



## Abbey Gate College Sixth Form



# Computer Science

## Why study Computer Science at A Level?



Computer Science is an exciting subject that encourages students to think creatively, logically and critically and to develop advanced problem solving skills. Students choose to study Computer Science because they are passionate about computers and want to learn about computer architecture; communications and networking; fundamentals of data representation and data structures.

Students will develop complex algorithms and implement these using a variety of

programming paradigms including procedural, object oriented and functional techniques. Python is the main language used, but other languages will be experienced throughout the course. In the second year of the course, students will develop and apply their programming skills to develop a computer system for a real end user for the non-exam assessment (NEA). At this stage many students choose to teach themselves a new programming language and/or to program for a different hardware platform (e.g. mobile phone applications).

# Course Content



## AS Level:

The AS course will consist of two units, each externally assessed and weighted at 50% each.

### Unit 1 Computer Principles

In this unit, students gain an understanding of the characteristics of contemporary processors, software and software development.

### Unit 2 Algorithms and Problem Solving

In this unit, students gain an understanding of the principles of computational thinking, problem solving, programming and algorithms.

## A2 Level:

This A Level will consist of three units, two of which will be externally assessed exams making up 80% of the qualification. The other 20% will consist of a course work project which is internally assessed and externally moderated.

### Unit 1 Computer Systems (40%)

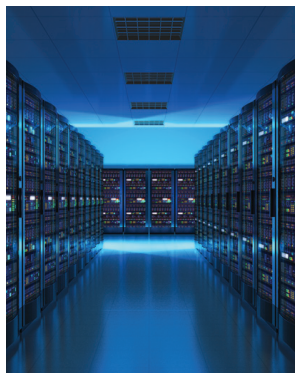
In this unit, students learn about the components of a computer and their uses, types of software and the methodologies used to develop them.

### Unit 2 Algorithms and Programming (40%)

In this unit, students learn about what is meant by computational thinking, how computers and programs are used to solve problems and the use of algorithms to describe problems.

### Unit 3 NEA Programming Project (20%)

For the course work component students analyse, design, develop, test, evaluate and document a program written in a suitable programming language.



**SKILLS**  
obtained by  
studying  
**Computer  
Science:**

This subject teaches you a whole range of skills; you will develop communication skills to influence people, discover new ways to use and analyse information, become a real 'problem solver' and develop an analytical brain.

#### What next?

- Progression onto a range of degree courses including: Computer Science, Software Engineering, Computer Games Development and Information Systems.
- Jobs as a Computer Games Developer, Web Developer, App Developer, Programmer