



## KS5 Computer Science (Year 12)

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>C1.1</b> (The characteristics of contemporary processors, input, output and storage devices)  <b>C1.1.3</b> – Input, output and storage  <b>C1.1.1</b>–Structure and functions of a processor  <b>C1.1.2</b> – Types of processors</p>	<p><b>C1.2</b> (Software and software development)  <b>C1.2.1</b> – Operating Systems  <b>C1.2.2</b> – Applications Generation  <b>C1.2.3</b> – using assembly language (writing simple programs with Little Man Computer)</p>	<p><b>C1.4</b> (Data types, data structures and algorithms)  <b>C1.4.1</b> - Data Types  <b>C1.4.2</b> - Data Structures    <b>C1.5</b> ( Legal, moral, ethical and cultural issues)  <b>C1.5.2</b> - Ethical, moral and cultural issues</p>	<p><b>C1.3</b> (Exchanging Data)  <b>C1.3.1</b> - Databases    <b>C2.3</b> Algorithms  <b>C2.3.1</b> – Algorithms – analysis and design of algorithms, bubble and insertion sort, binary and linear search</p>	<p><b>C1.5</b> (Legal, moral, ethical and cultural issues)  <b>C1.5.2</b> - Ethical, moral and cultural issues</p>	<p><b>C2.2</b> Problem solving and programming  <b>C2.3.1</b> - Algorithms - The use of algorithms to describe problems and standard algorithms</p>
<p><b>C1.2</b> Software and software development  <b>C1.2.3</b>- Introduction to programming    <b>C2.1</b> Elements of computational thinking  <b>C2.1.1</b>- Thinking abstractly  <b>C2.1.2</b>- Thinking ahead</p>	<p><b>C1.2</b> Software and software development  <b>C1.2.3</b> Writing and following Algorithms &amp; procedural languages    <b>C1.5</b> (Legal, moral, ethical and cultural issues)  <b>C1.5.1</b> - Computing related legislation    <b>C2.1</b> Elements of computational thinking  <b>C2.1.3</b> -Thinking procedurally  <b>C2.1.4</b> -Thinking logically  <b>C2.2.1</b> - Programming Techniques</p>	<p><b>C2.2</b> Problem solving and programming  <b>C2.2.1</b>- Programming techniques  <b>C2.2.2</b>- Software Development    <b>1.4</b> Data types, data structures and algorithms  <b>C1.4.3</b> – Boolean Algebra</p>	<p><b>C2.2</b> Problem solving and programming  <b>C1.4.3</b> – Boolean Algebra: Karnaugh Maps  <b>C1.3.2</b> - Networks  <b>C1.3.3</b> - Web Technologies    <b>C2.3.1</b> - Algorithms - The use of algorithms to describe problems and standard algorithms</p>		<p>Identify initial project ideas and start practising using new programming languages (PHP, SQL, JavaScript etc.)</p>



Computer Science (Year 13)

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
<p><b>C1.1 (The characteristics of contemporary processors, input, output and storage devices)</b>  <b>C1.1.1</b>–Structure and functions of a processor  <b>C1.1.2</b> – Types of processors  <b>C1.2.3</b> - Writing and following algorithms</p>	<p><b>C1.2 (Software and software development)</b>  <b>C1.2.3</b> Writing and following Algorithms &amp; procedural languages  <b>C1.2.3</b> – using assembly language (writing simple programs with Little Man Computer)  <b>C1.4.2</b> Data Structure (OOP)</p>	<p><b>C1.4 (Data types, data structures and algorithms)</b>  <b>C1.4.2</b> - Data Structures Structures to store data: linked-list, graph (directed, undirected), stack, queue, tree, binary-search tree, hash table  <b>C1.4.3</b> - Boolean Algebra</p>	<p><b>2.2 Problem solving and programming</b>  <b>C2.3.1</b> - Algorithms - The use of algorithms to describe problems and standard algorithms (Standard algorithms, Bubble sort, insertion sort, merge sort, quick sort, binary search and linear search)</p>	<p><b>C2.3.1</b> - Algorithms - Dijkstra’s shortest path algorithm, A* algorithm   Revision of selected topics   <b>Exam Revision</b></p>
<p><b>2.1 Elements of computational thinking</b>  <b>C2.1.1</b>- Thinking abstractly  <b>C2.1.2</b>- Thinking ahead  <b>C2.1.3</b> -Thinking procedurally  <b>C2.1.4</b> -Thinking logically   <b>C1.3 (Exchanging Data)</b>  <b>C1.3.1</b> - Databases</p>	<p><b>C2.2 Problem solving and programming</b>  <b>C2.2.2</b>- Software Development  <b>C1.2.2</b> – Applications Generation   <b>C1.3 (Exchanging Data)</b>  <b>C1.3.2</b> - Networks  <b>C1.3.3</b> - Web Technologies</p>	<p><b>C1.5 (Legal, moral, ethical and cultural issues)</b>  <b>C1.3.3</b> Web Technologies - Run length encoding and dictionary coding for lossless compression. Symmetric and asymmetric encryption. Different uses of hashing.</p>	<p><b>2.2 Problem solving and programming</b>  <b>C2.3.1</b> - Algorithms - The use of algorithms to describe problems and standard algorithms   <b>2.2.2</b> Computational Methods  Data mining, Heuristics  Performance modelling,  Pipelining, Visualisation to solve problems</p>	<p><b>C1.5 (Legal, moral, ethical and cultural issues)</b>  <b>C1.5.1</b> - Computing related legislation  <b>C1.5.2</b> - Ethical, moral and cultural issues   Revision of selected topics   <b>Exam revision</b></p>
<p><b>Project task</b>  <b>3.1</b> Analysis &amp; Design</p>	<p><b>Project task</b>  <b>3.1</b> Analysis &amp; <b>3.2</b> Design  <b>3.3</b> Developing the solution</p>	<p><b>Project task</b>  <b>3.3</b> Developing the solution  <b>3.3</b> Testing</p>	<p><b>Project task</b>  <b>3.3</b> Developing the solution  <b>3.3</b> Testing  <b>3.4</b> Evaluation</p>	