



Overview

Curriculum Area – Computer Science

Overview – Year 9 Cloud 9 - 2021-22

Personnel Responsible – MKN

Quality Assured by – JAN

Exam Board/Qualification – N/A

Assessment Cycle	Topic/Unit Title – Big Question	Rationale/Skill Development	Content covered in the cycle		
The cycle of lessons are taught on a two-cycle rotation.	Algorithms 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9	Understand the process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs and debugging their programs. Will become familiar with a text-based programming environment (PYTHON IDE) in order to write code and solve problems. Pupils then use for loops and compare their use with while loops, before moving on to arrays (lists), which are introduced as a new data structure and are used in conjunction with for loops. Procedures and functions with parameters are covered to help pupils understand the concept and benefits of modular programming.	To solve a variety of computational problems; make appropriate use of data structures; design and develop modular programs that use procedures and functions This unit covers several key algorithms that reflect computational thinking [for example, ones for sorting and searching], use logical reasoning to compare the utility of alternative algorithms for the same problem.		
	Systems Architecture, Memory and Storage 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9	This unit will introduce learners to the Central Processing Unit (CPU), computer memory and storage. Understand and explain what is meant by a computer system, explain what is meant by an embedded system. Describe the structure of the central processing unit and the functions of its components. Describe the fetch-decode-execute cycle. Explain the need for and role of multiple cores and cache and virtual memory. Describe secondary storage media and the advantages and disadvantages of each. Describe the purpose of primary storage and the effects on a computers speed.	Systems Architecture The purpose of the CPU. The fetch-execute cycle. Common CPU Components and their function ALU (Arithmetic Logic Unit). CU (Control Unit). Cache and Registers. Von Neumann architecture. MAR (Memory Address Register). MDR (Memory Data Register). Program Counter. Accumulator.	Memory The need for primary storage. The difference between RAM and ROM. The purpose of ROM in a computer system. The purpose of RAM in a computer system. Virtual memory.	Storage The need for secondary storage. Common types of storage: Optical, Magnetic, Solid state. Suitable storage devices and storage media for a given application. The advantages and disadvantages of different storage devices and storage media.