



STEM Insight: Alice Kupara

Role: Subject Leader of ICT and Computer Science

School: Thomas Deacon Academy

Placement: Caterpillar, 10 days in July 2016

"Now I am equipped with up-to-date knowledge, real examples and experiences, as well as strong industry links that I can use to benefit the whole school."

Host: Caterpillar Inc, Peterborough. Caterpillar is the world's leading manufacturer of machinery and engines and employs more than 10,000 people in the UK.

Motivation: My Academy specialises in STEM and is a centre of excellence for STEM combined activities. We had identified a need to develop the confidence, knowledge and quality of delivery of STEM teaching teams, particularly in supporting effective and up-to-date careers advice.

STEM Insight provided the perfect opportunity for me to achieve this and to cascade my new knowledge to our teams across the whole of the Academy, from the junior school to the sixth form.

Experience: The placement was packed full of insightful activities including tours of all the different teams and functions, meeting people employed in a huge variety of different roles, learning firsthand what skills are needed and the technology and processes used. I witnessed meetings, got involved in problem solving tasks, and even operated some giant machines. It was well organised and focused. The proforma given to each Caterpillar team to complete before our meeting highlighted STEM subjects and skills and ensured every encounter was relevant.

Impact on me: This was an amazing and inspirational learning experience which challenged me as an educator. The placement was a fascinating journey into the world of STEM careers. From day one I learnt about many careers I didn't even know existed and each day after I continued to be surprised by the range of careers available. My eyes have been opened and I now believe that STEM can take you anywhere; there is an abundance of opportunities.



The big question throughout my placement was “How did you end up on this career path?” The most common response was teacher influence at school, be it a reason for liking STEM subjects or a person who suggested a STEM career. Teachers will shape career pathways for many students over the years. This has led me to consider how we can be career engineers, skillfully arranging our practice to influence career choices.

My placement challenged some commonly held views about whether there are types of people suitable for STEM careers. I was surprised to hear a number of employees saying they hadn’t been good at maths at school but were now using maths skills without realising every day. Equipped with the right soft skills and the right context, it seems a STEM career is still an option. You need to be motivated, have a questioning mindset, be a problem solver and be creative.

Equally interesting was the discovery that STEM careers are not just for the academics; there are many access routes and I learnt a lot about the value of apprenticeships too.

Busting another myth, I discovered the world of manufacturing was not the dirty, noisy environment with people in oily overalls that I was expecting. The factory floors were extremely clean and tidy and challenged my belief that girls in particular might dismiss engineering careers because of the working environments.

Experiencing how problem solving is tackled and how technology and computer systems are used in industry really helped me see how STEM subjects link together in the world of work and how we should be promoting this in schools.

Impact on my school / students: I estimate around 400 students have already benefitted over the last 6 months as a direct result of my placement. There is still much I plan to do including staff training and mentoring. So far I have:

- Developed curriculum resources with a focus on careers
- Organised a Careers & Women in STEM event which was successfully run by female students and included specialist talks
- Presented my STEM Insight experiences in an assembly to Year 9 students



- Arranged a visit to Caterpillar for 23 sixth form students and their IT department are continuing to support the delivery of some technical elements in the Cambridge Technical in IT Qualification
- supported a successful Sixth Form Subject Information Evening where information about entry into STEM careers was prominent
- Presented on STEM careers at a Year 9 Students Options assembly
- Supported a work placement arrangement for Year 12 by helping students shape their inquiry and make the placement relevant for them. Initially planned just for Engineering students, I suggested ways that allowed IT students to be included too
- Updated our STEM schemes of works
- Improved how we raise the profile of STEM subjects including using digital displays with information about STEM careers and key figures and ensuring that our 'Women in STEM Day' becomes an annual fixture with scheduled tutor time activities running up to it. We now also have a STEM display board that highlights any STEM news and celebrating 'hidden figures' in STEM

- Further developed industry links to support learning and STEM activities with specialists giving careers talks to 6th Form, TATA Consultancy Services providing subject specific content for STEM, and identifying parents working in STEM to help deliver some specialist content and inspire our students
- Further developed my professional network.

Professional development: The support for the programme is just right. It helped me to focus the experience and use it to maximum impact back in school.

"I believe this makes me a more effective and inspiring teacher. This was a really valuable experience with long-term benefits and is definitely worth doing!"