

Promoting Women in STEM (14/12/18)

By 2020, 7 million jobs will disappear to due Artificial Intelligence; this will disproportionately impact women. What can we do to bridge the skills and gender gaps that exist, and are set to grow in the future?

Key Themes from the day:

- Companies that are more diverse perform better.
- A diverse workforce results in diversity of thought – which helps to create new and innovative ways of creating solutions.
- There is a general lack of knowledge/ awareness of what it means to work in STEM. Interest in STEM comes from information and having the knowledge to explore it.
- SHOW girls what it is to BE in industry. Offer access and experiences.

Attracting Women into STEM through Apprenticeships and Vocational Training

Helen Wollaston – Chief Executive, The WISE Campaign

- What is [WISE?](#)
“WISE enables and energizes people in business, industry and education to increase the participation, contribution and success of women in science, technology, engineering and mathematics (STEM)”.
- STEM Education and Pipeline: When do girls ‘drop off’?

Level of qualification	Girls	Boys
Level 3 / GCSE / Apprenticeships	35%	94%
Level 4 / A-Level / Degree apprenticeships	9%	29%

- It is important to have more females involved in the designing of the products that females predominantly use (e.g. beauty, pushchairs, office telephones).
- 23% of women currently work in STEM (864, 278). WISE target is to have 1,000,000 women by 2020.
- Classroom campaign – [People Like Me](#). Aims to inspire and increase awareness of inspirational women in STEM.
- Case Study Hitachi: Hold Open Days exclusively for females, to provide insight into the business before applying. Other businesses invite girls and mothers; this resulted in more female applications for apprenticeships.
- WISE has created a [10 Step Programme](#) that looks at how to retain women in STEM careers.
- [Memberships](#) to WISE are available.
- [WISE conference around Innovation](#) – 9th March.

Increasing Women in STEM Through Student-Engagement

Kirsten Bodley – Chief Executive, Women's Engineering Society

- [WES](#) is a membership organisation, established in 1919.
- 11% of engineering, and 16% of the STEM workforce are female.
- Companies that are more diverse perform better.
- It is important to encourage women to join STEM based careers, and to ensure they have the confidence to do so:
 - 15% of undergraduate engineering intake is female
 - 25% of postgraduate engineering intake is female
 - 60% of women get a job in engineering within 6 months of graduating – 71% of men do
- WES has held a successful event at Loughborough University
- [MENTOR SET](#) – scheme whereby early career female engineers are mentored by more experienced engineers

The International Perspective: Learning Lessons from Diversity strategies from abroad

Christina Data – Director of Spectrum Information and analysis, OfCom

- It is important that as a business we are representative of the people we service (or provide products to).
- Engineering is about problem solving. Diversity of thought helps to create new and innovative ways of creating solutions.
- Important to demonstrate that engineering doesn't have to be a 'dirty' job; it can be more technical.
- Do schools push girls down certain career paths? We push students to take their 'best' subjects, but does this limit their career options later?
- At 15, only 5% of girls are interested in engineering – need to engage them sooner than this.

The Industry Perspective: Making the Business Case for Promoting Women in STEM

Brenda Yearsley, (UK) School and Education Development Manager, [Siemens](#)

- We are bringing engineers in from abroad, but what will we do when Brexit happens? Need to recruit UK talent.
- Only 3/10 parents know what engineering is – we need to educate them too so children don't have the wrong ideas or misconception.
- Siemens 600 Apprentices, 250 Graduates. www.siemens.co.uk/education
- Early life choices, stereotyping and unconscious bias starts as early as 6.

- There is a lack of understanding about the range of STEM roles available and what these are.
- Girls and women need to be supported to build confidence and apply for roles.
- GIRLS into STEM resources are [available online](#).
- Working flexibly supports females; teams and working times can be flexible, virtual and remote. This enables women, of all ages, to return to work and balance other commitments.

Creating Pathways for Women to Return to STEM Work

Dr Katie Perry – Chief Executive, [Daphne Jackson Trust](#).

- The Trust supports Research Scientists back into research and higher education environments; predominantly women, but men as well
- Supports people that have had a minimum 2 year break from work due to family/illness/care responsibilities
- Trust offers paid, part-time fellowships that are unique to the applicant.

Understanding the Benefits of Promoting the Diversity Agenda

Nike Folayan, Chairperson, Association for Black and Minority Ethnic Engineers

- You cannot talk about diversity without talking about inclusion.
- A diverse workforce = diverse ideas = more variety/creative solutions and approaches.
- 23% STEM professionals in UK Female in 2017. 9% are female engineers. 6% have ethnic minority backgrounds.
- Interest in STEM comes from information and having the knowledge to explore it: - paths and progression in STEM needs to be made clear.
- Share the lifestyle a career in engineering can support you to have. This appeals to ethnic minorities that are generally not from such affluent areas.

Too Sensitive for STEM? Highlighting the need for a diverse skillset within the STEM community

Dr Emily Grossman – Science Broadcaster, Writer, Educator

- Emily gives motivational and inspirational STEM talks to not just go into a STEM career, but stay in a STEM career.
- She is a Lead STEM ambassador and happy to come into schools and businesses to talk.
- Young people need a role model – use the STEM ambassadors in your area to support this.
- ‘Imposter syndrome’, feeling like I shouldn’t be here: make girls feel like they can and should be in STEM environments and careers.
- Having emotion in STEM careers is ok. You don’t have to be cold and logical to work in STEM. Break the stereotype and the mould to encourage more girls to consider the

possibilities.

Embedding the Athena Swan Charter at University Level

Professor Tom Welton, Dean of the Faculty of Natural Sciences, Imperial College London

- Having a diverse workforce allows for diverse thought.
- Runs the first department to get a Gold [Athena Swan](#)
- What kind of person do you want to be? Culture is shaped and developed by our actions.
For example, Tom's office is at the front of the building, above reception. Walking in/out of that door meant not seeing any of his staff. Instead, Tom walks in/out the fire exit at the back of the building – as a result walks by every member of staff and says 'hello'. Culture change.
- Everything you do should be inclusive and efficient. Being inclusive increases efficiency.
- What can you do or change today, that will make your workplace more inclusive tomorrow?
- Male or female, you are the only person that can define the career you choose to have.

Highlighting the Value of Early-Engagement to Increase Female Involvement in STEM

Liz Painter, Assistant Curriculum Leader for Science, Sandbach High School

- OFTED outstanding school.
- 80 pupils involved in their STEM club.
- STEM is included within PSCHE and all Enterprise Days.
- Run project says with core themes throughout the years:
 - Y 7/8 – Problem Solving
 - Y9 – Do Engineers save more lives than doctors? Use the People Like Me resource.
 - Y10 – Sustainability and food for the future
- School STEM competitions to look into:
 - [The Big Bang](#) (Science and Engineering Fair)
 - [Teen Tech](#)
 - [Green Power Car challenge](#)
- 'Middle-disadvantaged' students are the focus – students that are middle of the range academically and don't have the most support at home.
- STEM subjects are not compulsory for the new progress 8 assessments – need to engage students so they choose these subjects.

Working Across the Education Sector – Using Apprentices to Promote STEM in schools

Rosa Wells: Programme Manager, Engineering, Solihull College. WISE West Midlands HUB Lead.

- Need to target schools to attract females for apprenticeships – college is generally too late.
- Find female apprentice role models and send them into schools – use STEM Ambassadors.

Question & Answers / Thoughts & Comments

- **What are T-Levels?**

Level 3 qualifications. More vocational training/qualifications. Still being defined.

<https://www.wisecampaign.org.uk/inspiration/2017/07/t-levels-are-coming>

- Teachers need to understand what engineering is and the STEM opportunities available. Can businesses provide teachers with work experience days / weeks? [STEM insight](#) website can help set this up; bursaries are available to fund cover to allow teachers time out.
- The language we use to talk about and promote STEM is really important. Be bold. Be rhetorical. Confidently talk about what you do and what you offer.
- Tegan Jones, Northern voices: You can't be what you can't see.
- **How do we keep up with social media and use it well?**
Vloggers have more influencing power than TV. How could we use this? Younger generation responds better to stories rather than corporate sell. Role models need to be on social media.