

COMPUTER SCIENCE

SPECIFICATION

A Level AQA Computer Science 7517

OBJECTIVES OF THE COURSE

The A Level course based on this specification encourages students to develop a broad range of skills and knowledge of Computer Science as a basis for progression into further learning, and/or employment in Computer Science-related fields.

This Computer Science course encourages students to develop:

- The capacity for thinking creatively, analytically, logically and critically
- An understanding of the organisation of computer systems including software, hardware, data, and communications
- Skill and understanding of programming, in a range of contexts and languages, to solve problems
- The capacity to see relationships between different aspects of the subject and perceive their field of study in a broader perspective
- An awareness of emerging technologies and an appreciation of their potential impact on society

SPECIAL FEATURES OF THE COURSE

- Greater opportunities for practical programming work
- Wide range of programming problems analysed, studied and undertaken
- Students as active investigators rather than passive learners
- This course provides a good foundation for abstract thinking, general problem-solving, algorithmic and mathematical reasoning, scientific and engineering-based thinking, when investigating future challenges

METHODS OF STUDY

Units within the course should provide students with the opportunity to develop their computational and algorithmic thinking through problem decomposition and programming and designing programs, as well as developing their knowledge and understanding of the development of computing systems through academic study.

CONTENT AND ASSESSMENT

UNIT 1 – Systematic approach to problem solving

UNIT 2 – Hardware, networking, big data and functional programming

UNIT 3 – The Computer Science practical project (non-exam assessment)

Unit 1 – Systematic approach to problem solving

- 40% of A Level
- 2 hour 30 minute **on-screen** examination
- Preliminary Material released on 1st September in Y13
- Short answer questions and programming tasks to complete

Unit 2 – Databases, big data and functional programming

- 40% of A Level
- 2 hours 30 minutes written examination
- A series of short-answer and extended-answer questions.

Unit 3 – The computing practical project

- 20% of A Level
- Students write a report that documents a programmed solution to a real problem associated with a user whose realistic needs should be taken into account when specifying, designing and implementing the solution.
- Completed in lessons and students' own time
- Internally assessed and externally moderated

SUBJECTS WHICH COMPLEMENT COMPUTER SCIENCE

Students may also consider taking Mathematics, Further Mathematics, or Physics alongside this qualification.

HIGHER EDUCATION AND CAREER OPPORTUNITIES

A qualification in Computer Science offers students a first step into the varied world of Computer Science and IT, with careers including, software/app/games development, hardware engineering, telecoms, project management and systems analytics. In addition, the range of related careers is diverse and successful students may consider career options in engineering, medicine, law, business, politics and any type of science.

