IT & Computer Science – Curriculum Sequence Grids

Year 10 WJEC Tech Award in ICT	Term 1	Term 2	Term 3

Unit(s) – As outlined in 39 week plans	• Introduction to WJEC ICT – This is a new course that we are running alongside Maltby and Sir Thomas Wharton.
	• Image manipulation and assessment.
	• Database skills and assessment.
		• Spreadsheet skills and assessment.
		• Automated documents skills and assessment.
			• Unit 1 exam content:
			  ○ Hardware
			  ○ Software
			  ○ IT Services
			  ○ Data, information and knowledge
			  ○ Error checking

Key Retainable Knowledge & Skills	Understanding of the course. Key skills relating to image manipulation and databases.	Key skills relating to spreadsheets and how companies use the Office Suite.	Key knowledge for the exam in Y11 relating the above topics.
Key Technical Vocabulary	• Brief • Apply • Analyse • Evaluate • Interrogate • Success criteria • Justification • Annotation • Primary/secondary source • Copyright • Intellectual property • Reference • Primary key • Data types • Validation • CSV • Queries • Reports • Wildcard • Parameter • Macro	• Merge • Cells • Form controls • Navigation • Conditional formatting • Validation • Formula/functions • Formatting	• Input/Output/Storage devices • Ports • System, application, utility and open source software • Social networking • E-commerce • Artificial intelligence • Cloud technology • Data and information • Protocols • Topologies • Internet/extranet/intranet

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Opportunities for Reading	Online student support documents from WJEC can be found here https://www.wjec.co.uk/home/student-support/		
Developing Cultural Capital	This course is all about how IT is used in the workplace and at home. The scenarios are relevant to what the student experience now and will need to know when using computers in an employment situation.		
Cross Curricular Links (Authentic Connections)	Graphics & Media – Photoshop skills	Maths – Excel	Computer Science – Key components.
Key Assessment	The first two parts of the coursework, image manipulation and databases (20% of the course).	The second two parts of the coursework, spreadsheets and automated documents (20% of the course).	This is when we start preparing for the exam. This is one of
This is a new course that we are starting this year alongside Maltby and Sir Thomas Wharton. We are sharing resources and working on the same timescale. The course is made up of 2 sections: Exam (40%) done online in Y11, 80 mins, 80 marks. Content includes hardware and software, data use and capture, risks and ethics, digital footprint. Coursework (60%) done in Y10 covers four parts, databases, spreadsheets, automated documents and images.			

IT & Computer Science – Curriculum Sequence Grids

Year 10 OCR CS GCSE J277	Term 1	Term 2	Term 3

Unit(s) – As outlined in 39 week plans	• Boolean logic
	• Units
	• Data storage
	  ○ Number
	  ○ Characters
	  ○ Images
	  ○ Sound
	• Compression
	• Computational thinking
	• Designing, creating and refining algorithms
	• Programming fundamentals
	• CPU architecture
		• CPU performance
		• Data types
		• Primary storage
		• Secondary storage
		• Embedded systems
		• Additional programming techniques
		• Operating systems
		• Utility software
			• Networks and topologies
			• Wired and wireless networks, protocols and layers
			• Exam preparation
			• Trial exams
			• VEX IQ robotics

Key Retainable Knowledge & Skills	Basic Boolean phrases. Storage sizes. How different files are saved in binary. The right approach to take when programming. Key components of a CPU.	What affects the performance of a CPU? Categories of data. Different types of storage. Basic coding skills. Different devices and how they are programmed. How computers are connected and share resources.	Network connections. Possible dangers to a network. Robotics, team work.
Key Technical Vocabulary	• AND, OR, NOT, truth tables • Bit, nibble, byte, kilobyte, megabyte, gigabyte, terabyte, petabyte • Sequence, selection, iteration • Binary, shifts, character set, metadata • Abstraction, decomposition, algorithmic thinking • Fetch-decode-execute • ALU, CU, cache, registers, clock, cores • Pseudocode, flowcharts, reference language, high-level programming languages, trace table • Von Neumann (MAR, MDR, PC, ACU)	• Clock speed, cache size. • Integer, real, Boolean, character, string, casting. • Primary, secondary, RAM, ROM. • Optical, magnetic, solid state. • Encryption, defragmentation, compression. • The intricacies of operating systems. • The types and purpose of utility software.	• LAN, WAN, DNS, hosting, cloud. • Ethernet, wi-fi, Bluetooth • Recap of terminology since the start of the course.

Opportunities for Reading	Exam board and 'Craig 'n' Dave' documentation. BBC Bitesize, OCR Computer Science https://www.bbc.co.uk/bitesize/examspecs/zmtchbk Python tips https://www.csnewbs.com/python	Exam board and 'Craig 'n' Dave' documentation. BBC Bitesize, OCR Computer Science https://www.bbc.co.uk/bitesize/examspecs/zmtchbk Python tips https://www.csnewbs.com/python	Exam board and 'Craig 'n' Dave' documentation. BBC Bitesize, OCR Computer Science https://www.bbc.co.uk/bitesize/examspecs/zmtchbk Python tips https://www.csnewbs.com/python
Developing Cultural Capital	• Understanding how everyday computer systems work and the coding that goes on behind them. • An appreciation of how documentation is saved and compressed so it's suitable for sharing with others. • An appreciation as to the damage poor disposal of electronics do to the world. • A greater knowledge of how the computers across the world are connected and information is shared. • An understanding of legislation that must be followed and possible implications of breaking these.		
Cross Curricular Links (Authentic Connections)	• Maths – Mathematical approach to coding and the way in which computers work • Science – How computers are built and operate • PSE – Legislation and Health and Safety • English – A detailed, well written analysis of their NEA product is required.		
Key Assessment	Data storage Designing, creating and refining algorithms	CPU performance. Storage and systems software.	Network topologies. Trial exam.

Course is made up of 3 components

- J277/01: Computer systems
  - 90 minute exam
  - 80 marks
  - 50% of total GCSE
- J277/02: Computational thinking, algorithms and programming
  - 90 minute exam
  - 80 marks
  - 50% of total GCSE
- Practical programming – The opportunity to undertake a programming task must be given over the course of the course. This isn't assessed though.

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Year 11 OCR CS GCSE J277	Term 1	Term 2	Term 3
Unit(s) – As outlined in 39 week plans	• Threats to computer systems and networks • Vulnerabilities • Defensive design • Testing • Searching and sorting algorithms • Languages • IDE • Exam preparation • Ethical, legal, cultural and environmental impact	• Paper 1 revision • Paper 2 revision • Trial exam x 2	• Exam preparation and external exams
Key Retainable Knowledge & Skills	DDOS SQL injection The impacts of digital technology on wider society. Understanding issues a programmer must consider. Types of testing and the reasons for each. The differences between languages and how we convert from one to another. Knowledge of the tools that an IDE provides. Legislation relevant to Computer Science.	Knowledge of how to read and write searching and sorting algorithms. A greater understanding of programming.	Recall from content covered over the past two years.
Key Technical Vocabulary	• Authentication • Iterative testing • Terminal testing • Normal/boundary/erroneous • Editors • Diagnostics • Run-time environment • Translators • Malware, social engineering, brute-force, DDOS, SQL injection	• Binary search • Linear search • Bubble sort • Merge sort • Insertion sort	Recall from content covered over the past two years.

<table>
<tr><td></td><td>Interface, management
Ethical, legal, cultural, environmental & privacy issues</td><td></td><td></td></tr>
<tr><td>Opportunities for Reading</td><td>Exam board and ‘Craig ‘n’ Dave’ documentation.

BBC Bitesize, OCR Computer Science
https://www.bbc.co.uk/bitesize/examspecs/zmtchbk

Python tips
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Science – How computers are built and operate
PSE – Legislation and Health and Safety
English – A detailed, well written analysis of their NEA product is required.</td></tr>
<tr><td>Key Assessment</td><td>Vulnerabilities and OS.

Trial exams.</td><td>Trial exam.</td><td>External exams</td></tr>
<tr><td colspan="4">Final assessment - 2 external exams, one 90 minutes, one 2 hours, both 80 marks and 50%. Programming project, not assessed.</td></tr>
</table>

IT & Computer Science – Curriculum Sequence Grids

Year 11 Pearson BTEC in Creative Media Production	Term 1	Term 2	Term 3
Unit(s) – As outlined in 39 week plans	• **Finalisation of Component 1.** • **Component 2 – Learning aim A, B & C**	• Understanding the brief • Preparation for Component 3 • Component 3 trial • Start of Component 3 controlled assessment	• **Component 3 – Controlled Assessment**
Key Retainable Knowledge & Skills	Skills to edit and manipulate material to produce quality products. Understand the different tools that can be used to generate the finished product. Ability to export material and identify best approach dependant on what the final product will be used for. Reflective practice through the refinement of their own media products that allows them to respond to feedback and identify areas for improvement. This is a skills based unit that sets them up for the controlled assessment.	Knowing industry standards and norms for published material. The development and application of skills to produce publication material using Photoshop. Reflective practice through the refinement of their own media products that allows them to respond to feedback and identify areas for improvement.	Component 3 is an accumulation of skills learned in Component 1 and 2 but done over controlled assessed conditions in class over nine hours.
Key Technical Vocabulary	• Thumbnails • Sketches • Page layouts • Design comps (comprehensive layout) • Page mock-ups • Balance • White space • Proximity • Alignment • Contrast • Exporting • Exporting • Compression	• Mood boards • House style • Thumbnails • Sketches • Cropping • Scaling, • Resizing images • Image manipulation • Drop capital • Quotes • Columns • Typography • Paragraph	• Controlled assessment

		• Text wrap	
Opportunities for Reading	BBC Bitesize – Media section https://www.bbc.co.uk/bitesize/subjects/ztnygk7	BBC Bitesize – Media section https://www.bbc.co.uk/bitesize/subjects/ztnygk7	BBC Bitesize – Media section https://www.bbc.co.uk/bitesize/subjects/ztnygk7
Developing Cultural Capital	They will further develop an understanding of thoughts and techniques utilised when producing media products that may be encountered on a daily basis. This understanding will identify the concept of a 'target audience' and why it's important to meet the needs of this group when promoting a product. They will look at different groups of people and gain a better understanding of the society in which we live.		
Cross Curricular Links (Authentic Connections)	English – Clear links with English when reviewing published material and creating own products.	English – Clear links with English when reviewing published material and creating own products.	English – Clear links with English when reviewing published material and creating own products.
Key Assessment	**Component 2– Learning aim A, B & C**	**Pre-production work** **Time assessed trial**	**Component 3 – Externally assessed unit.**

Course is made up of 3 components

- 2 internal projects (2 x 36 GLH and also 2 x 36 possible marks, 60%)
  - Component 1 - Exploring Media Products
  - Component 2 – Developing Digital Media Production Skills
- 1 external timed task (48 GLH and also 48 possible marks, 40%)
  - Component 3 – Create a Media Product in Response to a Brief

Final grade awarded between L1 P and L2 D* on a points basis from all three components.
L1P = 1.25, L1M = 2, L1D = 3, L2P = 4, L2M = 5.5, L2D = 7, L2D* = 8.5