

| Key Concepts | < | < | < | < | < | < |
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| Knowledge & Understanding | <p>Students will understand the structure of the processor, including the interaction of the registers in the fetch-decode-execute cycle. They will investigate factors affecting the performance of the CPU and explain the features of Von Neumann and Harvard architectures.</p> | <p>Students will compare the suitability of a range of data types and use binary and hexadecimal number systems to convert denary values and vice versa. They will perform arithmetic on binary numbers and be able to represent text using character sets such as ASCII and UNICODE.</p> <p>Students will continue to develop their programming skills.</p> | <p>Students will understand the functions of an operating system including memory management, interrupts and scheduling algorithms. They will compare different types of operating systems and understand the use of a range of applications, justifying</p> | <p>Students will understand the how data is captured, selected, managed and exchanged. They will investigate the importance of protocols and standards in networks and be able to compare client-server and peer-to-peer networks.</p> <p>Students will use HTML, CSS and JavaScript to create web pages.</p> | <p>Students will use high level programming languages and assembly language to code solutions to problems. They will understand and be able to use a wide range of procedural programming techniques.</p> | <p>Pupils will develop their programming skills and begin their project which forms 20% of the qualification.</p> |

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| | <p>Students will compare different types of processors including their suitability for different scenarios.</p> <p>Students will understand how different input, output and storage devices can be applied to the solution of different problems.</p> <p>Students will use the T.I.M.E approach to programming in Python and be able to carry out programming challenges.</p> | | <p>suitable applications for a specific purpose.</p> <p>Students will understand legislation surrounding the use of computers and be able to suggest suitable way to prevent illegal activity.</p> <p>Students will continue to develop their programming skills using Defold.</p> | <p>Students will discuss ethical issues that can or may in the future arise from the use of computers.</p> | | |
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Assessment

End of topic assessments.

End of topic assessments.

End of topic assessments.

End of topic assessments.

End of topic assessments.

Mock exams.

Mock exams.





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| Knowledge & Understanding | Students will understand the structure of the processor, including how pipelining improves efficiency of a processor. Students will compare different types of processors including their suitability for | Students will understand threats to networks that exist and how to prevent them. They will have a good understanding of network hardware used in local/wide area networks. | Students will use the following rules to derive or simplify statements in Boolean algebra: De Morgan's Laws, distribution, association, commutation, double negation. | | | |
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| | <p>addressing memory.</p> <p>Students will learn about and apply skills in object-oriented languages with an understanding of classes, objects, methods, attributes, inheritance, encapsulation and polymorphism</p> <p>Students will learn about different compressions methods including run length encoding and dictionary coding for lossless compression. They will understand the difference between symmetric and asymmetric encryption, and the different uses of hashing.</p> | <p>add data to and remove data</p> <p>Students will design their program for the NEA.</p> | | | <p>coded solution for the NEA.</p> | |
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Students will learn how to normalise a database into 3NF and use SQL to amend a database.

Students will analyse the requirements of the NEA.

everything we do on a computing device is broken down into single processes that are carried out in billionths of a second. They can then move on to investigate the software that works hand in hand with the hardware.

able to understand that any input is a binary value including character sets which have their own binary and hexadecimal values associated with them.

At this point students should be able to write programs to solve small problems and will need to build confidence in their programming skills through a range of increasingly more challenging tasks.

tutorials to support their programming skills.

Students have investigated the internal components of a computing device and how input and output devices communicate processes with the

