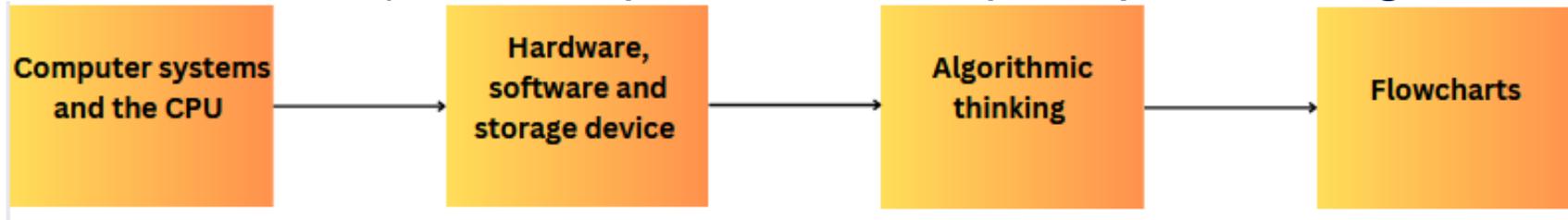




## Holland Park School | Year 8 Computer science: Computer systems and algorithms



<b>Overview</b>	<p>By the end of this unit, students will be able to confidently identify:</p> <ul style="list-style-type: none"><li>• The core components of a Computer system including input, output &amp; storage devices</li><li>• Hardware and software (including operating systems)</li><li>• The Fetch-Decode execute cycle and the role of primary storage</li><li>• The role and types of secondary storage types &amp; devices</li><li>• The role of binary and different types of logic gates</li><li>• The key components of algorithmic thinking (abstraction, decomposition &amp; pattern recognition)</li><li>• The key components of a flowchart</li><li>• The uses of flowcharts to solve different programmatic problems.</li></ul>
<b>Assessment</b>	<p>By the end of the unit students will understand:</p> <ol style="list-style-type: none"><li>1. What input, output and storage devices are &amp; what they are used for</li><li>2. How the CPU uses the FDE cycle and uses RAM</li><li>3. The differences between optical, magnetic and solid state storage.</li><li>4. How to draw and generate outputs for 3 logic gates (AND, OR, NOT)</li><li>5. Abstraction, decomposition and pattern recognition.</li><li>6. The shapes and methods used to draw a flowchart</li><li>7. How to use flowcharts to solve problems and make use of sequence and selection.</li></ol>
<b>Key words</b>	CPU, RAM, ROM, input, output, fetch, decode, execute, optical, magnetic, solid state, AND, OR, NOT, binary, logic gate, truth table, abstraction, decomposition, algorithmic thinking, decision, terminator, sequence, selection, application software, operating systems, data, instructions
<b>Key dates</b>	N/A

Topics	Key content	Glossary link	Knowledge Organiser link
<b>Computer systems and the CPU</b>	Key components of a computer system including motherboard,cpu,ram and hard disk. The fetch-decode-execute cycle and how the cpu operates by fetching information from RAM,decoding data and executing instructions.		<a href="https://www.bbc.co.uk/bitesize/guides/zws8d2p/revision/3">https://www.bbc.co.uk/bitesize/guides/zws8d2p/revision/3</a>
<b>Hardware, software and storage device</b>	Hardware devices including input devices (keyboard,mouse,mic) & output devices(speakers,monitor) Application and system software including operating systems and thier key functionality.		<a href="https://www.bbc.co.uk/bitesize/guides/zd4r97h/revision/6">https://www.bbc.co.uk/bitesize/guides/zd4r97h/revision/6</a> <a href="https://www.bbc.co.uk/bitesize/guides/zd4r97h/revision/7">https://www.bbc.co.uk/bitesize/guides/zd4r97h/revision/7</a> <a href="https://www.bbc.co.uk/bitesize/guides/zcxgr82/revision/1">https://www.bbc.co.uk/bitesize/guides/zcxgr82/revision/1</a>
<b>Algorithmic thinking</b>	Algorithmic thinking as a combination of Decomposition,Abstraction & pattern recognition. Writing algorithms for scenarios using Algorithmic thinking		<a href="https://www.bbc.co.uk/bitesize/guides/zpp4g9j6/revision/1">https://www.bbc.co.uk/bitesize/guides/zpp4g9j6/revision/1</a>
<b>Flowcharts</b>	The shapes used to create Flowcharts, including subroutines. Creating Flowcharts for real world scenarios.		<a href="https://www.bbc.co.uk/bitesize/guides/zpp4g9j6/revision/3">https://www.bbc.co.uk/bitesize/guides/zpp4g9j6/revision/3</a>