

Year 12

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn Term	2.1 C# Practice / conversion	Can I write GCSE- level programs in C#	<ul style="list-style-type: none"> ● C# programming skills, including: <ul style="list-style-type: none"> ● Variables ● Algorithms ● Loops ● File handling ● Arrays ● Parameters 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● practical exercises and worksheets ● progress is monitored and recorded during lessons. <p>Skills</p> <ul style="list-style-type: none"> ● Variables ● Algorithms ● Loops ● File handling ● Arrays <p>Assessment point information Progress is monitored in lessons and used for AP purposes</p>
	2.2	Second level programming with OOP	<ul style="list-style-type: none"> ● Simple OOP structures ● Classes ● Properties ● Methods ● Construction Procedures 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● practice exercises in C#. <p>Skills</p> <ul style="list-style-type: none"> ● Programming in C# <p>Assessment point information A test, based on an old AS Paper, is formally marked according the original MS</p>

Autumn Term	Data Representation	How do we store numbers and text in a computer?	<ul style="list-style-type: none"> • Binary numbers • Sign-and-magnitude and two's complement • Hex • Adding and subtracting binary • ASCII and Unicode 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • practice exercises in lessons. <p>Skills</p> <ul style="list-style-type: none"> • Conversion from one form to another <p>Assessment point information</p> <ul style="list-style-type: none"> • BM data contributes to AP • Homework exercise grades contribute to AP
	Legals	What are the laws which control computer use?	<ul style="list-style-type: none"> • DPA • CDP • Computer Misuse Act • RIPA 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • presentations in teams. <p>Skills</p> <ul style="list-style-type: none"> • Presentation skills • Ability to focus information <p>Assessment point information</p> <ul style="list-style-type: none"> • Presentation grades contribute to AP
	Low Level Coding	What is low level code and how do we use it?	<ul style="list-style-type: none"> • Assembly language • LMC • Processors and buses • The fetch-execute cycle • CISC and RISC 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • homework exercises <p>Skills</p> <ul style="list-style-type: none"> • Writing low level code <p>Assessment point information</p> <ul style="list-style-type: none"> • BM data contributes to AP

				<ul style="list-style-type: none"> ● Homework exercise grades contribute to AP
Autumn Term	Networks	How do we connect computers together?	<ul style="list-style-type: none"> ● Network hardware ● Network topologies ● The protocol stack ● HTML ● CSS ● Javascript 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● practice exercises in lessons ● formal unit test. <p>Skills</p> <ul style="list-style-type: none"> ● Write or interpret web pages ● Interpret javascript code <p>Assessment point information</p> <ul style="list-style-type: none"> ● BM data contributes to AP ● Test marks contribute to AP
Autumn / Spring Term	Databases	How do relational databases work?	<ul style="list-style-type: none"> ● Justification for databases ● Relational databases theory ● SQL 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● challenge exercises in lessons / homework ● practical questions in SQL. <p>Skills</p> <ul style="list-style-type: none"> ● Write SQL queries <p>Assessment point information</p> <ul style="list-style-type: none"> ● BM data contributes to AP ● Homework questions contribute to AP

Spring Term	2.2.2 Software Development	What are the stages of developing software?	<ul style="list-style-type: none"> Waterfall lifecycle, agile methodologies, extreme programming, the spiral model and rapid application development. The relative merits and drawbacks of different methodologies and when they might be used. Different test strategies, including black and white box testing and alpha and beta testing 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> homework sheets Google tests. <p>Skills</p> <ul style="list-style-type: none"> Test programs that solve problems using suitable test data and end user feedback Programming in C# <p>Assessment point information two exercises are formally marked, and are taken together with BM data and with marks from a Google test</p>
	2.1 Elements of computational thinking	What is meant by computational thinking?	<ul style="list-style-type: none"> Thinking abstractly – nature and need for abstraction Thinking ahead Thinking procedurally – components, steps and solution of problem Thinking logically 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> homework sheets Google tests <p>Skills</p> <ul style="list-style-type: none"> Dependent on topics chosen Test programs that solve problems using suitable test data and end user feedback <p>Assessment point information Any homework feeds into the Assessment point, together with BM data.</p>

	2.3 Introduction to Visual Studio	How do I use C# in real programming?	<ul style="list-style-type: none"> • Basic concepts including <ul style="list-style-type: none"> ○ objects and properties ○ naming ○ conversion ○ combo box ○ shapes ○ images 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • practical exercises in VSi • reworked exercise from 2.2 done in VS. <p>Skills</p> <ul style="list-style-type: none"> • Programming in VS <p>Assessment point information Any homework feeds into the Assessment point, together with BM data.</p>
Spring Term	Logic	How can we simplify a complex circuit?	<ul style="list-style-type: none"> • Karnaugh Maps 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • practical exercises in lessons. <p>Skills</p> <ul style="list-style-type: none"> • Simplifying complex logic <p>Assessment point information</p> <ul style="list-style-type: none"> • BM data contributes to AP
	Data Structures (1)	How do we structure data in a computer system?	<ul style="list-style-type: none"> • Stacks • Queues 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • practical exercises in lessons • homework sheets. <p>Skills</p> <ul style="list-style-type: none"> • Ability to structure given data • Can write algorithms to manage structures <p>Assessment point information</p>

				<ul style="list-style-type: none"> ● BM data contributes to AP ● Homework grades contribute to AP
	Continuous Revision and bits	What don't I know?	<ul style="list-style-type: none"> ● All theory topics ● Minor topics, for example: <ul style="list-style-type: none"> ● Abstraction ● Systems analysis. 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● weekly homework sheets which grow and shrink according to progress made. <p>Skills</p> <ul style="list-style-type: none"> ● Various <p>Assessment point information</p> <ul style="list-style-type: none"> ● All weekly marks feed into AP
Summer Term	Final Revision	<p>DO I know all the material?</p> <p>Can I get all the marks?</p>	<ul style="list-style-type: none"> ● All Theory for both Units 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> ● weekly homeworks. <p>Skills</p> <ul style="list-style-type: none"> ● Exam technique <p>Assessment point information</p> <p>Grades from the sheets feed into the final AP</p>

	<p>Further Programming - Handling Data</p>	<p>How do I write more complex programs and manipulate data</p>	<ul style="list-style-type: none"> • Further OOP structures • Grids and handling data 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • In-lesson observation • Completed programs. <p>Skills</p> <ul style="list-style-type: none"> • Programming technique <p>Assessment point information</p> <ul style="list-style-type: none"> • BM data feeds into AP • Completed program grades contribute to AP
	<p>Data Structures (2)</p>	<p>How do we structure data in a computer system</p>	<ul style="list-style-type: none"> • Graphs and tracing algorithms • Linked Lists • Trees 	<p>How understanding is assessed:</p> <ul style="list-style-type: none"> • in-lesson observation. <p>Skills</p> <ul style="list-style-type: none"> • Ability to demonstrate algorithms <p>Assessment point information</p> <ul style="list-style-type: none"> • BM data feeds into AP

All Year	ELCEC	How do technological changes affect society?	<ul style="list-style-type: none">• Topical issues – new each year	<p>How understanding is assessed:</p> <ul style="list-style-type: none">• short essays. <p>Skills</p> <ul style="list-style-type: none">• Essay technique <p>Assessment point information</p> <ul style="list-style-type: none">• Essay marks feed into AP
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