



Computing: Year 10

Scheme of Learning	Assessments
<p>Half Term One: CPU and Logic</p> <p>The Overarching Inquiry: How does a computer's brain work?</p> <p>An in-depth look at the characteristics of a computer CPU, Von Neumann architecture, CPU components and the Fetch-Execute cycle. We will then look at logic gates and truth tables.</p> <p>Key concepts:</p> <p>CS AO1: Understand and apply the fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms and data representation.</p> <p>CS AO4: Understand the components that make up digital systems, and how they communicate with one another and with other systems.</p> <p>Note: One lesson per fortnight will be spent on programming techniques, designed at preparation for programming projects and the course non-examinable assessment.</p>	<p>Assessment One:</p> <p>Complete labelled diagrams of the CPU and the Fetch-Execute cycle. Create a report that explains how the CPU works and what affects its performance (AO4)</p> <p>Assessment Two:</p> <p>End of Unit Quizizz test covering CPU architecture, components and performance. Also logic gates (AO1, AO4)</p>
<p>Half Term Two: Memory and Storage</p> <p>The Overarching Inquiry: What is the difference between memory and storage?</p> <p>This unit will look at the purpose and differences of RAM and ROM. Different forms of storage and their advantages/disadvantages.</p> <p>Key concepts:</p> <p>CS AO4: Understand the components that make up digital systems, and how they communicate with</p>	<p>Assessment One:</p> <p>Create a table comparing the differences between types of storage. Provide a presentation that explains the difference between RAM and ROM (AO1, AO4, AO6)</p> <p>Assessment Two:</p> <p>Past paper mock exam on memory and storage (AO4)</p>

<p>one another and with other systems.</p> <p>Note: One lesson per fortnight will be spent on programming techniques, designed at preparation for programming projects and the course non-examinable assessment.</p>	
<p>Half Term Three: Networks</p> <p>The Overarching Inquiry: When you use a computer to connect to the internet, what happens in the background?</p> <p>In this unit pupils will look at the factors that affect network performance and different types of network configuration. We will also discuss the internet, use of virtual networks, network protocols and layers.</p> <p>Key concepts:</p> <p>CS AO4: Understand the components that make up digital systems, and how they communicate with one another and with other systems.</p> <p>Note: One lesson per fortnight will be spent on programming techniques, designed at preparation for programming projects and the course non-examinable assessment.</p>	<p>Assessment One: Quiz test covering network types, hardware and performance. (AO1, AO3)</p> <p>Assessment Two: Design a network for a given scenario, including the required hardware and network structure while providing explanations of the choices made (AO1, AO4, AO6)</p>
<p>Half Term Four: Data Representation</p> <p>The Overarching Inquiry: What are digital images and sound made of?</p> <p>This unit will teach pupils about how data, such as images and audio, are represented on a computer using binary. We will also look at how to convert binary and denary in to hexadecimal and how data can be compressed.</p> <p>Key concepts:</p> <p>CS AO1: Understand and apply the fundamental principles and concepts of Computer Science, including abstraction,</p>	<p>Assessment one: Create a report that explains what may affect the quality of images, sound and video clips (AO1)</p> <p>Assessment Two: End of Unit Quiz test covering hexadecimal, data representation and compression (AO1, AO6)</p>

<p>decomposition, logic, algorithms and data representation.</p> <p>CS AO6: Apply Mathematical skills relevant to Computer Science.</p> <p>Note: One lesson per fortnight will be spent on programming techniques, designed at preparation for programming projects and the course non-examinable assessment</p>	
<p>Half Term Five: Environmental and Cultural Impact</p> <p>The Overarching Inquiry: Is technology having a positive or negative impact on the world?</p> <p>Pupils will learn about the environmental impact of computers and how culture has changed with the advancement of technology. We will also discuss how stakeholders are affected by the use of technology and impacts on our privacy.</p> <p>Key concepts:</p> <p>CS AO5: Understand the impacts of digital technology to the individual and to wider society.</p> <p>Note: One lesson per fortnight will be spent on programming techniques, designed at preparation for programming projects and the course non-examinable assessment.</p>	<p>Assessment One:</p> <p>In groups, you will present to the class about the positive and negative impact of technology (AO5)</p> <p>Assessment Two :</p> <p>Past paper mock exam on environmental, cultural and ethical questions (AO5)</p>
<p>Half Term Six: Programming Project</p> <p>The Overarching Inquiry: How could a company use programming to improve their efficiency?</p> <p>This unit will teach pupils about algorithms. We will look at more advanced programming techniques such as string manipulation, casting, using operators and file handling.</p> <p>Key concepts:</p> <p>CS AO1: Understand and apply the</p>	<p>Assessment One:</p> <p>Provide planning and design documents for a program based on a given brief (AO1, AO2, AO3)</p> <p>Assessment Two:</p> <p>Create an annotated program to meet the requirements of the given brief (AO1, AO2, AO3, AO6)</p>

fundamental principles and concepts of Computer Science, including abstraction, decomposition, logic, algorithms and data representation.

CS AO2: Analyse problems in computational terms through practical experience of solving such problems, including designing, writing and debugging programs.

CS AO3: Think creatively, innovatively, analytically, logically and critically.

CS AO6: Apply Mathematical skills relevant to Computer Science.