



Why Study Computer Science?



Why study Computer Science?

A good grade in Computer Science at A level is valued by universities and employers since it requires the development of analytical thinking and problem-solving skills



Computer Science is

Learning about...

- The characteristics of contemporary processors, input, output and storage devices
- Types of software and the different methodologies used to develop software
- Data exchange between different systems
- Data types, data structures and algorithms and how they can be used to describe and solve problems



Computer Science is

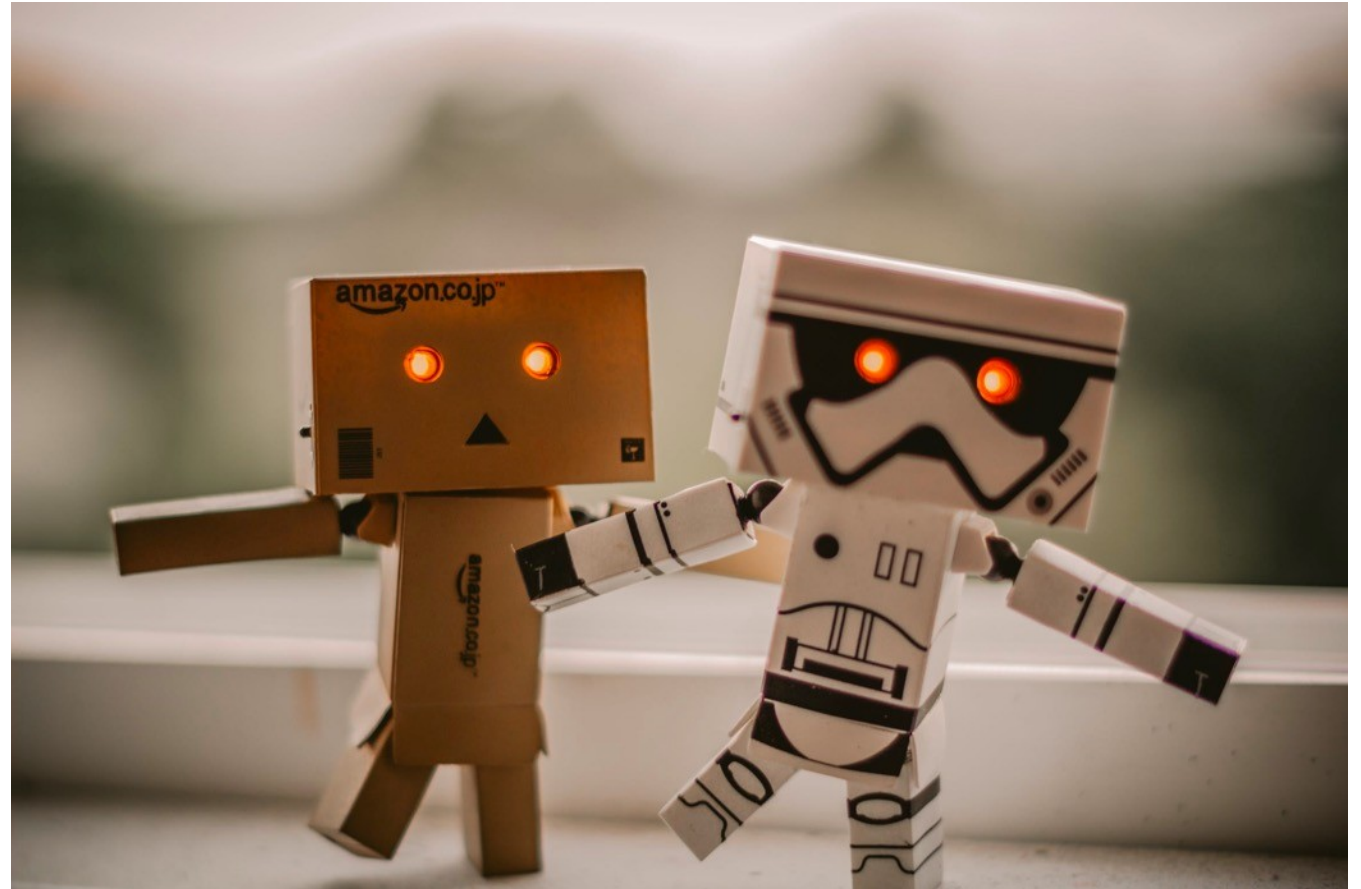
Learning about...

- Legal, moral, cultural and ethical issues
- What is meant by computational thinking (thinking abstractly, thinking ahead, thinking procedurally etc.)?
- Problem-solving and programming – how computers and programs can be used to solve problems
- Algorithms and how they can be used to describe and solve problems



Computer Science is not...

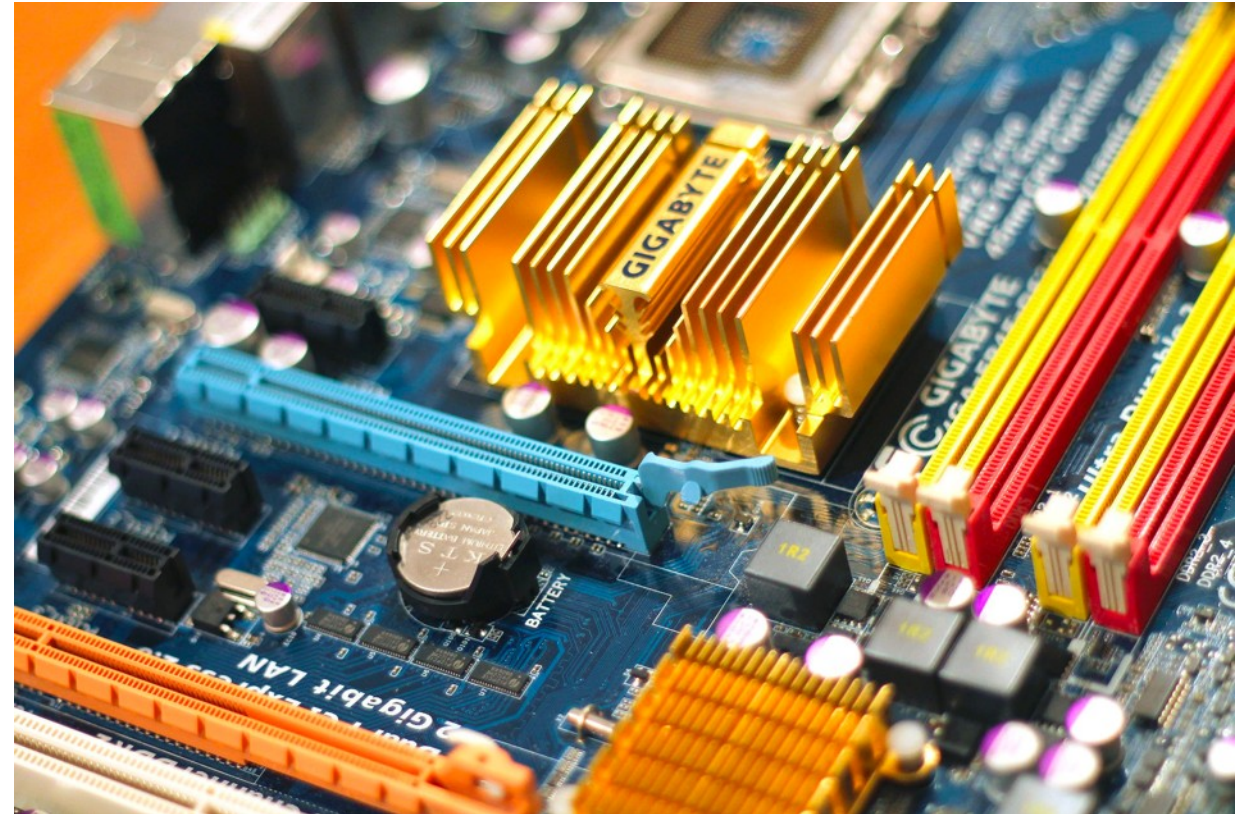
- Boring
- Just for 'nerds' or just for boys
- Simply sitting at a computer writing code or programs



Common Misconceptions about Computing

1. All you do in Computer Science is write programs and do coding

Not true! Computer Science has many more areas of study, programming is just one small part. You will also learn about the internal workings of computers as well as the wider impact of computing on society.



Common Misconceptions about Computing

2. It's only for boys...

- Not true! Lots of girls study Computer Science across the world.
- Many women are in positions of responsibility in some of the biggest technology companies in the world.
- Also, the first ever computer program was written by Ada Lovelace in the 1800s!
- Mary Kenneth Keller was the first woman to earn a PhD in Computer Science in the United States and also earned a Masters degree in Mathematics and Physics. She helped to develop computer programming languages and she was a Catholic nun.



Common Misconceptions about Computing

3. Computer science is hard to integrate into core subjects

Not true! Computer science has links with Maths and Science and computational thinking. Logical thinking, abstraction and decomposition can be applied in almost all subjects in school!



Related Subjects at KS5

- Maths
- Physics
- Art & Design
- Design
Technology
- Engineering



Why is Computer Science important?

Computer science benefits society by...

- Empowering people who are often overlooked - computer science is a tool for societal rebalance when it comes to gender identity, background, ethnicity and beyond.
- Code is code - and if you've created something genuinely useful, your background isn't going to hold you back.
- Accelerating healthcare progress - Genomics and personalised medicine are an excellent example of how computer science-driven technologies are accelerating healthcare progress.
- Furthering education, such as E-learning platforms and applications, gives students new tools to problem-solve and study, which has changed the academic world.

Computer science benefits society by...

- **Expanding communication** - Computer Science has made the whole world a very small place — available at your fingertips now.
- **Predicting and avoiding catastrophes** - thanks to algorithms written by computer scientists, we can predict everything from an incoming tsunami to the outbreak pattern of a deadly disease.
- **Positively impacting every area of society** - almost every aspect of society relies on the innovations spurred by computer science professionals.



How Computer Science builds character

TASK: There are a vast range of skills associated with studying Computer Science, skills that employers and universities look for when recruiting.

Can you think of any?



How Computer Science builds character

The 4Cs:

- **Collaboration** - Group projects enable you to build on your abilities to work together in a team to achieve a common goal
- **Communication**- Writing programs and using comments within code enables you to develop your written communication skills
- **Creativity** - Creativity and innovation go hand-in-hand - designing and creating new programs and ideas helps to develop your creativity
- **Critical Thinking** - Critical thinking is defined by the ability to conceptualize, analyse, and apply knowledge thoughtfully and reasonably. Through learning computational thinking, abstraction and decomposition, you will develop your critical thinking skills



Skills Computer Science develops...

Problem-solving skills

Critical thinking



Analytical thinking

Why study Computer Science?

The Computing industry has one of the **highest starting salaries** for university graduates

Communication skills are developed through studying Computer Science

Computer Science can unlock the best opportunities in the world, no matter where you're from



Why study Computer Science?

Technology touches every part of our lives. So if you can change technology, you can change the world.

It's not all about being a boy or a girl. It's about being talented. Computer science needs more talented people. People who are not afraid of being creative and can make the world a better place.



What you can do with it

Apprenticeships:

- Civil engineering technician
- Installation electrician
- Software developer
- Network engineer
- IT support
- IT technician
- IT analyst programmer
- Web developer



What you can do with it

- **Further Education**

- Computer Science
- Software Development
- Software Engineering
- Cyber Security
- Network Forensics
- Computer Game Design
- Computer Game Development



TASK: Can you list as many jobs as you can which Computer Science can help with?



What you can do with it

There are many career paths that a qualification in Computer Science can open doors to. These include:

- **Cyber Security**

- Information Security Analyst
- Ethical Hacking
- MI5 and MI6

- **Web design**

- **Game design**

- **Software development**

- **Database Administration**

- **Network Management**

- **Computer Programming**



Further Information

The website [icould.com](https://www.icould.com) offer a range of videos from professionals in the industry talking about their careers in Computing and IT. Follow this link to see the range of careers available to you, and listen to people who are actually working within those:

www.icould.com/explore/subject/computing

Alongside this, [notgoingtouni.co.uk](https://www.notgoingtouni.co.uk) provide further information regarding careers in Computing and IT:

<https://www.notgoingtouni.co.uk/sector/it>



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