

Year 10

Comp 01

Comp 02

Comp 03

Recap Recall. In and On/Starters

Homeworks

Term 1

Week 1	ALGORITHMS		Introduction to Course setting up etc	The use of variables, constants, operators, inputs, outputs, assignments	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation	
Week 2			Computational thinking	The use of variables, constants, operators, inputs, outputs, assignments	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting	
Week 3				Searching algorithms	The use of data types: Integer, Real, Boolean, Character and string, Casting	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting
Week 4				Sorting algorithms	The use of the three basic programming constructs used to control the flow of a program: Sequence	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting, MOD
Week 5				Developing algorithms using flow diagrams	The use of the three basic programming constructs used to control the flow of a program: Iteration (count- and	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting, DIV
Week 6				Developing algorithms using pseudocode	The use of the three basic programming constructs used to control the flow of a program: Iteration (count- and	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting, DIV, relational operators
Week 7				Interpret, correct or complete algorithms	The common Boolean operators AND, OR and NOT	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, casting, DIV, relational operators

Half Term

Week 8	PROGRAMMING		Summative Tests	The common arithmetic operators	Sorting and searching algorithms	Revision support	
Week 9			Programming Fundamentals	Naming conventions, Indentation, Commenting		Input, output, concatenation, boolean operators	
Week 10				Sequence and selection	Ability to manipulate strings, including: Concatenation, Slicing		Input, output, concatenation, boolean operators
Week 11				Iteration	String Handling/operations: String Length, Substrings, Uppercase, Lowercase, Ascii Conversion (ASC, CHR)	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Input, output, concatenation, string manipulation
Week 12				Arrays	The use of basic file handling operations: Open, Read, Write, Close		Input, output, concatenation, string manipulation
Week 13				Procedures and functions	The use of arrays (or equivalent) when solving problems, including both one-dimensional and two-dimensional arrays	Binary, Linear, Search, Bubble, Merge and Insertion Sort	Input, output, concatenation, string manipulation
Week 14				Records and files	Skills Recap		Input, output, concatenation, string manipulation
Week 15				SQL	Skills Recap		IF statements
Week 16				Summative Tests	Skills Recap	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Revision support

Term 2

Week 17	DATA REP		Storage units and binary numbers	How to use sub programs (functions and procedures) to produce structured code	Binary, Linear, Search, Bubble, Merge and Insertion Sort	IF statements, boolean operators	
Week 18			Binary arithmetic and hexadecimal	How to use sub programs (functions and procedures) to produce structured code	Variables, Constants, operators, inputs, outputs, and assignments. Programming Constructs: Selection, Sequence, Iteration. Arithmetic and Boolean Operators	IF statements, DIV/MOD	
Week 19				Characters	Random number generation	Data types and Casting	ELIF
Week 20				Images	Random number generation	String Manipulation, file handling, records, SQL, arrays (1D and 2D), Sub Programs (Procedures and Functions), Random name generator.	ELIF
Week 21				Sound	Skills Recap	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	FOR loops
Week 22				Compression	Defensive design considerations: Anticipating misuse, Authentication, Input validation, Maintainability:	Binary, Linear, Search, Bubble, Merge and Insertion Sort	FOR loops

Half Term

Week 23	SYS ARCH		Summative Tests	Defensive design considerations: Anticipating misuse, Authentication, Input validation, Maintainability:	Variables, Constants, operators, inputs, outputs, and assignments. Programming Constructs: Selection, Sequence, Iteration. Arithmetic and Boolean Operators	Revision support	
Week 24			The CPU	Testing - Final and Iterative	Data Storage - Data Rep - Binary Denary, Hex, Addition, Shifts, Characters Images and Sound	For loops	
Week 25				CPU Performance	Testing - Normal, Boundary, Invalid, Erroneous	Data types and Casting	While loops, boolean operators
Week 26				Memory	Testing (mixture of above)	Starter Contingency	Nested FOR loops

Term 3

Week 26			Secondary Storage	Skills Contingency/Mini Project	Abstraction, Decomposition, Algorithmic thinking, Flowcharts, Pseudocode, Syntax and Logic errors, Trace Tables	Lists
Week 27			Summative Tests	Skills Contingency/Mini Project	Binary, Linear, Search, Bubble, Merge and Insertion Sort	Revision support
Week 28			Logic and Languages - Logic diagrams and truth tables	Skills Contingency/Mini Project	Variables, Constants, operators, inputs, outputs, and assignments. Programming Constructs: Selection, Sequence, Iteration. Arithmetic and Boolean Operators	Arrays

Week 29	<b>LOGIC AND LANGUAGE</b>		Defensive design	Project	Data Storage - Data Rep - Binary Denary, Hex, Addition, Shifts, Characters Images and Sound	Functions
Week 30			Errors and testing	Project	Architecture of a CPU - Fetch, Decode, Execute. Components - ALU, CU, Cache, Registers,, Von Neumann/registers - MAR, MDR, PC, ACC	Functions
Week 31			Translators and facilities of languages	Project	CPU Performance - Clock Speed, Cache Size, Number of Cores. 1.1.3 - Embedded Systems	Procedures
Week 32			The Integrated Development Environment	Project	Primary Storage - Ram, Rom and Virtual Memory	File creating/reading/writing
<b>Half Term</b>						
Week 33			Summative Tests	Project	String Manipulation, file handling, records, SQL, arrays (1D and 2D), Sub Programs (Procedures and Functions), Random name generator.	Revision support
Week 34			End of year test revision	Mini Project - Pseudocode Evidence	Boolean logic and Truth Tables	File creating/reading/writing
Week 35			End of Year Test revision	Mini Project - Algorithm Evidence	Authentication and Anticipating Misuse, Input Validation, Program Maintainability	Validation checks
Week 36		Contingency, Revision for end of year test and Programming Practice			Languages - High and Low, Translators and Compilers & IDE's	Validation checks
Week 37		End of year test			Starter Contingency	Revision support
Week 38		<b>WOW WEEK</b>				