



STEM Ambassador profile

DARRYL HOW
PROCESS ENGINEER, ARUP

? What do you do?

I am a process engineer working at Arup, an engineering consultancy firm. I work on a variety of projects but I am mainly involved with designing and improving performance of clean water and sewage plants for various water companies (Yorkshire Water, Welsh Water, etc). My tasks include: estimating the water that needs to be treated based on current and future population data; fault-finding on site to ensure all the equipment are in good working condition, appropriately sized and energy-efficient; reporting my findings to the client to help them make informed decisions on future investments.



I also develop high-level designs for renewable energy technologies, particularly anaerobic digestion (AD) of sewage and food waste which produces biogas and then converted to heat and/or electricity. Personally, I find this area to be the most exciting due to its sustainable approach to energy generation – taking unwanted materials and creating valuable resources whilst reducing the use of fossil fuels. It is still not fully understood in industry and I carry out a lot of research work to help increase energy outputs from the process.

Prior to joining the company, I was studying MEng Chemical Engineering at the University of Birmingham where I learned to appreciate the different industries that I could enter into – including food manufacturing, pharmaceuticals, oil and gas, and energy. To fulfil the entry requirements for my degree, I took four A-levels subjects – Chemistry, Physics, Mathematics and Computing. I knew from a young age I wanted to take up engineering as I enjoyed making things, repairing things and basically knowing how things work. I got very helpful advice from my A-level teachers on what subjects I need to take and what marks I need to aim for.

? What advice would you give to someone studying STEM subjects?

I would advise students taking STEM subjects to start having an idea of what interests them – i.e. how cars are designed to go quicker/safer/smarter, how chocolate is made on an industrial scale, or even how video games are developed. This is a strong motivating factor when studying STEM subjects because students are able to relate science/mathematical principles with real-life application. This makes the learning process more exciting and valuable to them! It is also useful to get in touch with people who are working in industry (through parents or teachers) and learn about what their day-to-day life entails.



? What kinds of activity can you support?

I would like to support activities such as field trips to sites, show-and-tell presentations and engaging with students during tutorials. I am also happy to sit down with teachers and help come up with ideas for projects the students could do in school.

How your school can access STEM Ambassadors

We work with schools so that you can access our database of **FREE** STEM Ambassador volunteers, enabling you to incorporate exemplary links to the world of work within your teaching. Each STEM Ambassador has a STEM background – they are usually experts or professionals in their field.

All of our STEM Ambassadors have also undergone an enhanced Disclosure and Barring Service (DBS) check to enable them to work with young people in school; and they have also attended an induction session with West Yorkshire STEM staff on how to approach classroom and school-based teaching sessions. To request a STEM Ambassador, email us: ambassadors@wystem.co.uk.

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West Yorkshire STEM is part of Research Toolkit Ltd, the STEM Ambassadors Programme and Schools STEM Advisory Network contract-holder for West Yorkshire.

