

Year 12 and 13 - A Level Computer Science

Curriculum content

Half term	Year 12		Year 13	
	Paper 1	Paper 2	Paper 1	Paper 2
Summer 2			Data Structures	Thinking Abstractly Thinking Ahead Thinking Procedurally Thinking Logically Thinking Concurrently Programming Project Analysis & Design
Autumn 1	Characteristics of devices Data Types	Thinking Abstractly Thinking Ahead Thinking Procedurally Thinking Logically	Data Structures (continued) Database Revision Databases	Programming Techniques Recursion Object Orientated Techniques Programming Project Design & Prototype 1
Autumn 2	Characteristics of devices (continued) Boolean Algebra Data Structures	Programming Constructs Integrated Development Environment Global & Local Variables Functions	Compression, Encryption & Hashing Networks Revision	Computational Methods Algorithms (Divide & Conquer, Heuristics, Pipelining) Dijkstra Algorithms A* Algorithms Programming Project Implementation
Spring 1	Operating Systems Data Structures (continued) Applications Generation	Computational Methods Problem Recognition Problem Decomposition	Processor Revision Input, Output, Storage Revision	Efficiency of Algorithms Programming Project Implementation (continued)

		Use of Abstraction Computational Techniques		
Spring 2	Software Development Databases Networks	Algorithms Web Technologies	Case Studies & Extended Writing Paper 1 Revision	Paper 2 Revision Programming Project Testing & Evaluation
Summer 1	Paper 1 Revision Paper 1 Mock Exam Programming Languages	Project Feasibility Study Paper 2 Revision Paper 2 Mock Exam	Paper 1 Revision	Paper 2 Revision

Skills

Computer Science is a practical subject where students can apply the academic principles learned in the classroom to real world systems. The A level qualification in Computer Science will equip students with a range of computational thinking and programming skills and provide opportunities to develop, in context, desirable, transferable skills such as analysis, planning, problem solving, review and working with others.

The qualification will enable students to develop:

- valuable thinking and programming skills that are extremely attractive in the modern workplace;
- computational thinking skills and how to apply them;
- the ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so
- problem-solving using computers;
- creative thinking skills by creatively, innovatively, analytically, logically and critically solving problems to develop a solution;
- mathematical skills used to express computational laws and processes;
- memory recall skills regarding knowledge of topics on the specification;
- research, analytical and evaluative skills;
- skills that interpret and present information to effectively communicate;
- independent working skills;

- efficient time management skills;
- digital literacy skills to be able to successfully find, evaluate, create and communicate information.

Assessment

This is a linear assessed course with external assessment taking place at the end of Year 13.

There are 2 externally assessed papers, each weighted at 40% :

Paper 1 – Computer Systems

Paper 2 – Algorithms and programming

Students must also complete a Non Examined Assessment (Programming Project) of their choice, weighted at 20% of the final grade.

Further details about the course can be found at: <https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/>