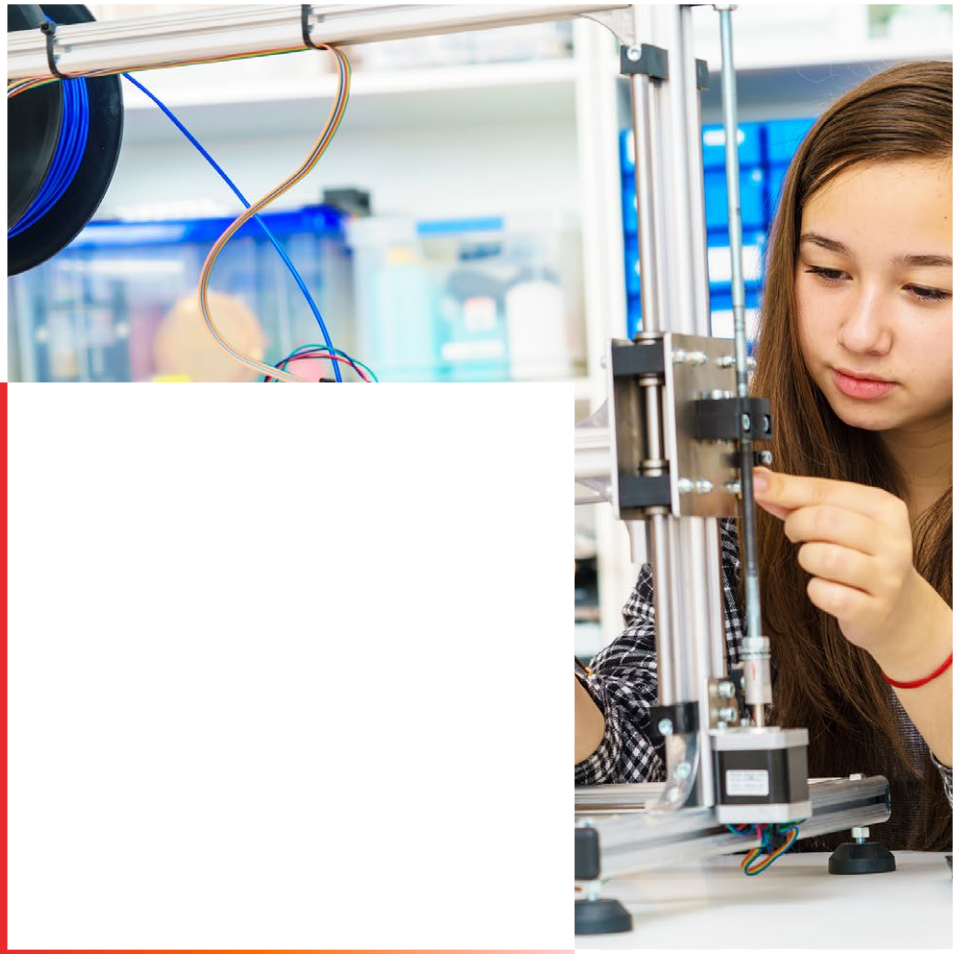


Ages
13-15

Sisters in STEM

Where studying STEM can lead

CGI

Meet the creators

Alexandra Murphy

I graduated with a BSc in Computer Science in 2021. I went through many phases throughout Secondary School and Sixth Form, unsure of what I wanted my career to be. I went from translator, to journalist, to teacher, and a million other options, never finding what my true passion was. I chose to study Computer Science as it gave me lots of options after university, and I figured that I would pick a career path along the way.

Thanks to an industrial placement with CGI, I figured out that my skills lay in project management and team leadership. Fast forward to now, and I have a career as a Software Engineer with a focus on project management – my true passion.

Rebekah Coleman

I am a recent Computer Science graduate with a first class honours, and I am a computer programmer to my core. I can only speak one language but I can code in almost a dozen.

When I was in school, from the age of 11 to 18 I wanted to be a doctor, and no one and nothing could dissuade me from that goal. However, in one year, between the ages of 18 and 19, I decided I was going to be a physiotherapist, a dietitian, an engineer, a physicist, and finally I settled on computer programmer – more formally known as a software engineer.

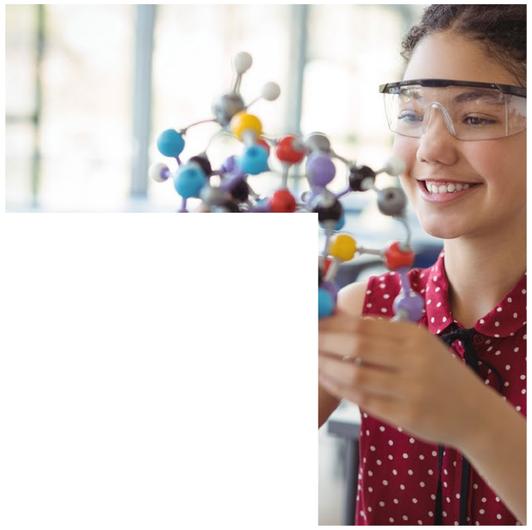
Hi!

If you are reading this then you are between the ages of 13 and 15, and, we hope, thinking about your GCSE options. We have put this booklet together to give you an idea of what options are out there, and what careers these could lead you into.

The reason we have created this booklet is because STEM careers are some of the most male-dominated careers out there. This means that, not only are women not accessing the higher salaries that STEM careers often offer, but these industries are missing the female input. Therefore, new technologies, vehicles, safety equipment and software, are being designed with less than 50% of the population in mind.

To combat this, and bring the female insight into STEM, we need more girls like you to study STEM subjects in school. So, we decided to put together this booklet to show you what options are out there and how to tailor your learning to get into a STEM career that is right for you.

We hope that by the end of this booklet you will have discovered new options you did not know existed or had never considered and that we will have convinced you to pursue a career in STEM.



Meet the sisters

Hi, I'm Stella.

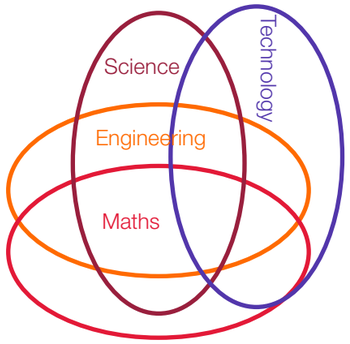
I am 10 years old, and I really like STEM. You may have met me already. I was in some booklets for girls in primary school, and now I am back, with my older sister, Sol, to help you choose your GCSE options.

Hi, I'm Sol.

I'm the older sister, and like my little sister Stella, I really like STEM. I am choosing my GCSE options and I really wanted more information to help me decide what to choose. So, Stella and I decided that if I needed help then maybe others did too, so we decided to create a booklet, so everyone else could benefit from what we found out.

Why would I want to go into a career in STEM?

The heatmap below provides a visual representation of how different STEM careers are not confined to just being Science, Technology, Engineering or Maths, but instead a combination of any or all categories.



Technology	Cyber Intelligence Officer	Computer Games Tester	Computer Programmer	Statistician	Accountant
	Underwater Archaeologist	Forensic Scientist	Gameplay Engineer	Robotics Engineer	Actuarial
	Lab Technician	Medical Scientist	Pyrotechnics Engineer	3D Printing Technician	Mathematical Engineer
	Food and flavour chemist	Microbiologist	Nuclear Engineer	Rocket Scientist	Architect
Science	Chemist	Pastry Chef	Marine Engineering	Metalsmith	Automobile Engineer

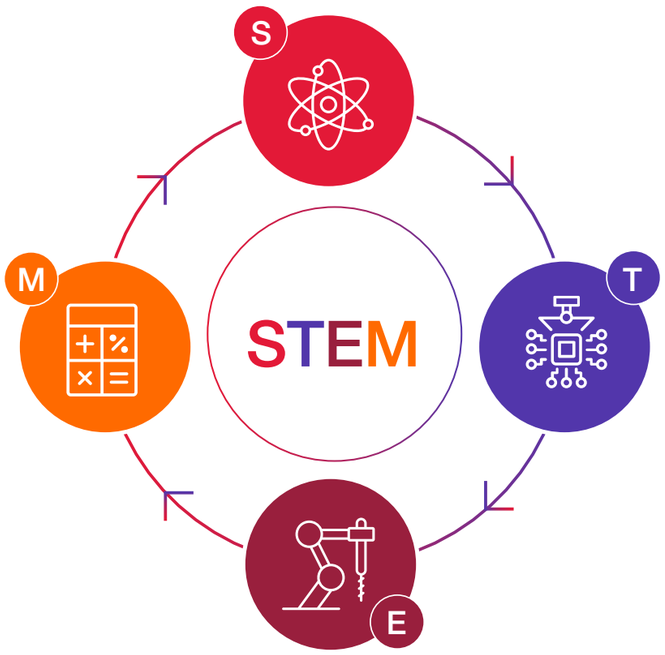
Maths

Engineering

The cycle of STEM

No career is an island, instead, they overlap and incorporate aspects of other topics. In STEM, no individual component would be where it is today without the others.

For instance, our advancements in science have only been possible due to those in engineering, which have only happened due to the progress made in maths, which have been facilitated by the evolution of technology, which has only developed because of science. So, you see, they all help each other. An advancement for one, is an advancement for all.



S

Science has advanced by better engineering, allowing us to make more exact measurements, and perform experiments on scales impossible to see with the human eye.

T

The advancement of science has allowed us to create incredible new technologies such as computers the size of credit cards (and smaller!).

E

As Maths is able to take on more complicated equations, the types of engineering we can accomplish have such subtle differences to the point where we can now create machines capable of splitting atoms!

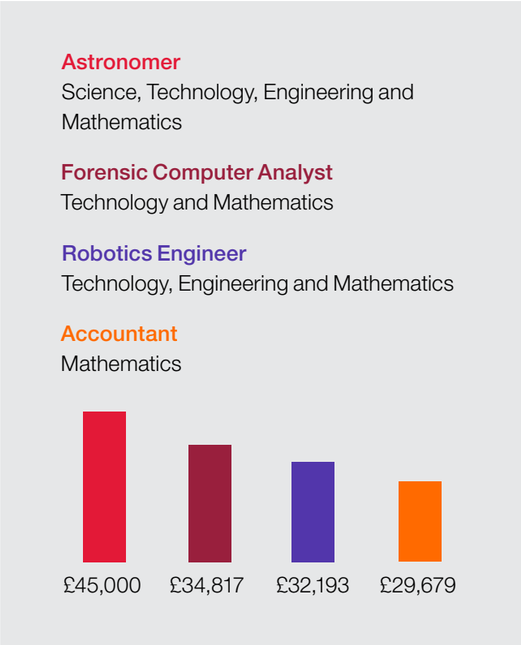
M

Through the progress in technology, we are now able to perform incredibly complicated mathematical equations in a matter of seconds, allowing us to tackle more and more complicated problems.

STEM salaries

People who study STEM degrees, such as chemistry, or physics, are likely to earn an average of 30% more during their working life than someone with A-levels.

This percentage is double that of someone who studies a humanities degree such as psychology, or history – who will earn an average of 13-16% more. Over the course of your life this really adds up. For instance, if we compare the average salary of a typical university graduate, accumulated over their whole life, with that of a STEM graduate, we will see that the STEM graduates earn vastly more than the average. Taking the top three, a maths graduate will earn an additional £241,749, while an engineering graduate will earn an additional £219,971, and a physics graduate will earn an additional £188,249.



www.payscale.com

> While the exact percentage is disputed, it is a well accepted fact that people who go into STEM careers will earn, on average, more than those who don't.

(Source: warwick.ac.uk. (n.d.). NGRF - STEM Careers learning module - Raising awareness of STEM. [online] Available at: https://warwick.ac.uk/fac/soc/ier/ngrf/stem/basics/awareness/ [Accessed 16 Mar. 2022].
The Economic Benefit of Higher Education Qualifications produced for The Royal Society of Chemistry and the Institute of Physics by PricewaterhouseCoopers LLP, January 2005).

Many paths to the same destination

Sue Black left school, aged 16, with no qualifications and by 23 she was a mother to three children. By age 25, as a single parent, she decided it was time to get a degree. She went to University and gained her degree in Computing and followed it off with a PhD in Software Engineering. She went on to found TechMums, an education site for mothers aimed at teaching mums how to keep their children safe online. In 2016, she was awarded an OBE for 'services to technology'. Sue is also a government advisor and a professor at Durham University.

Dame Stephanie 'Steve' Temple came to the UK in 1939, aged five, with the kindertransport child refugee scheme, fleeing Germany as the Second World War became imminent. She was fostered by a British family, and remained with them after the war.

On leaving school, after discovering that the only scientific subject available at university to women was Botany, she sought employment. She worked at the Post Office Research Station, were she spent her days building computers from their very base components, and then writing the code for those computers in machine language.

After she married, she founded her own Software company called 'Freelance Programmers', from just £6 of capital. She predominantly employed women, especially those with children, as she knew they would struggle to get work anywhere else, regardless of their skills. She even adopted the pen name 'Steve', which she used to sign her letters, after she realised that all her letters signed Stephanie were ignored.

Radia Perlman completed a degree in Physics at MIT, followed by a PhD in Computer Science. Radia first learnt programming as part of her physics lessons at MIT, but those lessons must have made an impression, because she went on to invent a programming language (TORTIS).

While you may not have heard of Radia Perlman, you definitely should have, as you probably use the product of her work every day. As, among other things, Perlman invented the Spanning Tree Protocol (STP), which was a major player in the evolution of the internet we know today.

GCSE options

What to do, when you don't know what to do

At this point in your life no one expects you to know what you want to do with the rest of your life. The fact you are thinking about it at all is enough for now. This is the point in your life when you should be exploring your options, finding out what things you enjoy, and what you are good at, because very soon you are going to have to start making choices, and you need to be sure you are choosing based on what you want to do, and not what your friends are doing.

Right now you might be thinking everyone else has it all figured out and you're the only one without a clue what to do next. I guarantee you that is not true. At your age, most of the people you know who are adamant they know what career they want to go into will have changed their minds at least twice before they finish education.

Take your time. Don't rush, think it through – oh, and it's OK to change your mind. Over the rest of your life you are going to change your mind a lot, everybody does, its human nature.

How to choose your options...

Deciding what subject you are going to take is a big decision, and I am sure you will have loads of people telling you what subjects you should and should not take, from teachers, to parents, to friends.

But, at the end of the day, the decision is yours, and it needs to be what will make you happy. You need to balance out your SSF's (Serious, Skilled and Fun), so you want something serious, something you are skilled at, and something you find fun. Make sure you have something for every box, although, these don't have to be different, you may find that the thing you are really good at is also something serious, like maths or physics – and you may think these are fun too. You will probably find, more often than not, that the thing you are really good at is something you find fun too, because it is only human to enjoy what we are good at.

Something serious

This really depends on what you think you might like to do with your life. For instance, if you think you might take a job abroad then learning a foreign language would be a good choice. If you think you will travel a lot then Geography will probably come in handy. If you know, with all your heart, that you are going to be carpenter, then you probably want to take woodwork. You see, 'something serious' does not mean boring, it simply means something that you are serious about. If you don't know what you want to do yet, and that is completely normal, then anything STEM is always a safe choice.

Something you're good at

Is there a subject that you regularly get good marks in, or receive compliments on for your work? Are you a budding Katie Bouman, or a secret Greta Thumberg, or the next Melinda Gates? If you have a hidden talent for something, be it drama or science, sport or woodwork, now is the time to let it out. School is a great place to try a new skill.

Something fun

This one is down to you I'm afraid, we can't tell you what you enjoy. It could be Geography, or Food and Nutrition, P.E., or Maths. Whatever it is, put it on your list and see where it takes you. While Universities will care what subjects you choose, they will care more about why you chose them, and believe me 'I thought it would look good on my application' is not a great line for your entrance interview! They want to see passion and thought.

Science

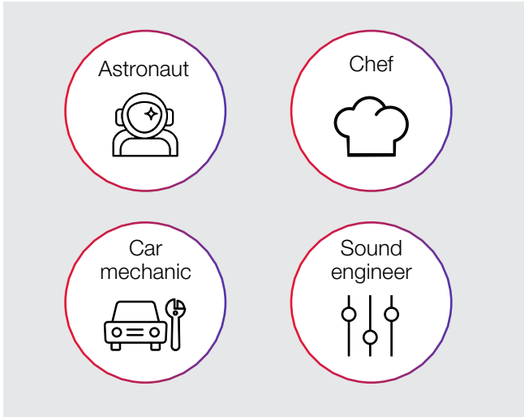
Why is it important?

When it comes to GCSE science, this is not normally an 'option', as all teenagers in school are generally required to take it. However that is not a bad thing. Science is incredibly important, and contains endless opportunities, no matter what your interest are.

Have you ever wondered what makes bread dough rise? What makes the sea blue? Why can't we breathe underwater? Or what stops our bodies from crumpling into a heap on the floor? Do you like to mix paint? Or want to be the fastest swimmer on the team?

What jobs can I use it for?

You can use science for everything from research scientist to pastry chef. Science is an incredibly diverse and varied subject, and no matter what your interests, science will be involved in some way. Just a few jobs you could use science for include:



"In this section we are going to cover a number of subjects that you may have to choose between for your GCSE options. Your school may not offer all these options, or may offer some that are not included here."

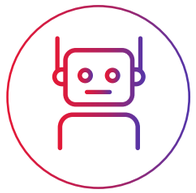
Art

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Art is an incredibly useful skill and is used in all the STEM subjects, from creating accurate anatomical diagrams in Biology, to engineering designs for a working car, to drawing accurate maps of an area. You would be amazed how useful an eye for detail, and the ability to draw accurately is in today's world.	• Biology • Cartographer • Engineer	• Biology • Maths

"The National Society of Professional Engineers wrote an article about how creating art can make you a more effective engineer. In fact, one of the greatest engineers in history, Leonardo da Vinci, was also an acclaimed artist."

Electronics

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Electronics has become a huge part of our daily life, it works everything from our lights to our phones, meaning the career paths within electronics are just as expansive. Electronics can be as simple as a circuit for a light switch, to a fully functioning robot that walks and talks, and everything in between.	• Circuit Designer • Electrician • Robotics Engineer	• Maths • Physics



Foreign language

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Learning another language is an incredibly useful skill, that will not only make you more employable, but also help improve memory and concentration, as well as reducing the risk of developing dementia and Alzheimer's later in life.	• Translator • Getting a job in another country • Getting a job within a country that has strong links with another country	Any of them, as although some careers are more likely to involve interaction with foreign countries than others, the brain development from learning a foreign language will help you to learn new skills. • **Physics** - has huge international collaboration • **Electronics** - we import a large amount of parts used in our electronics from other countries

Food and nutrition

Why choose it?

Food is a huge part of our daily lives, but we really don't give it enough credit. For instance, did you know a lack of iron in our diet will cause anaemia, a lack of vitamin-C causes scurvy, and a lack of calcium causes osteoporosis?

"The human body requires iron to make red blood cells, which then carry oxygen around the body. Vitamin C lowers your risk of heart disease and boosts immunity, and calcium and vitamin D strengthen your bones."

What STEM jobs can I use it for?

- Baker/Chef
- Dietician
- Food Scientist

What STEM subjects would this go well with?

- Biology
- Chemistry

What we eat has a huge effect on our bodies. Too much of some foods will hurt, or even kill us, while not enough of others will do the same – this is Biology in action. Also, whether you are cooking, baking, or even freezing, you are using chemistry – you are mixing different substances together and changing their temperature to cause a reaction.

Geography

Why choose it?

Geography is so much more than just learning where places are in the world. It is also about how people interact with their environment, the causes and effects of phenomena, like earth quakes, tsunami's and volcanic eruptions, as well as the study of how things came to be as they are, i.e., why do some cliffs erode faster than others? And why is one end of the beach higher than the other?

What STEM jobs can I use it for?

- Archaeologist
- Cartographer
- Geologist

What STEM subjects would this go well with?

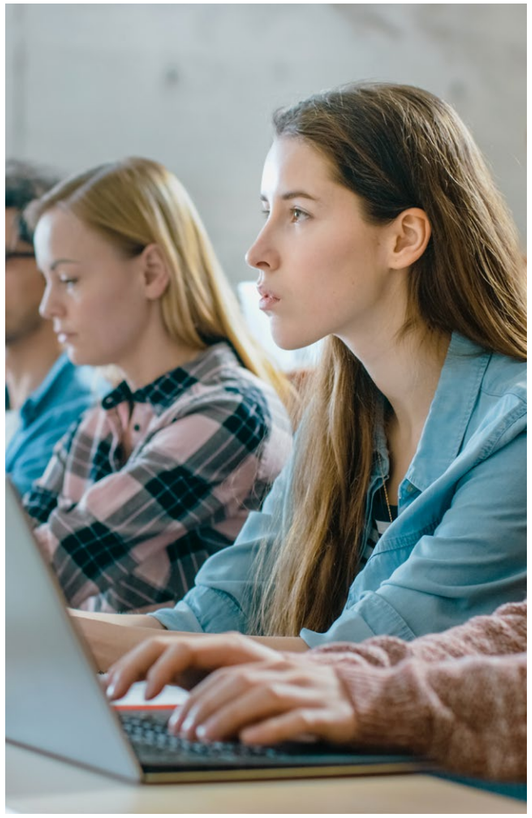
Geography has more in common with the various sciences than you might think. The formation of stalagmites and stalactites are due to physics, the way some coast lines erode more than others is due to chemistry, even the formation of fossils is a science.

History

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Only by remembering the past can we prevent history from repeating itself. After all, how can we keep from repeating past mistakes if we don't remember what those mistakes were? For this reason, history is incredibly important. Think about all scientific advancements made so far. They are now all history. Electricity, the light bulb, the first phones, the nuclear bomb. A hundred years from now smart phone will most likely be obsolete and we will be the ones being studied in some other child's history lesson.	• Archaeologist • Author • Historian	While history does not directly tie into any particular STEM subject, all advancements in Science, Technology, Engineering and Maths are part of history. By better understanding the past, we are more equipped to face the future.

I.T. / Computer Science

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Computers have become integrated into our everyday lives to the point where we don't even realise how dependent on them we are. And with a world dependent on computers, understanding how they work, and being able to program them to do whatever you want means you will never be out of a job.	• Apps Designer • Database Engineer • Games Programmer • Software Developer	Because Computer Science is so wide an area, and computers are used in pretty much every other discipline, you could apply your knowledge in computer science to anything. That said, programming and maths do go very well together.



Woodwork

Why choose it?	What STEM jobs can I use it for?	What STEM subjects would this go well with?
Woodwork is a form of engineering, and has many practical uses. This is an excellent choice if you like making things and getting creative. Also, if you've ever wondered 'what situation would possibly require you to know trigonometry' or to know how to calculate the circumference of a circle, this is it. Woodwork (or carpentry, to give it its official name) is an excellent example of the practical applications of maths.	• Architect • Carpenter • Engineer	Woodwork is a very practical, hands on subject, but you cannot deny its need for mathematics.

A-Level options

What should I study?

Do my options really matter?

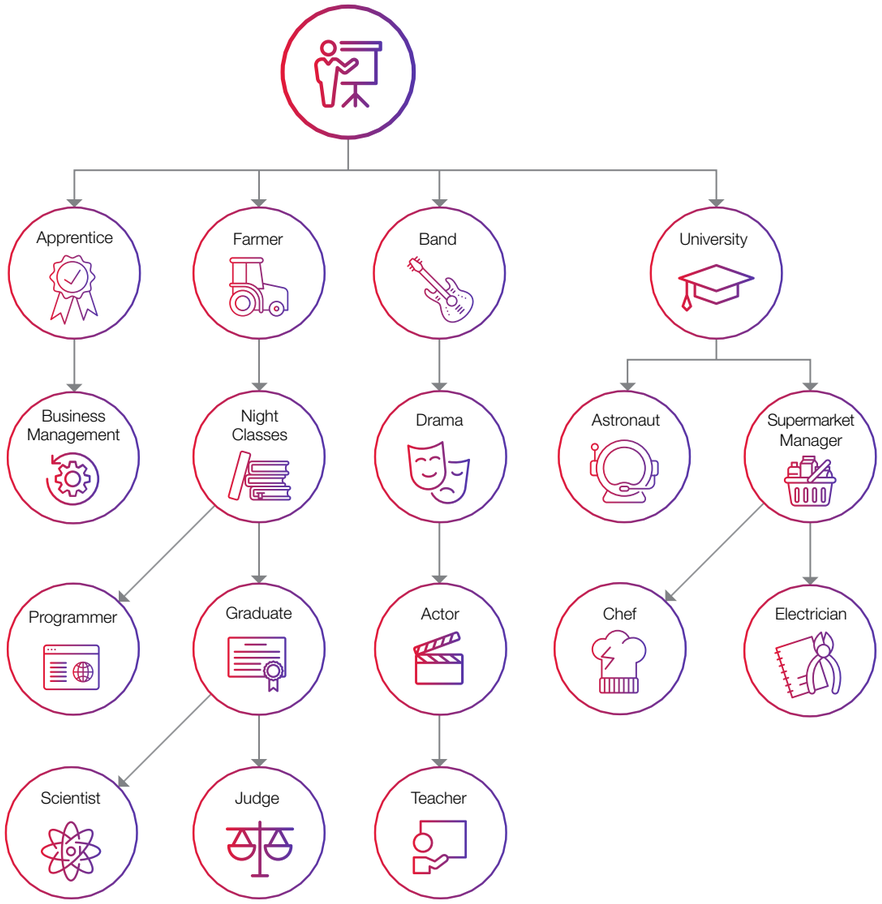
Yes…and no.

What A-levels you choose are important. If you have an idea of what you want to do at university then you should check the entry requirements, as they may want you to choose certain options. However, your choices are not the be all and end all. If you don't know what you want to do yet, don't worry. Choose subjects you enjoy, because if you like a subject, you are far more likely to do well in it. In a lot of cases, a good grade is more important that what subject you got it in.

If you need some help choosing your options you can have a look at the flow diagram on the following page, where there are some potential trio's you could choose that would help lead you into a STEM career, but feel free to mix and match to better suite your tastes.

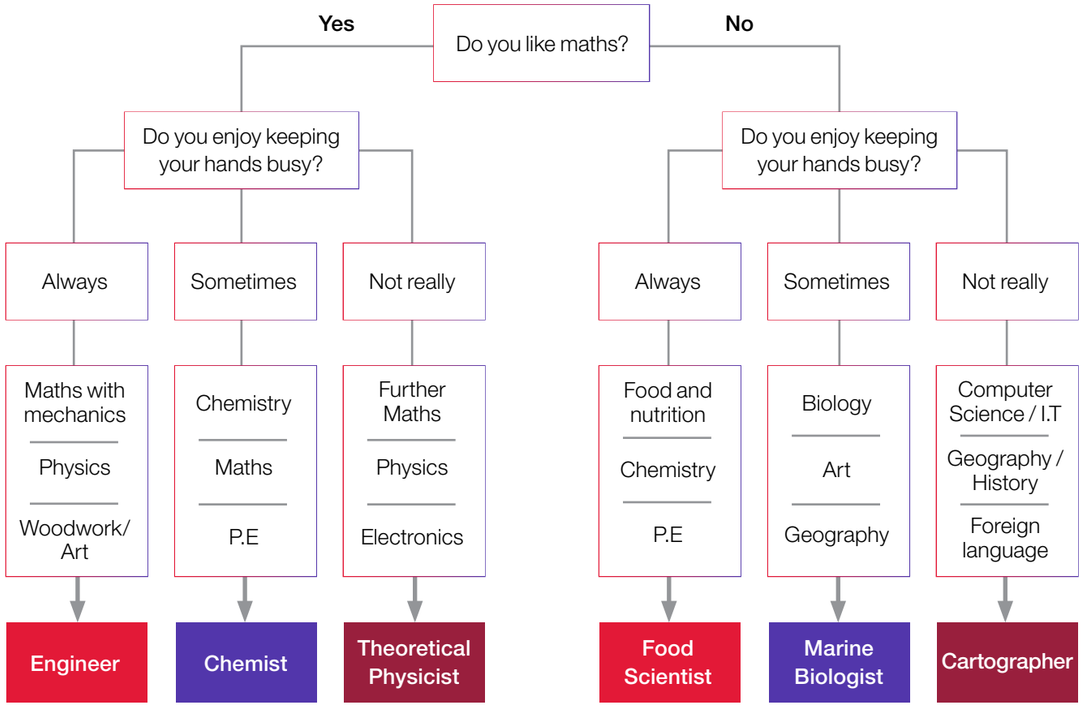
"Remember: There is no 'one path' for any career, nor will what you choose now set your future in stone. Over your life time, your goals will change. Sometimes making money will be what's most important to you, other times it might be having more time for your family, or simply doing something you love. You may hate school now, but when you're thirty decide you want to start learning again. You are going to change your mind, probably many times over, and that is OK. Life isn't about your end destination, its about the path you travel to get there."

Career paths



What A-levels should I take?

"Here I have created a flow diagram for you, with some potential subject trios, and possible careers these could lead you into. These aren't set in stone, for instance, to be a chemist, obviously you don't need to take P.E., but hopefully it will give you some inspiration."



Sisters in STEM: The hall of fame

Will you be in here one day?

Mayim Bialik

DOB:
12/12/1975

PLACE OF BIRTH:
San Diego, California

You may very well know Mayim Bialik by another name: Amy Farrah Fowler of 'The Big Bang Theory', who was a neuroscientist conducting various research projects throughout the show.

However, while Amy Farrah Fowler may be a brilliant female role model in STEM, she is also fictional, and so is not the focus of this bio. So why am I bringing up an actress as part of our 'Women of STEM' selection? Well Mayim is not just a neuroscientist on TV, she is one in real life too! She has a PhD in neuroscience, and has been working with HerWorld Initiative to get more girls interested in studying STEM (just like us!). Despite having a PhD now, Mayim said that she struggled with science in school, and was never top of her class. She always found it challenging, she said that was what made it so thrilling, and why she refused to give up. It didn't matter to her that she wasn't the best, or even that she got stuff wrong sometimes, she still loved it.

Mayim started her acting career in 1988 aged just 13 and continued to feature in films, TV shows and as voiceovers for cartoons, all through her school education and her Bachelors of Science, finally taking a break from her acting career in 2007 to undertake her doctorate in neuroscience, earning her a PhD. After getting her PhD, Mayim did not actually plan to return to acting, instead wishing to take a professorship at the University where she got her PhD.

However, she took a career break to look after her children, and her return to acting came as a result of this, as her health insurance was due to expire, and she needed an acting job to get insurance through the Screen Actors Guild. The Big Bang Theory had ideal shooting hours, as they were all during the school day, meaning there was no need to pay for child care. As well as her acting career, her PhD, and raising a family, she has also written two books, and co written two more! Does this woman ever sleep?

Professor Margaret Staley

DOB:
Unknown

PLACE OF BIRTH:
Unknown

Margaret Stanley received her OBE in 2004 for her services to virology, which is the study of viruses and viral diseases. She is currently a research scientist in the same field, leading a team of research scientists at the University of Cambridge.

They are looking into means of prevention, as well as treatment, for the human papillomavirus infection, which causes cervical cancer. So, basically, she is literally looking for a cure for cancer.

Her contributions to the field of study around the papillomavirus infection, as well as the development of vaccinations to prevent viral carcinogenesis (which is the process of normal, healthy cells, being transformed into cancerous cells), have gained her international recognition.

The vaccination research she has been a part of not only helps to prevent cancer, but also hopes to reverse it as well. “She is internationally recognised for her contributions to the biology and immunology of papillomavirus infection and to the development of vaccines that prevent or reverse viral carcinogenesis” Citation on election to Professor of Epithelial Biology in Cambridge (acmedsci ac uk, n.d).

Katie Bouman

DOB:
09/05/1989

PLACE OF BIRTH:
West Lafayette, Indiana, US

Katie Bouman could certainly be described as the academic type, having gone from high school, to a Bachelors degree, to a Masters, and then a PhD at MIT in electrical engineering and computer science. She certainly didn’t beat about the bush when it came to her education.

In 2019, aged 29 she joined Caltech, one of the top universities in the world, as an assistant professor, where she started work on using computer vision and machine learning to create new forms of computational imaging. It was later that same year that Katie became famous for being part of the team that managed to take the first ever photograph of a black hole.

Katie had led the development of the algorithm, known as Continuous High resolution Image Reconstruction using Patch priors (that made the photo possible). Her fame, while well deserved and hard earned, also brought with it an onslaught of online harassment, from those who wished to undermine her contributions.

However, Katie has not let that hold her back, and since then she has been awarded a named professorship at Caltech. Due to her young age we do not have very much information about Katie, however she is certainly one to watch. What will she do next?

Queen Elizabeth II

DOB:
21/04/1926

PLACE OF BIRTH:
Mayfair, London

Our Queen, Queen Elizabeth the Second, was just 13 years old when the second world war broke out. Like many other children in London, she was evacuated to the country with her sister, while her parents, remained behind, out of solidarity with those living through the Blitz.

Throughout the six years of the war, Princess Elizabeth took on a variety of roles to do her bit. She spoke to the nation on BBC Children's Hour, joined the 'Dig For Victory' campaign during food shortages, and, as soon as she turned 18 she insisted on joining the Auxiliary Territorial Service (which was the women's branch of the British Army).

This made Princess Elizabeth the first female member of the British Royal Family to take part in active duty in the Armed Forces. She soon began her training as a mechanic, and was dubbed by the Newspapers as "Princess Auto Mechanic". During the festivities that erupted at the end of the war, the then Princess Elizabeth, dressed in her ATS uniform, along with her sister, slipped into the crowds to join in the fun, unbeknownst to the other festivity attendants.

The two Princesses' were even part of a conga line that danced through the Ritz Hotel.

Greta Thumberg

DOB:
03/01/2003

PLACE OF BIRTH:
Stockholm, Sweden

Greta Thumberg has become a household name worldwide, well known as an Environmental Activist, primarily for her challenge to world leaders to take immediate action against climate change.

She is also autistic, but she has more than proved that being autistic does not have to be a detriment. When Greta was 15 she became a rather unusual truant from school. While most 15 year olds skipping class would be going shopping, or hanging out with friends, she ditched her lessons to hang outside the Swedish Parliament brandishing a sign declaring Skolstrejk för klimatet ('School Strike for Climate').

Climate Change has strong roots in science, as it was scientists who proved its existence, and its seriousness. Also, it is only our scientific advancements that can allow us to escape global devastation, making Greta not only an environmental activist, but also earning her a place with our Sister's in STEM.

Greta has given speeches at a number of global events, including the UN Climate event of 2019 where she told world leaders "You have stolen my dreams and my childhood with your empty words". Her influence has become so renowned that it is known as the "Greta Effect" and she has inspired school strikes all around the World. She has even written a book called 'No One Is Too Small to Make a Difference', which is a collection of her speeches.

Professor Sarah Gilbert

DOB:
04/1962

PLACE OF BIRTH:
Kettering, Northamptonshire

Sarah Gilbert led the team of researchers in designing the genetic code for the AstraZeneca vaccine which has been used to help immunise the UK population against COVID-19.

Sarah almost left the field of Science altogether when she grew irritated by the 'tunnel like focus' expected of those in her field at the University of East Anglia while she was studying for her PhD.

She had been inspired into her studies by the wide array of experience available in the department of Biological Sciences, finding the breadth of topics and avenues to explore truly exciting. However, the expectations on her to reduce her focus to a fraction of what was out there caused her to almost abandon science altogether. It was the practicalities of life, such as the need for an income, that caused her to give her scientific career 'one more go', and we are all the better for it.

After completing her PhD, Sarah got a job in the research of manipulating brewing yeast (which is what is used in creating beer). In 1990, she got a job at a biopharmaceutical company manufacturing drugs. She gave birth to triplets in 1998 after which her partner gave up their career to be the primary carer, allowing Sarah to continue her career, and continue it she did. By 2010, she was a professor at the Jenner Institute and started her work designing, and then creating, a novel influenza vaccine.

Melinda French Gates

DOB:
15/08/1964

PLACE OF BIRTH:
Dallas, Texas, United States

Melinda Gates is a businesswoman from the US, responsible for setting the priorities of the philanthropic organisation, the Bill Melinda Gates Foundation.

You may know her husband, Bill Gates, as the computer entrepreneur, but Melinda has her own degree in computer science, as well as an MBA. She developed various multimedia products for Microsoft over the course of 10 years, before leaving so she could devote more time to her family and her philanthropic work. She has become a global advocate for women and girls, and wants to inspire girls to enter the tech world.

During Melinda's first few years with Microsoft, she was surrounded by men. In an attempt to fit in she tried very hard to "not be herself", and as a result she became miserable in the profession and considered quitting altogether. But she held her nerve. Instead she found her own leadership style, and allowed herself to do things her way, and as a result she was much happier, and more effective at her job. It was this experience that lead her to say "You will succeed because of who you are, not in spite of it".

Melinda is now a co chair of the Bill Melinda Gates Foundation, which is one of the largest philanthropic organisations in the world (philanthropic means something that seeks to benefit others without gaining anything in return).

Professor Monica Grady, MBE

DOB:
15/07/1958

PLACE OF BIRTH:
Leeds, West Yorkshire

Monica Grady came from a large family, being the oldest of eight children, but she didn't let that hold her back. She has flown from strength to strength.

Her work in meteoritics has made her a leading British Scientist, as well as giving her international recognition, and earning her a Commander of the British Empire award. And, if that is not cool enough for you, she also has an asteroid officially named after her, asteroid 4731 which has been called Monicagrady in her honour.

Like many great scientists before her, Monica is religious, proving all those people who say science and religion don't mix wrong. As a practising catholic she is yet another example that science and religion do not have to be at odds with one another.

On Desert Island Disks, Monica said she was in no way naturally intelligent, but instead had to work hard for her position in class, but work hard she did and it paid off. She is now Professor of Planetary Science at the Open University, and Chancellor of Liverpool Hope University. She has published various papers on an array of meteorite-related topics.

Phiona Mutesi

DOB:
28/03/1996

PLACE OF BIRTH:
Katwe, Kampala, Uganda

Phiona Mutesi was born and raised in Kampala's largest slum, Katwe. Her father died when she was just three years old from AIDS, leaving her mum to raise Phiona and her siblings alone.

By age nine, Phiona had to leave school because her mother could no longer afford to send her. Instead, she went to sell maize at market. One fateful day however, she followed her brother through Katwe to a Sports Outreach Institute, run by a Christian Sports Mission. It was here she first learnt to play chess. By 2010, Phiona was playing for her country in Russia, where she attracted quite a lot of attention in the press as she was a young girl with very little education playing a game known for its strong mathematical links.

John Saunders wrote that Phiona's present playing standard is that of a modest but competent club player but, placed in the context of her environmental and educational deprivation, her achievement in reaching such a level has been awe inspiring.

By 2012, Phiona had won the Women's junior chess championship three times and, along with Ivy Amoko, was awarded the title of Women Candidate Master, becoming the first women in Ugandan Chess history to be titled. Phiona was also the first female player ever to win the open category at the National Junior Chess Championship in Uganda.

Natalia Pasternak Taschner

DOB:
05/05/1976

PLACE OF BIRTH:
São Paulo, Brazil

Natalia Pasternak is a microbiologist whose press columns, radio and TV appearances have brought life saving scientific information to the masses in Brazil during the COVID-19 pandemic.

She is also the founder and current president of the non profit organisation Instituto Questão de Ciência (Question of Scientific Institute), which is dedicated to promoting and defending scientific evidence in public policies. This is not the first initiative she has been part of to spread scientific understanding. She founded a science café blog, Café na Bancada (Coffee on the Lab Bench), with the aim of spreading scientific understanding over coffee.

She later became the director of Pint of Science where she coordinated science lectures in bars. Natalia also organised São Paulo's first ever specialised course in public communication of science in early 2020, with the aim of training journalists in how to spread scientific information widely. Also in 2020, she was made a fellow of the Committee of Sceptical Inquiry.

> "As a granddaughter of the Holocaust, I know what authoritarian governments can do to people. Speaking up for science in Brazil during the pandemic was my contribution to keep the "Never Forget" alive."

Helen Sharman

DOB:
30/05/1963

PLACE OF BIRTH:
Sheffield, South Yorkshire

Helen Sharman has covered a range of careers over her life, from astronaut, to author, to radio presenter, to chemist. She even featured on an episode of Hollyoaks.

Helen was the very first western woman, and also the very first British person, to go into space! Helen was just 27 years old when she went into space in 1991 for Project Juno, putting her in the top ten youngest people in space.

While in space, Helen conducted a range of both medical and agricultural tests, as well as photographing the British Isles from space and participating in an amateur radio hookup to communicate with British schoolchildren. Her home city recognised her with a star on the 'Sheffield walk of Fame' for her accomplishments on the space mission.

Two years after returning to Earth, Helen published her autobiography, 'Seize the moment', and in 1997 she published a children's book called 'The Space Place'. She has presented both radio, and television shows for BBC Schools and in 2015, she became the Operations Manager for the Department of Chemistry at Imperial College London.

> "aliens exist, there's no two ways about it but it's possible [...] we simply can't see them"

Every woman's success should be an inspiration to another. We're strongest when we cheer each other on.

Serena Williams

Extremists have shown what frightens them most…a girl with a book.

Malala Yousafzai

Be the woman who fixes another woman's crown without ever telling the world it was crooked.

Anamika Singh

A girl should be two things: Who and what she wants.

Coco Chanel

If the game doesn't allow you to be yourself, change the game.

Rebekah Coleman

There is no limit to what a woman can accomplish.

Michelle Obama

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Fill this page with your own biography

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