Subject: Computer Science

Year Group: 11

Week beginning	Subject Topic	Key Learning points/big questions	Independent/Home learning	Linked Assessment	Resources
2/11	PPE WEEK				

9/11	1.1 Systems Architecture	• To be able to describe the purpose of the CPU
		• To be able to state the function of the CPU (fetch and execute instructions stored in memory)
		• To be able to describe how common characteristics of CPUs affect their performance:
		  • Clock Speed
		  • Cache Size
		  • Number of Cores
		• To understand embedded systems
		  • Their Purpose
		  • Give examples
		• To be able to label an internal diagram of the CPU
		• To be able to describe the roles of the MAR and the MDR in the fetch part of the fetch-execute cycle
		• To be able to describe the purpose of the accumulator
		• To be able to explain the purposes of the ALU, CU and the cache
		• The describe the importance of the Program Counter in the Fetch-Execute cycle
			Smart Revise – spend 1 hour answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.	Complete Learning Grid for each paper 1 topic https://eggbuckland.sharepoint.com/:w:/g/ict/EX6KZetInSJMsrNx4qvUKi8Byu7ZlzCea1uCSmArMLiaBw?e=4VwQbN
				
				Paper 1 practice questions https://eggbuckland.sharepoint.com/:w:/g/ict/EZkBGODU0xpOizPCZKtTQAIBvbP8VD80OGOY2Q
					Resources for all paper 1 units https://eggbuckland.sharepoint.com/:f:/g/ict/Ep0_UrVWpUFKvF_JYRKBN0MB_UTSLqRN8c-kjR8YEL-fCA?e=T4QJrW

16/11	1.2 Memory	1. List the two main forms of memory. 2. Discuss the need for ROM and RAM 3. Explain the difference between ROM and RAM	Smart Revise – spend 1 hour		

		4. Discuss the impact of the amount of RAM on performance 5. Recap on RAM and ROM (embedding) 6. Explain what virtual memory is 7. Explain the advantages and disadvantages of virtual memory 8. Understand what flash memory is	answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.	YYjSqDXg?e=vT4jhA	
23/11	1.3 Storage	1. Understand the need for secondary storage 2. Understand the different types of storage device 3. Understand the different characteristics of different types of storage 4. Be able to recommend a storage device for a situation 5. Estimate data capacity requirements for different file types	Smart Revise – spend 1 hour answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.		
30/11	1.4 Wired and wireless Networks	• Understand why we network computers together • Understand what is meant by a LAN • Understand what is meant by a WAN • Understand what is meant by a client-server network • Understand what is meant by a peer-to-peer network • Identify the components required to create a LAN • Describe the role of each component in a LAN • Understand what is meant by the performance of a network and why this is important • Explain the factors that can affect the performance of a network • Understand the internet is a worldwide collection of computers • Understand the role of DNS as part of the internet • Understand what is meant by hosting • Understand what is meant by the cloud • Understand what is meant by a virtual network • Understand why virtual networks are used	Smart Revise – spend 1 hour answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.		

7/12	1.5 Network Topologies, protocols and layers	• Students will be able to identify a Star and Mesh Topology • Students will be able to compare Advantages and Disadvantages of Wi-Fi and Ethernet • Explain what encryption is • Students will be able to identify a Star and Mesh Topology • Students will be able to compare Advantages and Disadvantages of Wi-Fi and Ethernet • Explain what encryption is • Know what layers are and their role • Be able to explain the role of each layer • Understand the concept of Packet Switching	Smart Revise – spend 1 hour answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.		
14/12	1.6 System Software	• Explain the different types of malware • Discuss a real life malware-related event • Understand how phishing operates • Discuss how data can be intercepted • Understand the meaning of DDOS and brute force attacks • Explain the effects of a DDOS attack • Explain how to be protected against DDOS attacks • Understand the concept of SQL injection • Explain how a vulnerability can be exploited. • Explain what is meant by 'network forensics' • Understand the legalities and consequences of unlawfully intercepting data • Understand the concept of penetration testing • Explore network policies and how they can help protect networks • To understand the effects of user access levels on a system • To understand how and why passwords must be kept secure and the levels of complexity	Smart Revise – spend 1 hour answering questions on topic. Time can be split into blocks i.e. 2 x 30 minutes or 3 x 20 minutes, to suit.		

		• To learn how encryption can have a negative effect on law enforcement and investigations • To understand how encryption works • To demonstrate a knowledge of a cypher and its' key.				
Christmas						