what the WWW actually is.</p> <ul style="list-style-type: none"> ● Topographies and key definitions such as client and server. ● WAN and what the internet is. ● The concept of the packet and how they work. ● Internet Hardware (Access points, routers switches etc). ● The WWW and key terminology. <p>STR - Assessment Test</p>	<p>HTML and Javascript Working through a series of learning objectives students will develop an interactive web page, using JavaScript to handle user inputs to respond appropriately.</p> <ul style="list-style-type: none"> ● The script element in HTML ● Event Handlers ● Accessing specific items within a webpage D.O.M ● Assignment of variables ● Selection for decision making ● Manipulating a html element with Javascript. <p>STR - Assessment Test</p>	<p>Systems and Applications Project Students will produce a portfolio demonstrating their understanding of the school systems and office applications (Preparing them for their other courses at KS4). This will be pupil led and students will need to demonstrate they have met particular learning objectives.</p> <ul style="list-style-type: none"> ● Creating and formatting documents ● Use of tools for presentation software. ● Use of Spreadsheets for formulae and functions. ● Use of user area / Google Drive. ● Use of Email Software and account. <p>STR - Assessment based on portfolio.</p>

Subject - GCSE Computer Science

	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 9	<p>2.6 Data Representation (6 Lessons)</p> <ul style="list-style-type: none"> Units of storage Binary and Denary Hexadecimal Binary Addition Image Data Sound Data Metadata Compression <p>-----</p> <p>Python Skills Workbook (6 Lessons)</p> <p>Section 1 - Input, output, variables, data types and casting.</p> <p>Section 2 - Selection based on both strings and numbers. Selection based on multiple clauses / conditions.</p> <p>STR on both topics combined</p>	<p>1.1 Hardware Fundamentals (6 Lessons)</p> <ul style="list-style-type: none"> Purpose of the CPU Von Neumann architecture (4 registers). Common CPU components and their function (ALU, CACHE, CU) The function of the CPU (FDEC) Characteristics that affect performance. Embedded Systems <p>-----</p> <p>Python Skills Workbook Section 3 - String Manipulation</p> <p>Section 4 - Maths, using different operations and methods.</p> <p>STR on both topics combined</p>	<p>1.2 Memory (6 Lessons)</p> <ul style="list-style-type: none"> Differences between RAM and ROM Purpose of ROM in a computer system The purpose of RAM in a computer system The need for virtual memory Flash memory. <p>-----</p> <p>Python Skills Workbook Section 5 - Looping with For Loops</p> <p>Section 6 - Looping with While Loops</p> <p>STR on both topics combined</p>	<p>1.3 Storage (5 Lessons)</p> <ul style="list-style-type: none"> The need for secondary storage Data capacity and calculation of data capacity requirements The 3 main types of storage. Which device is best suited to particular purposes based on set criteria.¹ <p>-----</p> <p>Python Skills Workbook Section 7 - Random number generation and use.</p> <p>Section 8 - Tuples Lists and Dictionaries</p> <p>STR on both topics combined</p>	<p>1.4 Wired and Wireless Networks</p> <ul style="list-style-type: none"> The two types of network. Factors that affect performance Client-server and peer-to-peer networks Hardware for connecting a PC to a network. The internet; including web hosting and cloud DNS Virtual Networks <p>-----</p> <p>Python Skills Workbook Continue Section 8 - Tuples Lists and Dictionaries</p> <p>Section 9 - Further String Manipulation</p>	<p>1.5 Network Topologies</p> <ul style="list-style-type: none"> star and mesh network topologies Wifi: <ul style="list-style-type: none"> frequency and channels encryption Ethernet IP and MAC addressing Commonly used protocols² The concept of layers Packet switching <p>-----</p> <p>Python Skills Workbook Section 10 - Numeric Arrays.</p> <p>Section 11 - 2D Lists and Dictionaries</p> <p>STR on both topics combined</p>

¹ Capacity, speed, portability, durability, reliability, cost.

² TCP/IP HTTP, HTTPS, FTP, POP, IMAP, SMTP

					STR on both topics combined	
	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 10	Python Student Workbook Section 3 - String Manipulation Section 4 - Maths, using different operations and methods. Section 5 - Looping with For Loops Section 6 - Looping with While Loops Section 7 - Random number generation and use. Section 8 - Tuples Lists and Dictionaries	NEA (14 hours) Students will complete the Programming project. This will be completed with an hour per lesson. Students must work independently on the project.	NEA (6 of the first 12 hours) 1.4 Wired and Wireless Networks (Remaining 6 of the 12 Lessons) <ul style="list-style-type: none"> • The two types of network. • Factors that affect performance • Client-server and peer-to-peer networks • Hardware for connecting a PC to a network. • The internet; including web hosting and cloud • DNS • Virtual Networks 	1.5 Network Topologies <ul style="list-style-type: none"> • Star and mesh network topologies • Wifi: <ul style="list-style-type: none"> ○ frequency and channels ○ encryption • Ethernet • IP and MAC addressing • Commonly used protocols³ • The concept of layers • Packet switching 1.7 System Software <ul style="list-style-type: none"> • Purpose and functionality of systems software • Operating systems:⁴ • Utility system software:⁵ • The role and methods of backup:⁶ 	1.7 System Software Continued + Super Teaching on any Misconceptions. 1.6 System Security <ul style="list-style-type: none"> • Forms of attack • Threats posed to networks:⁷ • identifying and preventing vulnerabilities: <ul style="list-style-type: none"> ○ penetration testing ○ network forensics ○ network policies ○ anti-malware software ○ firewalls ○ user access levels ○ passwords ○ encryption 	1.8 Legal and Ethical <ul style="list-style-type: none"> • Ethical issues • Legal issues • Cultural issues • Environmental issues • Privacy issues • how key stakeholders are affected by technologies • Environmental impacts • Cultural implications • Open source vs proprietary software • Legislation relevant to Computer Science: <ul style="list-style-type: none"> ○ The Data Protection Act 1998 ○ Computer Misuse Act 1990 ○ Copyright Designs and Patents Act 1988 ○ Creative Commons Licensing

³ TCP/IP HTTP, HTTPS, FTP, POP, IMAP, SMTP

⁴ User interface, Memory management/ Multitasking, Peripheral management and drivers, User management, File management

⁵ Encryption software, Defragmentation, Data compression

⁶ Full, Differential, Incremental

⁷ Malware, Phishing, People as the 'weak point' in secure systems (social engineering), Brute force attacks, Denial of service attacks, Data interception and theft, The concept of SQL injection, Poor network policy

			STR Topic Test	STR Topic Test	STR Topic Test	○ Freedom of Information Act 2000 STR Topic Test
Year 11	Finishing Any Remaining Aspects of The NEA ----- Revisiting LO1.1 - LO1.8 Assessment and Super Teaching of Each Learning Objective.	Component 2 LO2.1 - LO2.5 Assessment of student knowledge around the component. Following this and QLA analysis, Super teaching will be carried out.	Assessment Papers for both Component 1 and 2 QLA done to establish areas for group to focus on. Super Teaching of topics.	Revision Lessons Students will spend time note taking and then taking practice tests to re enforce weak areas.		

BTEC Tech Award Enterprise

	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 9	<p>Component 2</p> <p>Researching 3 possible ideas for a Micro-Enterprise Activity</p> <p>Investigating:</p> <ul style="list-style-type: none"> ● The Idea ● The Need for the product / service ● The Location ● The Target Market ● The Competition ● Market Research ● Resources Required ● Overall Estimation of Cost and Retail Prices 	<p>Component 2</p> <p>Exploring and developing the report for The Final Idea for Micro Enterprise Activity:</p> <ul style="list-style-type: none"> ● Justification for final choice ● Aims of the Business ● The Product ● The Market ● Methods of Communication and promotion ● Competition ● Resources ● Risk Assessment ● Timescale ● Financial Documentation <p>Developing a Presentation for The Business Pitch along with the research:</p>	<p>Component 2</p> <p>Exploring and developing the report for The Final Idea for Micro Enterprise Activity:</p> <ul style="list-style-type: none"> ● Justification for final choice ● Aims of the Business ● The Product ● The Market ● Methods of Communication and promotion ● Competition ● Resources ● Risk Assessment ● Timescale ● Financial Documentation <p>Developing a Presentation for The Business Pitch along with the research:</p>	<p>Component 1 - LOA</p> <p>Investigating 2 local businesses.</p> <ul style="list-style-type: none"> ● Characteristics of The Enterprises <ul style="list-style-type: none"> ○ Location and setup ○ Type of ownership and staff numbers. ● Purposes of each <ul style="list-style-type: none"> ○ Financial and non-financial aims ○ Goods and services provided ○ Ethical Outlook ● Entrepreneurial Skills <ul style="list-style-type: none"> ○ Reasons for starting their own enterprise ○ The mindset they have required ○ The skills of the entrepreneur ● How the entrepreneur has managed one of 	<p>Component 1 - LOA</p> <p>Investigating 2 local businesses.</p> <ul style="list-style-type: none"> ● Characteristics of The Enterprises <ul style="list-style-type: none"> ○ Location and setup ○ Type of ownership and staff numbers. ● Purposes of each <ul style="list-style-type: none"> ○ Financial and non-financial aims ○ Goods and services provided ○ Ethical Outlook ● Entrepreneurial Skills <ul style="list-style-type: none"> ○ Reasons for starting their own enterprise ○ The mindset they have required ○ The skills of the entrepreneur ● How the entrepreneur has managed one of 	<p>Component 1 - LOB</p> <ul style="list-style-type: none"> ● How each Enterprise conducts research to investigate: <ul style="list-style-type: none"> ○ Customers ○ Competitors ● Qualitative Research Methods ● Quantitative Research Methods ● Secondary Research Methods ● Primary Research Methods ● Students will then work on evaluating the effectiveness of the given market research methods

				the two businesses in order to be successful	the two businesses in order to be successful	
Year 10	<p>Component 1 - LOA</p> <p>Investigating 2 local businesses.</p> <ul style="list-style-type: none"> ● Characteristics of The Enterprises <ul style="list-style-type: none"> ○ Location and setup ○ Type of ownership and staff numbers. ● Purposes of each <ul style="list-style-type: none"> ○ Financial and non-financial aims ○ Goods and services provided ○ Ethical Outlook ● Entrepreneurial Skills <ul style="list-style-type: none"> ○ Reasons for starting their own enterprise ○ The mindset they have required ○ The skills of the entrepreneur <p>● How the entrepreneur has managed one of the two businesses in order to be successful</p>	<p>Component 2A / 2B</p> <p>Exploring and developing the report for The Final Idea for Micro Enterprise Activity:</p> <ul style="list-style-type: none"> ● Justification for final choice ● Aims of the Business ● The Product ● The Market ● Methods of Communication and promotion ● Competition ● Resources ● Risk Assessment ● Timescale ● Financial Documentation <p>Developing a Presentation for The Business Pitch along with the research:</p>	<p>Component 1 - LOA</p> <p>Investigating 2 local businesses.</p> <ul style="list-style-type: none"> ● Characteristics of The Enterprises <ul style="list-style-type: none"> ○ Location and setup ○ Type of ownership and staff numbers. ● Purposes of each <ul style="list-style-type: none"> ○ Financial and non-financial aims ○ Goods and services provided ○ Ethical Outlook ● Entrepreneurial Skills <ul style="list-style-type: none"> ○ Reasons for starting their own enterprise ○ The mindset they have required ○ The skills of the entrepreneur <p>● How the entrepreneur has managed one of the two businesses in order to be successful</p>	<p>Component 2B</p> <p>Delivering the pitch of the business presentation</p> <ul style="list-style-type: none"> ● Effective use of Slides and Speaker notes ● Professional Manner and Attitude ● Well Rehearsed and Well Prepared ● Considerate to The Needs and Interests of The Audience ● Body Language, Gestures and Eye Contact ● Language ● Tone ● Pace ● Volume ● Projection ● Use of Business Terminology ● Listening, handling questions and formulating appropriate responses 	<p>Continuing Work on Component 2B</p> <p>Students may need further time to develop and deliver their pitch</p> <p>Component 1B can then be started. Component 1 - LOB</p> <ul style="list-style-type: none"> ● How each Enterprise conducts research to investigate: <ul style="list-style-type: none"> ○ Customers ○ Competitors ● Qualitative Research Methods ● Quantitative Research Methods ● Secondary Research Methods ● Primary Research Methods ● Students will then work on evaluating the effectiveness of the given market research methods 	<p>Component 1 - LOB</p> <ul style="list-style-type: none"> ● How each Enterprise conducts research to investigate: <ul style="list-style-type: none"> ○ Customers ○ Competitors ● Qualitative Research Methods ● Quantitative Research Methods ● Secondary Research Methods ● Primary Research Methods ● Students will then work on evaluating the effectiveness of the given market research methods <p>Any free time to finish off other coursework assignments.</p>

<p>Year 11</p>	<p>Component 1 LOA -</p> <ul style="list-style-type: none"> ● Characteristics of The Enterprises <ul style="list-style-type: none"> ○ Location and setup ○ Type of ownership and staff numbers. ● Purposes of each <ul style="list-style-type: none"> ○ Financial and non-financial aims ○ Goods and services provided ○ Ethical Outlook ● Entrepreneurial Skills <ul style="list-style-type: none"> ○ Reasons for starting their own enterprise ○ The mindset they have required ○ The skills of the entrepreneur <p>Component 1 - LOB</p> <ul style="list-style-type: none"> ● How each Enterprise conducts research to investigate: <ul style="list-style-type: none"> ○ Customers ○ Competitors ● Qualitative Research Methods ● Quantitative Research Methods ● Secondary Research Methods ● Primary Research Methods ● Students will then work on evaluating the effectiveness of the given market research methods 	<p>Component 1 LOB</p> <ul style="list-style-type: none"> ● How each Enterprise conducts research to investigate: <ul style="list-style-type: none"> ○ Customers ○ Competitors ● Qualitative Research Methods ● Quantitative Research Methods ● Secondary Research Methods ● Primary Research Methods ● Students will then work on evaluating the effectiveness of the given market research methods <p>Component 1 LOC</p> <p>Investigate a range of internal and external factors that will impact upon the success of each business.</p> <p>Complete a SWOT analysis and a PEST analysis for one of the two businesses students have investigated.</p>	<p>Component 2B - Completion of the Business Pitch</p> <p>Component 2C - Review of the Business Pitch</p>	<p>Completion of any outstanding coursework</p>		
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Cambridge Nationals in Creative iMedia

	Autumn 1 (6 Week)	Autumn 2 (7 Week)	Spring 1(6 Week)	Spring 2 (5 Week)	SU1(6 Week)	SU2(6 Week)
Year 11						