



# SECONDARY COMPUTING CURRICULUM

*Revised in line with the Research Review Series for  
Computing 2022*

Year 7 HT1	Year 7 HT2	Year 7 HT3	Year 7 HT4	Year 7 HT5	Year 7 HT6
<p><b>Computing Science</b></p> <p><b>PowerPoint Game</b></p> <p><b>Know:</b></p> <ul style="list-style-type: none"> <li>The 3 basic programming concepts (sequence, selection, iteration)</li> </ul> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Use the Roundhay network</li> <li>Create simple sequences</li> <li>Use flow charts</li> <li>Use triggers and control</li> </ul> <p><b>NC links</b></p> <p>Introductory unit covering several concepts from KS2</p>	<p><b>Computer Science</b></p> <p><b>Intro to Programming in Scratch</b></p> <p><b>Know:</b></p> <p>3 constructs of programming: Sequence Selection Iteration</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Use drag and drop block language</li> <li>Create sequences to solve a problem</li> <li>Use selection</li> <li>Use iteration</li> </ul> <p><b>NC links</b></p> <p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>	<p><b>IT &amp; Digital Literacy</b></p> <p><b>Web Design</b></p> <p><b>Know:</b></p> <p>HTML Keeping safe online – particularly personal details / who are you talking to online / social media</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Use text-based language</li> <li>Stay safe online</li> <li>Know about personal details online</li> <li>Who are you talking to online?</li> <li>Use of social media</li> </ul> <p><b>NC links</b></p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p>	<p><b>Computer Science, IT, Digital Literacy</b></p> <p><b>Kodu Game Making</b></p> <p><b>Know:</b></p> <p>How to make gaming environments with an AI / behaviour context.</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Create a game environment</li> <li>Programme characters</li> <li>Create controls and triggers</li> <li>Use AI elements</li> </ul> <p><b>NC links</b></p> <p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; undertake creative projects</p>	<p><b>Computer Science</b></p> <p><b>How Computers Work</b></p> <p><b>Know:</b></p> <p><b>About:</b></p> <p>Hardware Software Networks</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Describe different components that make up a computer</li> <li>Recognise types of software and what they are used for</li> <li>Describe networks and how they are used</li> </ul> <p><b>NC links</b></p> <p>understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p>	<p><b>Computer Science</b></p> <p><b>Algorithms with Scratch</b></p> <p><b>Know:</b></p> <p>Algorithms Solving problems Computational thinking 3 constructs</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Create algorithms</li> <li>Solve problems</li> <li>Use computational thinking</li> <li>Create programmes to solve problems</li> </ul> <p><b>NC links</b></p> <p>use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>

Year 8 HT1	Year 8 HT2	Year 8 HT3	Year 8 HT4	Year 8 HT5	Year 8 HT6
<p style="text-align: center;"><b>IT &amp; Digital Literacy</b></p> <p><b>Modelling &amp; Design</b></p> <p><b>Know:</b> What is a computer model? And what are they used for?</p> <p><b>Know how to:</b> Use spreadsheets to solve RealWorld problems Use 3D design software to design real world products</p> <p><b>NC links</b> design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p>	<p style="text-align: center;"><b>Computer Science</b></p> <p><b>Programming Concepts with Scratch</b></p> <p><b>Know:</b> how to apply the 3 constructs of programming to specific scenarios</p> <p>More advanced concepts such as functions, random numbers, lists and variables</p> <p><b>Know how to:</b> Control a computer simulated model Create and apply functions Use random numbers Create and use lists Create and use variables</p> <p style="text-align: center;"><b>NC links</b> use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions</p>	<p style="text-align: center;"><b>IT &amp; Digital Literacy</b></p> <p><b>Cyber Security &amp; the internet</b></p> <p><b>Know:</b> Characteristics of sexual predators</p> <p>Methods of digital compromise – e.g. Phishing, spam, viruses and hacking</p> <p>How to keep safe – the law</p> <p>More advanced networking concepts</p> <p><b>Know how to:</b> Identify a sexual predator Identify different types of online threats Stay within the law Keep safe online Describe packet switching, HTML and CSS</p> <p style="text-align: center;"><b>NC links</b> understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.</p>	<p style="text-align: center;"><b>IT</b></p> <p><b>Graphic design and multimedia</b></p> <p><b>Know:</b> How to present information in different formats for different audiences</p> <p><b>Know how to:</b> Use design principles to create posters Create professional presentations Create animations for different audiences</p> <p style="text-align: center;"><b>NC links</b> undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p>	<p style="text-align: center;"><b>Computer Science</b></p> <p><b>Hardware, Software and Logic</b></p> <p><b>Know:</b> Internal components in more detail Fetch Execute Cycle Logic gates</p> <p><b>Know how to:</b> Identify components of a computer system What components do and what affects their performance Explain the fetch execute cycle Solve simple, logic problems</p> <p style="text-align: center;"><b>NC links</b> <b>Pillars: CS</b> understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]</p>	<p style="text-align: center;"><b>Computer Science</b></p> <p><b>Programming Challenges</b></p> <p><b>Know:</b> How to use python programming language to make scripts What variables are Uses of Input and Output statements Different data types used in python</p> <p><b>Know how to:</b> Use input and output statements Use variables to store and manipulate data Case between data types when appropriate Solve programming problems</p> <p style="text-align: center;"><b>NC links</b> use two or more programming languages, at least one of which is textual, to solve a variety of computational problems;</p>

Year 9 Topic 1	Year 9 Topic 2	Year 9 Topic 3	Year 9 Topic 4	Year 9 Topic 5	Year 9 Topic 6
<p><b>Computer Science, IT &amp; Digital Literacy</b></p> <p>Core Computing</p> <p><b>Know:</b> Appropriate and safe use of computers in an online world. How different medias can be used for audiences. The purpose of key algorithms. How to use and present data.</p> <p><b>Know how to:</b> Recognise dangers and report concerns, control your digital footprint. Create media products for different audiences. Use a spreadsheet to manipulate data and display results in different formats.</p> <p><b>NC Links</b> understand several key algorithms that reflect computational thinking; use logical reasoning to compare the utility of alternative algorithms</p> <p>undertake creative projects that involve selecting, using, and combining multiple applications</p> <p>collecting and analysing data and meeting the needs of known users</p> <p>create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p> <p>understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy</p>	<p><b>Computer Science &amp; Digital Literacy</b></p> <p>Computer systems</p> <p><b>Know:</b> The internal and external hardware of a computer and the software used.</p> <p><b>Know how to:</b> Recognise the internal components of a computer and their functions Recognise computer peripherals and their function. Recognise the difference between different types of software and their uses Create media products to communicate information</p> <p><b>NC links</b> understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems</p>	<p><b>Computer Science</b></p> <p>Python programming</p> <p><b>Know:</b> What programming is and how to use input, output and variables in python, including what data types are and why they are used</p> <p><b>Know how to:</b> Learn how software is made by gaining experience with a programming language Learn how to create variables and how to use inputs in python Learn how about data types and how to change between data types Learn how to use IF statements in python</p> <p><b>NC links</b> use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; design and develop modular programs that use procedures or functions</p>	<p><b>Computer Science</b></p> <p>Data representation – Binary and Images in Binary</p> <p><b>Know:</b> How numbers and images are represented in binary. How resolution and colour depth affect image quality and file size</p> <p><b>Know how to:</b> Develop your knowledge and understanding of binary numbers Understand how a digital image is made up and be able to recognise the effect changing the resolution has on an image. Understand how a computer displays coloured images using binary and RGB values and how colour depth effects digital images</p> <p><b>NC links</b> understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [conversion between binary and decimal]</p> <p>understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits</p>	<p><b>IT &amp; Digital Literacy</b></p> <p>Graphics &amp; Laws – Vector / Bitmap graphics, computing related legislation</p> <p><b>Know:</b> The difference between bitmap and vector Know about the computer misuse act, data protection act, copyright.</p> <p><b>Know how to:</b> Use a vector drawing package to create a drawing. Understand how we can use vector tools to draw better graphics. Learn about the 3 main laws that we need to follow when using computers. (GDPR, Copyright and Computer Misuse)</p> <p><b>NC links</b> create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability</p> <p>understand a range of ways to use technology safely, respectfully, responsibly and securely</p>	<p><b>Computer Science &amp; IT &amp; Digital Literacy</b></p> <p>Game Project. Remainder of carousel spent creating a game using all the previous topics together.</p> <p><b>Know:</b> How to apply knowledge of digital graphics to create images for a game. How to apply programming skills to a given scenario How to manage a larger project</p> <p><b>Know how to:</b> Plan a game project Create backgrounds and sprites and learn to draw these on a window using a python library. Program AI, user controls and game logic. Review a finished game</p> <p><b>NC links</b> design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems</p> <p>undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users</p>

Year 10 Computer Science HT1	Year 10 Computer Science HT2	Year 10 Computer Science HT3	Year 10 Computer Science HT4	Year 10 Computer Science HT15	Year 10 Computer Science HT6
<p><b>Know:</b> Intro to Computer Science including hardware, software, binary, programming, Boolean logic, network, security and laws.</p> <p><b>Know how to:</b> Explain the components and purpose of a CPU and what effects its performance Explain Von Neuman Architecture Identify and explain embedded systems Basic python commands Introduction to computational thinking</p> <p><b>Assessment</b> Star marking 1</p>	<p><b>Know:</b> Look at the hardware of memory and storage to understand how a computer works, along with advancing python programming meeting all the basics of programming in a practical way.</p> <p><b>Know how to:</b> Identify and explain RAM, ROM and virtual memory Identify secondary storage and its uses Use binary and hex Understand computing units and data capacity</p> <p><b>Assessment</b> Star marking 2</p>	<p><b>Know:</b> how data is stored on hardware, building from previous topics. Now pupils have had some time programming, they can now look at computational thinking and how algorithms are designed and debugged.</p> <p><b>Know how to:</b> Convert binary, hex and denary and complete additions Identify ASCII &amp; Unicode Analyse properties of images and sound files Identify different methods of compression and their uses Use computational thinking, abstraction and decomposition to create algorithms for identified problems Create and use trace tables and troubleshoot errors</p> <p><b>Assessment</b> Star marking 3</p>	<p><b>Know:</b> Now with an understanding of how computers work, pupils look at how computers can be connected in the world we live in through the Internet. Pupils will also look at famous algorithms and cover these aspects of programming in more detail, learning the keywords associated with the topics in a more academic way.</p> <p><b>Know how to:</b> Identify and explain different types of networks, factors that affect network performance and identify and explain network hardware Explain the workings of the internet Draw and identify network topologies and their uses Explain the differences between wired and wireless networks Identify and explain encryption Identify and programme sorting and searching algorithms Use variables, constants, Inputs, outputs and assignments Use Sequence, Selection and Iteration Operators</p> <p><b>Assessment</b> Star marking 4</p>	<p><b>Know:</b> Pupils will spend time looking at revision techniques and have their assessment week in school.</p> <p>They will complete the networks topic looking at the more technical aspects of networks.</p> <p>Pupils will spend time studying selection to perfect their use of it in programming problems.</p> <p><b>Know how to:</b> Explain network communication and addressing Explain standards, protocols and appropriate network layers Use selection within programming contexts</p> <p><b>Assessment</b> Star marking 5</p>	<p><b>Know:</b> Building on the previous topic of networks, pupils then look at how networks can be compromised and how they can be secured.</p> <p>Their programming will be pushed further looking at Iteration in more detail</p> <p><b>Know how to:</b> Identify and explain threats: Malware, Social Engineering, and other attacks Use methods to secure a Network Use Iteration (for, while do until, infinite, nested) Identify and use different data types Identify and manipulate strings</p> <p><b>Assessment</b> Star marking 6</p>



Year 10 iMedia (IT) HT1	Year 10 iMedia (IT) HT2	Year 10 iMedia (IT) HT3	Year 10 iMedia (IT) HT14	Year 10 iMedia (IT) HT5	Year 10 iMedia (IT) HT6
<p><b>Unit R094 Visual identity and digital graphics</b></p> <p><b>Know:</b> Identity is a vital component of any business, product or brand. A visual identity communicates values and core principles to the consumer, user or customer. It makes a brand recognisable and helps sell a product or idea to a target audience.</p> <p><b>Know how to:</b> Develop visual identities for clients. Identify and explain the purpose, components, elements and design style of visual identities.</p> <p><b>Assessment</b> Star marking 1</p>	<p><b>Unit R094 Visual identity and digital graphics</b></p> <p><b>Know:</b> Identity is a vital component of any business, product or brand. A visual identity communicates values and core principles to the consumer, user or customer. It makes a brand recognisable and helps sell a product or idea to a target audience.</p> <p><b>Know how to:</b> Apply the concepts of graphic design to create original digital graphics which incorporate your visual identity to engage a target audience. Identify and explain the importance of design and house style including typography, colour schemes and layout conventions.</p> <p><b>Assessment</b> Star marking 2 External Controlled coursework</p>	<p><b>Unit R093 Creative iMedia in the media industry</b></p> <p><b>Know:</b> Knowledge about the sectors, products and job roles that form the media industry. What a target audience is and how this influences design of products.</p> <p><b>Know how to:</b> Identify sectors of the media industry. Identify the types of products produced by, and used in, different sectors Identify job roles in the media industry, how they combine, and the skills needed for them. Explain factors influencing product design. Identify client requirements and how they are defined. Identify audience demographics and segmentation</p> <p><b>Assessment</b> Star marking 3</p>	<p><b>Unit R093 Creative iMedia in the media industry</b></p> <p><b>Know:</b> The legal and ethical issues considered, and the processes used to plan and create digital media products including health and safety. How media codes are used within the creation of media products to convey meaning, create impact and engage audiences.</p> <p><b>Know how to:</b> Identify and explain different research methods, sources and types of data. Identify media codes and their uses Explain work planning and the role it plays in pre-production. Identify and create planning documents used to design and plan media products. Explain the purpose and reasons for legal considerations. Explain intellectual property rights, regulation, certification and classification. Identify <b>health and safety risks and how to mitigate against them.</b></p> <p><b>Assessment</b> Star marking 4</p>	<p><b>Unit R093 Creative iMedia in the media industry</b></p> <p><b>Unit R097 Interactive digital media</b></p> <p><b>Know:</b> How to choose the most appropriate format and properties for different media products. How to design and create interactive digital media products for chosen platforms.</p> <p><b>Know how to:</b> Identify distribution platforms and media. Explain the properties and formats of media files including static and moving images, audio and methods of compression. Identify three format types of interactive digital media Identify content used in interactive digital media, devices used and methods of interaction. Identify features and conventions of interactive digital media Identify resources required to create interactive digital media products</p> <p><b>Assessment</b> Star marking 5 - Year 10 Internal Exam</p>	<p><b>Unit R097 Interactive digital media</b></p> <p><b>Know:</b> How to design and create interactive digital media products for chosen platforms. Learn to select, edit and repurpose multimedia content of different kinds and create the structure and interactive elements necessary for an effective user experience.</p> <p><b>Know how to:</b> Apply technical skills to create and/or edit and manage assets for use within interactive digital media products Apply techniques to test/check and review interactive digital media</p> <p><b>Assessment</b> Star marking 6</p>

Year 10 Core		
<p><b>Computer Science</b></p> <p><b>Know:</b></p> <p>Approaches to problem solving, methods of problem solving and how to use thinking skills.</p> <p><b>Know how to:</b></p> <p>Approach a complex problem and break it down into smaller parts. Use algorithmic thinking to find solutions to problems. Work as a team to design a solution to a complex problem. Apply knowledge and skills learnt throughout KS3.</p> <p style="text-align: center;"><b>NC Links</b></p> <p>develop and apply their analytic, problem-solving, design, and computational thinking skills</p>	<p><b>Information Technology</b></p> <p><b>Know:</b></p> <p>How audience requirements change the media design and formats of products. How creative solutions can be used to present information to others</p> <p><b>Know how to:</b></p> <p>Use a range of devices. Develop effective media products for an audience and a specific purpose. Build on techniques from KS3.</p> <p style="text-align: center;"><b>NC Links</b></p> <p>develop their capability, creativity and knowledge in computer science, digital media and information technology</p>	<p><b>Digital Literacy</b></p> <p><b>Know:</b></p> <p>What digital dangers are faced as you get older and more financially independent. What a digital footprint and how it affects individuals. What help is available. The latest news and trends both locally and nationally.</p> <p><b>Know how to:</b></p> <p>Recognise dangers online. Report issues and get help both in and out of school. Maintain a positive digital footprint.</p> <p><b>NC Links</b></p> <p>understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.</p>

Year 11 Computer Science HT1	Year 11 Computer Science HT2	Year 11 Computer Science HT3	Year 11 Computer Science HT4	Year 11 Computer Science HT5	Year 11 Computer Science HT6
<p><b>Know:</b> Pupils will look at software and the roles it plays in running a computer.</p> <p>For programming, pupils will be looking at records and arrays, and how python can interact with files and databases</p> <p><b>Know how to:</b> Explain characteristics and properties of operating systems Identify and explain utility software and its uses Use python to execute file operations Use python to interact with databases and arrays Identify and use SQL operators</p> <p><b>Assessment:</b> Internal Exam Star marking 1</p>	<p><b>Know:</b> Pupils will learn about the impact computers have on the world. There will be a focus on essay writing.</p> <p><b>Know how to:</b> Explain the impact of computing on society including Ethics, Legal, Cultural, Environmental and Privacy issues Program: Procedures Functions Random Numbers Defensive Design Validation Maintainability Testing</p> <p><b>Assessment:</b> Star marking 2</p>	<p><b>Know:</b> Pupils will look at legislation and laws.</p> <p><b>Know how to:</b></p> <ul style="list-style-type: none"> <li>Explain:</li> </ul> <p>Data Protection Act Computer Misuse Act Copyright Designs and Patents Act Software Licences Identify and use Logic Gates, Logic Circuits, Boolean Logic &amp; Truth Tables Use Instructions and Translations in different situations Identify characteristics of IDES &amp; Programming</p> <p><b>Assessment:</b> Star marking 3</p>	<p><b>Know:</b> Pupils will look at key words associated with specific programming topics</p> <p><b>Know how to:</b> Explain and construct sorting and searching algorithms Identify and label variables, constants, inputs, outputs and assignments Identify and label sequence selection, iteration and operators</p> <p><b>Assessment:</b> Star marking 4</p>		



Year 11 iMedia (IT) HT1	Year 11 iMedia (IT) HT2	Year 11 iMedia (IT) HT3	Year 11 iMedia (IT) HT4	Year 11 iMedia (IT) HT5	Year 11 iMedia (IT) HT6
<p><b>Unit R097 Interactive digital media</b></p> <p><b>Know:</b> How to design and create interactive digital media products for chosen platforms. Learn to select, edit and repurpose multimedia content of different kinds and create the structure and interactive elements necessary for an effective user experience.</p> <p><b>Know how to:</b> Apply technical skills to create and/or edit and manage assets for use within interactive digital media products Apply techniques to test/check and review interactive digital media</p> <p><b>Assessment</b> Star marking 1</p>	<p><b>Unit R097 Interactive digital media</b></p> <p><b>Know:</b> How to design and create interactive digital media products for chosen platforms. Learn to select, edit and repurpose multimedia content of different kinds and create the structure and interactive elements necessary for an effective user experience.</p> <p><b>Know how to:</b> Apply technical skills to create and/or edit and manage assets for use within interactive digital media products Apply techniques to test/check and review interactive digital media</p> <p><b>Assessment</b> Star marking 2 External Controlled coursework</p>	<p><b>Unit R093 Creative iMedia in the media industry</b></p> <p><b>Know:</b> Application of knowledge about the sectors, products and job roles that form the media industry. Target audiences, legal and ethical issues and approaches to creating different media products.</p> <p><b>Know how to:</b> Explain the media industry Explain factors influencing product design Explain pre-production planning techniques Explain distribution considerations</p> <p><b>Assessment</b> Star marking 3 – Internal examination</p>	<p><b>Unit R093 Creative iMedia in the media industry</b></p> <p><b>Know:</b> Application of knowledge about the sectors, products and job roles that form the media industry. Target audiences, legal and ethical issues and approaches to creating different media products.</p> <p><b>Know how to:</b> Explain the media industry Explain factors influencing product design Explain pre-production planning techniques Explain distribution considerations</p> <p><b>Assessment</b> External Terminal examination</p>		

Year 12 Computer Science HT1	Year 12 Computer Science HT2	Year 12 Computer Science HT3	Year 12 Computer Science HT4	Year 12 Computer Science HT5	Year 12 Computer Science HT6
<p><b>Know:</b> Characteristics of computer components and their uses Basic programming techniques Knowledge and understanding of networks.</p> <p><b>Know how to:</b> Apply and evaluate the characteristics of contemporary processors Apply basic programming techniques. Apply and evaluate characteristics of networks, including protocols, standards, structure, security and hardware.</p> <p><b>Assessment:</b> Star marking 1</p>	<p><b>Know:</b> Characteristics of types of processor Characteristics of input, output and storage devices Characteristics of data types and how they are used Legal, moral and ethical issues Methodologies used to develop software</p> <p><b>Know how to:</b> Apply and evaluate types of processor Apply and evaluate different input and output devices and their applications. Apply and evaluate how data is represented Apply and evaluate the individual moral, social, ethical and cultural opportunities and risks of digital technology. Legislation surrounding the use of computers and ethical issues that can or may in the future arise from the use of computer Apply, evaluate and use different methodologies used to develop software.</p> <p><b>Assessment:</b> Star marking 2</p>	<p><b>Know:</b> Characteristics of data types and how they are used Computational techniques for thinking logically and procedurally Types of databases how they operate</p> <p><b>Know how to:</b> Apply and evaluate how data is represented Apply logical thinking strategies. Think procedurally, identifying components of problems and solutions Apply and evaluate different types of database and processes used within them.</p> <p><b>Assessment:</b> Star marking 3 - Internal Examination</p>	<p><b>Know:</b> Characteristics of systems software Types of databases how they operate Web technologies and related processes</p> <p><b>Know how to:</b> Apply and evaluate systems software. Apply and evaluate different types of database and processes used within them. Apply and evaluate web technologies, including language, search and processing.</p> <p><b>Assessment:</b> Star marking 4</p>	<p><b>Know:</b> Boolean logic and algebra How data is stored within different structures The use of algorithms to describe problems and standard algorithms Computational techniques for thinking ahead</p> <p><b>Know how to:</b> Define problems using Boolean logic, manipulate Boolean expressions and follow rules to derive or simplify statements. Use logic gate diagrams and truth tables Apply and evaluate how data is structured Apply algorithms in given situations.</p> <p><b>Assessment:</b> Star marking 5</p>	<p><b>Know:</b> Characteristics of applications generation software Computational techniques for thinking abstractly Further programming techniques How computers can be used to solve problems</p> <p><b>Know how to:</b> Identify and explain applications generation software. Identify and use abstract thinking strategies. Identify and use programming techniques including: Sequence; Iteration; Branching; recursion; Global and local variables; Modularity; functions and procedures; parameter passing by value and by reference. Identify and explain the use of an IDE to develop/debug a program. Identify and explain the use of object oriented techniques</p> <p><b>Assessment:</b> Star marking 6</p>

Year 12 IT HT1	Year 12 IT HT2	Year 12 IT HT3	Year 12 IT HT4	Year 12 IT HT5	Year 12 IT HT6
<p>Unit 1 Fundamentals of IT</p> <p><b>Know:</b> The fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT</p> <p><b>Know how to:</b></p> <p>Identify and describe computer hardware, components and systems. Describe network connectivity and hardware Use computing number systems Troubleshoot hardware Identify different computer software Describe communication methods Troubleshoot software Identify and describe popular protocols Describe different types of servers Identify and describe different network characteristics and connectivity methods used. Describe the purpose of business systems Identify a range of employability skills for an IT environment. Describe ethical and operational issues and threats to computer systems</p> <p><b>Assessment:</b> Unit 1 basics test</p>	<p>Unit 1 Fundamentals of IT</p> <p><b>Know:</b> The fundamentals of hardware, networks, software, the ethical use of computers and how business uses IT</p> <p><b>Know how to:</b></p> <p>Use their knowledge on computer hardware in context. Use their knowledge on computer software in context Use their knowledge on business IT systems in context Use their knowledge on employability and communication skills for different IT environments Use their knowledge on ethical, operational and threats to computer systems in context.</p> <p><b>Assessment:</b> Unit 1 Mock Exam</p>	<p>Unit 4 Computer Networks</p> <p><b>Know:</b> The fundamentals of network hardware, configuration and maintenance. How to apply networking solutions to a real-life context.</p> <p><b>Know how to:</b></p> <p>Identify, describe and use the concepts of networks including: Network interfaces, types, components, topologies (layout), protocols and models. IP versions, Network addressing, data units, security and virtualisation. Plan computer networks to meet specific client requirements. Present network solutions to clients using both written and presentation skills. Plan and justify maintenance activities for computer networks.</p> <p><b>Assessment:</b> Unit 1 External Exam Unit 4 Controlled Coursework</p>	<p>Unit 4 Computer Networks</p> <p><b>Know:</b> The fundamentals of network hardware, configuration and maintenance. How to apply networking solutions to a real-life context.</p> <p><b>Know how to:</b></p> <p>Identify, describe and use the concepts of networks including: Network interfaces, types, components, topologies (layout), protocols and models. IP versions, Network addressing, data units, security and virtualisation. Plan computer networks to meet specific client requirements. Present network solutions to clients using both written and presentation skills. Plan and justify maintenance activities for computer networks.</p> <p><b>Assessment:</b> Unit 4 Controlled Coursework</p>	<p>UNIT 17: Internet of Everything</p> <p><b>Know:</b> How the use of the internet of everything is impacting people and society. How to plan and pitch a technology idea to developers.</p> <p><b>Know how to:</b></p> <p>Explain what is meant by the Internet of Everything (IoE). Repurpose technologies to extend the scope of the IoE Present concept ideas for repurposed developments</p> <p><b>Assessment:</b> Unit 17 Controlled Coursework</p>	<p>Unit 17 Internet of Everything</p> <p><b>Know:</b> How the use of the internet of everything is impacting people and society. How to plan and pitch a technology idea to developers.</p> <p><b>Know how to:</b></p> <p>Explain what is meant by the Internet of Everything (IoE). Repurpose technologies to extend the scope of the IoE Present concept ideas for repurposed developments</p> <p><b>Assessment:</b> Unit 17 Controlled Coursework</p>

Year 13 Computer Science HT1	Year 13 Computer Science HT2	Year 13 Computer Science HT3	Year 13 Computer Science HT4	Year 13 Computer Science HT5	Year 13 Computer Science HT6
<p><b>Know:</b>                      Characteristics of applications generation software                      How to plan and execute an extended project                      What is meant by computational thinking and the benefits of applying it to solve problems                      Programming techniques                      How data can be structured</p> <p><b>Know how to:</b>                      Apply and evaluate applications generation software                      Analyse a problem                      Design a solution                      Develop a solution                      Test and evaluate a solution                      Apply and evaluate computational thinking methods                      Apply and evaluate further programming techniques                      Apply and evaluate data structures</p> <p><b>Assessment:</b>                      Star marking 1</p>	<p><b>Know:</b>                      Types of programming language and their uses                      How data is exchanged between different systems                      Computational techniques for thinking concurrently                      Using algorithms to describe problems, including standard algorithms                      How to plan and execute an extended project</p> <p><b>Know how to:</b>                      Apply and evaluate a range of programming languages                      Apply and evaluate compression, encryption and hashing                      Apply and evaluate thinking concurrently                      Apply and evaluate a range of standard and bespoke algorithms                      Analyse a problem                      Design a solution                      Develop a solution                      Test and evaluate a solution</p> <p><b>Assessment:</b>                      Star marking 2</p>	<p><b>Know:</b>                      Programming techniques                      How to plan and execute an extended project                      Using algorithms to describe problems, including standard algorithms</p> <p><b>Know how to:</b>                      Analyse a problem                      Design a solution                      Develop a solution                      Test and evaluate a solution                      Apply and evaluate computational thinking methods                      Apply and evaluate further programming techniques                      Apply and evaluate a range of standard and bespoke algorithms</p> <p><b>Assessment:</b>                      Star marking 3 – Internal Exam</p>	<p><b>Know:</b>                      Using algorithms to describe problems, including standard algorithms                      How data is exchanged using web technologies</p> <p><b>Know how to:</b>                      Apply and evaluate a range of standard and bespoke algorithms                      Apply and evaluate web technologies, including language, search and processing.</p> <p><b>Assessment:</b>                      Star marking 4</p>	<p><b>Know:</b>                      An understanding of and ability to apply the fundamental principles and concepts of computer science                      The relationships between different aspects of computer science                      Mathematical skills                      The individual (moral), social (ethical), legal and cultural opportunities and risks of digital technology</p> <p><b>Know how to:</b>                      Apply and evaluate the fundamental principles and concepts of computer science and the relationships between different aspects within the subject.                      Think creatively, innovatively, analytically, logically and critically                      Articulate the individual (moral), social (ethical), legal and cultural opportunities and risks of digital technology</p> <p><b>Assessment:</b>                      Final exams</p>	<p><b>Know:</b></p>

Year 13 IT HT1	Year 13 IT HT2	Year 13 IT HT3	Year 13 IT HT4		
<p>Unit 2 Global Information</p> <p><b>Know:</b> The uses of information in the public domain, globally, in the cloud and across the internet, by individuals and organisations.</p> <p><b>Know how to:</b> Explain where information is held globally and how it is transmitted including holders, storage, the internet and formats. Explain the styles, classification and the management of global information including styles and quality. Explain the use of global information and the benefits to individuals and organisations including definitions, categories, data analysis and systems. Explain the legal and regulatory framework governing the storage and use of global information. Identify strategies which promote Green IT Explain the process flow of information including sources and the construction of data flow diagrams. Explain and apply the principles of information security, identify risks, impacts and protection methods involved in the real world.</p> <p><b>Assessment:</b> Unit 2 basics test</p>	<p>Unit 2 Global Information</p> <p><b>Know:</b> The uses of information in the public domain, globally, in the cloud and across the internet, by individuals and organisations.</p> <p><b>Know how to:</b> Explain and use knowledge of how information is held globally and how it is transmitted including holders, storage, the internet and formats. Explain and use knowledge of the styles, classification and the management of global information including styles and quality. Explain and use knowledge of the use of global information and the benefits to individuals and organisations including definitions, categories, data analysis and systems. Explain and use knowledge of the legal and regulatory framework governing the storage and use of global information. Identify and use knowledge of strategies which promote Green IT Explain and use knowledge of the process flow of information including sources and the construction of data flow diagrams. Explain and use knowledge of and apply the principles of information security, identify risks, impacts and protection methods involved in the real world.</p> <p><b>Assessment:</b> Unit 2 Mock Exam</p>	<p>Unit 20 Technical Support</p> <p><b>Know:</b> How to explore the problems that are likely to be encountered by IT support professionals. Diagnose problems and implement solutions in a variety of practical ways.</p> <p><b>Know how to:</b> Identify and explain the role of technical support, processes involved, client types and communication techniques. Diagnose faults and implement solutions for computer systems using different techniques, document processes and carry out post fault testing.</p> <p><b>Assessment:</b> Unit 2 External Exam Unit 20 Controlled Coursework</p>	<p>Unit 20 Technical Support</p> <p><b>Know:</b> How to explore the problems that are likely to be encountered by IT support professionals. Diagnose problems and implement solutions in a variety of practical ways.</p> <p><b>Know how to:</b> Provide advice and guidance to specific customers using various communication techniques. Analyse trends in fault data and make recommendations based on findings.</p> <p><b>Assessment:</b> Unit 20 Controlled Coursework</p>		