

Subject:	
<b>“Magic and Gift” of the subject</b>	<p><b>Computing and ICT are the future</b></p> <p>Learning how to code has never been more fashionable. Beyond its utilitarian value, coding can be delightful. Find the correct set of instructions and you can coerce your machine to simulate the solar system, visualize the rotation of three-dimensional objects, or chat with people on the other side of the planet. From using a computer in day to day life to programming the technology of the future, Computing and ICT covers a broad spectrum of skills and concepts that equip the youth of today for the jobs of tomorrow. As Steve Jobs once said “It teaches you how to think” it is the process of decomposition, the ability to break things down into smaller manageable concepts in order to find a solution. This course “creates the wizards of tomorrow” (Will.i.am). Students will develop their ability to think for themselves, analyse tasks and create logical step-by-step sequences for moving forward. “Computing allows you to take arguably the stupidest thing in the world, a computer, and program it to do something new.” (Gabe Newell)</p>
<b>Careers (salaries)</b>	<p>Computer games developer (£10,000 to £40,000+)</p> <p>Software developer (£19,500 to £45,000+)</p> <p>Network engineer/ manager (£12,000 to £50,000+)</p> <p>System analyst (£19,000 to £50,000+)</p>
<b>Notable high profile alumni (Park School and “famous”)</b>	<p>Liam Neeson – studied physics and computer science at Queen’s University Belfast.</p> <p>Larry Page and Sergey Brin – founded Google</p> <p>Mark Zuckerberg – founded Facebook</p> <p>Reed Hastings – CEO of Netflix</p> <p>Marissa Mayer – CEO of Yahoo</p>
<b>Degrees and Best Universities (Global?)</b>	<p>Computer science degree</p> <ul style="list-style-type: none"> <li>● Cambridge</li> <li>● Imperial college London</li> <li>● Oxford</li> <li>● St Andrews</li> <li>● Warwick</li> <li>● Durham</li> <li>● University of Oxford. ...</li> <li>● University of Cambridge.</li> <li>● Massachusetts Institute of Technology</li> </ul> <p>Digital and Technology Solutions (IT Consultant) - Degree Apprenticeship</p> <p>Digital and Technology Solutions (Software engineer) - Degree Apprenticeship</p> <p>Digital and Technology Solutions (Cyber Security Analyst) - Degree Apprenticeship</p> <p>IT &amp; Web Design Professionals - Advanced Apprenticeship</p> <p>IT, Software, Web and Telecoms Professionals - Higher Apprenticeship Level 4</p>
<b>Post 16 Courses and Destinations</b>	<p>Computer Science A-level- Petroc and Exeter</p> <p>IT &amp; Web Design Professionals - Advanced Apprenticeship</p> <p>IT and Computing BTEC Extended Diploma - Level 3</p>

	<p>IT and Computing BTEC Extended Certificate - Level 2 - Petroc Tiverton  Foundation Degree in Computing - Mid Devon  Access to Higher Education- Diploma in Computing- Mid Devon  Exeter:  Level 2 BTEC First Level 2 Extended Certificate  IT, Software, Web and Telecoms Professionals Intermediate Apprenticeship  Level 2  IT Infrastructure Technician Apprenticeship - Standard Level 3</p> <p>Information and Creative Technology - Technical Support Pathway  Information and Creative Technology - Game Development Pathway  IT Computing Level 3 BTEC Level 3 Certificate/Extended Certificate  IT Game Development  Level 3 BTEC Level 3 Foundation Diploma/Extended Diploma  IT Systems and Networks  Level 3 BTEC Level 3 Foundation Diploma/Extended Diploma  IT Web and Cyber Security  Level 3 BTEC Level 3 Foundation Diploma/Extended Diploma</p>						
<b>GCSE Specification</b>	OCR Computer Science J277						
<b>Assessment Objectives and Percentages in Examination</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;"><b>Content Overview</b></th> <th style="width: 50%; text-align: center;"><b>Assessment Overview</b></th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; padding: 5px;"> <p><b>J277/01: Computer systems</b></p> <p>This component will assess:</p> <ul style="list-style-type: none"> <li>• 1.1 Systems architecture</li> <li>• 1.2 Memory and storage</li> <li>• 1.3 Computer networks, connections and protocols</li> <li>• 1.4 Network security</li> <li>• 1.5 Systems software</li> <li>• 1.6 Ethical, legal, cultural and environmental impacts of digital technology</li> </ul> </td> <td style="vertical-align: top; padding: 5px;"> <p><b>Written paper: 1 hour and 30 minutes</b>  <b>50% of total GCSE</b>  <b>80 marks</b></p> <p>This is a non-calculator paper.</p> <p>All questions are mandatory.</p> <p>This paper consists of multiple choice questions, short response questions and extended response questions.</p> </td> </tr> <tr> <td style="vertical-align: top; padding: 5px;"> <p><b>J277/02: Computational thinking, algorithms and programming</b></p> <p>This component will assess:</p> <ul style="list-style-type: none"> <li>• 2.1 Algorithms</li> <li>• 2.2 Programming fundamentals</li> <li>• 2.3 Producing robust programs</li> <li>• 2.4 Boolean logic</li> <li>• 2.5 Programming languages and Integrated Development Environments</li> </ul> </td> <td style="vertical-align: top; padding: 5px;"> <p><b>Written paper: 1 hour and 30 minutes</b>  <b>50% of total GCSE</b>  <b>80 marks</b></p> <p>This is a non-calculator paper.</p> <p>This paper has two sections: Section A and Section B. Students must answer both sections.</p> <p>All questions are mandatory.</p> <p>In Section B, questions assessing students' ability to write or refine algorithms must be answered using <b>either</b> the OCR Exam Reference Language <b>or</b> the high-level programming language they are familiar with.</p> </td> </tr> </tbody> </table>	<b>Content Overview</b>	<b>Assessment Overview</b>	<p><b>J277/01: Computer systems</b></p> <p>This component will assess:</p> <ul style="list-style-type: none"> <li>• 1.1 Systems architecture</li> <li>• 1.2 Memory and storage</li> <li>• 1.3 Computer networks, connections and protocols</li> <li>• 1.4 Network security</li> <li>• 1.5 Systems software</li> <li>• 1.6 Ethical, legal, cultural and environmental impacts of digital technology</li> </ul>	<p><b>Written paper: 1 hour and 30 minutes</b>  <b>50% of total GCSE</b>  <b>80 marks</b></p> <p>This is a non-calculator paper.</p> <p>All questions are mandatory.</p> <p>This paper consists of multiple choice questions, short response questions and extended response questions.</p>	<p><b>J277/02: Computational thinking, algorithms and programming</b></p> <p>This component will assess:</p> <ul style="list-style-type: none"> <li>• 2.1 Algorithms</li> <li>• 2.2 Programming fundamentals</li> <li>• 2.3 Producing robust programs</li> <li>• 2.4 Boolean logic</li> <li>• 2.5 Programming languages and Integrated Development Environments</li> </ul>	<p><b>Written paper: 1 hour and 30 minutes</b>  <b>50% of total GCSE</b>  <b>80 marks</b></p> <p>This is a non-calculator paper.</p> <p>This paper has two sections: Section A and Section B. Students must answer both sections.</p> <p>All questions are mandatory.</p> <p>In Section B, questions assessing students' ability to write or refine algorithms must be answered using <b>either</b> the OCR Exam Reference Language <b>or</b> the high-level programming language they are familiar with.</p>
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Year by Year Intent	Cycle by Cycle Intent - Clear Areas of Knowledge (big topics), Skills and Assessment Objectives (linked to GCSE Spec), Cross Curricular Links and Opportunities (where is this topic/knowledge delivered elsewhere in the school (and is that department more "expert").	Where will this cycle be revisited/ where has it been taught before (interleaving)?
Year 11: Key intent of this year	Exams - What Final Exams/NEAs will they take (and key topic area if appropriate)	OCR Computer Science GCSE
	Cycle 14 <ul style="list-style-type: none"> <li>● Theory 25 lessons               <ul style="list-style-type: none"> <li>○ Unit 1 - 1.1 to 1.8</li> <li>○ Unit 2 - 2.1 to 2.6</li> </ul> </li> </ul>	
Year 10: Key intent of this year	Cycle 12 <ul style="list-style-type: none"> <li>● Python 5 lessons               <ul style="list-style-type: none"> <li>○ Unit 2.3 Robust programs</li> </ul> </li> <li>● NEA 20 lessons</li> </ul>	Revisited in cycle 14
	Cycle 11 <ul style="list-style-type: none"> <li>● Python 10 lessons               <ul style="list-style-type: none"> <li>○ Unit 2.2 Programming techniques</li> </ul> </li> <li>● Theory 15 lessons               <ul style="list-style-type: none"> <li>○ Unit 1.4 Wired and wireless networks</li> <li>○ Unit 1.5 Network topologies</li> <li>○ Unit 1.8 Ethical and legal</li> <li>○ Unit 2.4 Computational logic</li> </ul> </li> </ul>	Revisited in cycle 14  Revisited in cycle 14  Revisited in cycle 14 Revisited in cycle 14 Revisited in cycle 13 and 14
	Cycle 10 <ul style="list-style-type: none"> <li>● Python 10 lessons               <ul style="list-style-type: none"> <li>○ Unit 2.1 Algorithms</li> </ul> </li> <li>● Theory 15 lessons               <ul style="list-style-type: none"> <li>○ Unit 1.1 System Architecture</li> <li>○ Unit 1.2 Memory</li> <li>○ Unit 1.3 Storage</li> <li>○ Unit 2.6 Data representation</li> </ul> </li> </ul>	Revisited in cycle 14  Revisited in cycle 13 and 14 Revisited in cycle 14 Revisited in cycle 14 Revisited in cycle 13 and 14
Year 9: Key intent of this year	Cycle 9 <ul style="list-style-type: none"> <li>● Python - Microbit (BitBot buggy Physical computing)</li> <li>● Comic Life 2021</li> <li>● Photoshop</li> </ul>	Revisited in cycle 10,11, 12

	<p>Cycle 8</p> <ul style="list-style-type: none"> <li>• Computing Pioneers (add John McCarthy, Ada Lovelace, more on Babbage - searches and sorts )</li> <li>• WebPlus</li> </ul>	Revisited in cycle 9, 10,11, 12
	<p>Cycle 7</p> <ul style="list-style-type: none"> <li>• Python - Strings, Lists</li> <li>• Hour of code during Assessment week</li> <li>• End of term assessment: password checker- flowchart pseudocode and testing table- write the code from that</li> <li>• Mid term assessment : video quizizz</li> </ul>	Revisited in cycle 8, 9, 10,11, 12 (Revisited in cycle 11 ICT)
Year 8: Key intent of this year	<p>Cycle 6</p> <ul style="list-style-type: none"> <li>• Photoshop</li> <li>• Python - Microbit (NeoPixel Physical computing)</li> <li>• Mid term assessment: photoshop quizizz</li> <li>• End of term assessment : microbit mini project</li> </ul>	Revisited in cycle 7, 8, 9, 10,11, 12 (Revisited in cycle 10 ICT) Discuss with Art
	<p>Cycle 5</p> <ul style="list-style-type: none"> <li>• Python - Turtle - introducing defs</li> <li>• Webplus</li> <li>• Mid term assessment: quizizz for loops and while loop</li> <li>• End of term assessment: Turtle and Webplus task</li> </ul>	Revisited in cycle 4, 5, 6, 7, 8, 9, 10,11, 12 Revisited in cycle 8
	<p>Cycle 4</p> <ul style="list-style-type: none"> <li>• Python - Iteration: for loops and while loops, introduce random</li> <li>• eSafety</li> <li>• Mid term assessment: quizizz for loops and esafety</li> <li>• End of unit assessment: times table learn and test</li> <li>• Hour of code during Super teaching week</li> </ul>	Revisited in cycle 5, 6, 7, 8, 9, 10,11, 12
Year 7: Key intent of this year	<p>Cycle 3</p> <ul style="list-style-type: none"> <li>• Microbit (Physical computing)</li> <li>• Python - Sequence. Selection</li> </ul> <p>Mid term assessment: python and flowol End of unit assessment : python programming task</p>	Revisited in cycle 6 Revisited in cycle 4, 5, 6, 7, 8, 9, 10,11, 12
	<p>Cycle 2</p> <ul style="list-style-type: none"> <li>• Flowol</li> <li>• HTML</li> </ul> <p>Mid term assessment quizizz on Flowol End of unit assessment: create a webpage and or a flowol model</p>	Revisited in Cycle 4, 5, 6, 7, 8, 9, 10,11, 12 Revisited in Cycle 5

	<p>Cycle 1</p> <ul style="list-style-type: none"><li>● Network</li><li>● Email</li><li>● eSafety</li></ul> <p>Mid term assessment: quiz on email and network (beginning middle and end)</p> <p>End of unit assessment: presentation email</p> <p>Hour of code during super teaching week</p>	
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