

# INTERN Q&A



With so many fantastic Maths and Cryptography opportunities coming up soon, we've spoken to two of our previous interns, Alex and Bianca, to find out what they had to say about our Maths and Cryptography Internship. We've also grabbed five minutes with Emily who is currently in one of Maths and Cryptography roles to find out more about them!



## MATHS & CRYPTOGRAPHY INTERNS

### What made you apply for the Maths & Cryptography internship?

**Alex:** I've known for years that I wanted to work here, first inspired by one of the Christmas puzzles when I was doing my GCSEs. So, the internship seemed like a great opportunity to try the job out and gain some knowledge and experience of what actually happens here.

### What has been your favourite thing so far?

**Bianca:** After years of doing the same questions, exercises, and proofs that generations before us have known, it's been extremely fun to put all that training into practice and undertake genuinely new research.

### Did you find anything challenging? If so, how did you overcome it?

**Bianca:** Teamwork was sometimes difficult. At university we're told maths is "not a spectator sport" and work is very individual. But here, collaboration is everything. Through pair programming, regular group discussions, and whiteboard working, we are able to produce amazing results far beyond anyone's individual capabilities.

### Did you get involved in any social events during your internship?

**Alex:** I went to a few events as part of the Maths Development Programme, including bowling, burgers and a pub quiz. It was nice to meet people who work

here full-time in maths and those who've joined in the last few years. Everyone was so friendly and welcoming. I also went to a Challenger event – which involved solving puzzles and running in some of the green spaces in Cheltenham. It was exhausting, but great fun and brilliant as they adjusted the teams to our different levels of fitness.

### What have you learned that you'll bring to your next role?

**Bianca:** That presenting mathematics is very different from writing a paper. At first, my presentation slides were always cluttered with words and precise definitions. But after much useful feedback, I learned that the most important goal is to tell a story. By distilling unnecessary details, and focusing on the key ideas, I transformed my presentations to be engaging and memorable for the audience.

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## What advice would you give to others thinking of applying for an internship at GCHQ?

**Alex:** Just go for it! It's such a great experience and I don't think you'll ever regret it. For me, it's been the best Autumn of my life; I've developed so much personally and professionally, and I'd do it again in a heartbeat if I could.

## Did anything surprise you about the culture and work environment?

**Alex:** Initially, I thought it was going to be a really serious place to work. But there's a lot of fun in the job and people are very social. I've also really enjoyed not having to wear a shirt and tie every day. Inclusivity and development – in all areas.

## Would you apply to work for GCHQ in the future?

**Bianca:** I would. This internship has been one of the few places where I can do what I really love – research in the intersection of mathematics and computer science.

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## MEET EMILY

### Can you give us a quick description of your current role?

My job is to understand post-quantum cryptography, and how it can be used to prevent attacks on encrypted data by a quantum computer.

### What's your favourite thing about your job?

Every day I come to work I learn something new, and I have great colleagues that I can bounce ideas off and collaborate with.

### What's your favourite area of maths?

I find maths much easier when I can visualise it, so for that reason I really like graph theory.

### What advice would you give to others thinking about applying for a Maths and Cryptography Role?

Go for it! I never thought I'd get this job in a million years, and I really love it. If you don't apply, you'll never know what would have happened and you'll probably regret it.

### Has anything surprised you about the organisation?

I think I thought everything would be really serious, and sometimes when there's important work to do it is, but there's also a lot of fun stuff that goes on. For example, it's rare that a week goes by without a charity bake sale, and I get to spend some work time volunteering for good causes.

### Favourite way to unwind?

Binge watching reality TV like Love Island or Below Deck.

### Favourite snack?

Butter popcorn, extra buttery if possible!

### Favourite TV show?

Bridgerton

QUICK QUESTIONS?



Emily

My amazing cake