Key

Creative iMedia & BTEC IT

Computing / Computer Science

Click to see plan

Year 7 Year 8 Year 9 Year 10 Year 11 Year 12 Year 13

CLICK ME !

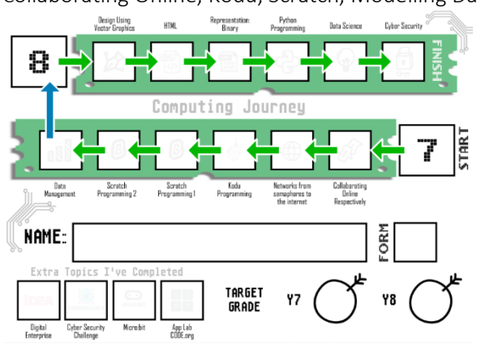
Year 9 Year 10 Year 11 Year 12 Year 13

CAREERS

Computing & IT Curriculum

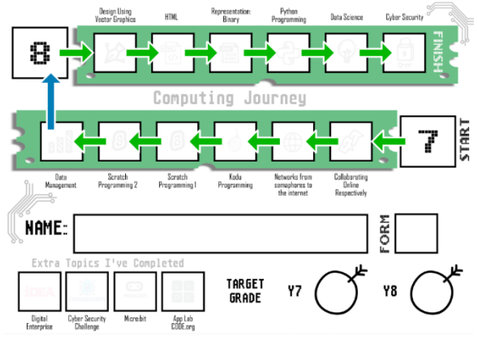
St Thomas More High School

Computing – Year 7

	Autumn Term	Spring Term	Summer Term
Year 7 Topics	7.1 Clear Messaging & Digital Media • Identifying how to use online collaboration tools respectfully. An introduction to Computing Rooms and STM 7.2 Networks: from semaphores to the internet • Recognising networking hardware and explaining how networking components are used for communication.	7.4Programming essentials in Scratch: part I • Applying the programming constructs of sequence, selection, and iteration in Scratch. • Using subroutines to decompose a problem that incorporates lists in Scratch 7.3 Kodu: Programming • Applying the programming constructs of sequence, selection, and iteration in building skills towards Scratch.	7.5 Modelling data: • Spreadsheets Sorting and filtering data and using formulas and functions in spreadsheet software. 7.7 3D Modelling • Planning, developing, and evaluating 3D computer models of physical objects.
NCC Codes	3.1 , 3.2 , 3.3 , 3.4 , 3.5 , 3.9 See national curriculum codes here	3.1 , 3.2 , 3.3, 3.4 See national curriculum codes here	3.1 , 3.2 , 3.3, 3.4, 3.7 , 3.8 See national curriculum codes here
Assessment	Online assessments for the following topics: Please see Pupils Learning Journey in Planner. Collaborating Online, Kodu, Scratch, Modelling Data, Networking 		
E/L	• www.idea.org.uk – Digital Enterprise • Supportive Worksheets for each topic • KS3 Super Curriculum Interactive PDF – Please See Teams for Interactive worksheet		

Computing – Year 8

Go Ba

	Autumn Term	Spring Term	Summer Term
Year 8 Topics	<u>8.1 Media: Vector Graphics</u> • Creating vector graphics through objects, layering, and path manipulation. Networks: from semaphores to the internet • <u>8.2 Developing For The Web</u> • Using HTML and CSS to create webpages.	<u>8.3a Representations: Data Representation</u> • Representing numbers and text using binary digits. • Representing images and sound using binary digits. <u>8.4 Computer Systems</u> • Exploring the fundamental elements that make up a computer system.	<u>8.5 Mobile app development</u> • Using event-driven programming to create an online gaming app. <u>8.6 Introduction to Python programming</u> • Applying the programming constructs of sequence, selection, and iteration in Python
NCC Codes	3.5 , 3.6 , 3.7 , 3.9 See national curriculum codes here	3.2 , 3.3 , 3.5 , 3.6 , 3.8 See national curriculum codes here	3.1 , 3.2 , 3.3 , 3.4 , 3.8 See national curriculum codes here
Assessment	<u>Online assessments for the following topics: Please see Pupils Learning Journey in Planner.</u> Media Vector Graphics, Developing for web, Data Rep, Python Skills 		
E/L	• www.idea.org.uk – Digital Enterprise • Supportive Worksheets for each topic • KS3 Super Curriculum Interactive PDF – Please See Teams for Interactive worksheet		

Computing Useful Links

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Y7

Collaborating Online Respectfully

- Microsoft Office/Teams

- www.youtube.com/watch?time_continue=20&v=opRMrEfAIiI&feature=emb_logo
- www.ncsc.gov.uk/cyberaware/home
- www.security.org/how-secure-is-my-password
- www.youtube.com/watch?v=OBg2YYV3Bts&feature=emb_logo
- www.thinkuknow.co.uk/11_13/help/CEOP
- www.childline.org.uk
- www.thinkuknow.co.uk/11_13/help/Contact-social-sites
- www.anti-bullyingalliance.org.uk
- www.bullying.co.uk/cyberbullying
- www.ditchthelabel.org

Networking/Internet

- Microsoft Office/Teams

- www.bbc.co.uk/bitesize/guides/z36nb9q/revision/2
- www.nibusinessinfo.co.uk/content/benefits-computer-networks
- www.speedtest.net
- www.youtube.com/watch?v=Dxcc6ycZ73M
- www.submarinecablemap.com
- www.youtube.com/watch?v=ewrBalT_eBM
- www.lifehacks.io/facts-about-the-internet
- www.youtube.com/watch?v=ZTM9GA-4nBA
- www.seotribunal.com/blog/google-stats-and-facts
- www.bbc.co.uk
- www.lifewire.com/most-common-tlds-internet-domain-extensions-817511
- www.yougetsignal.com/tools/network-location/

Programming

- Scratch 3
- Kodu
- Microsoft Teams

- scratch.mit.edu
- en.wikipedia.org/wiki/Five_Little_Ducks
- en.wikipedia.org/wiki/Software_bug

Data Modelling

- Microsoft Excel
- Microsoft Teams
- en.wikipedia.org/wiki/2016_Summer_Olympics_medal_table
- en.wikipedia.org/wiki/2018%E2%80%9319_Premier_League
- socialblade.com/youtube

Y8

Developing For web

- Microsoft Office/Teams
- Notepad
- www.w3schools.com/html
- www.w3schools.com/css
- www.w3schools.com/cssref

Computer Systems

- Microsoft Office/Teams
- www.computerhistory.org
- thecrashcourse.com/courses/computerscience
- projects/rasperberrypie.org

Vector Graphics

- Inkscape
- Affinity Designer
- Affinity Photo

Python Programming Introduction Using Primm

- Python

- repl.it
- blog.teachcomputing.org/tag/pedagogy
- pythontutor.com/visualize.html
- trinket.io
- projects.raspberrypi.org
- docs.python.org/3

Data Science

- Microsoft Office/Teams

- www.datawrapper.de
- www.youtube.com/watch?v=f_6IEKqS2l0
- www.gapminder.org
- berkeleyearth.lbl.gov/country-list
- codap.concord.org
- datashine.org.uk
- naei.beis.gov.uk/emissionsapp
- www.gaugemap.co.uk

Cyber Security

- threatmap.checkpoint.com
- scratch.mit.edu
- forbusiness.snapchat.com/advertising#targeting
- www.snap.com/en-GB/privacy/privacy-policy
- help.instagram.com/519522125107875/?helpref=hc_fnav&bc[0]=Instagram%20Help&bc[1]=Privacy%20and%20Safety%20Center
- policies.google.com/privacy#infocollect
- en-gb.facebook.com/policy.php
- www.ncsc.gov.uk
- www.cps.gov.uk/legal-guidance/computer-misuse
- us.norton.com/internetsecurity-malware-what-is-a-computer-virus.html
- us.norton.com/internetsecurity-malware-what-is-a-computer-worm.html
- antivirus.comodo.com/blog/computer-safety/computer-worm-definition
- www.malwarebytes.com/ransomware
- uk.norton.com/internetsecurity-malware-ransomware-5-dos-and-donts.html

Physical Computing

- microbit.org
- python.microbit.org
- microbit-micropython.readthedocs.io/en/v1.0.1
- www.arm.com/resources/education/schools/content
- blog.teachcomputing.org/tag/pedagogy
- youtu.be/oNLf6aFYVoU

Creative iMedia - Year 9

	Autumn Term	Spring Term	Summer Term
Topics	**Unit R093: Creative iMedia in Industry** In this unit you will learn about the sectors, products and job roles that form the media industry. You will learn the legal and ethical issues considered and the processes used to plan and create digital media products. You will learn how media codes are used within the creation of media products to convey meaning, create impact, and engage audiences. You will learn to choose the most appropriate format and properties for different media products. Completing this unit will provide you with the basic skills for further study or creative job roles within the media industry.	**Unit R094: Visual identity and digital graphics** 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. Logos, shapes, typography, colour theory and composition are all used to generate visual identities which work across different platforms and media, and user interface and experience are key considerations in the design process. - Develop Visual Identity - Plan Digital Graphics for a Products - Create Visual Identity & Digital Graphics	**Unit R094: Visual identity and digital graphics and NEA Optional Unit** There are lots of different Digital Media Products in the media industry, in games, websites and apps, learning and knowledge-based systems, simulations and in commerce. At the heart of digital media products is a fusion of media-rich content including text, images, sounds, video and animation. - Plan Creative iMedia Product - Create a product - Review a product
Exam Spec w/link	Unit R094 – skills building https://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 26 -36 See how we cover the KS4 National Curriculum here	Unit R094 – skills building https://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 26 -36 See how we cover the KS4 National Curriculum here	Unit R094 – skills building https://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 26 -36 See how we cover the KS4 National Curriculum here
Assessment	End of Term tests on each Component • Mock Assessment builds on knowledge, understanding and skills acquired and developed across the qualification. • Questions will require learners to apply knowledge and understanding to the given scenarios or context. • The supervised assessment period is a maximum of 1 hour and 30 minutes and should be arranged in the period timetabled by Pearson.		
E/L	Extended Learning Sheets for each topic will be set on teams with the class work		

Creative iMedia – Year 10

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	Autumn Term	Spring Term	Summer Term
Topics	**Unit R094: Visual identity and digital graphics and NEA Optional Unit** There are lots of different Digital Media Products in the media industry, in games, websites and apps, learning and knowledge-based systems, simulations and in commerce. At the heart of digital media products is a fusion of media-rich content including text, images, sounds, video and animation. - Plan Creative iMedia Product - Create a product - Review a product	**Unit R096: Animation NEA Optional Unit** In this unit, you will learn to plan animations with soundtracks based on client briefs. You will learn to use a range of tools and techniques to create, edit and combine audio and animated content and export and review completed animation with audio products. Completing this unit will provide you with the basic skills for further study or a range of creative and technical job roles within the media industry. - Plan Creative iMedia Product - Create a product - Review a product	**Unit R093: Creative iMedia in Industry** In this unit you will learn about the sectors, products and job roles that form the media industry. You will learn the legal and ethical issues considered and the processes used to plan and create digital media products. You will learn how media codes are used within the creation of media products to convey meaning, create impact, and engage audiences. You will learn to choose the most appropriate format and properties for different media products. Completing this unit will provide you with the basic skills for further study or creative job roles within the media industry.
Exam Spec w/link	Unit R094 – NEA buildinghttps://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 26 -36 **Error! Bookmark not defined.**	Unit R096 – NEA https://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 51-64 See how we cover the KS4 National Curriculum here	Unit R093 – Exam Skills https://www.ocr.org.uk/Images/610942-specification-cambridge-nationals-creative-imedia-j834.pdf Pages 16 -25 **Error! Bookmark not defined.**
Assessment	Unit R094: Visual identity and digital graphics 30 GLH OCR-set assignment 50 marks (50 UMS) Centre-assessed and OCR moderated This set assignment contains two practical tasks. It should take approximately 10-12 GLH to complete	Unit R096: Animation with audio 42 GLH OCR-set assignment 70 marks (70 UMS) Centre-assessed and OCR moderated. This set assignment contains three practical tasks.. It should take approximately 12-15 GLH to complete	Unit R093: Creative iMedia in the media industry Mock Exam Duration: 1 hour and 30 minutes Total Marks: 70 (Equivalent to 80 UMS) Exam Type: Written examination, set, and marked by OCR Calculators not needed Exam Structure: Part A: Includes closed response, multiple choice, and short answer questions assessing PO1 with 10 marks. Part B: Includes closed response, short answer, and three extended response questions. Two extended response questions assess PO3, and the third assesses PO1/PO2. All Part B questions relate to a single scenario with 60 marks
E/L	Extended Learning Sheets for each topic will be set on teams with the class work		

BTEC ICT – Year 11 (last year of this course)

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	Autumn Term	Spring Term	Summer Term
Topics	**Assignment: Component 2: Collecting, Presenting and Interpreting Data** A. Understand how data is collected and used by organisations and its impact on individuals B. Be able to create a dashboard using data manipulation tools C. Be able draw conclusions and review data presentation methods	**Assignment: Component 2: Collecting, Presenting and Interpreting Data** A. Understand how data is collected and used by organisations and its impact on individuals B. Be able to create a dashboard using data manipulation tools C. Be able draw conclusions and review data presentation methods	**External Exam: Component 3: Effective Digital Working Practices** A. Modern Technologies B. Cyber security C. The Wider Implications of Digital Systems D. Planning and Comms for Digital Systems
Exam Spec w/link	COM2 – Learning Aim A, B, C Specification - Pearson BTEC Level 1/Level 2 Tech Award in Digital Information Technology 2022 Issue 1 Pages 23-27 See how we cover the KS4 National Curriculum here	COM2 – Learning Aim A, B, C Specification - Pearson BTEC Level 1/Level 2 Tech Award in Digital Information Technology 2022 Issue 1 Pages 23-27 See how we cover the KS4 National Curriculum here	COM3 – Learning Aim A, B, C, D Specification - Pearson BTEC Level 1/Level 2 Tech Award in Digital Information Technology 2022 Issue 1 Pages 35-44 See how we cover the KS4 National Curriculum here
Assessment	Pearson sets the assignments for the assessment of this component. The assignment for this component consists of three tasks. • In response to Task 1, learners will explore the suitability of two given data collection methods used by an organisation for a given dataset. • In response to Task 2, learners will carry out different manipulation and processing methods in order to create a dashboard, providing data summaries using appropriate presentation methods and features. • In response to Task 3, learners will analyse a dataset, present their findings and draw conclusions based on these findings. They will explore how presentation affects understanding in the dataset and how they could be improved. • The assignment will take approximately 6 supervised hours to complete. • The assignments will be marked by centres and moderated by Pearson. • Assignments for this component will be made available in October and then February of each year through the secure area of the website. Learners must use the Pearson-set Assignment to provide the required evidence to achieve this component. • External Assessment builds on knowledge, understanding and skills acquired and developed across the qualification. • Questions will require learners to apply knowledge and understanding to the given scenarios or context. • An exam worth 60 marks will be completed under supervised conditions. • The supervised assessment period is a maximum of 1 hour and 30 minutes and should be arranged in the period timetabled by Pearson. • The assessment availability is January/February and May/June. First assessment is January/February 2024		
E/L	Extended Learning Sheets for each topic will be set on teams with the class work		

BTEC ICT – Year 12

	Autumn Term	Spring Term	Summer Term
Topics	Unit 2: Creating Systems to Manage Information Learners study the design, creation, testing and evaluation of a relational database system to manage information. Unit 3: Using social media in Business A. Explore the impact of social media on the ways in which businesses promote their products and services B. Develop a plan to use social media in a business to meet requirements C. Implement the use of social media in a business..	Unit 2: Creating Systems to Manage Information Learners study the design, creation, testing and evaluation of a relational database system to manage information. Unit 3: Using social media in Business A. Explore the impact of social media on the ways in which businesses promote their products and services B. Develop a plan to use social media in a business to meet requirements C. Implement the use of social media in a business..	Unit 2: Creating Systems to Manage Information Learners study the design, creation, testing and evaluation of a relational database system to manage information. Unit 3: Using social media in Business A. Explore the impact of social media on the ways in which businesses promote their products and services B. Develop a plan to use social media in a business to meet requirements C. Implement the use of social media in a business..
Exam Spec	BTEC Nationals | Information Technology (2016) | Pearson qualifications	BTEC Nationals | Information Technology (2016) | Pearson qualifications	BTEC Nationals | Information Technology (2016) | Pearson qualifications
Assessment	Unit 2: External Exam • This unit is externally assessed through a task set and marked by Pearson. • The set task will be completed under supervised conditions. • Part A will be carried out in three hours on the afternoon of the first day. • Part B will be carried out in two hours on the morning of the second day. • The set task will assess learners' ability to design, create, test and evaluate a relational database system to manage information. • The number of marks for the unit is 66 Unit 3: Internal Assessment • An assignment is issued to learners as an assignment brief with a defined start date, a completion date and clear requirements for the evidence that they need to provide. • There may be specific observed practical components during the assignment period. • Assignments can be divided into tasks and may require several forms of evidence. A valid assignment will enable a clear and formal assessment outcome based on the assessment criteria		
E/L	Extended Learning Sheets for each topic will be set on teams with the class work		

BTEC ICT – Year 13

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	Autumn Term	Spring Term	Summer Term
Topics	Unit 1: Creating Systems to Manage Information A. Digital devices in IT systems B. Transmitting Data C. Operating Online D. Protecting Data & Information E. Impact of IT systems F. Issues Affecting Systems Unit 6: Website Development A. Understand the principles of website development B. Design a website to meet client requirements C. Develop a website to meet client requirements.	Unit 1: Creating Systems to Manage Information A. Digital devices in IT systems B. Transmitting Data C. Operating Online D. Protecting Data & Information E. Impact of IT systems F. Issues Affecting Systems Unit 6: Website Development A. Understand the principles of website development B. Design a website to meet client requirements C. Develop a website to meet client requirements.	Unit 1: Creating Systems to Manage Information A. Digital devices in IT systems B. Transmitting Data C. Operating Online D. Protecting Data & Information E. Impact of IT systems F. Issues Affecting Systems Unit 6: Website Development A. Understand the principles of website development B. Design a website to meet client requirements C. Develop a website to meet client requirements.
Exam Spec	BTEC Nationals | Information Technology (2016) | Pearson qualifications	BTEC Nationals | Information Technology (2016) | Pearson qualifications	BTEC Nationals | Information Technology (2016) | Pearson qualifications
Assessment	Unit 1 External Exam • This unit is externally assessed through a written examination set and marked by Pearson. • The examination is two hours in length. • Learners will be assessed on their understanding of computer systems and the implications of their use in personal and professional situations. • The number of marks for the unit is 90 Unit 6: Internal Assessment • An assignment is issued to learners as an assignment brief with a defined start date, a completion date and clear requirements for the evidence that they need to provide. • There may be specific observed practical components during the assignment period. • Assignments can be divided into tasks and may require several forms of evidence. • A valid assignment will enable a clear and formal assessment outcome based on the assessment criteria		
E/L	Extended Learning Sheets for each topic will be set on teams with the class work		

Computer Science - Year 9

	Autumn Term	Spring Term	Summer Term
Topics	**Python Programming –** Basic Inputs / Outputs Print Methods Data Types Basic Selection Statements Maths in Python Iteration **Computer Systems** CPU Architecture FDE Cycle Secondary Storage Computer Specifications **Intro to Data Representation** Binary Units Hexadecimal	**Data Representation (continued)** Characters Sound Images **Introduction to Networks** What are networks Internet & WWW IP Suite Packet Switching **Impacts of technology** How does technology impact us? The law, data protection, and copyright The Freedom of Information Act and The Computer Misuse Act Cultural impacts Privacy and surveillance Environmental impact Ethical impact Putting it all together	**3D Modelling** Films, television, computer games, advertising, and architecture have been revolutionised by computer-based 3D modelling and animation. In this unit learners will discover how professionals create 3D animations using the industry-standard software package, Blender. By completing this unit learners will gain a greater understanding of how this important creative field is used to make the media products that we consume. Sessions will take learners through the basics of modelling, texturing, and animating; outputs will include 3D models and short videos. **End of Year Project** Students will take part in project-based work at the end of year 9 to showcase the skills they have gained in the course to date. Students will be expected to create a presentation and programming project and present both to the class.
Exam Spec w/link	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 1.1 , 2.2 1.2 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 1.2, 1.3, 1.6 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 1.1 See how we cover the KS4 National Curriculum here
Assessment	End of Unit tests marked out of 50 will take place roughly each half term. End of year assessment w/b 8th May Multiple choice questions through the use of Quizizz are often used at the end of each lesson to assess students.		
E/L	Students have access to a wide range of resources on Microsoft Sharepoint Extended learning tasks and challenges are set via Teams channels. Additional programming tasks may be set via Teams or websites such as Repl.		

Computer Science - Year 10

	Autumn Term	Spring Term	Summer Term
Topics	**Intermediate Python Programming Skills –** For Loops vs While Loops List processing String methods Functions vs Parameters Writing pseudocode Creating / interpreting Flowcharts **Systems Architecture** RAM vs ROM Cache, Clock Speed and Cores Flash vs Optical vs Magnetic How CPU performance is affected by various components	**Logic Gates & Languages** And / Or & Not gates Designing Truth Tables Types of programming errors Translators & facilities of languages IDE's **Network Security** Network threats Preventing vulnerabilities Operating Systems Utility software	**Algorithms** Computational thinking Searching algorithms Sorting algorithms Practice programming exam questions **Programming practice** Writing Python programs in an exam Pseudocode interpretation Trace tables SQL ***End of year test w/b 26th June***
Exam Spec w/link	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 2.2 , 1.1 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 2.4,1.4 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 2.1,2,2 , 2.3 See how we cover the KS4 National Curriculum here
Assessment	Exam questions specific to units at the end of every topic Weekly programming style exam questions End of year assessment w/b 26th June Multiple choice questions through the use of Quizizz are often used at the end of each lesson to assess students. Programming tasks set on Repl.it		
E/L	Students have access to a wide range of resources on Microsoft Sharepoint Extended learning tasks and challenges are set via Teams channels. Exam style questions used for retrieval practice.		

Computer Science - Year 11

	Autumn Term	Spring Term	Summer Term
Topics	**Systems Architecture** FDE cycle RAM vs ROM Cache, Clock Speed and Cores Flash vs Optical vs Magnetic How CPU performance is affected by various components **Data Representation** Hexadecimal Binary Shifts Binary Addition ASCII vs Unicode Representing Images & Sound ***Paper 1 test encompassing 1.1 – 1.6 of GCSE specification***	**Writing advanced Python programs using subroutines** Students will be expected to complete programming tasks each week this term that will encompass the skills needed in their GCSE examinations. Students progress will be tracked weekly and will involve the following programming constructs – ✓ Subroutines ✓ Selection ✓ Iteration ✓ Reading and writing to file ✓ List operations ✓ Basic Input / Output **Logic gates & Languages** Applying Boolean logic to given scenarios Creating robust programs Assembly language vs Machine code IDE tools Defensive Design	***Exam style questions*** ***Student informed revision lessons.*** ***Students who wish to take A Level Computer Science can obtain A Level transition work from Mr Marshall.*** OCR A Level Computer Science H446 Specification
Exam Spec w/link	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 1.1 – 1.6 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 2.4,1.4 See how we cover the KS4 National Curriculum here	GCSE (9-1) Computer Science J277 Specification (ocr.org.uk) 2.4,1.4 See how we cover the KS4 National Curriculum here
Assessment	Exam questions specific to units at the end of every topic Weekly programming style exam questions GCSE Examinations first 2 weeks of public examinations see school website for examination timetable. Multiple choice questions through the use of Quizizz are often used at the end of each lesson to assess students. Programming tasks set on Repl.it Paper 1 test – December Two exam papers will be sat every half term from January until the GCSE exam dates.		
E/L	Students have access to a wide range of resources on Microsoft Sharepoint Extended learning tasks and challenges are set via Teams channels. Exam style questions used for retrieval practice.		

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Computer Science - Year 12

	Autumn Term	Spring Term	Summer Term
Topics	**Unit 1 – Components of a Computer (1.1)** Processor components Processor performance Types of processor Input devices Output devices Storage devices **Unit 2 – Systems Software (1.2.1 – 1.2.2)** OS functions Types of OS Nature of application software Programming languages translators **Unit 5 – Networks (1.3.3 – 1.3.4)** Structure of the Internet Internet communication Network security & threats HTML & CSS JavaScript Search Engine indexing Client Server & P2P	**Unit 4 - Exchanging Data (1.3.1 – 1.3.2)** Compression & encryption Database concepts Relational databases and normalisation Introductions to SQL Defining and updating tables using SQL Transaction processing **Unit 7 – Data Structures (1.4.2)*** Arrays & Tuples Queues Lists & Linked lists Stacks Hash tables Graphs Trees **Unit 8 – Boolean Algebra (1.4.3)** Logic Gates Boolean expressions Karnaugh maps Adders and D type flip flops **** Students will also be introduced to the initial ideas behind Object Orientated Programming (OOP) during this module***	**Unit 9 - Legal & Cultural issues (1.5)** Computing related legislation Ethical, moral & Cultural issues Privacy & censorship **Unit 6 – Data Types (1.4.1)** Data types, binary and hexadecimal ASCII & Unicode Binary Arithmetic Floating point Arithmetic Bitwise manipulation and masks **Programming Project Introduction (NEA component 20%)** In the summer term of Y12 students will begin to think about their coursework element including choosing a project title and learning a new programming language (LUA).
Exam Spec w/link	OCR A Level Computer Science H446 Specification	OCR A Level Computer Science H446 Specification	OCR A Level Computer Science H446 Specification
Assessment	Exam questions specific to units at the end of every topic. Revision lists are circulated via students individual OneNote notebooks. Students will complete 2 full AS papers in the Y12 assessment week w/b 26/06/23 Programming tasks will be set on the REPL.it team page.		
E/L	Students have access to a wide range of resources on Microsoft Sharepoint Students have access to a OneNote Notebook that allows them to have access to all lesson notes and activities Students are expected to use their directed time to complete activities not finished in class as well as completing lesson notes.		

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Computer Science - Year 13 (AQA specification until June 2023)

	Autumn Term	Spring Term
Topics	**Unit 9 – Regular Languages (4.3.3 & 4.4.2 – 4.4.5)** Mealy Machines Sets Regular Expressions Turing machine Backus-Naur form Reverse Polish Notation **Unit 10 – The Internet (4.9.3 – 4.9.4)** Structure of the Internet Packet switching and routers Internet security TCP/IP **Coursework Lessons – Analysis & Design (Grade descriptors below)** **Analysis -** Fully or nearly fully scoped analysis of a real problem, presented in a way that a third party can understand. Requirements fully documented in a set of measurable and appropriate specific objectives, covering all required functionality of the solution or areas of investigation. Requirements arrived at by considering, through dialogue, the needs of the intended users of the system, or recipients of the outcomes for investigative projects. Problem sufficiently well modelled to be of use in subsequent stages. **Design-** Fully or nearly fully articulated design for a real problem, that describes how all or almost all of the key aspects of the solution/investigation are to be structured/are structured **Technical -** A system that meets almost all of the requirements of a solution/an investigation (ignoring any requirements that go beyond the demands of A-level). Above average performance: Group A equivalent algorithms and model programmed more than well to excellent; all or almost all excellent coding style characteristics; more than to highly effective solution. Average performance: Group A equivalent algorithms and/or model programmed well; majority of excellent coding style characteristics; an effective solution. Below average performance: Group A equivalent algorithms and/or model programmed just adequately to fully adequate; some excellent coding style characteristics; less than effective to fairly effective solution.	**Unit 8 – Algorithms** Recursive Algorithms Big O notation Searching and Sorting Graph traversal algorithms Optimisation Algorithms Limits of Computation **Unit 12 – OOP & Functional Programming** Basic concepts of OOP OOP Design principles Functional Programming Function Application Big data **Coursework Lessons – Testing & Evaluation (Grade descriptors below)** **Testing -** Clear evidence, in the form of carefully selected representative samples, that thorough testing has been carried out. This demonstrates the robustness of the complete or nearly complete solution/thoroughness of investigation and that the requirements of the solution/ investigation have been achieved**.** **Evaluation –** Full consideration given to how well the outcome meets all of its requirements. How the outcome could be improved if the problem was revisited is discussed and given detailed consideration. Independent feedback obtained of a useful and realistic nature, evaluated and discussed in a meaningful way. **Grading Structure - NEA** Section / Total Analysis 9 Design 12 Technical Solution 42 Testing 8 Evaluation 4 Totals 75 **Skeleton Programming Lessons** After covering the above topics students will begin to work on their Skeleton code that form the majority of their Paper 1 assessment,
Exam Spec w/link	https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517/specification-at-a-glance	https://www.aqa.org.uk/subjects/computer-science-and-it/as-and-a-level/computer-science-7516-7517/specification-at-a-glance
Assessment	Exam questions specific to units at the end of every topic. Revision lists are circulated via students individual OneNote notebooks. Programming tasks will be set on the REPL.it team page. 1:1 coursework session for students will take place throughout the Autumn & Spring term Coursework deadlines **Section** / **Deadline** Analysis – Thursday 24th November 2022 Design – Thursday 8th December 2022 Implementation – Thursday 24th February Testing – Thursday 9th March 2023 Evaluation & all final versions – Thursday 23rd March 2023 Students will be expected to spend time working on their coursework implementation outside of lessons.	
E/L	Students have access to a wide range of resources on Microsoft Sharepoint Students have access to a OneNote Notebook that allows them to have access to all lesson notes and activities Students are expected to use their directed time to complete activities not finished in class as well as completing lesson notes.	

Computer Science Resources

KS4	KS5
Free OCR Computer Science GCSE Revision | Seneca (senecalearning.com) GCSE topics — Isaac Computer Science GCSE Computer Science - OCR - BBC Bitesize	***Past Papers & Useful Links*** Computer Science Revision - PMT (physicsandmathstutor.com) A level topics — Isaac Computer Science(OCR – **Y12 only**) A level topics — Isaac Computer Science(AQA – **Y13 only**) All students have online access to a version of the A Level textbook via the Classoos app.

BTEC KS4 / KS5 Resources

KS4 Resources

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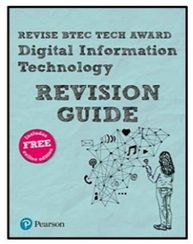

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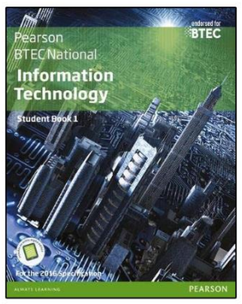

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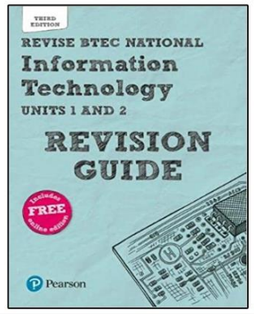

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Key Stage	Careers in the curriculum
KS3	•
KS4	•
KS5	•

CAREERS