Computer Science Curriculum Overview

Curriculum Intent: This course will enable pupils to gain a deeper understanding of the wider digital world as well as provide them with a strong breadth of skills and knowledge that will support a career within the expansive technological industries. Students will develop their programming skill throughout the course as well as learn about the impact of technology from a social perspective.

Curriculum Rationale: The programme is designed to support a logical understanding of how computers function, starting with how the machines are made up and then moving on to how they are connected and eventually building on this to begin developing their own programs for those same computers.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	Collaborating Online: What is a digital workspace and how do we use it	Computer – The Basics: How the computer works and the names of the parts	Creating a game with Kodu: 3D digital design and game development.	Algorithms, Drawing and Manipulating shapes: Beginning to understand logical thinking.	Programming Essentials with Scratch: Beginner games design with block programming	Using Media (Project): Using Microsoft suite to create posters
Year 8	Data representation – From Clay to Silicon: Understanding binary numbers and data	Flowol: Logic and flow diagrams	BBC Microbits: How programs effect physical objects	Introduction to Python: Beginner programming techniques	HTML and Web Development: The programming behind websites	Basic Networking: How computers communicate with one another
Year 9	Understanding Computers: How the physical elements of computers work	Databases: Inputting and manipulating data	Spreadsheets: Inputting and manipulating data	Computational Thinking and Logic: Encouraging logical thinking and problem solving	Python programming – next steps: More advanced programming techniques	Computer crime and Cyber Security: How computers are used unethically
Year 10	Systems Architecture: The physical parts of the computer and how the CPU functions.	Memory and Storage: How and where data is recorded and saved onto the computer.	Computer Networks, Connections and Protocols: How computers communicate and stay connected with one another.	Network Security: How computer systems stay protected from hackers/malware.	Systems Software: Operating systems and user interface. How the computer is used by people.	Impacts of Digital Technology: How computers affect people's lives both positively and negatively.
Year 11	Boolean Logic: Using logic statements in various scenarios. AND, OR, NOT.	Algorithms: Using computational thinking to solve problems and create instructions.	Programming Fundamentals: Understanding the basics of Python programming – INPUT, OUTPUT, VARIABLES etc.	Robust Programs: Using particular techniques to reduce the chance for errors in the programs	Integrated Development Environments: Understanding how IDE's work and how they help us with programming	Advanced Programming: Additional techniques that will boost the level of a program significantly.

Key Stage 4
• GCSE - Computer Science (9-1) - J277 (from 2020) - OCR • GCSE - Computer Science (9-1) - J277 (from 2020) - OCR • GCSE Computer Science - OCR - BBC Bitesize • GCSE topics — Isaac Computer Science