Computer Science

Overview

Computer Science is not about learning to use tools or just training in a programming language (though you will do both). Instead the emphasis is on computational thinking which is a kind of reasoning used by both humans and machines. Computer Science involves questions that have the potential to change how we view the world e.g. we may be computing with DNA in the future, with computer circuits made of genes. This leads to the question, does the natural world compute?

Awarding Organisation: AQA

Minimum course requirements: GCSE Grade 5+ in Mathematics and Grade 5+ in Computing if studied. GCSE Grade 6+ in Mathematics if Computing not studied at GCSE.

More information: Mr D Stephenson

Curriculum and assessment

YEAR 12	YEAR 13	ASSESSMENT
• Problem solving and Boolean logic	• Finite state and Turing machines	Students sit two examinations worth 80% at the end of Year 13.
• Programming and data representation	• Comparison of algorithmic complexity	In addition to a thesis like research project into a computing topic or the development of a programmed solution for a real world client worth 20%.
• Machine level architecture	• What you cannot compute and why	
• The stored program concept	• Programming paradigms and concepts	
• The structure of the internet	• Complex networking theory	
• Relational database design and implementation (SQL, DDL, Normalisation)	• Operating Systems	

Post 18 opportunities

This course, with its emphasis on abstract thinking, general problem solving, algorithmic and mathematical reasoning, scientific and engineering-based thinking, is a good foundation for those who wish to go on to higher education courses or employment where knowledge of computing would be beneficial. You can study computing and go onto a career in medicine, law, business, politics or any type of science.

Destinations of students in recent years:

Cardiff University – Computer Science

Newcastle University – Computer Science

Nottingham University – Computing Science with Artificial Intelligence

Oxford University – Physics

University of Reading – Cybernetics, Computer Science

Expenses

Students are required to purchase text books but we will provide all the software needed for the course.