



## Year 11 Computing - Unit: Data Representation – Summer Term 1 – KNOWLEDGE OVERVIEW

Subject: Computing				
Year group: 11		Unit: Networks	Date (from and to): 12.04.2021 – 28.05.2021	
Wk.	Big question / concept: Data Representation	Learning intentions: Learners must be able to:	Resources	
			Offline:	Online including links on how to access these:
1	Converting between different number systems	<ul style="list-style-type: none"> <li>• how to convert positive denary whole numbers (0–255) into 8 bit binary numbers and vice versa</li> <li>• how to add two 8 bit binary integers and explain overflow errors which may occur</li> <li>• binary shifts</li> <li>• how to convert positive denary whole numbers (0–255) into 2 digit hexadecimal numbers and vice versa</li> <li>• how to convert from binary to hexadecimal equivalents and vice versa</li> <li>• check digits.</li> </ul>	Revision Guide: <ul style="list-style-type: none"> <li>• Pg 66 – 71</li> </ul> Workbook: <ul style="list-style-type: none"> <li>• Pg 76 -80</li> </ul>	<b>Binary, Denary and Hex</b> <a href="https://www.youtube.com/watch?v=XdGHVzdxk0I">https://www.youtube.com/watch?v=XdGHVzdxk0I</a>
2	Sound and Compression	<ul style="list-style-type: none"> <li>• how sound can be sampled and stored in digital form</li> <li>• how sampling intervals and other factors affect the size of a sound file and the quality of its playback:               <ul style="list-style-type: none"> <li>• sample size</li> <li>• bit rate</li> <li>• sampling frequency.</li> </ul> </li> </ul> Compression	Revision Guide: <ul style="list-style-type: none"> <li>• Pg 74 – 76</li> </ul> Workbook: <ul style="list-style-type: none"> <li>• Pg 83 -86</li> </ul>	<b>Sound</b> <a href="https://www.youtube.com/watch?v=Ed7AFazB8PM">https://www.youtube.com/watch?v=Ed7AFazB8PM</a>

## Year 11 Computing - Unit: Data Representation – Summer Term 1 – KNOWLEDGE OVERVIEW

		<ul style="list-style-type: none"> <li>• need for compression</li> <li>• types of compression:               <ul style="list-style-type: none"> <li>• lossy</li> <li>• lossless.</li> </ul> </li> </ul>		
3	Assessment Lesson 1	<ul style="list-style-type: none"> <li>• the difference between RAM and ROM</li> <li>• the purpose of ROM in a computer system</li> <li>• the purpose of RAM in a computer system</li> <li>• the need for virtual memory flash memory.</li> </ul>	Revision Guide: <ul style="list-style-type: none"> <li>• Pg 5 - 6</li> </ul> Workbook: <ul style="list-style-type: none"> <li>• Pg 7 -8</li> </ul>	<b>RAM and ROM</b> <a href="https://www.youtube.com/watch?v=Q2pzT6oYPWg&amp;list=PLCiOXwirraUCaJP5LxCsFXWgX1_S-liGM&amp;index=2">https://www.youtube.com/watch?v=Q2pzT6oYPWg&amp;list=PLCiOXwirraUCaJP5LxCsFXWgX1_S-liGM&amp;index=2</a>
4	Assessment Lesson 3	The need for secondary storage  Data capacity and calculation of data capacity requirements common types of storage: <ul style="list-style-type: none"> <li>• optical</li> <li>• magnetic</li> <li>• solid state</li> </ul> Suitable storage devices and storage media for a given application, and the advantages and disadvantages of these, using characteristics: <ul style="list-style-type: none"> <li>• capacity</li> <li>• speed</li> <li>• portability</li> <li>• durability</li> <li>• reliability</li> <li>• cost.</li> </ul>	Revision Guide: <ul style="list-style-type: none"> <li>• Pg 6 – 7</li> </ul> Workbook: <ul style="list-style-type: none"> <li>• Pg 9 - 10</li> </ul>	<b>Storage Devices and Characteristics</b> <a href="https://www.youtube.com/watch?v=xfDwcdap5LA&amp;list=PLCiOXwirraUCaJP5LxCsFXWgX1_S-liGM&amp;index=6">https://www.youtube.com/watch?v=xfDwcdap5LA&amp;list=PLCiOXwirraUCaJP5LxCsFXWgX1_S-liGM&amp;index=6</a>

## Year 11 Computing - Unit: Data Representation – Summer Term 1 – KNOWLEDGE OVERVIEW

5	Network Security	<ul style="list-style-type: none"><li>• forms of attack</li><li>• threats posed to networks:<ul style="list-style-type: none"><li>○ malware</li><li>○ phishing</li><li>○ people as the 'weak point' in secure systems (social engineering)</li><li>○ brute force attacks</li><li>○ denial of service attacks</li><li>○ data interception and theft</li><li>○ the concept of SQL injection</li><li>○ poor network policy</li></ul></li><li>•</li></ul>	Revision Guide: <ul style="list-style-type: none"><li>• Pg 21 – 24</li></ul> Workbook: <ul style="list-style-type: none"><li>• Pg 25 -29</li></ul>	<b>Network Security - Threats</b> <a href="https://www.youtube.com/watch?v=SaEfEjJ0ly0&amp;list=PLCiOXwirraUC2Af_tiNOVMbc35YcrudcP">https://www.youtube.com/watch?v=SaEfEjJ0ly0&amp;list=PLCiOXwirraUC2Af_tiNOVMbc35YcrudcP</a>
6	Assessment Lesson 3	<ul style="list-style-type: none"><li>• identifying and preventing vulnerabilities:<ul style="list-style-type: none"><li>• penetration testing</li><li>• network forensics</li><li>• network policies</li><li>• anti-malware software</li><li>• firewalls</li><li>• user access levels</li><li>• passwords</li><li>• encryption.</li></ul></li></ul>	Revision Guide: <ul style="list-style-type: none"><li>• Pg 21 – 24</li></ul> Workbook: <ul style="list-style-type: none"><li>• Pg 25 -29</li></ul>	<b>Network Security - Preventions</b> <a href="https://www.youtube.com/watch?v=SaEfEjJ0ly0&amp;list=PLCiOXwirraUC2Af_tiNOVMbc35YcrudcP">https://www.youtube.com/watch?v=SaEfEjJ0ly0&amp;list=PLCiOXwirraUC2Af_tiNOVMbc35YcrudcP</a>
7	<b>FEEDBACK</b>			