



Computing Curriculum Overview

Computing (KS3/4) and Computer Science (KS4/5)

Computing is viewed at Tiffin as a means of expressing oneself - a Performing Art. It can help your message reach a wide audience, it can provide a structure to help you form your ideas and it can boost your creative process in terms of speed and quality.

The Information and Communication Technology (ICT) strand of Computing explores three interrelated skill areas: using ICT systems; finding and selecting information; and developing, presenting and communicating information. From KS3, Computing helps to develop essential concepts and skills relating to the ability to use computational thinking (problem decomposition, pattern recognition, abstraction and algorithms) and coding to analyse a problem and develop solutions. **The KS3 National Curriculum for Computing is completed during Years 7 & 8.**

Our programmes of study will enable our learners to develop:

- key skills that prove aptitude in digital information technology, such as project planning, designing and creating user interfaces and dashboards as a way to present and interpret data
- processes that underpins effective ways of working in digital information technology, such as project planning, the iterative design process, cyber security, virtual teams, legal and ethical codes of conduct
- attitudes that are considered most important in digital information technology, including personal management and communication
- knowledge that underpins effective use of skills, process and attitudes in the sector such as how different user interfaces meet user needs, how organisations collect and use data to make decisions, virtual workplaces, cyber security and legal and ethical issues.

The KS4 National Curriculum for Computing is delivered through Computer Science lessons, for those choosing the subject in Y9 and beyond, or through independent project-work (monitored by Computing teachers) for those choosing other GCSE pathways.

Students follow the OCR Computer Science (J277) GCSE Course from Year 9. All the way through the GCSE course, students learn to program in JavaScript, C#, Visual Basic and Python and engage in programming challenges that require them to write their own code which passes parameterised unit tests and other coding activities.

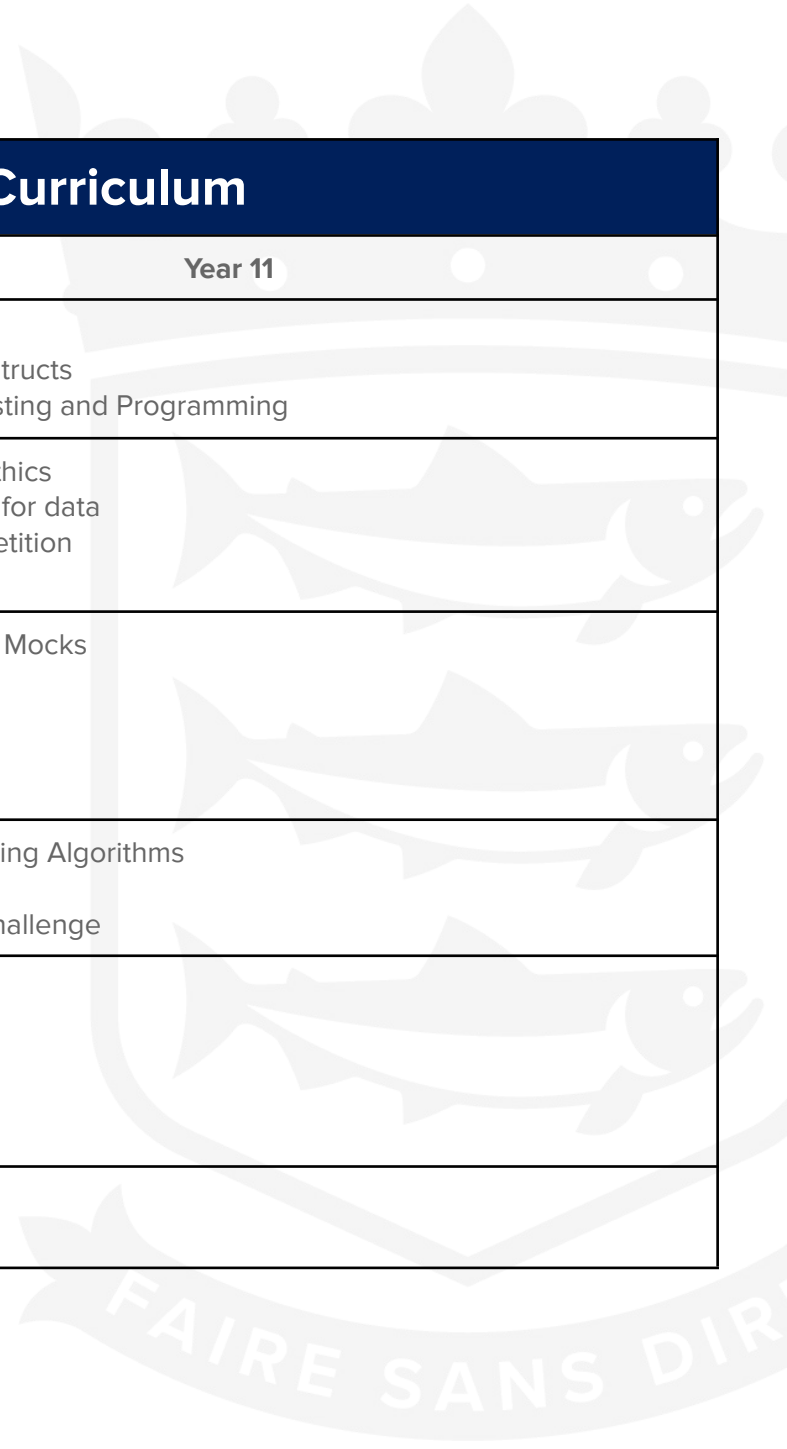
The A level course follows the OCR H446 Computer Science course. Students are encouraged to develop at least 3 programming languages.

KS3 Computing Curriculum

	Year 7	Year 8	Year 9
Autumn Term 1	Digital Literacy Online Safety	My Personal Area Network (PAN) Features of a tablet computer	Introduction to Visual Basic
Autumn Term 2	Block based programming Graphic Design BEBRAS UK Competition	User Interface design Web page design (HTML/CSS) BEBRAS UK Competition	Data storage and structures BEBRAS UK Competition Advent of Code
Spring Term 1	Internet Technologies Presenting data using a word processor Manual and automatic data input and output	Data protection Introduction to App Design	Sorting Algorithms Computer hardware Computer Software
Spring Term 2	Digital wellbeing Presenting numerical data BEBRAS Coding Challenge	BEBRAS Coding Challenge Complete App Design and evaluation	Searching Algorithms Advanced Spreadsheets BEBRAS Coding Challenge
Summer Term 1	Introduction to Spreadsheets	Digitisation (Text, Image, Sound, Compression, encoding, decoding, encryption) Data storage and structures	Computational Thinking
Summer Term 2	Multimedia	Sorting and Searching Algorithms Introduction to JavaScript	Software Development Project

KS4 Computing / Computer Science Curriculum

	Year 10	Year 11
Autumn Term 1	Programming fundamentals Designing, creating and refining algorithms	Features of an IDE Programming Constructs System Design, Testing and Programming
Autumn Term 2	Computational Thinking BEBRAS UK Competition Advent of Code	Legal issues and Ethics Use SQL to search for data BEBRAS UK Competition Advent of Code
Spring Term 1	Sorting Algorithms Logic circuits Truth Tables Data Representation	Mock Revision and Mocks Sorting Algorithms Random Numbers File handling Pseudocode
Spring Term 2	Searching Algorithms BEBRAS Coding Challenge	Sorting and Searching Algorithms Revision Paper 2 BEBRAS Coding Challenge
Summer Term 1	Architecture of the CPU CPU Performance Embedded systems Memory, Storage and Operating Systems Network Layers and Protocols	Revision Paper 1
Summer Term 2	Ethics and Legal Issues Computer Networks	Exams



KS5 Computer Science Curriculum

	Year 12	Year 13
Autumn Term 1	Structure and Function of Processor Programming Techniques using Visual Basic Data Structures	Data Structures in depth Exam practice Finish practice NEA Start NEA
Autumn Term 2	Software Development Databases BEBRAS UK Competition Advent of Code	Legal issues and Ethics Database analysis and design
Spring Term 1	Web Technologies Software Development Practice NEA 1 - (Group Work) Networks	Revision and Exam practice Finish NEA
Spring Term 2	Types of Programming Language Compression, Encryption and Hashing BEBRAS Coding Challenge	Revision - Paper 2
Summer Term 1	Applications Generation Data Types Approaches to problem solving Practice NEA 2 - (Individual)	Revision - Paper 1
Summer Term 2	Boolean Algebra Consolidating knowledge, enrichment and progression activities.	Consolidating knowledge, enrichment and progression opportunities.