

Year: 9

Subject: Computer science

Summer Term		
Overarching Topic: Searching and sorting algorithms		
What has come before and what comes later:	Students revisit the CPU and memory but look in more detail at their relationship in the FDE cycle. The role of individual registers and cache is introduced and the different types of storage are explored. Searching and sorting algorithms are investigated. Finally, students experiment with image manipulation software looking at the differences between bitmap and vector images.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> <li>• What are registers?</li> <li>• What is cache?</li> <li>• How do the CPU and RAM interact during the FDE cycle?</li> <li>• What is the difference between RAM &amp; ROM?</li> <li>• What are the different types of storage?</li> <li>• What is a bubble sort?</li> <li>• What is linear search?</li> <li>• What is a bitmap?</li> <li>• What is a vector image?</li> <li>• What are the common image file formats?</li> <li>• What is meta data?</li> </ul>	<ul style="list-style-type: none"> <li>• What other CPU architectures are there?</li> <li>• What does the future hold for CPU technology and storage technology?</li> <li>• What other searching and sorting algorithms are there?</li> <li>• What algorithms are the most efficient?</li> <li>• What is compression? Why is it important?</li> <li>• Does meta data raise privacy concerns?</li> </ul>
	Skill/Technique	How students will develop and demonstrate this
Key skills	Creating assets Refining assets Sequencing instructions	During assessments, classwork and homework, students will:

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	Evaluating algorithms Manipulating images	<ul style="list-style-type: none"><li>• Explain what registers are and how they change during FDE.</li><li>• State the differences between RAM &amp; ROM, suggest the most appropriate storage for a given scenario.</li><li>• Search and sort data using bubble sort and linear search.</li><li>• Create and manipulate both bitmap and vector images.</li><li>• Explain the differences between different file formats</li></ul>
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