

KS4 Computer Science (LTP) – YEAR 10

Term	Module Title	Learning Content / Skills	Assessment Schedule*	Home Learning Support
Autumn 1	Unit 1 System Architecture memory and storage	<p>The unit begins by looking at the various components of the CPU used in the Von Neumann architecture. Subsequent lessons build on the fundamentals covered at KS3 in our unit of Understanding Computers unit, concentrating on RAM, ROM, cache, and the need for virtual memory. The unit concludes by examining the need for secondary storage devices and their practical advantages in given applications.</p> <p>The following topics are covered:</p> <ul style="list-style-type: none"> • Topic 1 The CPU • Topic 2 Function and characteristics of the CPU • Topic 3 Memory • Topic 4 Storage 	<p>Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the whole unit.</p> <p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets which will allow for improvements in their grades on work which has already been marked.</p>	<p>All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.</p> <p>Students also have access to the Cambridge GCSE MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of Firefly.</p>
Autumn 2	Unit 2 Data Representation	<p>Unit 2 The conversion of integers from denary to binary is covered in the first lessons, together with simple binary addition, overflow, and shifts. Check digits are also covered by practical example. In subsequent lessons, the use of hexadecimal numbers and the binary representation of characters is described as well as including the representation of images and sound, and compression techniques.</p>	<p>Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the whole unit.</p>	<p>All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.</p> <p>Students also have access to the Cambridge GCSE</p>

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		<p>The following topics are covered:</p> <ul style="list-style-type: none"> • Topic 1 Storage units and binary numbers • Topic 2 Binary arithmetic and hexadecimal • Topic 3 Ascii and Unicode • Topic 4 Images • Topic 5 Sound • Topic 6 Compression <p>In the final lesson students sit an assessment test comprising questions similar to those found on the OCR exam paper.</p>	<p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets which will allow for improvements in their grades on work which has already been marked.</p>	<p>MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of Firefly.</p>
Spring 1	Unit 3 Network Connections & Protocols	<p>The unit begins by explaining the Internet and IP addressing, with practical exercises to help students understand the role of packet switching and DNS services. The lessons move on to look at LAN network topologies and Ethernet, with further material on virtual networking. Wireless networking, frequencies and encryption are covered in a subsequent lesson. Client-server networks and hosting are addressed with a final lesson describing common protocols and the concept of layers. At the end of the unit, students sit an assessment test comprising questions similar to those found on the OCR exam paper.</p> <p>The following topics are covered:</p> <ul style="list-style-type: none"> • Topic 1 The Internet & WANs • Topic 2 Local Area Networks • Topic 3 Wireless networking 	<p>Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the whole unit.</p> <p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets which will allow for improvements</p>	<p>All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.</p> <p>Students also have access to the Cambridge GCSE MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of Firefly.</p>

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		<ul style="list-style-type: none"> • Topic 4 Client-server and peer-to-peer networks • Topic 5 Protocols and layers 	in their grades on work which has already been marked.	
Spring 2	Unit 4 Network Security & System software	<p>Unit 4 - This unit begins by looking at the threats and vulnerabilities of computer systems and programs, including social engineering and the concept of SQL injection. Encryption and penetration testing are covered as examples of various methods of preventing vulnerabilities. The unit continues to focus on operating systems software, their function and typical utility software programs. The role and methods of backup are also covered</p> <p>The following topics are covered:</p> <ul style="list-style-type: none"> • Topic 1 Network Threats • Topic 2 Identifying and preventing vulnerabilities • Topic 3 Operating systems software • Topic 4 Utility Software 	<p>Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the whole unit.</p> <p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets which will allow for improvements in their grades on work which has already been marked.</p>	<p>All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.</p> <p>Students also have access to the Cambridge GCSE MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of Firefly.</p>
Summer 1	Unit 5 Impacts of Digital Technology	Unit 5– This unit begins by describing excellent examples of ethical, cultural and environmental considerations in relation to selected Computer Science technologies. The unit continues to focus on licencing and specific legislation related to Computer Science.	Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the	All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.

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		<p>The following topics are covered:</p> <ul style="list-style-type: none"> • Topic 1 Ethical and cultural issues • Topic 2 Computer systems in the modern world • Topic 3 Legislation and privacy 	<p>whole unit.</p> <p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets which will allow for improvements in their grades on work which has already been marked.</p>	<p>Students also have access to the Cambridge GCSE MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of Firefly.</p>
Summer 2	Revision	<p>Students will then be preparing for their mock exams in lesson. Past papers, mark schemes, repetitive spaced memory techniques will all be covered. Mock exams will be based on Paper 1 as all the content for this paper has been covered.</p>	<p>Students will be assessed at the end of each topic to demonstrate understanding. At the end of the unit a formal assessment will be given determining in more depth the students understanding the whole unit.</p> <p>Peer assessment is done regularly with end of lesson assessments to help the students understand clearly what is required for the exam by using mark schemes.</p> <p>Reflection time will be given to students to work on their targets</p>	<p>All presentations, tasks and worksheets are on Firefly which allows students to revisit any topics covered in this unit.</p> <p>Students also have access to the Cambridge GCSE MOOC website which provides videos and resources to help reinforce the students understanding of the topics. The link for this website can be found on the Computing section of</p>

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