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| **Term** | **Module Title** | **Learning Content / Skills** | **Assessment Schedule\*** | **Home Learning Support** |
| Autumn 1 | NEA  Unit 11 Database | Building off of the end of year 12, year 13 will start with pupils working on their NEA.  The NEA is an independent project that covers different parts of the systems development lifecycle;   * Analysis * Design * Technical Solution * Testing * Evaluation   During this time students will work on creating their analysis and design sections under the guidance of the classroom teacher.  They then may start to build their program, most NEA’s are built at home with some work such as subroutine based modules or class creation happening at school due to hardware constraints and network issues not allowing pupils to fully develop their intended project.  Unit 11 is taught alongside the NEA as it is vital to many NEA projects.   * ERM * Relational Databases * SQL * Systematic approach to problem solving | Each chapter of the NEA (excluding technical solution) is marked using the approved mark grid following the school guidelines.  This is redone or improved and handed back and marked once again.  If no drastic changes still need to happen then a third marking will occur with the full project hand in later in the year.  If drastic changes still must be made the pupil will be spoken to as they have either misunderstood their feedback or have chosen not to act upon it.  Formative – Assessment of classroom work. Worksheets in these units can take up to 2 lessons to complete. These worksheets are marked in class after completion to instantly allow students to reflect on the tasks.  This helps to clear misconceptions in how certain mathematical functions should be executed before the student continues any bad habits or mistakes at home. | Most NEA’s are built at home with some work such as subroutine based modules or class creation happening at school due to hardware constraints and network issues not allowing pupils to fully develop their intended project.    Each topic within Databases allows the student to practice at home by including extra work sheets along with answers |
| Autumn 2 | Preliminary material  Unit 07 – Data structures  Unit 12 – OOP pt 01 | Students are given the preliminary material to be used in their post-Christmas exam (decided to be after the Christmas holiday and discussed with head of sixth form ’17) and also their end of the year exams.  The preliminary material will take up lesson time as pupils and teacher work together to understand the structure of the material and pre-empt the questions that will be asked.  The material consists of a procedural C# program and a booklet of information.  Unit 07 contains information on advanced and abstract data structures, this will have been covered at the end of year 12 as some of these structures are vital to scoring well in the NEA however these should be taught pertaining to the preliminary material and further development (algorithmic design).   * Queues * Lists * Stacks * Hash Tables * Graphs * Trees * Vectors   The first half of unit 12 will help pupils develop their understanding of OOP. This will be needed in both the paper 01 and paper 02 exams.   * Basic Concepts * Design Principles | Formative – Assessment of classroom work. Worksheets in these units can take up to 2 lessons to complete. These worksheets are marked in class after completion to instantly allow students to reflect on the tasks.  This helps to clear misconceptions in how certain mathematical functions should be executed before the student continues any bad habits or mistakes at home.  An overall summative assessment will take place at the end of unit 07 & at the end of unit 12. These will be graded U – A\*  Reflection time will be given to students to work on their targets which will allow for an improvements in their grades on work which has already been marked.  Students that fail to meet their targets through the end of unit assessment will be able to study further using their feedback and retake a similar assessment to be organised around their available time. | Unit 07 contains, home programming tasks. This part however relies more on setting a problem which can then be solved instead of the need to test a specific method or function.  Students will begin, using an online platform, to work together to prepare for their paper 1 PPE. |
| Spring 1 | PPE  Unit 08 Algorithms  NEA | Students will sit their PPE upon return from the Christmas holiday.  Unit 08 covers topics needed for sitting both the paper 01 exam and the paper 02 theory exam.   * Recursive Algorithms * Big-O Notation * Searching and Sorting * Graph Traversal * Optimisation * The limits of computation   Toward the end of this half term students should be coming to the end of their NEA development by creating their testing and evaluation sections. | PPE – Marked according to school guidelines and feedback given in line with all Y13 subjects.  Formative – Assessment of classroom work. Worksheets in these units can take up to 2 lessons to complete. These worksheets are marked in class after completion to instantly allow students to reflect on the tasks.  This helps to clear misconceptions in how certain mathematical functions should be executed before the student continues any bad habits or mistakes at home.  An overall summative assessment will take place at the end of unit 08. These will be graded U – A\*  Reflection time will be given to students to work on their targets which will allow for an improvements in their grades on work which has already been marked.  Students that fail to meet their targets through the end of unit assessment will be able to study further using their feedback and retake a similar assessment to be organised around their available time. | Each topic within Algorithms allows the student to practice at home by including extra work sheets along with answers |
| Spring 2 | Unit 09 Regular Languages  Unit 12 OOP and Functional programming pt 2 | Unit 09 contains topics that may show up in paper 01 to be practiced or paper 02 in a theoretical manner.   * Mealey Machines * Sets * Regular Expressions * Turing Machines * BNF * RPN   The second half of unit 12 covers the following topics and should contain some programming in Haskell.   * Functional Programming * Function Application * Lists * Big Data | Formative – Assessment of classroom work. Worksheets in these units can take up to 2 lessons to complete. These worksheets are marked in class after completion to instantly allow students to reflect on the tasks.  This helps to clear misconceptions in how certain mathematical functions should be executed before the student continues any bad habits or mistakes at home.  An overall summative assessment will take place at the end of unit 09 and Unit 12. These will be graded U – A\*  Reflection time will be given to students to work on their targets which will allow for an improvements in their grades on work which has already been marked.  Students that fail to meet their targets through the end of unit assessment will be able to study further using their feedback and retake a similar assessment to be organised around their available time. | Each topic within both units allow the student to practice at home by including extra work sheets along with answers |
| Summer 1 & 2 | Unit 10 The internet  Preliminary prep  Revision | Unit 10 focuses solely on paper 02   * Structure * PS and Routers * Security * TCP/IP * IP Addresses * CSM   Students will need to spend more time with the class teacher breaking down the preliminary material. | An overall summative assessment will take place at the end of unit 10. These will be graded U – A\*  NEA Marking and feedback.  Topic Tests.  End of year assessments | Students will complete ZIGZAG topic tests both in lesson and at home.  They will be provided with workbooks to facilitate this along with answers to problems to allow for self marking and instant feedback. |
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