Overview

Curriculum Area – Computer Science

Overview – Year 8 Innov8 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 four-cycle rotation.	**Algorithms** **1.1** **1.2** **1.3**	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.	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.
	System Security **1.4** **1.5** **1.6**	To become familiar with the impact of Computer Science in a global context through the study of system security concerns associated with Computer Science.	Introduced to and the study the following concepts: forms of attack , threats posed to networks, malware, phishing, people as the 'weak point' in secure systems (social engineering), brute force attacks, denial of service attacks, data interception and theft, the concept of SQL injection, poor network policy, identifying and preventing vulnerabilities, penetration testing, network forensics, network policies, anti-malware software, firewalls, user access levels, passwords and encryption.
	Systems Architecture, Memory and Storage **1.7** **1.8** **1.9**	This unit will introduce learners to the Central Processing Unit (CPU), computer memory and storage, wired and wireless networks, network topologies, system security and system software. It is expected that learners will become familiar with the impact of Computer Science in a global context through the study of the online safety and security concerns associated with Computer Science.	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.