STEM AMBASSADORS
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REAL LIFE MATHS
STEM AMBASSADOR CASE STUDY

SAYARA BEG
STEM AMBASSADOR

STEM Ambassador Profile:

Name:
Sayara Beg

Job title:
Chief Data Scientist

Location:
London

Education:
- GCSEs: English, Maths, Physics
- A levels: Maths Pure, Maths Applied
- Degree: BSc Decision Sciences, MSc Information Systems Design

💼 My job

Day-to-day role: Project Management (monitoring all aspects of a project, from the initial planning to the very end, to ensure it runs efficiently and achieves what it set out to do) and Statistical Analysis.

Favourite part of my job: Giving a presentation on the analytical results – it gives an opportunity to explain how something works. It is a little bit like watching a 'who-done-it?' film or TV programme when the sleuth explains to a crowd of suspects, towards the end, how s/he worked out what had happened, how it happened and most importantly, who in the crowd of suspects was the actual person that had done the deed. I had always wanted to be the sleuth when I watched those films and, I guess, giving that presentation to a group of people is a bit like that when I tell them what I have discovered from my analysis, how I had arrived at my conclusion and who or what was the key factor that was responsible for the conclusion I had arrived at.

Most challenging part of my job: Identifying the correct data sources, to back up the calculations. Identifying and interpreting the data correctly is absolutely critical – if there are two numbers on a report, and one is bigger than the other, what does that mean to the audience? Depending on what data those numbers have been derived from will indicate whether it is a good thing or a bad thing. For example, if the two numbers are sales and one was from the previous month and the other from the current month then, depending on which month has the higher number, it will indicate if it is a good message or a bad message. I.e. if the previous month was the lower sales number and the current month is the higher sales number then that indicates an increase in sales, but if it is the other way round, then it indicates a decrease in sales. If the numbers were cancer-related deaths, then if the previous month was a high number and the current month is a low number then that indicates a decrease in deaths which is a good thing, and the other way around it is a bad thing. So, accurately sourcing the data is critical and, if wrong, it can very easily give the wrong message.

Motivation: I love analysing the data, it's a bit like being a detective, trying to find the story.

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> " I wanted to show that STEM subjects really do have real-life application "

My career so far

Most exciting career moment so far: The Eureka moment when a particular calculation just didn't add up for weeks, until a new data source was added and it all fell into place.

Project I wish I could have played a part in: The Data Centre at CERN. There is so much data collected that I would love the opportunity to understand how it is stored, analysed and reported on. What stories is the CERN Data Centre waiting to tell? What else is buried in the data?

Maths in action

How I use maths in my job: Calculating the Critical Path Analysis (CPA). CPA is identifying the key sequence of events that must happen in the specified sequence and duration to ensure that a project is delivered on time. All other events can be seen as reasonably interchangeable but the Critical Path is the sequence of events that cannot change.

How maths makes a difference in what I do, or how it helps me to make a difference for others: Analysing the reports and ensuring the calculations are accurate and auditable (an audit is a review of a report to ensure that everything is correct). The most important part of reviewing an analytics report, which is made up of various aggregated and consolidated data, is being able to justify the information on the report. Whether a report is right or not is not as important as being able to show that the method followed, or the calculation followed, is correct. From a maths perspective, this has its roots in the classic teaching of mathematics: where you may get 2 points out of 10 for getting the answer right, and 8 points out of 10 for writing down line-by-line to explain how you calculated each step to arrive at the answer. What is more important (as indicated by the points out of 10) is not just getting the answer right, but also the steps you followed to arrive at the answer. This applies in practice too. Just producing a report with numbers is not enough, being able to demonstrate each step taken to produce the reports is equally important, if not more.

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> " Maths, Physics and Chemistry are the primary sciences of life. "

Being a STEM Ambassador

I became a STEM Ambassador because: I wanted to show that STEM subjects really do have real-life application, because I never understood how it would be applied in real life when I was at school, but I guess that is because there was no such thing as STEM Ambassadors!

What has been your experience in schools as a STEM Ambassador?
Really good fun with lots of interesting questions.

Words of wisdom to STEM students: Never forget to be creative. I would, and I still do, advocate that from GCSE level always make sure you have the following: English, Maths, Physics, Chemistry and, believe it or not, Art. At A-level standards (assuming you choose three or four), I advocate Maths, Physics, Chemistry and, if possible, Art.

Maths, Physics and Chemistry are the primary sciences of life (as in the primary colours) – with these under your belt, you can take any combination of subjects you can ever dream of, at degree level. If you can take Art. At A-level, I would strongly recommend it. There is such a demand to pictorially represent sciences.

It is critical to master English at GSCE level, because the ability to understand the Sciences is totally dependent on mastery of English language (particularly in maths logic).

If I didn't do this…

If I didn't work in data I would… be a professional Beekeeper. I have huge respect for the bee, aside from being a huge lover of honey. More importantly I am deeply curious about the science of bees. I would love to keep bees, if only to sit for hours and observe their behaviour, collect data about them, analyse the data and look for stories in the data that would help me draw parallels to our own existence. I suspect it is something I would do when I finally get to retire, just out of sheer curiosity, without the pressure of having to earn a living out of it.

When I'm not at work I… love going to the theatre, visiting museums and galleries, so I can be creatively inspired, enabling me to bring it into my work.

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