



WELCOME TO A LEVEL
COMPUTER SCIENCE

What does Computer Science involve?

THEORY

Component 01: Computer Systems –

- Advanced hardware architecture
- Software and software development
- Exchanging data
- Data types and structures
- Legal, moral and ethical issues

Component 02 -Algorithms and Programming

- Elements of computational thinking
- Computational problem solving
- Algorithms to solve real world problems

PRACTICAL

Choose a computing problem to work through with consideration of...

- Analysis of the problem
- Design of the solution
- Development for the solution
- Evaluation

How is Computer Science assessed?

OCR A Level Computer Science (2015 spec)

Exams

Component 01: Computer Systems –
140 marks - 40% of total A Level

Component 02 : Algorithms and Programming –
140 marks - 40% of total A Level

Project (A Level only)

Programming Project
70 Marks – 20% of total A Level



Why choose Computer Science?

Knowledge of modern computing systems

Great opportunities at **University**

Great **employment** opportunities

A **fun** and engaging course!



Do I need existing programming skills?

We will teach you to program from scratch...BUT

You will need:

- To **learn** the basic rules of a computer language
- To have a **logical** approach to problem solving
- To be able to follow **instructions** carefully!
- To be very **patient** – if it doesn't work at first, try again!



What support will I have?

- You can borrow **hardware** from the department.
- You can borrow **resources** from the library.
- You can get **technical** help from teaching and IT staff.
- You will get a course **e-textbook** to access anywhere!
- You will be regularly tested with **feedback** given.
- You will be able to access many tutorial websites and **blogs**.



What do students say?

“It’s **fun** and I have learnt useful skills”

“Great course with great class **atmosphere**”

“The course is **challenging** yet fun”

“It’s not all **coding**, there's a lot of **theory** work involved too”

What do students advise?

Know the **difference** between Computer Science and ICT

Practice writing **programs** that are short and fun

Learn the theory, it will help your coding



A Level Computer Science

Summer Task

Produce a short report that explains the following:

1. What the term algorithm means.
2. How an algorithm can be expressed as:
 - a. A flow chart
 - b. Pseudo-code
 - c. Structured English
3. What the following constructs mean:
 - a. Sequence
 - b. Selection
 - c. Iteration
 - d. Recursion
4. How a Bubble Sort algorithm works.
5. How a Linear Search algorithm works.



A Level Computer Science

Summer Task (cont....)

Produce a short report that explains the following:

6. The differences between the following generations of programming language:
 - a. First generation – machine code
 - b. Second generation – assembly language
 - c. Third generation – imperative high level language
 - d. Fourth generation – declarative language
7. The relationship between high level languages and first and second generation languages.
8. The function of the following types of program translator:
 - a. Assemblers
 - b. Compilers
 - c. Interpreters

