## ASHTON COMMUNITY SCIENCE COLLEGE: COMPUTING CURRICULUM



|   | Year 10 Computer Science   |  |   |   |  |   |  |
|---|--|--|---|---|--|---|--|
|   | Half term 1  | Half term 2  | Half term 3   | Half term 4   | Half term 5  | Half term 6   |  |
| Knowledge                                 | Topic:  Basic Programming Concepts System Architecture & Storage   | Topic: System Architecture & Storage System Software Programming Skills  | Topic:  • Advanced Programming Concepts   | Topic: Data Representation Programming Skills   | Topic: Robust & Secure Programming Programming Skills  | Topic:  Ethical, Legal, And Environmental Issues Programming Skills   |  |
| Skills/<br>application<br>of<br>knowledge | <ul> <li>Programming fundamentals</li> <li>Data types</li> <li>The purpose of the CPU</li> <li>Common CPU components</li> </ul>        | <ul> <li>CPU performance</li> <li>Embedded systems</li> <li>Primary storage</li> <li>Secondary storage</li> <li>Operating systems</li> <li>Utility software</li> </ul>                       | <ul> <li>Programming fundamentals</li> <li>Advanced programming techniques</li> </ul>   | <ul><li>Data units</li><li>Data storage</li><li>Compression</li></ul>   | <ul><li>Defensive design</li><li>Testing</li></ul>   | Ethical, legal, and environmental issues  |  |
| Links to prior<br>learning                | Year 7- under the hood of a computer, Micro:bits, small basic Year 8-, python introduction Year 9-, python/advanced python programming | Year 7- Micro:bits, small basic, under the hood of a computer Year 8- python introduction Year 9-, python/advanced python programming, ethical, legal, and environmental issues in computing | <ul> <li>Year 7- Micro:bits, small basic</li> <li>Year 8- computational thinking, python introduction</li> <li>Year 9-, python/advanced python programming</li> </ul> | Year 7- under the hood of a computer, Micro:bits, small basic Year 8- logic gates & truth tables, python introduction Year 9- data representation, memory, python/advanced python programming | Year 7- Micro:bits, small basic     Year 8-Python introduction     Year 9-Python/advanced Python programming | Year 7- E-safety,     Micro:bits, small basic     Year 8-,system security,     python introduction     Year 9- ethical, legal,     cultural and     environmental issues in     computing,     python/advanced     python programming |  |
| Assessment                                | <ul> <li>End of topic test</li> <li>Exam questions</li> </ul>  | <ul> <li>End of topic test</li> <li>Exam questions</li> </ul>  | <ul> <li>End of topic test</li> <li>Exam questions</li> </ul>   | <ul> <li>End of topic test</li> <li>Exam questions</li> </ul>   | <ul> <li>End of topic test</li> <li>Exam questions</li> </ul>  | <ul><li>End of topic test</li><li>Exam questions</li></ul>  |  |

## ASHTON COMMUNITY SCIENCE COLLEGE: COMPUTING CURRICULUM



| Year 11 Computer Science                  |   |   |   |  |                                    |  |  |  |
|---|---|---|---|--|------------------------------------|--|--|--|
|   | Half term 1   | Half term 2   | Half term 3   | Half term 4  | Half term 5                        |  |  |  |
| Knowledge                                 | <ul><li>Topic:</li><li>Algorithms &amp; Computational Logic</li><li>Programming Skills</li></ul>  | Topic:  Computer Networks, Protocols & Layers Programming Skills  | Topic:  Network & Cyber Security  | Topic:  Classification Of Programming Languages Programming Skills   | Topic: Revision Programming Skills |  |  |  |
| Skills/<br>application<br>of<br>knowledge | <ul> <li>Computational thinking</li> <li>Designing, creating, and refining algorithms</li> <li>Searching and sorting algorithms</li> </ul>                        | <ul> <li>Networks and topologies</li> <li>Wired and wireless networks, protocols, and layers</li> <li>Network topologies</li> <li>Network hardware</li> </ul>   | <ul> <li>Identifying and preventing vulnerabilities</li> <li>Threats to computer systems and networks</li> </ul>  | <ul> <li>High/low languages</li> <li>Assembly code</li> <li>The integrated development environment</li> </ul>              | Exam technique                     |  |  |  |
| Links to prior<br>learning                | Year 7- under the hood of a computer, Micro:bits, small basic Year 8- searching and sorting data, python introduction Year 9-, python/advanced python programming | <ul> <li>Year 7- how the web works,<br/>Micro:bits, small basic</li> <li>Year 8- networks, python<br/>introduction</li> <li>Year 9- python<br/>programming/advanced<br/>python programming</li> </ul> | <ul> <li>Year 7- E-safety, Micro:bits, small basic</li> <li>Year 8- system security, python introduction</li> <li>Year 9- Ethical, legal, cultural and environmental issues in computing, python programming/advanced python programming</li> </ul> | Year 7- Micro:bits, small basic     Year 8- python introduction     Year 9- python programming/advanced python programming |                                    |  |  |  |
| Assessment                                | <ul><li>End of topic test</li><li>Exam questions</li></ul>  | <ul><li>End of topic test</li><li>Exam questions</li></ul>  | <ul><li>End of topic test</li><li>Exam questions</li></ul>  | End of topic test     Exam questions   |                                    |  |  |  |