

Computer Science KS4 GCSE (9-1)

	AUTUMN TERM	SPRING TERM	SUMMER TERM
Year 10	<ul style="list-style-type: none"> ● Systems Architecture <ul style="list-style-type: none"> -The Purpose of the CPU -Von Neumann Architecture -Common CPU Components -The FETCH - DECODE - EXECUTE Cycle -CPU Performance -Embedded Systems ● Memory <ul style="list-style-type: none"> -RAM and ROM differences -The purpose of ROM -Why RAM is needed -Virtual memory -Flash memory ● Storage <ul style="list-style-type: none"> -The need for secondary storage -Data capacity -Common types of storage -Selecting storage media for a given application ● Algorithms -Computational thinking - Standard searching algorithms -Standard sorting algorithms -Pseudo-code -Flowcharts -Interpreting, correcting and completing algorithms ● Programming Techniques <ul style="list-style-type: none"> -Basic programming constructs -File handling -Arrays & sub problems -Data types & operators -SQL 	<ul style="list-style-type: none"> ● Wired & Wireless Networks <ul style="list-style-type: none"> -Types of network -Network performance -Client-server and peer-to-peer networks -Network hardware -The Internet -Virtual networks ● Network Topologies, Protocols & Layers <ul style="list-style-type: none"> -Different topologies -WiFi -Ethernet -IP addressing, MAC addressing and protocols -Layers -Packet switching ● Producing Robust Programs <ul style="list-style-type: none"> -Input sanitisation and validation -Planning for contingencies, misuse and authentication -Maintainability -Types of testing and errors -Suitable test data ● Computational Logic <ul style="list-style-type: none"> -Why binary is used -Logic diagrams, including AND, OR and NOT -Truth tables -Combining Boolean operators -Solving problems using Boolean logic and logical operators -Applying arithmetic operators in Computer Science 	<ul style="list-style-type: none"> ● System Security <ul style="list-style-type: none"> -Different forms of attack -Threats posed to networks -Identifying and preventing vulnerabilities ● Exam Practice & Revision & Mock Exam ● Python Coding <ul style="list-style-type: none"> -Different Scenarios -Advanced scenarios ● NEA Practice Project: <ul style="list-style-type: none"> -Analysis -Design ● Exam Practice & Revision & Mock Exam ● NEA Practice Project: (Continued): <ul style="list-style-type: none"> -Code Solution -Testing -Evaluation
Year 11	<ul style="list-style-type: none"> ● System Software <ul style="list-style-type: none"> -The purpose and function of systems software -Operating systems -Utility software 	<ul style="list-style-type: none"> ● Mock Exam ● NEA Programming Project: <ul style="list-style-type: none"> -Analysis -Design -Code Solution 	<ul style="list-style-type: none"> ● Exam Practice and Revision

	<ul style="list-style-type: none"> ● Issues <ul style="list-style-type: none"> -Ethical, legal, cultural and environmental issues -How stakeholders are affected by technologies -The environmental impact of Computer Science -Cultural implications of Computer Science -Open source versus proprietary software -Legislation relating to Computer Science ● Exam Practice and Revision ● Translation of Language -Different types of high level programming languages -Low level programming languages -The purpose of translators -Characteristics of assemblers, compilers and interpreters -Common tools and facilities in IDEs ● Data Representation <ul style="list-style-type: none"> -The units used -Converting between number bases -Character sets -How images are stored -How sound is sampled and stored -Data compression methods ● Exam Practice and Revision 	<ul style="list-style-type: none"> -Testing -Evaluation ● Exam Practice & Revision 	
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OCR course No J276

Exam Component 01: 1.1 to 1.8

Exam Component 02: 2.1 to 2.6

Programming Project Component 03: 20 Hours of Programming