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| **Year 10 Term 6**  **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: How does multitasking work when you program sequentially?** | | | | | | |
| |  | | --- | | **Component 2: Computational Thinking, Algorithms & Programming**  Students understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms, and data representation. They will also analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs thinking creatively, innovatively, analytically, logically and critically. Further more students will apply mathematical skills relevant to Computer Science. | | | | | | | |
| **Knowledge**  Students will know about… | **Application/Skills**  Students will be able to… | **Vocabulary** | **Home Learning** | **Assessment** | **Extra Resources**  **Extended Reading** | **Cultural Capital** |
| * **Computational Thinking**   Thinking abstractly to create solutions.  Using decomposition to break down large problems into smaller problems  Sequence instructions using flowcharts and pseudocode  How computers search and sort data   * **Programming Fundamentals**   Sequencing instructions using flowcharts, pseudocode and python  Recall algebra in the use of variables and string manipulation  Making decision in a program using selection  Repeating sequence of instructions using iterative methods. | * Creating solutions using abstraction * Breaking down problems using decomposition * Drawing flowcharts * Writing a sequence of instructions using pseudocode * Implementing selection, iteration and sequence using python as the programming language * Practice searching and sorting algorithms | * Abstraction * Decomposition * Algorithms * Flowchart * Sequence * Selection * Iteration * Data Types * Boolean * Integer * String * Character * Float/Real * Pseudocode * Arrays * Linear Search * Binary Search * Bubble Sort * Insertion Sort * Merge Sort | High quality Homework set on Google Classrooms  Teach-ICT.com  PG Online – GCSE Computer Science  PG Online – ClearRevise A Level Computer Science | End of unit assessments   * Computational Thinking * Searching & Sorting Algorithms * Programming | [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/> |