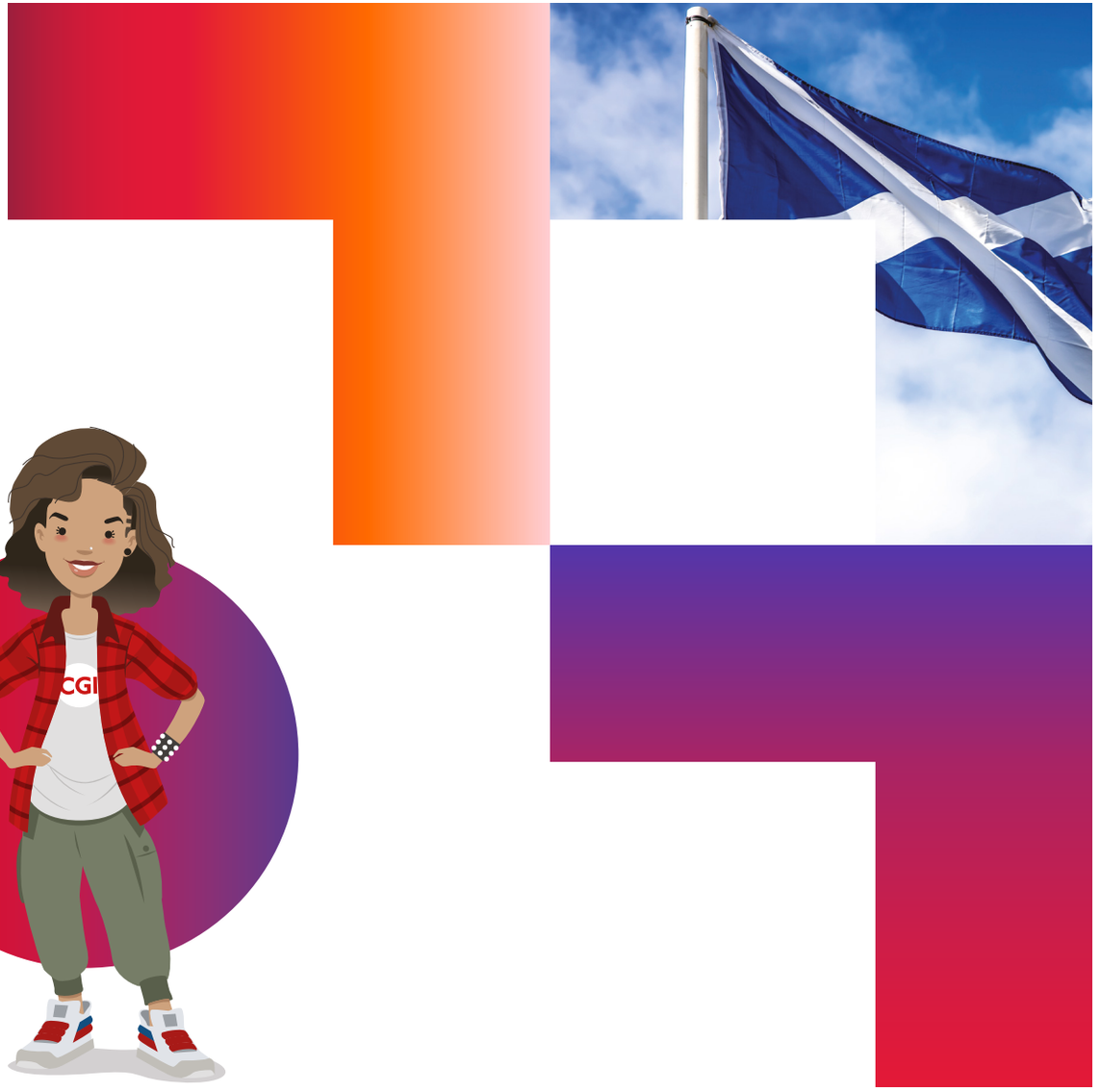
Inspiring young women into STEM careers

We're passionate about inclusion and development. We're also passionate about bringing the next generation of young women into Science, Technology, Engineering and Maths (STEM).



Ages
16-18

CGI

Contents

We need more women in STEM!

There are, and have been, many successful women in STEM careers, but more work is needed to close the gender gap. We want to make sure you are aware of the multitude of different careers available in STEM and inspire you to enter a STEM career with confidence.

It can be daunting to try to determine what different career options are available to you and what the actual roles involve on a day-to-day basis, or even what subjects can lead to what jobs, so we are here to help.

In this e-booklet, we aim to show you a host of exciting career opportunities in STEM, so you can think about your next steps!

You might also find it helpful to speak to a careers advisor when you are thinking about your future career. Your school or local council usually offer a service like this, or you can try an online service like Skills Development Scotland.

“Our goal at CGI is to build and run brilliant solutions that make a difference to our clients and the world we live in. To achieve this, I believe it is important that CGI reflects society and our clients to ensure we bring diversity of thought and ideas. Our focus on STEM is an important part of this ambition and I am personally committed to continuing to reduce both our gender and ethnicity pay gap, to ensure CGI is a great place for everyone’s technology careers.”

Tara McGeehan

President,
CGI UK and Australia

Science

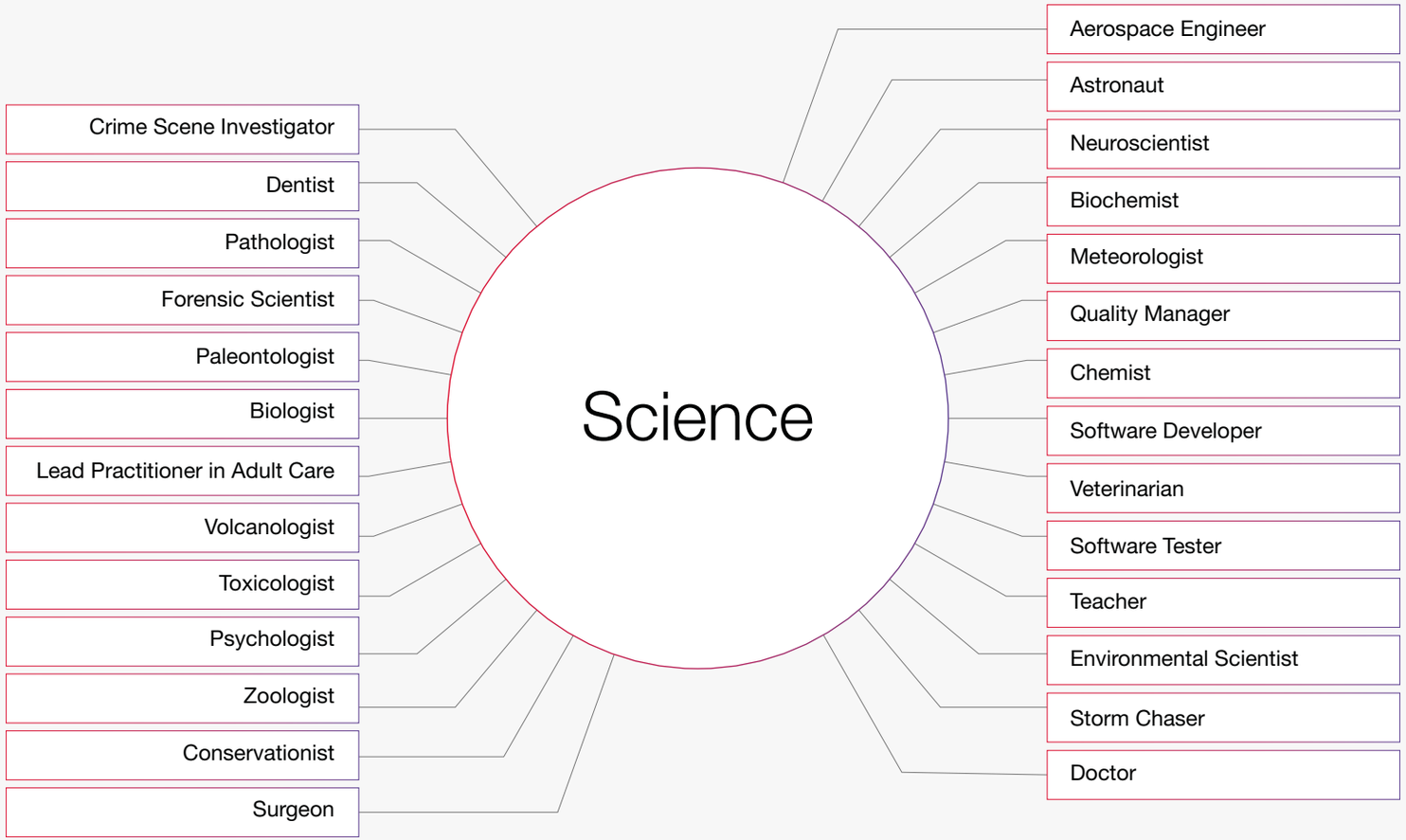
Science covers a broad spectrum of jobs.

Whether you start your career with a degree in science or just Highers, there are many exciting jobs on the market for enthusiastic individuals.

Many jobs linked to qualifications in science are not what you would expect.

Watch a day in the life video here from a woman in Science

Where qualifications in science may lead you…



Jobs and pay

The average salary for a career in science in the UK is around £38,274, significantly higher than the average UK salary of £27,756.

Source/Information: The Average Science Salary, The Average UK Salary

Highest paying jobs in science

Surgeon

Average salary of £76,023

A Surgeon is a doctor who is an expert in conducting surgical procedures. They often further specialise in surgical procedures for a specific region of the human anatomy.

Nuclear Engineer

Average salary of £61,720

A Nuclear Engineer designs nuclear power stations and the associated processes involved. They are also responsible for tasks related to the running of the station, such as maintenance work and increasing efficiency.

Biologist

Average salary of £43,630

Biologists study living things. They are usually concerned with identifying, conserving, or restoring environments or organisms. Due to how broad the field is, many specialise in a particular area, such as microbiology – which is the more specific study of microscopic organisms.

Interesting jobs in science

You don't have to become a scientist if you study a science degree. Science degrees open up lots of other career routes, as many of the skills and knowledge you gain are transferrable. Many science graduates work in business and finance, while others become teachers, technical sales consultants and even science journalists. There is nothing to worry about if you decide a career in science isn't for you.

Pharmacist

Working to legal and ethical guidelines, you'll be responsible for dispensing and distributing medicine and maintaining and improving people's health. You'll sell over-the-counter medical products and instruct members of the public on the use of medicines and medical appliances.

Perfect for: People who are patient, sensitive and understanding, pay attention to detail and are passionate about customer service and helping people.

Starting salaries: Between £29,000 and £39,000

What you need to get there: To become a Pharmacist, you need to complete a four-year Master of Pharmacy and one year pre-registration training course in Pharmacy.

You can also take a pharmacy foundation degree which takes two years, then transition directly into the second year of Master of Pharmacy degree.

To become an Assistant Pharmacist, you can get an apprenticeship, as long as you have National 5s, but this depends on the apprenticeship provider.

Crime Scene Investigator

You will be responsible for collecting evidence from crime scenes. This involves processing and categorising the evidence so that it can be used in criminal investigations.

Perfect for: People who have a careful and methodical approach to work, good attention to detail with keen observational skills, strong analytical skills and an inquisitive mind.

Starting salaries: Between £20,000 and £27,280

What you need to get there: You can either do a degree in Forensic Science, a scientific subject or apply directly if you have at least five National 5s at grades A to C (or equivalent), including English, Maths and a Science subject. However, some employers may prefer Highers (or equivalent), including a Science subject such as Chemistry or Biology.

You can also transition after a few years' experience as a Police Officer by getting relevant qualifications from The Scottish Police College.

Quality Manager

Your aim will be to ensure that the product or service that an organisation provides is fit for its purpose, is consistent and meets both external and internal requirements.

Perfect for: Those with good communication and interpersonal skills, analytical, problem-solving ability and planning skills.

Starting salaries: Between £27,000 and £39,000

What you need to get there: A career as a Quality Manager is open to all graduates; a degree in a relevant area, such as Business Management, is particularly useful. You can also do an apprenticeship where four or five National 5s at A to C grades (or equivalent) are required. Highers may be required for a higher level or degree apprenticeship.

You can also do HND subjects specific to the industry you wish to be a quality manager in.

Others simply work for a company in various roles, gaining the necessary experience before transitioning into this job.

More interesting jobs in science

Dentist

Dentists diagnose and treat dental issues and help patients develop better oral hygiene regimens. They clean teeth, correct bite issues, perform surgeries and extractions, as well as other duties to ensure that the teeth and mouth are healthy.

Perfect for: Those who like helping others, have a steady hand, are patient, with good communication skills and can work in a team (dentists are often assisted by dental nurses).

Starting salaries: Around £30,000 and £51,000

What you need to get there: You'll need to complete a five-year degree in Dentistry, approved by the General Dental Council, followed by one to two years of postgraduate Dental Training. You could alternatively become a Dental Nurse via an apprenticeship if you have four or five National 5s at grades A to C, or equivalent.

Zoologist

Zoologists conduct studies on animals, their behaviours and habitats. You may work with animals in the wild, in captivity – such as zoos or sanctuaries, or in a laboratory.

You may also have a range of responsibilities such as collecting, storing and preparing specimens for analysis.

Perfect for: People who are patient, caring, and love animals. You will also need a strong understanding of scientific methods.

Starting salaries: Around £30,000

What you need to get there: Employers will usually look for you to have a degree in a relevant subject such as Zoology, general Biology or something more specific, like Marine Biology.

It is a competitive field so some employers may expect you to have completed a postgraduate degree as well as a masters (MSc) or doctorate (PhD).

Lead Practitioner in Adult Care

You will guide and inspire your team to make positive differences to an adult's life if they have physical, practical, social, emotional, psychological or intellectual challenges. You'll develop specialist skills and knowledge in your area of responsibility, allowing you to lead others in your area.

Perfect for: People who are caring, compassionate and committed to helping others with excellent communication skills and those who are able to apply knowledge to real life situations.

Starting hourly rate: £34 per hour

What you need to get there: You can apply for this via an apprenticeship if you have Highers or Advanced Highers (or equivalent qualifications) or relevant experience in the industry. You can also progress to this position from an entry-level job after school with 4 or 5 National 5s at grades A to C, or equivalent.

Source/Information: Prospects

Inspirational women in science

Dame Jocelyn Bell Burnell

Astrophysics

Professor Dame Jocelyn Bell Burnell is an astrophysicist from Northern Ireland. She is known for discovering the first radio pulsars. Radio pulsars are very dense stars that spin really fast and emit radio waves in regular intervals, called pulses.

Through her many discoveries, Bell Burnell has made a name for herself as a world-renowned astrophysicist. She has held positions at the Royal Observatory in Edinburgh, Princeton University, Oxford University and many more. She was even the President of the Royal Astronomical Society for two years.

Helen Sharman

Astronaut and Chemist

Helen Sharman is a chemist who became the first British astronaut in May 1991 at the age of 27. She launched on a Soyuz spacecraft and spent eight days orbiting the earth, mainly living and working on the Mir Space Station as part of Project Juno. In space, Helen's tasks included medical, agricultural and chemical experiments, materials testing, Earth observation work and operating an amateur radio link with British school students. She also brought seeds grown in space back to Earth for school children to study, as part of a UK-wide experiment to investigate the effects of space travel on the seeds as compared with a control sample.

Dame Jane Morris Goodall

Primatologist & Conservationist

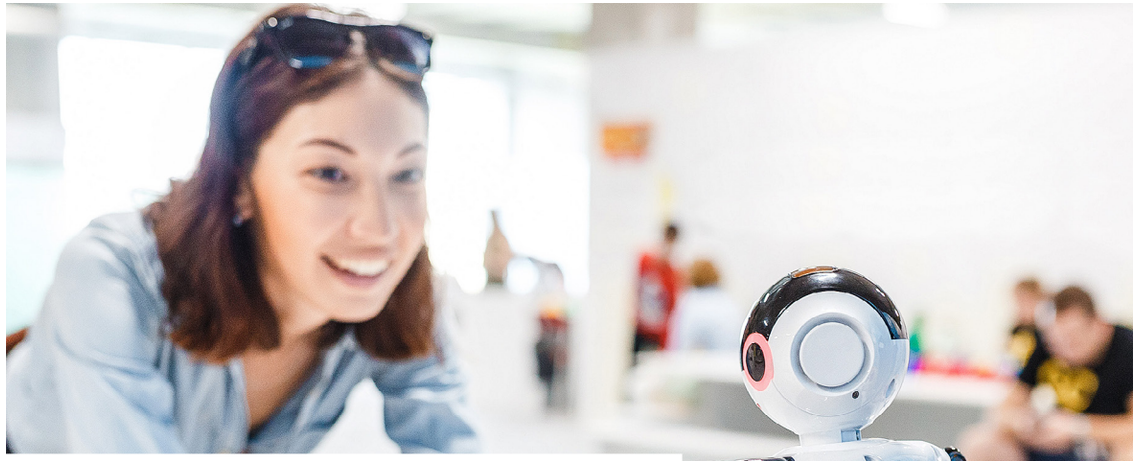
Dr Goodall was fascinated by chimpanzees and at the age of 21 she went searching for them; she wanted to learn about our closest animal relatives. In 1960, Dr Goodall discovered that chimpanzees make and use tools – this is still considered to be one of the greatest achievements of the twentieth-century scholarship. Through nearly 60 years of ground-breaking work, she has not only shown us the urgent need to protect chimpanzees from extinction, she has also redefined species conservation to include the needs of local people and the environment. Today, she travels the world, speaking about the environmental threats facing chimpanzees and humans, urging each of us to act on behalf of all living things and the planet we share.

Technology

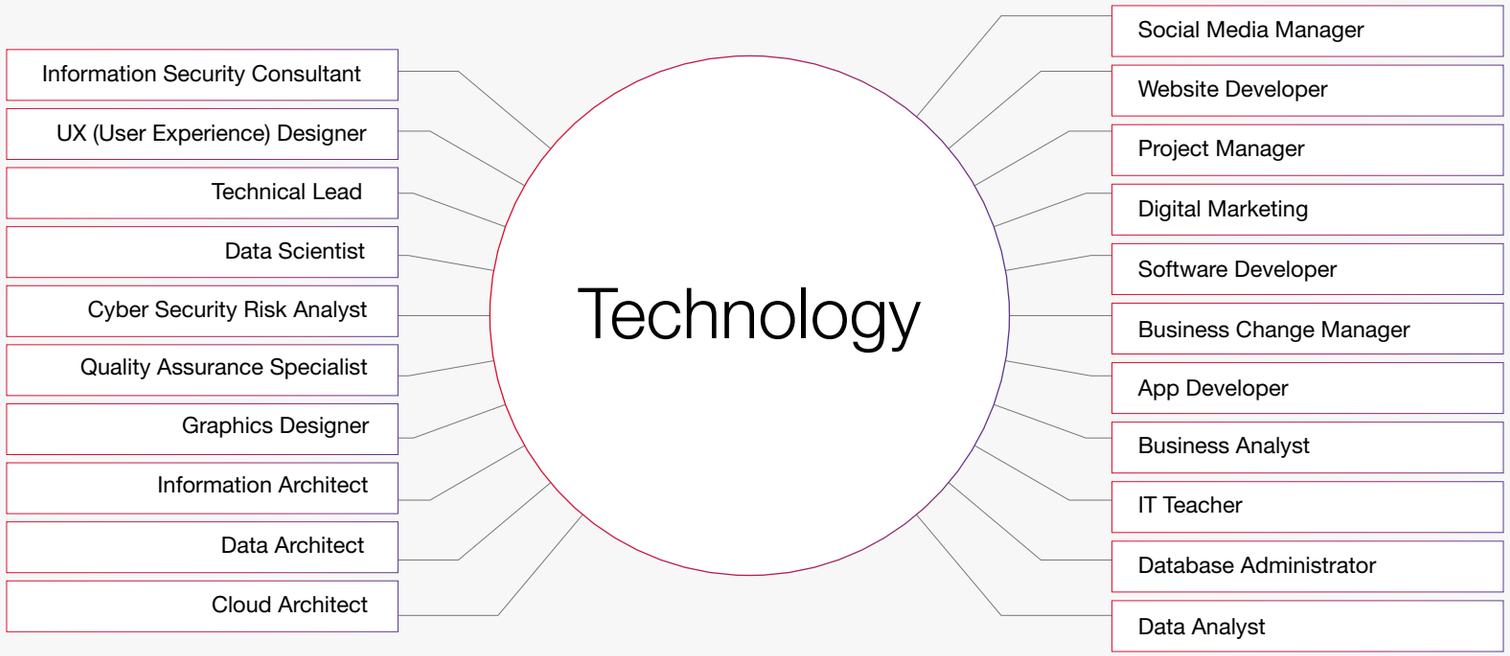
The technology sector is ever expanding and developing. It's a perfect avenue for those looking for challenges in their work. It is an exciting field of work and offers a vast variety of job opportunities.

We live in a world where the advancements of technology touch every area of our lives, therefore we need more women to influence important technological decisions. This can only happen if we have more women working in the field!

Watch a day in the life video here from a woman in Technology



Where qualifications in technology may lead you…



Jobs and pay

Did you know that in 2019, the average UK salary in technology was £74,000?

Source/Information: computerweekly.com

Highest paying jobs in technology

Software Architect

Average Salary of £72,323

A Software Architect makes high level design decisions about software systems. Their day to day tasks may vary but they are usually responsible for ensuring software runs correctly and efficiently.

Full Stack Developer

Average Salary of £51,505

A Full Stack Developer is capable of developing both front and back end applications – this means they have a wide knowledge of all aspects of software engineering.

Cyber Security Expert

Average Salary of £47,320

A Cyber Security Expert's job role may vary drastically from technical, architecture to more business management roles. Their responsibility usually revolves around identifying areas more susceptible to breaches and mitigating them with controls.

Interesting jobs in technology

Some higher paying IT jobs require that candidates have a bachelor's degree, ideally in a related subject. However, some employers care more about the quality of your work than they do about your formal education. These employers evaluate candidates based on their portfolio and experience. Alternatively, some companies offer a degree apprenticeship which combines real-world experience and studying part-time at a university.

IT Sales Consultant

You will be responsible for finding the right technological hardware or software products/solutions to best meet the business needs of your clients.

Perfect for: Those who enjoy talking to people, have an eye for detail and are able to understand the needs of others. Time management, resilience and dedication are also essential skills to have for this job.

Starting salaries: Between £25,000 and £45,397

What you need to get there: This area of work is open to all graduates, but a degree in a related IT or business subject may be useful. You may also be able to complete an apprenticeship in this role after school or college; an employer may favour those with subjects that have high technical content or a business management component, and having a retail background can also be useful.

Network Architect

A Network Architect is responsible for the design, installation, maintenance and support of communication networks within an organisation or between organisations. They understand network configuration, cloud, network administration and monitoring tools, and need to be able to give technical advice and guidance.

Perfect for: People who are good at problem-solving with a critical and analytical mind. It is also good for people who can demonstrate good time management skills, and enjoy working both in a team and independently.

Starting salaries: Between £50,000 and £63,272

What you need to get there: Most employers will require a degree in Computer Science, IT or similar subject. You can also become a Network Architect with an apprenticeship if you have three Highers or equivalent.

Project Manager

Within the IT industry, Project Managers oversee the development and installation of computer systems for their clients. They are responsible for ensuring the project is completed on time, within a set budget and to a high standard. This role involves planning the project, coordinating the project team, and engaging with senior managers and clients.

Perfect for: An organised person who can work under pressure, lead people and is able to multitask. Project managers need to have good communication and budgeting skills too.

Starting salaries: Between £27,000 and £41,349

What you need to get there: Most Project Manager roles will require you to have a degree in IT or a business-related subject. However, you could also get into this job with a Highers or degree-level apprenticeship. You may be able to start as an Assistant Project Manager without these qualifications if you have some experience working in IT.

More interesting jobs in technology

Software Engineer

In this role, you will design, build and test high-quality software solutions (i.e., software that is used to solve a client problem). When required, Software Engineers can make recommendations for future developments to the software to ensure it keeps working efficiently.

Perfect for: People who are analytical and thorough, have an eye for detail and have some design skills. You will also need to have good communication skills and be able to use a computer proficiently.

Starting salaries: Between £26,000 and £39,182

What you need to get there: Most employers will require someone to have a degree in Computer Science, Information Systems or a related degree, as having technical ability is desirable.

You could also become a Software Engineer by completing a degree apprenticeship, which usually requires you to have a combination of relevant Highers and/or Advanced Highers, or equivalent qualification.

Business Analyst

A Business Analyst helps an organisation meet its goals by analysing its current processes, systems and data to be able to determine what systems and IT solutions need to be implemented in order to maximise efficiency and profit.

Perfect for: Adaptable people who enjoy working with others. You'll need an analytical brain, good communication and customer service skills.

Starting salaries: Between £25,000 and £37,557

What you need to get there: A degree in Business, Computer Science or similar, or you could start by completing a Level 4 or degree apprenticeship after completing Highers (or equivalent).

Penetration Tester

Also known as 'ethical hackers', this job involves performing authorised tests on computer systems to expose weaknesses in their security that could be exploited by criminals. Working with clients, you may also provide advice on how to minimise risks.

Perfect for: People who can actively learn from real-world experiences, have good writing skills to generate reports from testing, pay keen attention to detail and have good planning skills.

Starting salaries: Between £25,000 and £38,485

What you need to get there: You usually need a relevant degree and good knowledge of computer operating systems and information security. Many people gain industry experience in another related job before becoming a Penetration Tester, but some organisations offer graduate Penetration Tester roles. It is also possible to obtain a degree apprenticeship in cybersecurity, combining work with part- time study at a university instead.

Inspirational women in technology

Dr Stephanie Boyle

Data Analyst

Dr Stephanie Boyle began working as a data scientist in 2017, the year she finished her PhD. She worked her way up through multiple companies trying out lots of different things, including teaching coding at not-for-profit CodeClan bootcamps.

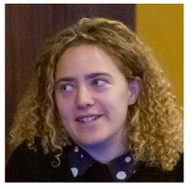
CodeClan is a Scottish digital skills academy which aims to help people find careers in tech. They even run a SQA accredited Youth Academy Bootcamp, which teaches young people how to code.

Dame Muffy Calder

Computer Science

She is a Canadian-born British Computer Scientist, who served as a Chief Scientific Advisor to the Scottish Government during 2012 to 2015. Calder is now the Vice-Principal and Head of the College of Science and Engineering at Glasgow University.

While working as the Chief Scientific Advisor to the Scottish Government she set up the Scottish Science Advisory Council (SSAC), which is Scotland's highest level science advisory body. They provide independent advice and recommendations on science strategy, policy and priorities to the Scottish Government.



Tabitha Goldstaub

Co-Founder of CognitionX

Tabitha is a prolific and highly public figure in the world of artificial intelligence (AI) and women's representation in STEM, co-founding four companies, and winning a number of awards for her work and influence in the industry. In 2017, she was named Head of the UK Government's AI Council and 'AI Business Champion' in 2018.

Tabitha's primary work is with CognitionX, which offers businesses the chance to learn and use AI. She is also instrumental in The Future Girl Corp, which offers a series of free monthly events promoting women's entrepreneurship. She also works with Project Placed, which looks to enhance experiential learning by pairing students with businesses during their university degrees.

Engineering

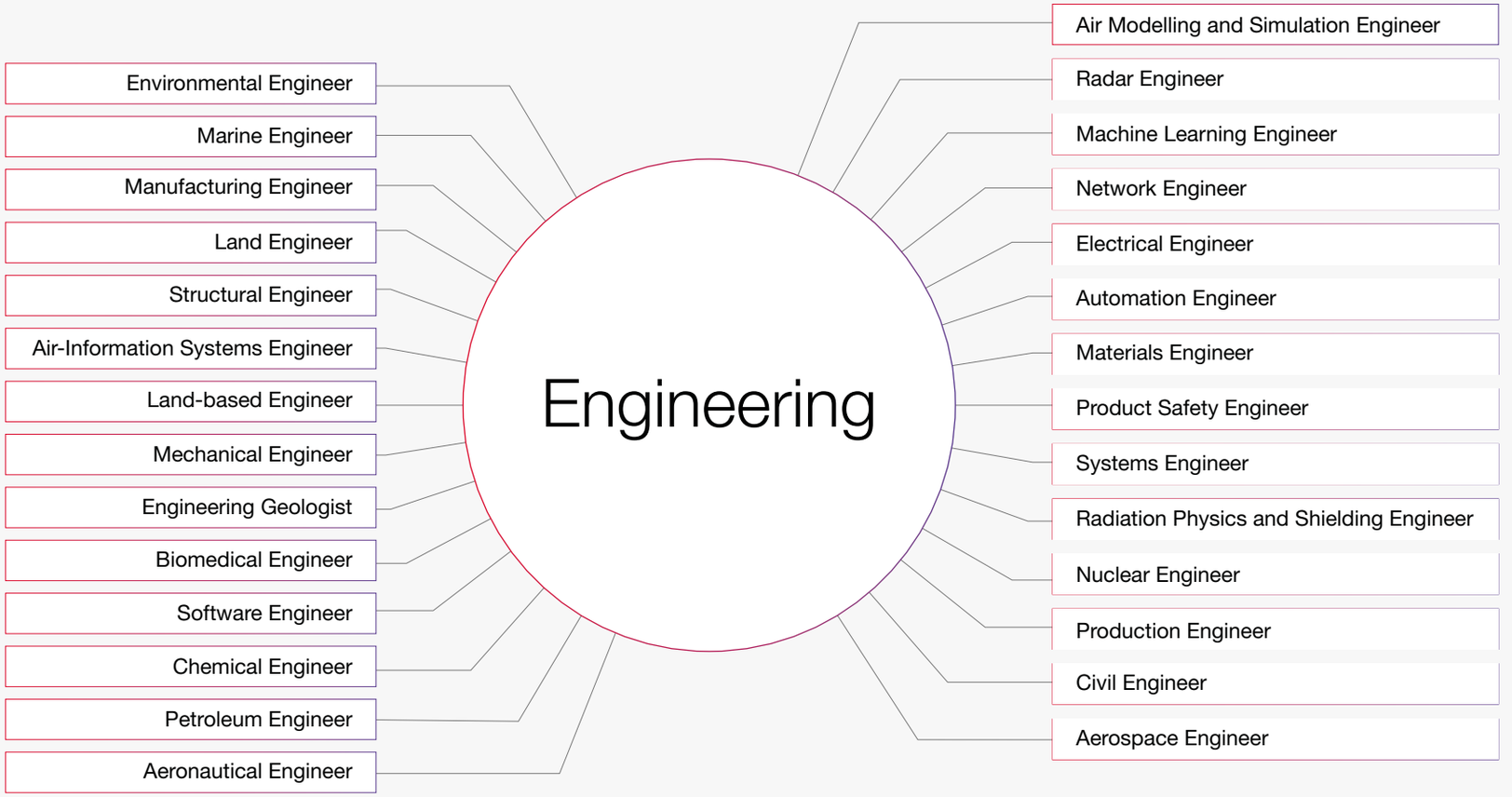
Engineering degrees and jobs are perfect for anyone who loves to build and create.

Hosting a wide range of fields, engineering explores everything from artificially-designed materials to planes, bridges, buildings and satellites.

This versatile field will teach you to apply science and maths skills to everyday problems, helping you find solutions for anything and everything.

Watch a day in the life video here from a woman in Engineering

Where qualifications in engineering may lead you…



Jobs and pay

Working in engineering in the UK, the average salary across all sectors is £58,108.

Source/Information: Engineering Salary Survey 2022

Highest paying engineering industries

Energy & Nuclear

Average Salary of £62,709

Over half of the UK's electricity in 2019 was powered by renewable and nuclear generators, and the government plans to generate one-third of the UK's electricity from offshore wind alone by 2030. Now is an excellent time to contribute to the transformation of the UK's power supply.

Manufacturing

Average Salary of £65,340

The UK is the 9th biggest manufacturer in the world by output. The sector employs 2.7 million people and accounts for 45% of the UK's total exports.

Chemicals & Medical

Average Salary of £61,331

Chemical and Medical Engineers are some of the most in-demand professionals in the UK. This demand is due to the rapidly expanding fields of Nanotechnology and Bioengineering.

Interesting jobs in engineering

While studying for an engineering degree is a great way to become an engineer, you neither need the degree to work as one nor need to go into an engineering career after the degree. Many companies offer apprenticeships or jobs as Junior Engineers to students without degrees. Some will even offer to fund a degree midway through your employment. Equally, engineering graduates have several transferrable skills, allowing them to work as analysts, consultants, academics and more.

Aerospace Engineer

This job involves developing aircraft equipment. Working both individually and as a team, you will use and interpret engineering data and documents (such as engineering drawings, reports and computer-generated models) to design, develop, analyse, test and modify designs and solutions to satisfy customer requirements.

Perfect for: People who are analytical and thorough, have an eye for detail and have some design skills. You will also need to have good communication skills and be able to use a computer proficiently.

Starting salaries: Between £26,000 and £38,160

What you need to get there: To apply for this via the apprenticeship route, you need five National 5s including in Maths, English and two Science subjects. You will also need Highers and/or Advanced Highers in STEM subjects such as Maths, Physics, Computer Science or Engineering Science. To apply as a graduate, you can do a foundation degree, higher national diploma or degree in Aerospace Engineering, Avionics, or a related subject.

Biomedical Engineer

You apply engineering principles and materials technology to the advancement of healthcare equipment or procedures. You will research, design and develop medical products to meet the healthcare needs of people.

Perfect for: Someone who is creative and has a love for engineering and medicine. You will also need good spatial awareness and IT skills.

Starting salaries: Between £21,000 and £29,844

What you need to get there: A degree in Biomedical or Mechanical Engineering, and you'll also need to complete a National Health Service (NHS) Scientist Training Programme after your degree to work for the NHS.

Chemical Engineer

You are responsible for developing processes that will turn raw materials into a range of products or new materials. You need to make these process safe and efficient for them to be commercially viable.

Perfect for: A creative individual who is organised, has good problem-solving skills and who strives to innovate.

Starting salaries: Around £28,000

What you need to get there: You will need a degree in Chemical Engineering, Chemistry, Biochemistry or Process Engineering. If you want to be a chartered engineer your degree should be accredited by the Institution of Chemical engineers.

More interesting jobs in engineering

Electrical Engineer

You will design, develop and maintain electrical systems and components to meet client requirements. You can work in a variety of sectors or stages of the design process.

Perfect for: People that have good oral and written communication skills, the flexibility to deal with changing circumstances and technologies and strong planning and organisational skills.

Starting salaries: Between £23,000 and £33,639

What you need to get there: You will need an apprenticeship, foundation degree or undergraduate degree in Aeronautical, Software, Mechanical or Electromechanical Engineering. These all usually require you to have a combination of relevant Highers and/or Advanced Highers, or equivalent qualifications.

Machine Learning Engineer

You combine data analytics and engineering to allow computers to learn without the need of supervision or further input. You will help create products or services that will be able to take actions without being directed.

Perfect for: Creative people with a passion for programming and data analytics. You will need exceptional mathematics skills and good verbal/written skills.

Starting salaries: Between £27,000 and £41,492

What you need to get there: A master's degree in Computer Science, Mathematics or another relevant field. Some employers may prefer you to have a PhD in a relevant discipline. Many people have industry experience in software Engineering or Data Analytics before transitioning.

Civil Engineer

You plan, manage, design and supervise the construction of a project. You communicate with clients to ensure the timely, efficient and safe completion of different projects for various sectors.

Perfect for: Driven people who don't want a normal office job and like getting out and visiting different sites/places. Must have excellent team-working and negotiation skills.

Starting salaries: Between £28,000 and £45,535

What you need to get there: A degree in Engineering or related subject (such as Physics). You can also do an apprenticeship where you need a combination of Highers and/or Advanced Highers, including Maths and a Science subject, or equivalent qualifications.

Inspirational women in engineering

Ann Makosinski

Inventor

Ann Makosinski is a highly praised student-inventor interested in alternative energy, harvesting techniques and their applications in improving the lives of people all over the world.

She is best known for her invention, the Hollow Flashlight (torch), a torch that runs only off the heat of the human hand.

Ann has won numerous awards for her contributions, including $5,000 to support her education when she presented her invention, the ‘eDrink mug’, to Jimmy Fallon on the Tonight Show in the USA.

Currently, Ann is working on her first book.

Mae Jemison

Engineer, Physician and former NASA Astronaut

Mae developed a keen passion for Science and entered University at only sixteen, having excelled at school.

In 1987, her application to become an Astronaut was accepted by NASA, and by 1992, she was not only the first African-American woman to go to space, but a mission specialist aboard STS-47, Space Shuttle Endeavour. Mae was a co-investigator of bone cell research experiments and also conducted experiments on weightlessness and motion sickness on herself and the crew. In 1993, she resigned from NASA and founded a company researching technology in daily life, and now works on projects to advance technology in developing countries.

Dame Raffaella Ocone

Chemical Engineering

Ocone is the first woman to be a professor of Chemical Engineering in Scotland and only the second in the UK. Ocone is currently a Professor at Heriot Watt University and a Fellow of the Royal Academy of Engineering.

Ocone’s work focuses on the development of technologies that aid sustainable and clean energy generation at large scale. This involves looking at technical challenges that might hinder the efficiency of these conversion processes. She has started to use AI to assist with the analysis of the huge amount of data generated from these processes in industry.

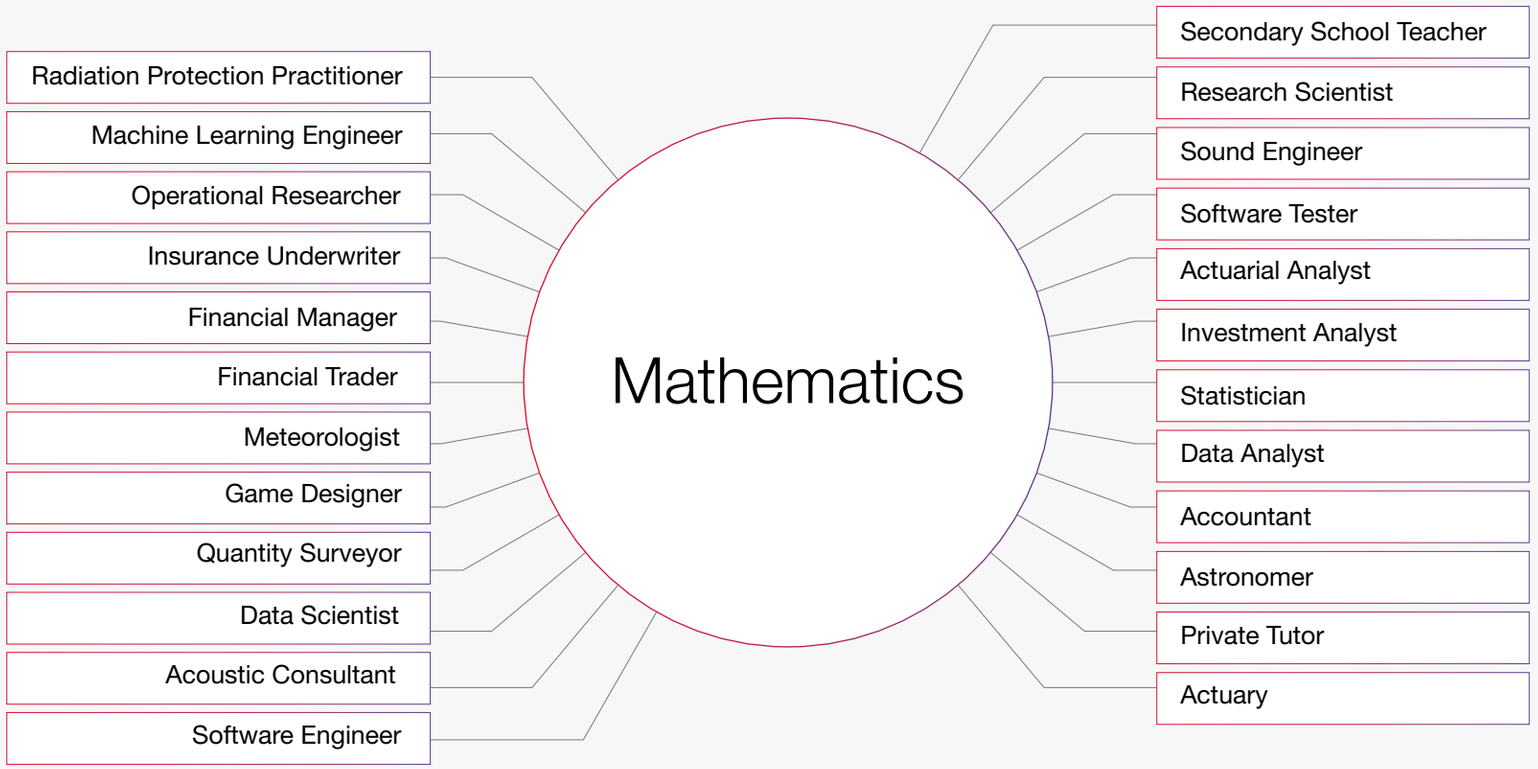
Mathematics

Mathematics degrees are the perfect gateway into a wide range of careers if you don't already know where you want to specialise.

Maths will teach you the language and skills of technical careers, allowing you to train for most of the careers previously mentioned once you know where you want to work.
For example, many engineering and computer science jobs will also accept Mathematicians.

Watch a day in the life video here from a woman in Maths

Where qualifications in mathematics may lead you…



Jobs and pay

The average salary for a career in mathematics in the UK is £49,801. A background in mathematics allows you to work in a wide variety of sectors and job roles.

Source/Information: Average Math Salary

Highest paying jobs in mathematics

Data Scientist

Average Salary of £50,305

A Data Scientist is not to be confused with a Data Analyst. A Data Scientist is responsible for designing and developing data modelling process and predicative models, not the analysis of trends in a data set.

Investment Banking Analyst

Average Salary of £65,984

Put simply an Investment Banker is a financial advisor to corporations. They help to raise money for their clients. This may include assisting in activities such as mergers and acquisitions, foreign exchange and trading.

Risk Manager

Average Salary of £49,279

Risk Managers use statistics to work out the probability of an event and its financial consequences. They use Risk Management techniques to minimise financial risk for clients. They may be required to analyse data to determine potential risks and communicate these to a client.

Interesting jobs in mathematics

You don't have to become an accountant or a teacher if you study a mathematics degree. A lot of the skills and knowledge you gain having a mathematics degree are transferrable, so this offers up a variety of potential career routes.

Accountant

You'll be required to give advice, check an organisation's financial position and inform clients on financial records using financial reporting, taxation and auditing, etc. There are different types of Accountants, such as Forensic Accountants who detect and prevent fraud, and Corporate Accountants who advise clients on business transactions, maintain records and prepare accounts information.

Perfect for: People with good business sense and numeracy skills, capable of using IT and communicating with clients and other team members.

Starting salaries: Between £19,000 and £30,133

What you need to get there: A degree in Maths or a numerical subject (for example Accounting). Apprenticeships are also available for students with five National 5s (A-C grade, with an A in Mathematics).

Meteorologist

This job involves examining the weather and climate. You'll predict the weather and study the causes of particular weather conditions using information obtained from the land, sea and upper atmosphere.

Perfect for: People who like analysing, drawing conclusions, making predictions from data, have a high mathematical and computing ability and good attention to detail.

Starting salaries: Between £26,000 and £31,447

What you need to get there: A degree in Meteorology or related subject such as Computer Science, Environmental Science, Geography, Physics, etc.

Analyst

Analysts create interpret and manipulate large amounts of data to streamline the running of businesses in any field. This means providing information to support or contradict key decisions that are to be made in a business.

Perfect for: Anyone with a keen attention to detail, good mathematical and computing ability. This job is for someone who enjoys using different IT solutions or programming languages.

Starting salaries: Between £21,000 and £28,979

What you need to get there: A degree with the ability to demonstrate strong numeracy skills, such as Computing Science, Actuary or Mathematics. Apprenticeships are also available for students with five National 5s (A-C grade, with an A in Mathematics).

More interesting jobs in mathematics

Financial Trader

Financial Traders are responsible for buying and selling shares, bonds and financial assets for investors, from private individuals to banks. You'll make prices and carry out trades in search of the most assets or profits with the minimum risk.

Perfect for: People who are resilient, able to quickly research and make decisions on financial data, and execute the decision by talking to clients and other traders.

Starting salaries: Between £30,000 and £45,209

What you need to get there: Most enter this profession with a degree in Maths or a numerical subject although it may be possible to enter the industry via administrative roles, and eventually move into trader positions.

Actuary

Actuaries evaluate risk and opportunity through applying Mathematical, Statistical, Economic and Financial Analysis to a wide range of business problems. This involves using past collected data, trends or patterns to form a prediction of the financial impact of future events.

Perfect for: Analytical thinker who has excellent IT and mathematical abilities. They can clearly articulate logic behind decisions to audiences of different levels of understanding.

Starting salaries: Between £32,000 and £60,013

What you need to get there: A degree with the ability to demonstrate strong numeracy skills. Apprenticeships are also available for students with five National 5s (A-C grade, with an A in Mathematics).

Quantity Surveyor

You'll be required to manage costs relating to building and Civil Engineering projects. You may be required to work on a variety of projects including the building of railways, housing and skyscrapers, among others.

Perfect for: Those with a creative approach to problem-solving, able to work well under pressure, have a methodical approach to work and have excellent communication and teamwork skills.

Starting salaries: Between £24,000 and £34,847

What you need to get there: A degree in Quantity Surveying or Commercial Management accredited by the Royal Institution of Chartered Surveyors (RICS). You can also take a RICS-accredited degree apprenticeship (undergraduate, PGDip or Masters) in Quantity Surveying and Project Management, providing you have Higher or/and Advanced Highers or equivalent qualifications.

Inspirational women in mathematics

Mary Sommerville

Mathematics and Astronomy

Sommerville was elected as one of the first female Honorary Members of the Royal Astronomical Society. Sommerville was not just an astronomer but in fact was a polymath, which means she had an interest in various subjects including maths and astronomy. Sommerville was very accomplished in her lifetime and held in high esteem; she was chosen to appear on the Scottish polymer £10 notes launched in 2017.

Her first notoriety came in 1811 when she won a silver medal for solving a Diophantine problem. She went on to publish volumes of her own work as well as translation and adaptions of other popular works. Most notable was 'The Mechanism of the Heavens' which was a translation of 'Mecanique Celeste' by Pierre-Simon Laplace. This immediately made her famous and was used as a textbook for undergraduates at the University of Cambridge until the 1880s.

Katherine Johnson

Mathematician

Johnson was an American mathematician whose calculations of orbital mechanics as a NASA employee were critical to the success of the first US crewed space flights. Her calculations were also essential to the beginning of the Space Shuttle programme, and she worked on plans for a mission to Mars. She had a varied career path, working as a research mathematician, an Aerospace Technologist calculating the flight path for the first American in space, and trusted by NASA to check the work done by their first computers.

She was awarded the Presidential Medal of Freedom in 2015, the Silver Snoopy Award and Nasa Group Achievement Award in 2016, and the Congressional Gold Medal in 2019.

Anne-Marie Imafidon

CEO of Stemettes (a social enterprise promoting women in STEM careers)

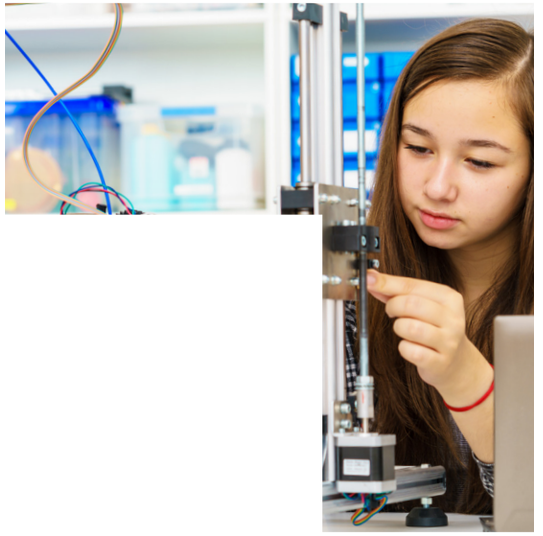
Imafidon was a British computing, mathematics and language child prodigy. She received a scholarship to study Mathematics at John Hopkins University at 13, and at 19 was the youngest ever master's graduate of Oxford University. She launched and became CEO of Stemettes in 2013, championing the work of women in STEM. Stemettes runs panel sessions and hackathons supporting girls and young women who are considering a STEM career.

Anne-Marie has been presented with many awards in her lifetime, most notably she was appointed Member of the Order of the British Empire (MBE) in the 2017 New Year Honours for services to young women within STEM careers.

Fewer women choose to enter the world of STEM for various reasons, such as:

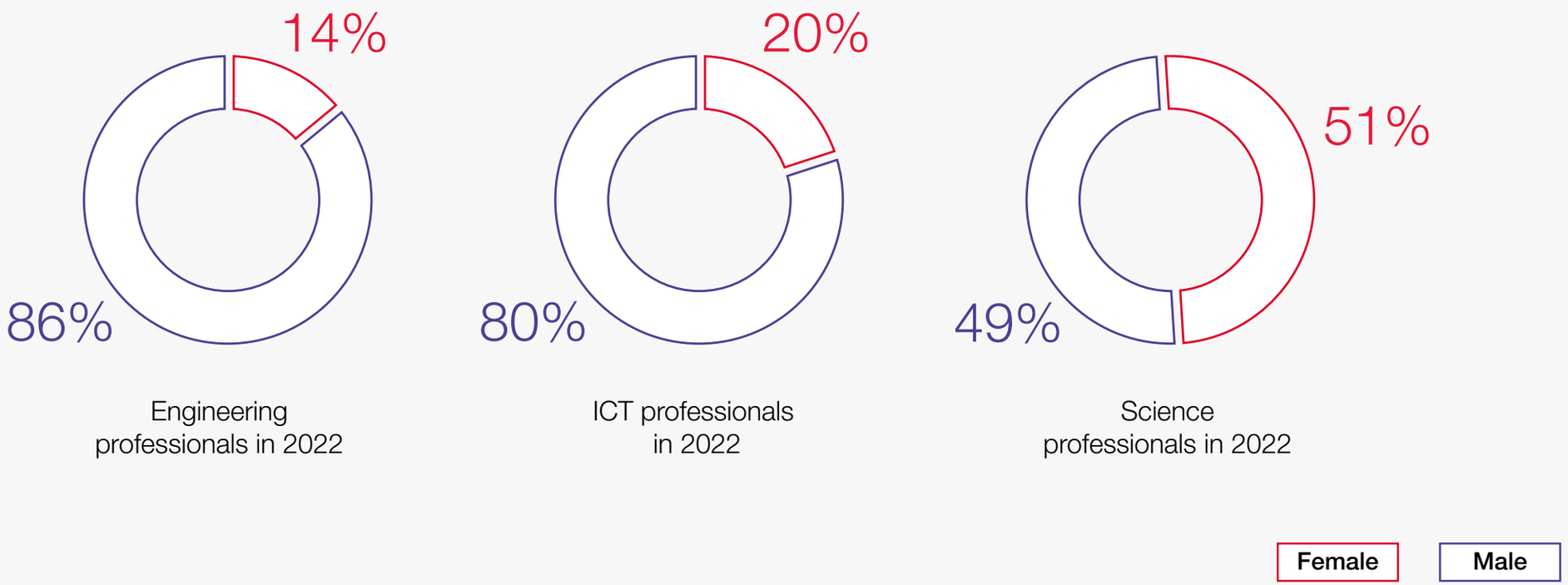
- **Gender stereotypes** – STEM fields may be viewed as ‘masculine’, however, we hope this e-booklet will demonstrate that this is not the case.
- **Male-dominated cultures** – because fewer women study and work in STEM, it may seem like a ‘boys’ club’, but this is not true!
- **Fewer role models** – many people are not aware of the female role models in STEM, this is because their impact is often neglected by history. We hope the inspirational women who featured in this booklet might help you feel motivated and inspired! The gender gaps are particularly high in some of the fastest-growing and highest-paid jobs of the future, such as those in Computer Science and Engineering. However the gap is getting smaller in recent years. This is because more women than ever feel empowered to study and start a career in STEM roles. We really hope you’ll be one of them!

Throughout history, women have played prominent roles in some of the world’s most significant advances in Science, Technology, Engineering and Maths (STEM).



Industry statistics

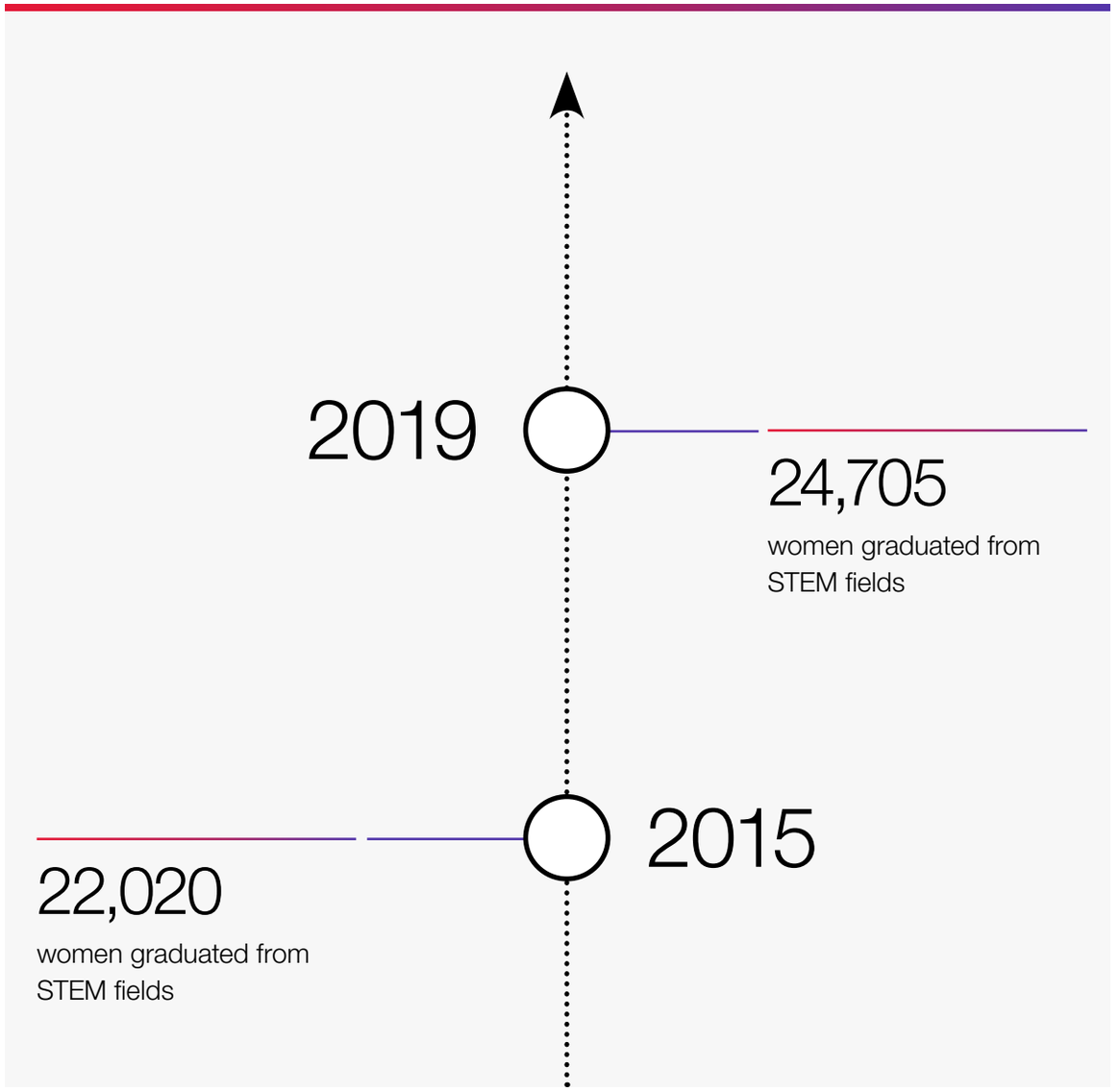
Here is an insight of the male to female ratio within some role sectors.



Source/Information: 2022 Workforce Statistics

On the rise…

The number of women in the UK who are awarded STEM degrees every year has increased, and this is continuing to improve.



Source/Information: STEM Statistics

Scottish STEM timeline

Scotland has a long legacy of prominent figures and contributions to Science, Technology, Engineering and Mathematics. Journey through this timeline to see just some of the amazing people and contributions!

Logarithms, John Napier, 1614

John Napier releases a paper containing 57 pages explaining natural Logarithms.

Flush Toilets, Alexander Cumming, 1755

The S-trap device invented by **Alexander Cumming** is still in use today.

Statistical Graphs, William Playfair, 1786

William Playfair was the founder of graphical methods of statistics, such as pie charts. He devised them as part of his role on spying on the French Army.

Electric Clock, Alexander Bain, 1840

The first mechanical clock powered by an electric current was invented by **Alexander Bain**.

Medical/Botanist, Elizabeth Blackwell, 1730

'A Curious Herbal' was written; it was a significant book for medicine, outlining medicinal plants, written by **Elizabeth Blackwell.**

Modern Economics, Adam Smith, 1776

Adam Smith released a paper that linked the distribution of wealth to political and social factors; this paper was the first of its kind.

First Woman Elected to the Royal Astronomical Society, Mary Sommerville, 1835

Mary Somerville made significant contributions to science through her own published work, and the translation and interpretation of the works of others.

Scottish STEM timeline

Telephone, Alexander Graham Bell, 1875

Alexander Graham Bell is recognised for patenting the first telephone. He also co-founded the American Telephone and Telegraph Company (AT&T) which still operates today.

Pneumatic Tyre, Robert William Thomson, 1847

Modern rubber tires filled with air were invented by **Robert William Thomson**.

Protozoologist, Muriel Robertson, 1909

The majority of **Muriel Robertson**'s research concerned the lifecycle of Trypanosoma Gambiense – the cause of Africa sleeping sickness. However, during both world wars, she investigated the cause behind gas-gangrene.

Television, John Logie Baird, 1923

John Logie Baird demonstrated the first working television, subsequently going on to invent the colour television.

Penicillin, Alexander Fleming, 1928

Alexander Fleming discovered Penicillin, the first broadly effective antibiotic substance, for which he was awarded a Nobel Prize.

Geology, Maria Gordon, 1932

Maria Gordon produced comprehensive work on the geology of the Dolomites, which earned him the Lyell Medal and professional acclaim.

Marine Biology, Isabell Gordon, 1961

Isabella Gordon was an expert who specialised in carcinology (study of crustaceans); she worked in the Natural History Museum and received an OBE for her work.

Scottish STEM timeline

Dangers of Radiation, Charlotte Auerbach, 1967

Charlotte (Lotte) Auerbach was a geneticist who carried out a substantial volume of work on mutagenesis – the process by which genetics are changed by a mutation.

Beta Blockers, Sir James Black, 1988

James Black was co-awarded the Nobel Prize for his work that led to the creation of Beta Blockers, which are widely used to treat angina and anxiety.

Falkirk Wheel, Tony Kettle, 2002

Tony Kettle is an architect responsible for the Design of the Falkirk Wheel, the world's first and only rotating boat lift that connects two canals.

Tractor Beam, St Andrews Uni, 2013

Scientists at the University of St Andrews were successful in creating the first functioning tractor beam able to pull an object on a microscopic level.

About CGI

- 90,000 consultants and professionals
- Around 6,000 experts based across the UK
- 400 locations worldwide with offices in major cities across the UK

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world! We are an established and growing company that offers the opportunity to work on some of the most exciting business and technology projects. We're passionate about diversity, inclusion and development, so we're particularly keen to help ambitious and capable women launch fast-moving STEM careers.

An inclusive environment

The culture of ownership and pride is what defines and drives us at CGI. Our collaborative working practices and supportive networks promote diversity and inclusion throughout our business.

We place particular emphasis on gender diversity; **we want to ensure that all women have the opportunity to thrive at CGI.**

We believe that **women are vital to the future of STEM**, and only through harnessing talent across genders, cultures and continents can we create lasting solutions to the technology challenges facing our world today.

38%

of our senior leadership team in the UK are women

300

girls have attended our ‘Bring your daughter to work’ days

Over 90%

of our female members put forward for promotion this year were successful

Why working at CGI is different

Our membership culture, where we encourage every team member to become a shareholder, makes us different from other employers. When you have a stake in the business, its growth mirrors yours.

Therefore, we'll help you take your career to the next level by:

- Investing in your training and development
- Helping you gain formal qualifications
- Giving you work you find enjoyable and stimulating
- Supporting you through the good and bad times in your life

What our CGI Graduates say...

"I was exposed to STEM subjects at university and always had an interest in applying my knowledge in a career setting, working with people from various backgrounds. I was interested in working in a tech environment since it allows people to think innovatively and encourages new ways of working and problem-solving. I also think working in a tech environment provides the opportunity to work creatively and brings some variety to the job."

"I would encourage other graduates/ young people to seriously consider studying a STEM subject. Despite not using specific theories or equations in my current role in CGI, the skills you acquire from a STEM degree are so valuable and can be applied to any job in a STEM career. Problem-solving, critical, and analytical thinking, time management and coding were all skills that I developed over my 4 years at university, and I have had the opportunity to apply them in my current role at CGI."

"I have always found technology interesting and took a keen interest in the tech modules during my course at university, so when I came across CGI I was really interested in what it would be like to peruse a business career within a tech company."

"Always been interested in technology, seemed like it could be a rewarding career path that would suit me."

CGI recognised as one of the ‘World’s Best Employers’ by Forbes in 2022. Also recognised as one of UK’s Best Workplaces in 2021 by Great Place to Work.

Also in 2022, CGI entered into The Women in Tech Employer Awards in three categories, which saw us win both the prestigious Best Tech Employer (Over 500 employees) and Best Recruitment Marketing Campaign.

School leavers

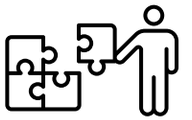
You can be part of everything we do, developing the skills and understanding you’ll need for a career in IT through training and hands-on experience.

Graduates

You can make an impact on the world as part of a growing company with the scale and strength to give your career the best possible start.

Our dream

To create an environment in which we enjoy working together and, as owners, contribute to building a company we can be proud of.



Our vision

To be a global world class end-to-end IT and business consulting services leader, helping our clients succeed.

Source/Information: Company Overview

Shining a spotlight on the women of CGI

We believe we've created a supportive and inclusive culture for women.

Hear first-hand from some of our fantastic female members, talking about their experiences at CGI and sharing all that we're doing to ensure their careers flourish.

See our video on YouTube

Source/Information: Women of CGI

Where else can you get involved in STEM with us?

STEM Camps & STEM from Home

These are educational and interactive events that teach students about the skills and career opportunities in Science, Technology, Engineering and Maths.

STEM from Home originated in March 2020 and our weekly STEM-based activity packs have engaged parents and children with a range of fun and educational activities to try at home.

EmployABILITY

CGI's EmployABILITY programme helps students that are currently underrepresented in our industry to build the skills needed to pursue a successful career in STEM.

Through this programme, you can gain industry insight, connect with STEM professionals and prepare for the world of work by learning about CVs, interviews, networking and more.

You can find out more information about all of these by clicking on the following links:
STEM Camps | STEM from Home | EmployABILITY

Helpful resources

Career in STEM

A free video-based career exploration and readiness tool for girls. It has a large online collection of career guidance videos focusing exclusively on diverse and accomplished women — over half of whom are in STEM fields — and is updated weekly.

National Careers Service

A government website that provides information, advice and guidance to help you make decisions on learning, training and work in the UK. This includes a service where you can speak to a careers advisor (for free) via the phone or webchat.

The Apprenticeship

A resource that helps young people in Scotland find apprenticeships in a variety of sectors and job roles.

Universities and Colleges Admissions Service

The Universities and Colleges Admissions Service that supports young people making post-16 choices, as well as those applying for undergraduate and postgraduate courses.

Complete University Guide

Independent UK university rankings, course information and expert advice for students.

The career guide

Provide students and graduates with guidance on graduate career and postgraduate study recruitment options with unrivalled information, advice and opportunities.

Careers with CGI

A CGI resource where you can explore the range of school leaver and graduate opportunities at CGI and apply.

CGI Women in STEM

A brochure for you to learn more about the CGI mission and be part of our story.

Skills Development Scotland

They offer support to pupils, parents and teachers with a comprehensive range of career information advice and guidance services.

My World of Work

It’s designed to support everyone to develop their career management skills, no matter what stage you’re at in your career. It also offers tailored career suggestions to you.

Sources

- About Dame Jocelyn Bell Burnell 1
- About Dame Jocelyn Bell Burnell 2
- About Dame Jocelyn Bell Burnell 3
- Dame Jocelyn Bell Burnell Image
- About Helen Sharman
- About Dame Jane Morris Goodall
- About Dr. Stephanie Boyle 1
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About CGI

Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world.

We are insights-driven and outcomes-based to help accelerate returns on your investments. Across hundreds of locations worldwide, we provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

cgi.com/uk

Be part
of our story.

#ExperienceCGI

CGI