

Jan 2024

Quick Maths

Year 11 edition

Maths Mock Aftermath

How do you feel about your maths mock results? Disheartened? Relieved but worried the real thing will be harder? Motivated?

Particularly for anyone feeling disheartened or concerned, it can be easy to end up in a vicious cycle where confidence drops and anxiety and avoidance increase. But there's another way to look at it.

Firstly, **whatever** your result, there are some positives. You've experienced exam conditions and seen what the exam papers can look like. You've now had the opportunity to learn a lot about yourself and exams. If you think about it, there will be at least one thing that you did well, so make sure you congratulate yourself for this.

An important question to ask yourself now is, "**What would need to change to help me feel more confident?**" This could be maths-specific, including areas for improvement; it could be related to revision and what worked or didn't work; or it could be related to managing your emotions around exams. It could be all three. Maybe talk about this with someone you trust and feel comfortable with. And then put the answers into practice.

General revision tips that can also help include:

- Regularly refresh your memory. Each time you sit down to revise, spend ten minutes reviewing what you learnt in your last session. Review the previous seven days once a week for an hour or two. Regularly remembering things makes them easier to remember in future.
- If you start to feel anxious or disheartened at any point, go for a short walk outside, then come back to it and break it down into smaller parts. If you still feel blocked, study something you feel confident with and speak to a friend, parent/carer, or teacher about it.
- Challenge yourself. Having to actively recall and practice maths skills will make them stronger. Practice papers or quizzes with friends are a great way to do this.
- Put the hours in. No one is naturally brilliant at anything; we all must put time in. The more you practice maths problems, the more things will start to click and become fun. Make sure you plan lots of breaks too.

Student voice



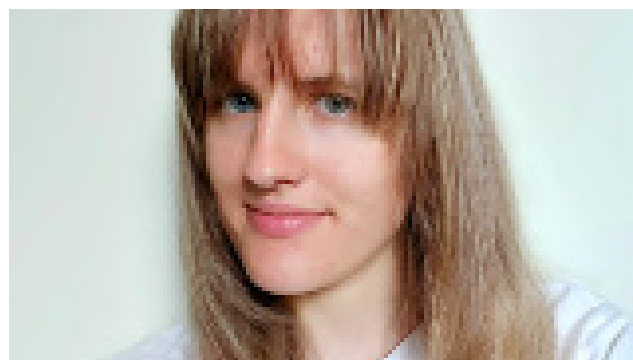
To say I was not a maths fan in Primary School or early Secondary School is an understatement! However, when I got to GCSEs, I fell in love with it. I think if you told 8-year-old me that I would willingly choose not only maths but further maths for A-Level, I wouldn't have believed me!

In my degree, I have enjoyed Oceanography the most as it contains the maths I was doing in my A Levels! I also really like computer skills and lab practicals - as I enjoy hands-on work. In my degree I use both the statistical and mechanical sides of maths. Stats are important across all sciences, so prior knowledge has helped, both because I have a basic idea of how to do it and because it makes the concepts way less daunting as I have seen them before.

In oceanography, our lecturer highlighted the importance of maths and physics in the role of our oceans. Many people have been struggling with the maths, so I am really grateful for the advantage it has given me.

I have found the more biological theory elements, specifically the Organismal Diversity course, more challenging as I didn't do biology for A-Level. Even though I didn't do biology, I still got into Bangor because they required two of the sciences; for this, both maths and further maths counted! I decided to do these because I enjoy them more.

What I enjoy most about uni is making friends, having more freedom and joining university



societies. The things I enjoy the least has been fresher's flu and cooking for myself! I'm still putting off making a proper meal - so I have been surviving on pasta and ready meals (not recommended).

I am autistic and have anxiety, which has put struggles in my path, especially socially. Big changes like uni were extremely rough on my body, but I am getting through it like I always do, and I have people at uni to help me.

I haven't decided what I want to do after uni, but the good thing about my degree – and studying maths at A level - is it's very non-specific and opens many pathways.

Grace, 19

A Levels:

- Art
- Maths
- Further Maths

University:

- Marine Biology and Oceanography, University of Bangor

“ **Top Tip:** Do what you love, not what your parents or school want you to do, but look carefully at the uni course you want to do and if it has specific subject requirements. ”

Sophie Germain

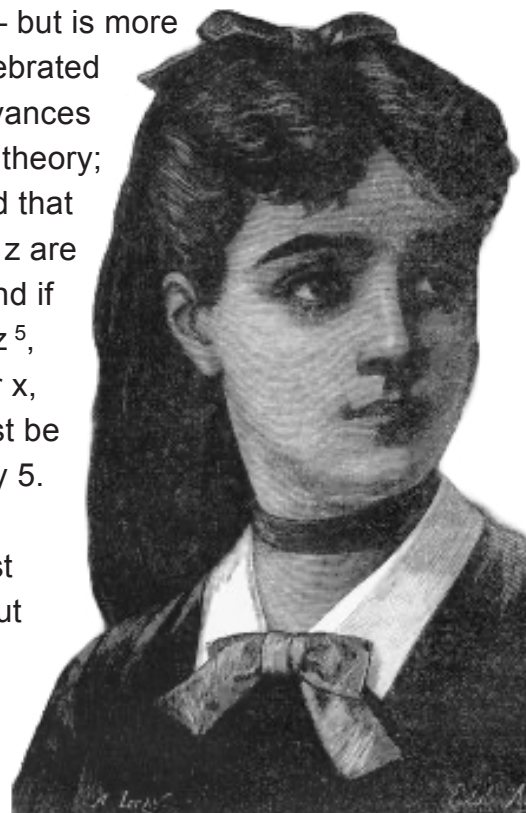
Sophie Germain was a French mathematician born in the 18th century – she taught herself maths against her parents' wishes. They did not consider studying maths appropriate for a young woman, so they tried to dissuade her by confiscating her warm clothes and forbidding her heat and light at night. However, Germain studied by candlelight, swaddled in her bedsheets, and eventually, her parents deemed her love of maths “incurable” and stopped their punishments.

Soon after turning 18, she enrolled at the newly formed Ecole Polytechnique, but under the pseudonym M. LeBlanc, because women were not permitted to attend the university. Whilst there, she made a great impression on some of the most widely known mathematicians today, like J. L. Lagrange, Jean-Baptiste-Joseph Fourier and Carl Friedrich Gauss, the latter of whom sought for her to receive an honorary degree from the University of Gottingen.

Germain made great strides in elasticity, which is the study of how objects are deformed when forces are applied to them – winning a prize from the French Academy of

Sciences – but is more widely celebrated for her advances in number theory; she proved that if x , y , and z are integers and if $x^5 + y^5 = z^5$, then either x , y , or z must be divisible by 5.

When I first heard about Sophie Germain, I fell in love with her



determination to study maths, and she is a fascinating figure to learn more about.

Anna, MEI Young Persons Consultative Panel

Family maths challenge



Estimate how many kilometres of toilet paper are used every day in the UK

This is an example of a Fermi question where you need to make reasonable assumptions and estimates about the situation in order to come up with an approximate answer.

Send your solutions (with working including any assumptions made) to quickmaths@mei.org.uk

Invest in your future (Career)



From the age of 12 I always wanted to be a doctor. I volunteered, worked in care homes and had work experiences in hospitals. However, when applying to University I was not offered a place. Whilst I was very disheartened at the time, it led me into a degree in Mathematics, Operational Research and Statistics which enabled me to get to where I am today.

I am currently an Assistant Investment Manager for Greenbank. In simple terms, clients who are interested in ethical and sustainable investments choose to invest their money with us. We then invest this money in a range of stocks and funds which have been approved by our own internal ethical, sustainable and impact team. My role involves an array of tasks ranging from client communication, investigating, research and internal projects.

What I love about my job are the people... and that no two days are ever the same! There are challenges too of course: How quickly things change in the world such as climate change, government policies, unpredictable events and how these impact people's lives. All need to be investigated and considered when making investments. I deal with numbers every single day. This could involve discussing and calculating tax figures, reviewing financial results or working out portfolio performance. Although a maths degree isn't required it has massively helped me.

All my friends used maths in their degrees- ranging from Physics, to Geography, to Psychology. If you enjoy maths and feel comfortable with it, I would encourage you to study it for as long as you can. It gives you such a great ability to problem solve, to think outside the box and how to deal with complex tasks.

“ **Top tip:** Do not get hung up on a 'life plan'. Anything can change day to day, year to year, and change is good as it's needed in order to evolve and adapt. ”

Name:

Lucy

Current Job Title:

Assistant Investment Manager

Where and what studied at Uni:

Cardiff University - Mathematics, Operational Research and Statistics Graduated 2020

A Levels:

Maths, Biology, Chemistry



Student voice

I am currently in my 4th (and final) year of my Aerospace Engineering Degree Apprenticeship with Airbus. I spend about 35-40 hours a week on work, university, and tutoring, and I study for approximately 10-15 hours a week.

The first step in my journey was identifying my interests and goals and thoroughly researching apprenticeship opportunities. I think it's important to take time to do this and understand the apprenticeship programme you're interested in to ensure it aligns with your goals. I then spent time preparing my CV and cover letter to apply for the apprenticeships and then more time preparing for the 1-1 interviews and group interviews when I got to the next stage.

As part of my work, I enjoy travelling to different company sites, meeting different people and seeing different countries. I particularly enjoy the networking aspect, the opportunity to meet people from all around the world.

I have found the work-life balance the most challenging element so far. Sometimes, you feel like you are working constantly with no time for



yourself, but it does improve your time management and organisational skills. It has been a struggle, but I have now managed to get on top of it, which works perfectly for me.

I loved maths at school, and still love it till this day, but I do feel I have what you call a love/hate relationship with it. With mathematics, you have to stay positive and understand that sometimes, it is okay to make mistakes! It doesn't define your mathematical ability. You may be a 'genius' and still get some things wrong, but in turn, it teaches you that you don't get everything easily in life.

I use maths at work with projects, exams, reports to justify a method, etc., and I also use maths in everyday life, especially with my personal finances.

Immanuel

AS levels:

- Maths
- Physics
- Chemistry

Level 3 extended diploma

- Aeronautical Engineering

“ **Top Tip:** Ensure that you consider your interests, passions, and strengths and think about what you enjoy studying and those areas in which you excel when looking at your options after GCSE. Also, look at your long-term goals and the requirements for your university, apprenticeship or future career. ”

Money



How to budget for university and its unexpected costs

Going to university can be one of the most exciting and memorable experiences of your life, but it can also be one of the most expensive. While tuition fees can be covered by student loans, there are still plenty of other expenses that can add up quickly.

University is stressful enough, working out who you want to be, who you want to hang out with and more. Ideally, you want money to be the last thing on your mind.

By following the tips opposite, you'll be able to enjoy your university experience with fewer money worries. Remember, budgeting is all about finding the right balance between spending and saving, not stopping you from having fun!

Good luck, and remember, if you need someone to talk to, reach out.

Abi Foster,

Founder of Elent

Follow Abi on [Instagram](#)

My top four finance tips for university:

- **Create a budget plan:** Start by listing all your monthly expenses. Be honest with yourself; this includes the kit you need to buy for class, activities, and the tickets for the must-go-to event in freshers' week (fun-filled first week of uni).
- **Look for discounts:** Don't be afraid to look for student discounts on everything from clothes to groceries. It can be as simple as using your university login details. UNiDays is a great place to look for student deals.
- **Be aware of your financial footprint:** You are considered financially active as soon as you turn 18. Tread carefully. While banks can offer overdrafts with seemingly great deals, you might be looking at a nasty surprise when the deal ends.
- **Start saving:** Try to put some money away as often as possible. Books you didn't realise you needed to buy, trips home to see friends and family, and even emergency biscuits when someone in your halls has their first breakup.

Our favourite maths jokes

- **Where do you find mathematical fish?.....In-di-ces.**
- **How can a fisherman determine how many fish he needs to catch to make a profit?**
By using a cod-ratic inequality
- **Two cats are on a sloping roof, which one falls off?**
The one with the smallest μ
 μ is the coefficient of friction
- **I have a maths joke but I am 2^2 to say it!**

