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| **Year 10 Term 2**  **GCSE Computer Science** | Our mission is to stimulate and challenge our students to excel and provide a desire for lifelong learning and pursue careers in the world of Business, Computing, and ICT. | | | | | |
| **Enquiry Questions: Is there a limit to how much a computer can count? If so, what is the largest figure a bank system can represent?** | | | | | | |
| **Component 1: Computer Systems**  Students will understand the components that make up digital systems, and how they communicate with one another and with other systems. They will also recognise the impacts of digital technology to the individual and to wider society. Students also learn computing fundamentals of data and apply mathematical skills relevant to data representation. | | | | | | |
| **Knowledge**  Students will know about… | **Application/Skills**  Students will be able to… | **Vocabulary** | **Home Learning** | **Assessment** | **Extra Resources**  **Extended Reading** | **Cultural Capital** |
| * **Data Storage**   Learning how data is represented in its base form and how it builds into other types of data.  How data is manipulated in binary and how different notations help humans interpret binary easier  The relationship between the number of bits per character in a character set, and the number of characters which can be  Represented  How an image is represented as a series of pixels, represented in binary  How sound can be sampled and stored in digital form and the need for compression   * **Networks & Topologies**   Types of network and factors that affect performance | * convert positive denary whole numbers to binary numbers and vice versa * add two binary integers together * explain overflow errors which may occur * convert positive denary whole numbers into 2-digit hexadecimal numbers and vice versa * to convert binary integers to their hexadecimal equivalents and vice versa * perform Binary shifts * Calculate image and sound file sizes * Compare and contrast Lossy vs Lossless Compression * Compare Local and Wide Area Networks * Explain the factors that affect network performance in common areas | * Binary, Denary, Hex * Logical/Bit-wise shift * Bit-depth * Resolution * Amplitude * ADC and DAC * Lossy Compression * Lossless Compression * Redundant Data * LAN, WAN, PAN * Bandwidth * Latency * Data Packets | High quality Homework set on Google Classrooms  Teach-ICT.com  PG Online – GCSE Computer Science | End of unit assessments:   * Data Storage 1 * Data Storage 2 * Networks   Pre-Public Examination at the end of year 10 May 2023. | [Teach-ICT.com](https://teach-ict.com/2016/GCSE_Computing/OCR_J277/OCR_J277_home.html)  [Isaac Computer Science](https://isaaccomputerscience.org/topics/gcse?examBoard=all&stage=all#all)  Seneca – [Computer Science](https://app.senecalearning.com/classroom/course/a1ce4570-6e27-11e8-af4b-35cf52f905c2/section/65ac2e24-3b57-4598-b4dc-01e04eddee1b/session)  BBC Bitesize  CGP – GCSE Computer Science  Hodder Education – Revision Book A Level Computer Science | The National Science Museum (free events)  <https://www.sciencemuseum.org.uk/>  The Royal Institute of Science (free events)  <https://www.rigb.org/families/family-fun-days>  **National Museum of Computing, Bletchley Park (Near Milton Keynes)**  <http://www.tnmoc.org/>    <https://www.bletchleypark.org.uk/>  <http://www.codesandciphers.org.uk/bletchleypark/>  (virtual tour)    Centre for Computing History, Cambridge  <http://www.computinghistory.org.uk/> |