



INTERNATIONAL SCHOOL OF SOUTH AFRICA

FORM 1 – UPPER 6 YEARLY OVERVIEW

COMPUTER SCIENCE

RATIONALE

- The aim of Computer Science is to set out a progression through the syllabus content, and to give ideas for activities, together with references to relevant resources and practical activities that can be under taken.
- The scheme of work generally follows the 2019 syllabus, but the order in which topics are covered has been adjusted to give a coherent flow to the course.
- The scheme of work is intended to give ideas to teachers upon which they can build. It is certainly not intended that teachers undertake all of the activities shown in the various units but rather to offer choices which could depend on availability of resources.
- The progression through these topics has been designed to build on students' own experiences, and to ensure that students have sufficient basic knowledge and understanding to tackle the more challenging issues.
- New students joining the school in Form 4 have to undergo a diagnostic test based on Form 3 work so that teachers can prepare intervention classes appropriately.
- Continuous Assessment of Form 3 work is to be carried out through into Form 4 and Form 5 as these topics cover the basic building blocks of IGCSE Computer Science.
- There are eight topics in the Scheme of Work divided into three parts to cover Form 3, Form 4 and Form 5 work as students prepare for IGCSE external examinations. Within each topic there are several units.
- A separate schedule of tests is produced at the beginning of each Term taking into account the deadlines set for Mark Orders.



OUTLINE OF FORM 3

Term 1	
Paper 1	Paper 2
Unit 1 – 15 hrs Introduction to Computer System <ul style="list-style-type: none"> • 1.3.3 Input devices • 1.3.4 Output devices • 1.3.5 Memory, storage devices and media Focus on developing skills of knowledge with understanding	Unit 6 – 12 hrs Introduction to Practical problem solving Introduction to programming <ul style="list-style-type: none"> • Use top-down design, structure diagrams, flowcharts, pseudocode, library routines and subroutines. • Work out the purpose of a given algorithm. • Explain standard methods of solution.
Term 2	
Unit 2 – 10 hrs Numbers and Processors <ul style="list-style-type: none"> • Binary systems ✓ Convert positive denary integers into binary and positive binary integers into denary (a maximum of 16 bits will be used). ✓ Recognise the use of binary numbers in computer systems. ✓ Show understanding of the concept of a byte and how the byte is used to measure memory size. • 1.3.2 Computer architecture and the fetch-execute cycle ✓ Show understanding of the basic Von Neumann model for a computer system and the stored program concept (program instructions and data are stored in main memory and instructions are fetched and executed one after another). ✓ Describe the stages of the fetch-execute cycle, including the use of registers and buses. 	Unit 7 – 12 hrs Practical problem solving – pseudocode <ul style="list-style-type: none"> • Declare and use variables and constants. • Understand and use basic data types: Integer, Real, Char, String and Boolean. • Understand and use pseudocode for assignment, using ←. • Understand and use pseudocode, using the following commands and statements: <ul style="list-style-type: none"> ○ INPUT and OUTPUT (e.g. READ and PRINT) totalling (e.g. Sum ← Sum + Number) counting (e.g. Count ← Count + 1). • Understand and use pseudocode, using the following conditional statements: <ul style="list-style-type: none"> ○ IF ... THEN ... ELSE ...ENDIF ○ CASE ... OF ... OTHERWISE ... ENDCASE. • Understand and use standard flowchart symbols to represent the above statements, commands and structures.



OUTLINE OF FORM 4

Term 1	
Paper 1	Paper 2
Introduction to computer systems Focus on developing skills of knowledge with understanding	Introduction to Practical problem solving Introduction to programming

Term 2	
Paper 1	Paper 2
Numbers, processors and operating systems Focus on developing skills of knowledge with understanding	Introduction to Practical problem solving, algorithms Programming concepts

Term 3	
Paper 1	Paper 2
Data communications and networking Test Department review of learners' progress	Introduction to Practical problem solving, flowcharts and pseudocode Programming concepts Test Department review of learners' progress



OUTLINE OF FORM 5

Term 1	
Paper 1	Paper 2
Review of previous year's work	Review of previous year's work
Data integrity and security	Databases
Department to identify learners who need extra support	Department to identify learners who need extra support

Term 2	
Paper 1	Paper 2
Binary Logic	Use of pre-release material
Focus on developing examination techniques	Focus on developing examination techniques
Learners to work through past papers and to draw up examination questions	Learners to work through past papers to draw up examination questions

Term 3	
Paper 1	Paper 2
Revision Practice examination papers	Use of pre-release material Revision
	Practice examination papers