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| **Year 11 Computer Science** | | | | | | |
| **Curriculum intent** | The curriculum has been designed to challenge, inspire and engage all students, offering them an insight into the inner workings of computers, computer networks and storage devices. The aim is to develop students’ problem-solving skills through the development of coding techniques and applying these to different scenarios and challenges, thus developing the efficiency of the code. Students will look at the different types of networks and how they are designed, and the protocols used to make them functional. They will look at the risks of networked computers from cyber-crime and how to mitigate those risks. | | | | | |
| **Term** | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Knowledge** | Cyber security, how and why networks have protection, the methods used t protect them and the methods used to find and exploit vulnerabilities  The different types of networks, and their performance related advantages and disadvantages How they are best used in different scenarios.  Network protocols, focusing on the ones that make up the TCP/IP suite and the four layer stack.  Network security, risks and how they are mitigated | Relational database, how to create and then search them using search terms  Legal, Ethical and environmental issues around computers and computer networks.  Trace tables, the reading and identifying outputs at different stages of the execution of code, being able to read and understand the use of pseudo code when creating and planning a programme | Data representation, focusing on number bases, binary arithmetic and how characters, images and sound or stored.  The different forms of compression and how they are applied to different types of files.  Exam question technique focusing on writing code to solve given problems.  Review and practice database  Searches | Computer systems focusing on Boolean logic and system architecture  Any remaining time will be used covering topics that need extra focus. | Any remaining time will be used covering topics that need extra focus. |  |
| **Skills** | Recall of knowledge.  Application of knowledge.  Analyse the needs of different scenarios and selecting and justifying choices | Recall of knowledge.  Application of knowledge.  Analyse the needs of different scenarios and selecting and justifying choices | Recall of knowledge.  Application of knowledge.  Analyse the needs of different scenarios and selecting and justifying choices | Recall of knowledge.  Application of knowledge.  Analyse the needs of different scenarios and selecting and justifying choices |  |  |
| **Assessments** | Exam board questions at the end of each topic with feedback and RAMP opportunities  Start of October | Exam board questions at the end of each topic with feedback and RAMP opportunities  Mid November  December Mocks | Exam board questions at the end of each topic with feedback and RAMP opportunities  End January  End February  End March | Exam board questions at the end of each topic with feedback and RAMP opportunities |  |  |
| **Curiosity** | cyber security  [youtube.com/watch?v=sdpxddDzXfE](https://www.youtube.com/watch?v=sdpxddDzXfE)  security labs  <http://www.pbs.org/wgbh/nova/labs/lab/cyber/> | The brain chip  <https://www.youtube.com/watch?v=KsX-7hS94Yo> | The brain chip, next steps  <https://www.cnet.com/videos/neuralinks-latest-monkey-brain-chip-demo-explained/> | encryption <https://www.youtube.com/watch?v=sMOZf4GN3oc> |  |  |