High Tunstall College of Science Curriculum Intent

Topic:	Principles of Computer Science Topic 3: Computers ***Hardware***	Year:	10	Half Term:	3

	Progress		
Key Ideas	**R**	**A**	**G**
I can define what is meant by the 'stored program concept'			
I can describe the hardware components used in the von Neumann architecture fetch-decode-execute cycle			
I can explain the role of the hardware components in the von Neumann architecture fetch-decode-execute cycle			
I can identify components inside of a computer, label each hardware component and briefly describe its role			
I can explain how the speed of the clock impacts on performance			
I can explain how pipelining improves the performance of the CPU			
I can explain the relationship between the width of the address bus and the number of memory locations that can be addressed			
I can calculate the number of addressable memory locations provided by an address bus of a specified width			
I can explain why secondary storage is needed			
I can describe how data is stored on magnetic, optical and solid-state media			
I can compare the capacity, speed and portability of magnetic, optical and solid-state storage devices			
I can select an appropriate type of storage for a particular purpose			
I can construct an expression to calculate data storage requirements			

Lesson	Learning Focus	Assessment	Key words
1	Define what is meant by the 'stored program concept' Describe the hardware components used in the von Neumann architecture and explain their role in the fetch-decode-execute cycle	OneNote work Socrative	Address Bus, Arithmetic Logic Unit (ALU), Control Unit, Central Processing Unit (CPU), Data Bus, Fetch-Decode-Execute, Memory, Programming, RAM, Registers, Stored programs, von Neumann architecture,
2	Draw and label a diagram of the inside of a computer, label each hardware component and briefly describe its role Explain how the speed of the clock impacts on performance Explain how pipelining improves the performance of the CPU	OneNote work Socrative	Accumulator, Arithmetic Logic Unit (ALU), Central Processing Unit (CPU), Clock, Control Unit (CU), Fetch-Decode-Execute cycle, Immediate Access Storage, Input, Instruction Register, Instructions, Memory, Output, Pipelining, Program Counter, RAM, Registers
3	Explain the relationship between the width of the address bus and the number of memory locations that can be addressed Calculate the number of addressable memory locations provided by an address bus of a specified width	OneNote work Socrative	Accumulator, Address Bus, Arithmetic Logic Unit (ALU), Central Processing Unit (CPU), Clock, Control Bus, Control Unit (CU), Data Bus, Fetch-Decode-Execute cycle, Immediate Access Storage, Input, Instruction Register, Instructions, Memory, Output, Pipelining, Program Counter, RAM, Registers, Volatile
4	Explain why secondary storage is needed	OneNote Socrative	DVD, Hard disk, Magnetic storage, Optical storage,

	Describe how data is stored on magnetic, optical and solid-state media		Retrieve, Solid state Storage, Storage, Store, Stored program, USB, von Neumann, Volatile, Write,
5	Compare the capacity, speed and portability of magnetic, optical and solid-state storage devices Select an appropriate type of storage for a particular purpose Construct an expression to calculate data storage requirements	OneNote work Socrative	Bit, Byte, Capacity, Expression, Gibibyte, Kibibyte, Mebibyte, Nibble, Portability, Speed, Tebibyte
6	Revision lessons	Evidence in Teams End of topic assessment	All of the above
7	End of topic Assessment	End of topic assessment	All of the above
8	Assessment feedback lesson	Evidence in Teams	All of the above