

GFS COMPUTING		Year 7	Year 8	Year 9	Year 10	Year 11	
Overall theme for strands	Computer Science	COMPUTER SYSTEMS: How can we design the fastest computer system in the World?	COMPUTING HARDWARE: How can we design the fastest computer system in the World?	SPREADSHEETS: Can we accurately model the world using computer software?	PROGRAMMING: How can we think more like a computer?	CONTROLLED ASSESSMENT (A452 Practical Investigation)	
		INTRO TO PROGRAMMING: Can a computer be more intelligent than the human who programmed it?	EFFICIENT PROGRAMMING: What is more important, hardware or software?	CYBER SECURITY: Why is our data so valuable to hackers?	PROGRAMMING PRACTICE TASK	REVISION: Mock Exam preparation	
		E-SAFETY / GRAPHIC DESIGN: Are we ever safe online?	NETWORKS: Will the Internet slow down as it grows bigger and gets older?	GRAPHICS: How can we manipulate images in 2D and 3D?	CONTROLLED ASSESSMENT: (A453 Programming Project) 15 weeks max Jan-May HT	SOFTWARE: Why do software developers get paid so much?	
	IT	PROGRAMMING DATA STRUCTURES: How can we solve problems with programs?	BUILDING A WEBPAGE: Will the Internet slow down as it grows bigger and gets older?	EFFICIENT PROGRAMMING PART II: How can we solve problems with efficient programs?	REVISION: Examination preparation	DATA REPRESENTATION / DATABASES: How does Facebook manage its data?	
		Digital Literacy	THEORY REVISION	PRACTICAL REVISION: How can we test our theoretical knowledge using practical programming?	DATABASES: What is stored in Facebook's database?	REVISION: Examination preparation	
	Term 1	<p><b>Topic:</b> Computer Systems</p> <p><b>Fertile question:</b> How can we design the fastest computer system in the World?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Input</li> <li>- Output</li> <li>- RAM</li> <li>- CPU</li> <li>- Secondary Storage</li> <li>- Von Neumann Architecture</li> </ul> <p><b>Theory assessment:</b> Analyse a computer system</p>	<p><b>Topic:</b> Computing Hardware</p> <p><b>Fertile question:</b> How can we design the fastest computer system in the World?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Computer Systems (Von Neumann Architecture)</li> <li>- CPU Instruction Cycle</li> <li>- Clock speed, Cores, Cache</li> <li>- Logic Gates</li> <li>- Logic Circuits</li> </ul> <p><b>Theory assessment:</b> CPU and Logic questions from OCR GCSE Computing Unit 2.1.2</p>	<p><b>Topic:</b> Spreadsheets</p> <p><b>Fertile question:</b> Can we accurately model the world using computer software?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Basic Formula</li> <li>- Functions</li> <li>- 3D Referencing</li> <li>- Graphs and Charts</li> <li>- If statements</li> <li>- VLOOKUP</li> </ul> <p><b>Practical assessment:</b> Aircraft booking system</p>	<p><b>Topic:</b> Programming</p> <p><b>Fertile question:</b> How can we think more like a computer?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Algorithms</li> <li>- Programming challenges (OCR / GSA)</li> <li>- Programming languages</li> <li>- Control flow in imperative languages</li> <li>- Handling data in algorithms</li> <li>- Testing</li> </ul> <p><b>Theory assessment:</b> Programming questions from OCR GCSE Computing Unit 2.1.7</p>	<p><b>Topic:</b> Practical Investigation A452 Controlled Assessment (30%)</p> <p><b>Fertile question:</b> N/A</p> <p><b>Content:</b></p> <p>Pupils will prepare for and complete the controlled assessment element of the specification. This includes:</p> <ul style="list-style-type: none"> <li>- Practical investigation</li> <li>- Effective/Efficient techniques</li> <li>- Technical understanding</li> <li>- Drawing conclusions and evaluating evidence</li> </ul> <p><b>Practical assessment:</b> Internally assessed externally moderated by OCR</p>	
		<p><b>Topic:</b> Intro to Programming</p> <p><b>Fertile question:</b> Can a computer be more intelligent than the human who programmed it?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Lyrics and Chatbot</li> <li>- Sequence</li> <li>- Selection</li> <li>- Computational Thinking</li> <li>- Quiz</li> <li>- Christmas Quiz Lists</li> </ul> <p><b>Practical assessment:</b> Creating a chatbot about GFS</p>	<p><b>Topic:</b> Efficient Programming</p> <p><b>Fertile question:</b> What is more important, hardware or software?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Parking meter software</li> <li>- Sequence/Selection/Iteration</li> <li>- Modules (time, random, turtle)</li> <li>- Functions</li> <li>- Capital Cities Quiz</li> <li>- String Manipulation</li> </ul> <p><b>Practical assessment:</b> Creating a program which simulates an ATM (Cash machine)</p>	<p><b>Topic:</b> Cyber Security</p> <p><b>Fertile question:</b> Why is our data so valuable to hackers?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Malware</li> <li>- Bloatware</li> <li>- Viruses and Trojans</li> <li>- Spam, Phishing, RATS</li> <li>- Skimming</li> </ul> <p><b>Theory assessment:</b> Cyber security questions from Edexcel GCSE ICT</p>	<p><b>Topic:</b> Programming Practice Task</p> <p><b>Fertile question:</b> N/A</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Recipe program</li> <li>- Algorithms -&gt;Flowcharts and Pseudocode</li> <li>- Exception handling</li> <li>- String manipulation</li> <li>- File operations –opening and saving</li> </ul> <p><b>Practical assessment:</b> Currency converter / Exam grades</p>	<p><b>Topic:</b> Practical Investigation/Revision</p> <p><b>20-30 hrs</b></p> <p><b>Deadline: Fri 2<sup>nd</sup> December 2016</b></p> <p><b>Content:</b></p> <p>Pupils will revise topics in preparation for their examinations. This includes:</p> <ul style="list-style-type: none"> <li>- re-teach of specific areas</li> <li>- practice of examination technique</li> <li>- past-paper analysis</li> </ul> <p><b>Theory assessment:</b> Mock exam based on OCR GCSE Computing</p>	
		<p><b>Topic:</b> E-Safety/Graphic Design</p> <p><b>Fertile question:</b> Are we ever safe online?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Usernames/Passwords/Email/Google Classroom</li> <li>- E-Safety videos</li> <li>- Sexting</li> <li>- 8 rules of graphic design</li> <li>- Breaking conventions</li> <li>- Typographic posters</li> </ul> <p><b>Practical assessment:</b> Evaluation of E-safety posters</p>	<p><b>Topic:</b> Networks</p> <p><b>Fertile question:</b> Will the Internet slow down as it grows bigger and gets older?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Advantages</li> <li>- LAN Hardware</li> <li>- Security</li> <li>- Topologies</li> <li>- LAN vs WAN</li> <li>- The Internet</li> </ul> <p><b>Theory assessment:</b> Network and Internet questions from OCR GCSE Computing</p>	<p><b>Topic:</b> Graphics / Multimedia</p> <p><b>Fertile question:</b> How do media companies use Computers to construct their products?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Logo Branding</li> <li>- Photo editing</li> <li>- Magazine Graphic Design</li> </ul> <p><b>Practical assessment:</b> Create a school magazine cover</p>	<p><b>Topic:</b> Programming Project A453 Controlled Assessment (30%)</p> <p><b>Fertile question:</b> N/A</p> <p><b>Content:</b></p> <p>Pupils will prepare for and complete the controlled assessment element of the specification. This includes:</p> <ul style="list-style-type: none"> <li>- Programming techniques</li> <li>- Design</li> <li>- Development</li> <li>- Testing and Evaluation</li> </ul> <p><b>Practical assessment:</b> Internally assessed externally moderated by OCR</p>	<p><b>Topic:</b> Software</p> <p><b>Fertile question:</b> Why do software developers get paid so much?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Operating Systems</li> <li>- Utility Programs</li> <li>- Bespoke vs OTS</li> </ul> <p><b>Theory assessment:</b> Software questions from OCR GCSE Computing</p>	
	Term 3						

GFS COMPUTING	Year 7	Year 8	Year 9	Year 10	Year 11
Term 4	<p><b>Topic:</b> Programming Data Structures</p> <p><b>Fertile question:</b> How can we solve problems with programs?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Fruit machine</li> <li>- Sequence</li> <li>- Selection</li> <li>- Iteration</li> <li>- Modules</li> <li>- Functions</li> </ul> <p><b>Practical assessment:</b> Creating a quiz</p>	<p><b>Topic:</b> Building a webpage</p> <p><b>Fertile question:</b> Will the Internet slow down as it grows bigger and gets older?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- My favourite book/film webpage</li> <li>- HTML Tags</li> <li>- Images</li> <li>- Embedding content</li> <li>- CSS</li> </ul> <p><b>Practical assessment:</b> Creating a website about a prominent computer scientist</p>	<p><b>Topic:</b> Efficient Programming Part II</p> <p><b>Fertile question:</b> What is more important, hardware or software?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Recipe program</li> <li>- Algorithms -&gt;Flowcharts and Pseudocode</li> <li>- Exception handling</li> <li>- String manipulation</li> <li>- File operations –opening and saving</li> </ul> <p><b>Practical assessment:</b> Currency converter / Exam grades</p>	<p style="text-align: center;"><b>25-35 hrs Controlled Assessment (30%)</b></p> <p style="text-align: center;"><b>Deadline: Fri 6<sup>th</sup> May 2016</b></p>	<p><b>Topic:</b> Data representation / Databases</p> <p><b>Fertile question:</b> How does Facebook manage its data?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Character</li> <li>- Images</li> <li>- Sound</li> <li>- The Database Concept</li> <li>- DBMS</li> <li>- Relational Databases</li> </ul> <p><b>Theory assessment:</b> Data representation / Database questions from OCR GCSE Computing</p>
	Term 5	<p><b>Topic:</b> Memory/Data representation</p> <p><b>Fertile question:</b> How can computers store and process everything in 1's and 0's</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Memory</li> <li>- Storage</li> <li>- Binary / Hex</li> </ul> <p><b>Theory assessment:</b> Mock exam on Computer Systems</p>	<p><b>Topic:</b> Practical Revision</p> <p><b>Fertile question:</b> How can we test our theoretical knowledge using practical programming?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Computer Systems</li> <li>- Data representation</li> <li>- Logic gates</li> <li>- Networks</li> <li>- Programming</li> </ul> <p><b>Practical assessment:</b> Creating a revision quiz</p>		<p><b>Topic:</b> Databases</p> <p><b>Fertile question:</b> What is stored in Facebook's database?</p> <p><b>Content:</b></p> <ul style="list-style-type: none"> <li>- Music Database</li> <li>- Table</li> <li>- Forms</li> <li>- Queries</li> <li>- Reports</li> </ul> <p><b>Practical assessment:</b> Creating a film database</p>
Term 6	<p><b>Topic:</b> Theory Revision</p> <p><b>Fertile question:</b> How does theoretical knowledge help us become better Computer Scientists?</p> <p><b>Content:</b></p> <p>Pupils will revise topics in preparation for their examinations. This includes:</p> <ul style="list-style-type: none"> <li>- re-teach of specific areas</li> <li>- practice of examination technique</li> <li>- past-paper analysis</li> </ul> <p><b>Theory assessment:</b> Computer Systems, Data Representation, Programming</p>	<p><b>Topic:</b> Theory Revision</p> <p><b>Fertile question:</b> How does theoretical knowledge help us become better Computer Scientists?</p> <p><b>Content:</b></p> <p>Pupils will revise topics in preparation for their examinations. This includes:</p> <ul style="list-style-type: none"> <li>- re-teach of specific areas</li> <li>- practice of examination technique</li> <li>- past-paper analysis</li> </ul> <p>Topics:</p> <ul style="list-style-type: none"> <li>- Flowchart algorithms</li> <li>- Input/Output/Storage/SEND</li> <li>- Adding Binary/Ascii</li> <li>- CPU / Networks / Logic Gates</li> </ul> <p><b>Theory assessment:</b> Computer Systems, Data representation, Logic gates, Networks Programming</p>	<p><b>Topic:</b> Theory Revision</p> <p><b>Fertile question:</b> How does theoretical knowledge help us become better Computer Scientists?</p> <p><b>Content:</b></p> <p>Pupils will revise topics in preparation for their examinations. This includes:</p> <ul style="list-style-type: none"> <li>- re-teach of specific areas</li> <li>- practice of examination technique</li> <li>- past-paper analysis</li> </ul> <p><b>Theory assessment:</b> Computer Systems, Data representation, Logic gates, Networks Programming, Cyber Security, Spreadsheets, Databases</p>	<p><b>Topic:</b> Theory Revision</p> <p><b>Fertile question:</b> How does theoretical knowledge help us become better Computer Scientists?</p> <p><b>Content:</b></p> <p>Pupils will revise topics in preparation for their examinations. This includes:</p> <ul style="list-style-type: none"> <li>- re-teach of specific areas</li> <li>- practice of examination technique</li> <li>- past-paper analysis</li> </ul> <p><b>Theory assessment:</b> Computer Systems, Data representation, Logic gates, Networks Programming,</p>	<p style="text-align: center;"><b>External Examinations Fri 2<sup>nd</sup> June 2017</b></p>