



**What I will know and understand by the end of Year 9.**

This year in Computing we will be learning:		This links to:	Key Vocabulary:	
<b>1</b>	<p><b>Data Storage: Images and Sound and Image Editing</b></p> <ul style="list-style-type: none"> <li>• How raster images are stored</li> <li>• The terms pixel, resolution and colour depth and be able to explain how these are related and how changes to them affects the image quality and resulting file size</li> <li>• Identify issues with large files</li> <li>• How colour channels are used to define the colour of a pixel in a raster image</li> <li>• How sound is captured, stored and replayed on a computer</li> <li>• The terms sample, amplitude, sample rate/frequency and sample size/depth and be able to explain how these are related and how changes to them affects the image quality and resulting file size</li> <li>• Identify issues with large files</li> <li>• Graphic editing software to:               <ul style="list-style-type: none"> <li>○ modify an image</li> <li>○ combine images to create a new one</li> </ul> </li> </ul>	<p>You will build and develop your knowledge of how data is represented, extending the knowledge acquired in Year 8 of how numbers and characters are represented to consider how images and sound are represented. You will then use raster imaging software to edit and combine images. This links to potential Key Stage 4 studies; Computer Science involves the study of data representation in more depth and Digital Information Technology where you may need to manipulate images as part of non-examined assessment.</p>	<ul style="list-style-type: none"> <li>• Pixel</li> <li>• Resolution</li> <li>• Colour depth</li> <li>• Sample</li> <li>• Amplitude</li> </ul>	<ul style="list-style-type: none"> <li>• Sample rate</li> <li>• Sample size</li> </ul>
<b>2</b>	<p><b>Computer Systems – The CPU, Memory, The FDE Cycle, Embedded Systems</b></p> <ul style="list-style-type: none"> <li>• The purpose and main components of the CPU</li> <li>• Issues that affect the performance of a CPU</li> <li>• The Fetch Execute cycle</li> <li>• Memory, its classifications and role in the operation of a computer system</li> <li>• Computer systems and the difference between embedded systems and general purpose ones</li> <li>• Hardware and software and their classifications and role within a computer system</li> <li>• The difference between data and information</li> <li>• Designing computer systems to meet specific users' requirements</li> </ul>	<p>Building on work you covered in Year 7 looking at what a computer system is and what functions it fulfills you will look in more detail at process hardware and how it operates as well as the impact of its operation on the effectiveness a system in meeting users needs. This links to potential Key Stage 4 studies; Computer Science involves the study of systems architecture in more depth and Digital Information Technology where you may need to consider user requirements as part of both examined and non-examined assessment.</p>	<ul style="list-style-type: none"> <li>• Process</li> <li>• Storage</li> <li>• Central Processing Unit (CPU)</li> <li>• Component</li> </ul>	<ul style="list-style-type: none"> <li>• Decode</li> <li>• Execute</li> </ul>
<b>3</b>	<p><b>Intermediate Programming</b></p> <ul style="list-style-type: none"> <li>• Conditions and the comparison and Boolean operators used to construct them</li> <li>• Production of selection code that employs if...else and if...elif...else statements</li> <li>• Production of iteration code that employ counted and conditional loops</li> <li>• Subroutines and in built subroutines</li> <li>• Subroutines production to create modularised programs</li> <li>• Parameters and their use to pass values into a subroutine</li> </ul>	<p>This unit builds on the Year 7 algorithms unit and Year 8 programming unit to enable you to write code that employs selection, iteration and subroutines. This links to potential Key Stage 4 studies; programming is a significant element of Computer Science and Digital Information Technology may require you to use conditions and selection as part of your non-examined assessment.</p>	<ul style="list-style-type: none"> <li>• Selection</li> <li>• Iteration</li> <li>• Condition</li> <li>• Loop</li> <li>• Syntax</li> </ul>	<ul style="list-style-type: none"> <li>• Function</li> <li>• Parameter</li> </ul>

<b>Target Grade:</b>		<b>AP1:</b>		<b>AP2:</b>		<b>AP3:</b>	
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