GCSE

Computer Science

Why study Computer Science?

GCSE Computer Science has real relevance in our modern world. It will give you an in-depth understanding of how computer technology works and a look at what goes on 'behind the scenes'. As part of this, you will investigate computer programming (developing the skills to create your own applications). This will help you develop critical thinking, analysis and problem solving skills. For many, it will be a fun and interesting way to develop these skills, which can be transferred to other subjects and even applied in day-to-day life.

Exam Board: CAMBRIDGE OCR

Overview of course content (specification code: J277)

Topics Studied

You will begin the course in Year 10 learning Java programming skills. As your programming skills develop you will be challenged with increasingly complex programming tasks. Developing your problem solving skills to enable you to derive appropriate algorithms is key to success on this course. A substantial amount of class time will be spent on practical tasks but you will also study the following:

- Current and emerging technologies, understanding how they work and applying their knowledge and understanding in a range of contexts
- The components that make up digital systems, and how they communicate with one another
- Evaluating the effectiveness of computer programs/ solutions and the impact of, and issues related to, the use of computer technology in society
- The application of the fundamental principles and concepts of Computer Science including abstraction, decomposition, logic, algorithms and data representation
- Mathematical skills relevant to computer science.

Component 1: Content of Computer Systems

1.1 Systems Architecture
1.2 Memory and Storage
1.3 Computer Networks, Connections and Protocols
1.4 Network Security
1.5 System Software
1.6 Ethical, Legal, Cultural and Environmental Impacts of Digital Technology

Component 2: Computational thinking, algorithms and programming

2.1 Algorithms*
2.2 Programming Fundamentals
2.3 Producing Robust Programs
2.4 Boolean Logic
2.5 Programming Languages and Integrated Development Environments

*Algorithm questions are not exclusive to Component 2 and can be assessed in either component.

Successful completion of OCR GCSE Computer Science requires pupils to complete a minimum of 20 hours of practical programming activities during lessons.

Examination

Examination	% of GCSE
Paper 1: Computer Systems Exam duration: 1 hour 30 minutes (80 marks)	50%
Paper 2: Computational Thinking, Algorithms and Programming Exam duration: 1 hour 30 minutes (80 marks)	50%

Careers/Future Opportunities

Studying Computer Science will provide pupils with a foundation of knowledge, problem solving and logical thinking that will serve as a competitive advantage to any career, in whatever field they choose. In particular this qualification will help pupils who are considering careers in the technology industry such as software engineering, computer games design and development, robotics/cybernetics, web development, telecom/ networking architects, multimedia and applications developers.

If you have any questions, please email:
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