

Colton Hills Community School medium term planning – ICT/Computer Science

Topic title: 1.1 System Architecture	Year: GCSE CS Term: Autumn	Why we teach this: Explores the first computers that had stored programs in the same memory space as the data required for them to modern embedded systems. Introduces the core purpose of the Central Processing Unit (CPU), its role in fetching and executing instructions and the components involved.	Why we teach this here: It looks at the underlying components of a computer and the way they carry out processes and instructions. This will then lead on to topics that cover software and why different types of software are used in general purpose computers.	
Big questions: <ul style="list-style-type: none"> - What is the purpose of the CPU? - What are the common CPU components and their functions? - How is Von Neumann architecture used in general purpose computers? - How do common characteristics of CPUs affect their performance? - What is the purpose and characteristics of embedded systems? 		Builds on previous topics: <ul style="list-style-type: none"> - Recap on computer hardware; input/output devices and internal components. These were delivered at KS3. 	Links to future topics: 1.2 Memory and storage Continuing with hardware, It is important to understand that there are several storage devices and know which is best suited for purpose.	
Skills developed: <ul style="list-style-type: none"> - To be able to research and compare different CPUs and identify key characteristics when selecting one for different scenarios. - To construct high level answers to exam type questions 		Key knowledge: <ul style="list-style-type: none"> - Understand what actions occur at each stage of the fetch-decode-execute cycle - The role/purpose of each component and what it manages, stores, or controls during the fetch-execute-decode cycle. - The purpose of each register what its contents. - Understand the difference between storing data and an address. - Understanding each of the following characteristics and the effects on system performance when they are changed: <ul style="list-style-type: none"> ○ Clock speed ○ Cache size ○ Number of cores 	Key knowledge continued: <ul style="list-style-type: none"> - What embedded systems are with familiarity of characteristics of a range of different embedded systems? 	
Mini/Interim assessments: <ul style="list-style-type: none"> - Exam questions - Kahoot quiz - Retrieval Termly summative assessment: <ul style="list-style-type: none"> - End of unit assessment 	Independent study tasks/resources: <ul style="list-style-type: none"> - Revision of keywords and definition - Weekly revision in preparation for retrieval - Set regular Seneca assignments. - Bitesize revision with topic self-tests 	Key vocabulary 1: <ul style="list-style-type: none"> - CPU - Registers - Von Neumann - Address/Control/Data bus 	Key vocabulary 2:	

Cultural capital opportunities: - Use of cloud collaboration live. - Invest in online resources to give wider access to technology	Whole school Curricular Concept links: Technological development – to understand the key roles of key hardware in a computer system.	<ul style="list-style-type: none"> - Clock Speed - Overclocking - CPU cores - Cache - Fetch-decode-execute - Embedded system 	
---	--	--	--

<u>Week/Phase</u>	<u>Key Features</u>	
1	Small Questions: ...	
	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...
2	Small Questions: ...	
	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...
3	Small Questions: ...	

	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...
<u>Week/Phase</u>	<u>Key Features</u>	
4	Small Questions: ...	
	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...
5	Small Questions: ...	

	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...
6	Small Questions: ...	
	Key Activities/Resources: ...	Retrieval focus: ... Independent study: ...