

## KCC STEM offers for young engineers.

**Helen Rowe, who works for KCC, shares the opportunities that she, her team and KCC offers to young people, schools, colleges, universities and youth groups to encourage the next generation of engineers through STEM activities.**

KCC Highway Structures engage with schools, colleges, universities and youth groups to encourage the next generation of engineers through STEM activities. The Structures Team have a number of registered STEM Ambassadors who volunteer with the above through the STEM Hub at Canterbury Christchurch University and through the Kent and East Sussex Institution of Civil Engineers Branch.

In the past year we have assisted with events such as:

- **The Amey Challenge Cup** – this event was organised by our term maintenance contractor Amey in conjunction with KCC Highways and the Canterbury STEM Hub. We invited teams of girls from 3 East Kent Schools to attend and compete for the day on the week of Women in Engineering Day (23<sup>rd</sup> June). We are looking to run this event again this year and possibly duplicate to cover west Kent if there is enough appetite from schools.

*The Challenge Cup event brings girls aged 13-15 together to work with engineers for a day to solve a real-life engineering problem. It looks at all aspects of an engineering project including planning, budgeting and managing risk, and culminates with teams presenting to a judging panel. It was designed to show how many different roles are available within the technology and engineering sectors, as well as influencing underprivileged school girls to break the status quo and consider alternative careers. <https://www.youtube.com/watch?v=N82FB2rbBTw>*

*Only 23% of the STEM workforce in the UK is female. It is at age 14-16 that children start losing interest in engineering careers, so we want to get there in time to inspire the next generation of engineers. While girls continue to study STEM subjects at school just as much as boys (representing 48% of the total STEM entries at GCSE), there is an ongoing imbalance when it comes to undergraduate degrees and jobs in STEM industries. Only 16% of engineering and technology undergraduates are female and the UK has the lowest percentage of female engineering professionals in Europe - around 11%.*

*What does the Challenge Cup involve?*

*During the day groups of 6 girls compete in activities that mimic a real-world engineering project. The day follows:*

- *a brief from a client*
- *preparing a preliminary design,*
- *building the model*
- *final design and cost*
- *delivering a presentation*

*Inspiring mentors from both Amey and KCC are on hand during the day to guide and support the girls and a carefully chosen judging panel offer constructive criticism to all teams before making the final decision as to the winner of the challenge.*



- **The Kent GirlGuiding Jamboree** – this event was organised by the Kent and East Sussex Institution of Civil Engineers and ran for a week, inviting girlguiding members of all ages from Rainbow to Ranger to try out different STEM challenges. My team sent volunteers for the week to assist with the event and running different activities during the week.
- **The Women’s Engineering Society [“My Skills My Life” Scheme](#)** – this is an open opportunity for all to explore STEM careers and find role models that undertake careers they may find interesting. The My Skills My Life quiz asks responders a series of questions to determine their particular strengths in STEM areas and suggests possible careers and role models who match those strengths. I have a role model profile on there for girls and am trained to be able to undertake the quiz with school groups to explore their strengths. The idea of this

programme is there are a number of events that can be run off the back of it, for example role models can be invited to schools and be quizzed by students on what they do day to day to try and work out what they do for a job before the role model eventually tells them and explains what that means. Alternatively role models can come into schools to explain more about their career path to their role as it often isn't the linear GCSE>A Level>Degree route that many assume it might be. <https://myskillsmylife.org.uk/my-skills-role-model/1148619>

- **Folkestone Academy Construction and Engineering Career's Fair and Turner Free School Construction and Engineering Career's Fair** – Graduate Engineers from KCC Highway Structures attended the event and manned a table about careers within Engineering at KCC. The students were able to ask questions, find out what the graduates roles involved and their route into their role. The Graduates took along a small STEM activity for the students to have a go at making bridges from spaghetti and marshmallows to learn about strong shapes, connections and design.
- **Work Experience** KCC Highways are happy to take work experience students for a week or two to learn what working in Highways involves and the variety of career options within it. The logistics of work experience are harder to organise in a post covid hybrid working world so we do ask for plenty of notice from students to organise this. At present within Structures we have a university placement student for their year in industry with us and will be taking a sixth form student for a weeks work experience in April. We also advertise Summer placements for university students.



- **Women's Engineering Society Lottie Tour** The Kent Highway Structures Team participate in the annual Women's Engineering Society Lottie Tour for Tomorrow's Engineers' Week each year – <https://www.weslottietour.org.uk/> - This event aims to showcase the variety of STEM careers available and the different things involved in those careers.



- **University of Surrey “Celebrating Surrey’s Women in Engineering” Event for International Women’s Day** I attended my university as an Alumni to take part in a panel presentation about my career as a female engineer since graduating from the University. The event’s aim was to showcase different career paths and options post graduation for all Engineering courses at the university, it included candid discussions on the reality of discrimination in the industry and best practice ways to approach it as a female in the sector. Whilst this can sound like a potential negative, feedback from all students who attended was resoundingly positive as they appreciated the honesty from the panel as they know it is still an issue and the practical tips on how to navigate the issue were the most useful they had heard.



- **The Kent and East Sussex Institution of Civil Engineers Early Careers Network** – Three KCC Highway Structures Graduates are committee members for the Kent and East Sussex Institution of Civil Engineers (KES ICE) Early Careers Network. The Institution of Civil Engineers has a student grade of membership which is free to join for anyone with an education establishment email address and allows members to attend events (normally for free) in the local area as well as access recorded historic events. These events might showcase a particular project being worked on or they might discuss an industry issue as either a presentation or an open debate – for example there have been recent discussions on sustainability and what it means in the engineering sector, diversity and inclusion within engineering and how to encourage more diverse people into the profession, and how to a STEM career might suit someone who is neurodivergent. The events are open to school age children provided they can bring a parent/guardian with them. The Early Careers Network (ECN) is as it says, early career individuals who want to organise and run events they are interested in. The ECN is also able to offer STEM Ambassador support to schools etc and often has volunteers who are closer in age to the students, which can make them more relatable. They would be happy to assist any school wishing to have assistance with a STEM event. In addition, they have historically supported the Lego Brick Appeal in the area, collecting unwanted Lego to support Lego Therapy in schools for autistic and SEN students.
- **Frankie the Flamingo workshops** There is also an open invitation to schools to participate in the Frankie the Flamingo workshops (<http://www.ech2o.co.uk/frankie-the-flamingo>) – these are aimed at 6-8 year olds and if schools are interested in running a session KCC can put them in touch with workshop co-ordinators who can run the session and provide resources. The programme is sponsored by the Royal Academy of Engineering and hopes to reach schools in areas of high deprivation in particular.

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