

Spalding Grammar School Sixth Form

Subject Information

Computer Science

Entry Requirement:

Grade 6 in Computer Science if studied or Grade 6 in GCSE Mathematics.

Awarding body: OCR

About the subject: This challenging specification encourages students to develop problem solving skills with an emphasis on computer programming algorithms and allows students to build on their mathematical skills to express computational laws and processes, e.g. Boolean algebra/logic. Students will then apply these academic principles learned in the classroom to real world systems in an exciting and engaging manner. The majority of concepts taught in the course are based upon the Python programming language, however, you are not limited to a single language and in the past students have taken the opportunity to explore other language and develop their understanding.

Prior experience of GCSE Computer Science is not essential but it will require effort on your part to build up your knowledge of the early concepts.

Assessment:

There are a total of 5 blocks split into a series of units that deal with specific topics over the two year Computer Science A-Level course which is taught by subject specialists following the OCR Computer Science syllabus.

In Year 12 students study two units:

- **Unit H046/1 Computing Principles:** Introduces students to the internal workings of the Central Processing Unit (CPU), the exchange of data and will also look at software development, data types and networks. It is expected that students will draw on this underpinning content when studying computational thinking and developing programming techniques.
- **Unit H046/2: Algorithms and problem solving:** This component will incorporate and build on the knowledge and understanding gained in the Computer Systems component; understand what is meant by computational thinking and the benefits of application to solving a wide variety of problems. This will then be reinforced whilst learning about programming techniques and developing our programming understanding from GCSE.

In Year 13 students study a further three blocks that are again split into a series of units:

- **Unit H446/1 Computer Systems:** This component will build on the Computing Principles taught in Year 12, looking at the components of a computer and their uses, software and its development, data types and data exchange, along with legal, ethical and moral issues in computing today.
- **Unit H446/2 Algorithm and programming:** This component will build on the Algorithms and problem solving modules taught in Year 12, where students will understand the principles solving problems by computational methods, using algorithms as a descriptor and identifying its component parts.

- **Unit H446/3 Programming Project:** The programming project component is a practical, portfolio based assessment with a task that is chosen by the teacher or student and can be produced in Python 3.x programming language. Students could alternatively develop their project in a language that they have learned independently. The project can be from any area that you wish to explore and previous students have created projects based around hobbies, games, areas of potential university study and business applications. This is an opportunity to further develop your programming abilities over a lengthy period of time.

For a full breakdown of the unit topics and assessment requirements, visit www.ocr.org.uk and search for the GCE A Level Computer Science Specification.

Students have 11 lessons of Computer Science per cycle (two weeks) and tuition takes the form of student-led presentations, teacher-led presentations and group work. Please feel free to speak with the Head of Subject should you have any questions or if you wish to discuss the course further.

