Subject: Computing	Year: 10 Computer Science

INTENT

In Year 10 we introduce students to a full understanding of how computers work including technical specifications for CPU, memory and internet interactions. The goal is to prepare students for a career where detailed use and understanding of computers is required, such as programming, web development and internet-based industries.

IMPLEMENTATION

The Computing Department at BGN aims to inspire and develop awareness of technology and its surrounding issues. Students are taught a broad spectrum of computer based knowledge and are encouraged to develop their programming skills in the industry standard language of Python. Initial learning focuses on how computers work which then moves into programming skills and finally in year 11 the focus moves to problem solving in a programming environment.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
	1 2 3 4 5 6 7 8	9 10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26 27	28 29 30 31 32	33 34 35 36 37 38 39
Overview of Year – Topic area and Assessment	Systems Architecture 1. CPU Architecture 2. CPU Components 3. Von Neumann Architecture 4. CPU Performance 5. Embedded Systems	Memory and Storage 6. Primary Storage 7. Secondary Storage 8. Units 9. Binary and Hexadecimal 10. ASCII and Unicode 11. Bits and Images 12. Bits and Audio 13. Compression Networks 14. LAN WAN 15. Network Hardware 16. Client Server 17. Peer to Peer 18. Cloud DNS 19. Topologies	Network Security 24. Malware and Social Engineering 25. Brute Force DDOS and SQL Injection 26. Penetration Testing 27. Preventing Vulnerabilities 28. System Software 29. Operating Systems 30. Utility Software	Ethical Legal Cultural Environmental Impact 31. Ethical Issues 32. Cultural Issues 33. Environmental Issues 34. Privacy and Legal Issues 35. Data Protection 36. Copyright 37. Software Licences	Development of programming skills in Python. (These are foundational skills required for success in Computational Thinking Paper 2)	Development of programming skills in Python

	20. MAC Encryption 21. Wired and Wireless Networks 22. Standards and Protocols 23. Packet Switching			

IMPACT

	Topic	Assessment Method	Mark Sch / Grade Boundaries	Knowledge / Skills / Understanding To be shared with students
Topic, Assessment, Readiness	Computer Science OCR J277	Paper 1 Computer Systems	Grades 9 - 1	Paper 1 taken at end of year 11. Mock exams taken in year 10 and 11 with results shared in class and on VLE.