



# COMPUTER SCIENCE

HEAD OF DEPARTMENT: MR VANSTONE  
EXAMINATION BOARD: OCR

SPECIFICATION: A-LEVEL COMPUTER SCIENCE H446  
QUALIFICATION: A-LEVEL COMPUTER SCIENCE

If you are someone who likes to be at the forefront of all things technology then this is the course for you. Develop your problem-solving skills and learn how to design innovative solutions in an ever-evolving plethora of industries with Computer Science at Truro School.

A-Level Computer Science at Truro School is taught by Mr Vanstone and Ms Lobb. Mr Vanstone is a Geology graduate with seven years industrial experience processing scientific data and computer modelling in scientific and civil engineering consultancies, before entering teaching. He contributed his Python coding and scientific skills to a 2020 paper in the journal Science on the seismic quietening in lockdown and is keen to build interest in scientific computing within the school. Ms Lobb has a degree in digital media and computing, having also worked as a digital artist and programmer in computer games development and advertising, before qualifying as a computer science teacher and joining Truro School in 2020.



## WHAT YOU WILL STUDY IN LOWER SIXTH

In the Lower Sixth a large emphasis is placed on developing your computational thinking and programming skills using Python, HTML, CSS, JavaScript, Assembly Language and SQL.

You will be encouraged to solve problems ranging in difficulty from simple input and output to complex simulations and algorithms.

The course covers a variety of theory topics including data representation, networking, legal, moral, cultural

and ethical issues and systems architecture. These subjects form the backbone of a deep understanding of computer science and will help to provide a solid foundation for further learning.

Towards the end of the year you will begin to plan your programming project which will eventually make up 20% of the A-Level grade; this will generally be a solution to a real life problem, developed in a programming language of your choice, using an Agile methodology.

## SMALL CLASS SIZES

Small class sizes mean that you will be fully supported every step of the way, particularly during your bespoke project work.

## YOU'RE IN SAFE HANDS

A-Level teachers Mr Vanstone and Ms Lobb have many years of industrial experience in scientific, engineering and game-development industries, having worked for a range of companies applying the full range of skills required for success at A-Level, as well as having many years' combined experience in teaching.

## WHAT IS AN A-LEVEL IN COMPUTER SCIENCE USEFUL FOR?

Computer Science at A-Level is an ideal preparation for a computing degree or apprenticeship with a company in the digital sector. It is also an extremely useful subject combined with the sciences and maths for the future study of aeronautical, electrical/electronic, civil, mechanical and chemical engineering.



Excellent computing facilities and technical support with three in-class computer suites, a dedicated student network of Raspberry Pi devices and close collaboration with other departments.

## WHAT YOU WILL STUDY IN UPPER SIXTH

In the Upper Sixth you dedicate your time to project work, whilst building on practical skills in the programming language of your choice, Python, JavaScript, CSS, HTML and SQL.

The theoretical elements of the course are studied in greater depth, with opportunities to build on your knowledge of every aspect of the course.

The NEA project follows an Agile methodology in a language of your choice and includes a Graphical User

Interface. In the NEA project, you will produce a significant piece of work, which is a solution to a real-world problem.

You will take two end-of year exams, one covering computer systems and the other covering algorithms and programming. The algorithms and programming paper will allow you to show off your knowledge of programming constructs and techniques without being tied to one specific programming language.

*Computer science A-Level has been a great next step for me since I get to continue with programming, while learning more about all the tech our world depends on. The lessons are always challenging, as we come across new ideas and systems which work completely different than anything I've seen before. The course offers a strong base in programming and analytical thinking, which is then applied to different technologies, such as the way each component works, network architecture and databases. I really enjoy how the whole course is based on this technical mindset. I always figure out a way I would solve a problem, and then we learn how people actually did it in the past – and I'm usually right! There is also a huge practical project involved in A2, I am working on a vectorization algorithm using Python extended with C++ at the time of writing.*

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