Year 11 Computer Science

Subject Leader: Mrs Muyunda Oldham Exam Board: OCR

Computer Science aims to engage, endeavour and excel all our students to develop into responsible digital users, that are creative, exploratory, independent and inquiring whilst using computational problem solving skills to solve, test and evaluate solutions for the 21st Century Digital Age.

Topics to be covered in Year 11

	Term 1	Term 2	Term 3
Topics to be covered	**1.1 System architecture** Architecture of the CPU Factors affecting CPU Performance (Clock speed, Cache, Cores) Registers (MAR, MDR, ALU, ACC, CU) Von Neumann diagram **1.2 Memory and Storage** Primary Storage (RAM, ROM) **Secondary Storage** Virtual memory Flash Memory Optical, Solid state, Magnetic **1.4 Wired and Wireless Networks** Client/Server Networks Peer to Peer Networks Virtual Networks Network Topologies Wired Networks Wireless Networks LAN/WAN/PAN Network Layers	**1.5 Network Protocols & Layers** POP, IMAP, SMTP, HTTP, HTTPS, IP **1.6 System Security** Threats to computer systems and networks Identifying and preventing vulnerabilities Encryption **2.2 Programming Fundamentals** Programming Fundamentals Data types Additional programming techniques **2.1 Algorithms** Flowcharts Pseudocode **2.2 Designing, Creating and Refining algorithms** **2.3 Producing robust programs**	**2.6 Data Representation** Units, Binary, HEX conversion Compression **1.7 Systems Software** Operating Systems Utility Software **2.4 Boolean Logic gates** AND / OR / NOT / ON / OFF / MOD / DIV **1.8 Ethical, legal and cultural environmental impacts of digital technology** Ethical, legal, cultural environmental impact **2.1 Computational Thinking** Decomposition Abstraction Pattern recognition **2.5 Programming languages and Integrated Development**
Skills to be developed	Von Neumann architecture components diagram - registers Topology diagrams - Star, Mesh, Ring Key term mastery using CGP knowledge organisers and quiz reinforcement strategy End of unit quizzing Exam techniques practice	Apply Python Variables, Strings, Integers, Functions, and Loops Key term mastery using CGP knowledge organisers and quiz reinforcement strategy Memorising key word definitions End of unit quizzing Exam techniques practice	Number conversion Draw Logic gate and truth tables **Revision Techniques** Mindmaps Revision cards Quizzes Frayer models Memorising key word definitions

Year 11 Useful Resources

Website Links

http://www.teach-ict.com/gcse_new.html
https://www.bbc.co.uk/education
https://www.gcsepod.com/
http://www.cambridgegcsecomputing.org/
https://ocr.org.uk/subjects/computing/

http://www.w3schools.com/
https://www.bbc.co.uk/education
https://www.gcsepod.com/
http://www.cambridgegcsecomputing.org/
https://senecalearning.com/en-GB/

Marking, Assessment and Feedback

Over the course of an academic year students will complete a number of formal assessments, these will be used to assess where students are in their learning journey.

Information from these assessments is used when making decisions regarding reporting progress home, predicting outcomes and offering further support. Current guidelines mean that we cannot provide as much detailed written feedback as is typical. As a result of this, we will during lessons, evaluate students' learning through a range of activities including quizzes, class discussions, detailed questioning and other strategies. Through this, students will know where they are in their scheme of learning and what they need to do next to make further progress.

Teachers will continue to provide planned written feedback on selected pieces of work.

Homework

Homework will be set using the online platform Go 4 Schools https://www.go4schools.com/

Homework tasks are designed to prepare students for future learning or consolidate work completed in the classroom. It will be clear what should be handed in, when it should be handed in and how it should be handed in.

Contact Information:

If you would like to get in contact, please contact your child's teacher on the email address below:

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