



Subject: Computer Science

Lead Teacher: Mr Ley

Years: 12 & 13

Curriculum organisation

Students are taught for 4 hours per week, each with a computer to use. The Syllabus followed is AQA Advanced Level GCE in Computer Science, Option A (C#) 7516A.

Curriculum Intent & Organisation

The full curriculum is laid out in the Google classroom for both year 12 and 13. It is split into theory and programming lessons, but as far as possible programming will be used to reaffirm the theory taught.

Composition of the A Level

Paper 1: Tests a student's ability to program. It is an on-screen, 2 hours 30 minutes exam counting for 40%.

Paper 2: Tests a student's theory knowledge. It is a paper, 2 hours 30 minutes exam counting for 40%.

NEA: A project to solve or investigate a practical problem, counting for 20% of A-level.

Curriculum Implementation – Areas of Focus Year 12

Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Intro to Algorithms • Programming Fundamentals intro • Binary, Units and Two's Complement • Programming fundamentals 1 • Fixed point Numbers • Representing Text • Programming Fundamentals 2 • Algorithms • Finite state machines 	<ul style="list-style-type: none"> • Image and Sound • Compression • Programming Fundamentals 3 • Floating Point Form • Hardware • Software • System Architecture • Assembly Language 	<ul style="list-style-type: none"> • Encryption • Logic Gates and Boolean Identities • Adders and Flip Flops • Networking • Programming Fundamentals 4 • Consequences • Programming fundamentals 5 • Mock P1 • Programming OOP

Curriculum Implementation – Areas of Focus Year 13

Autumn Term	Spring Term	Summer Term
Work on the Paper 1 Pre-Release and the NEA project runs parallel to the term's topics		
<ul style="list-style-type: none"> • Relational Databases • SQL • TCP/IP and the Internet • REST and CRUD • Programming Recursion 1 • Programming Abstract Data Structures • Reverse Polish Notation • Big O Notation 	<ul style="list-style-type: none"> • Dijkstra's Algorithm • Limits of computation • Set Theory • Regular expressions and Backus Naur Form • Turing machine and Finite state Machines • Big data and Functional programming • Cyber Security 	<ul style="list-style-type: none"> • Testing and finishing the NEA • Revision and Exam practice

How will learning and progress be assessed?

- Homework tasks
- Regular unit assessments
- Practice exams
- Mock examinations.

Extension & Enrichment opportunities

- Coding club and Digital Leaders (club)
- Mentoring GCSE Students
- National Competitions (BEBRAS)

Inclusion

- Teachers follow student passports to ensure that the needs of all students with SEND are met.
- Work is enlarged to the necessary size for visually impaired students.
- Teachers will ensure that classrooms are quiet learning environments where possible and will dim lights to support students with sensory needs.
- Students have the use of laptop if they have a SEND need whereby use of a laptop supports them.
- Hearing impaired students are supported through use a radio aid and teachers ensure that students can lip read at all times during lessons.
- Dyslexic students are encouraged to use coloured overlays when they are required to read long passages.
- Use of dyslexic friendly fonts and coloured backgrounds used in PowerPoints/resources.
- Students with ADHD are given movement breaks, fidget toys and lessons are 'chunked' to aid concentration.
- Students are seated according to their needs, students work with the SENDCo to decide upon this.

Additional Inclusion for Computer Science

- Computer monitors can be adjusted for brightness and contrast to support students with sensory requirements
- Spell check in Word gives support to Dyslexic students

If you have any questions about this Learning Overview, please contact the named Teacher above.