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Ten key questions

1. What made you curious when you were young, and did you have any heroes who influenced you? For example, Is there a person, place, event or moment that influenced or changed your way of thinking?

I was lucky that science was a highly valued subject in my primary school, which is rare unfortunately, and my teacher identified my interest at a very young age. She therefore always encouraged and supported me, and looking back I feel I owe her a lot for the impact she has had on my career. My confidence and love for science grew as a result of this. So she is probably more of an atypical hero, because I didn't recognize the influence she was having on me at the time. One moment I remember in particular is when we had a class project focused on designing and constructing a balloon powered car. It was the first time I had to carry out my own research, and I remember being very invested in the challenge. I don't actually remember whether I succeeded in creating the best car, only the process of designing and building it, which is quite telling.

2. When and why did you decide to choose science/maths/engineering as a career, particularly what or who inspired you? Did you have any family connections to STEM careers?

Since primary school I'd pictured myself going into a career in Science. Though I have no family connections to STEM careers, my dad has always had an interest in Maths and Science, which has contributed to his job as a dairy farmer. The idea of working in a lab at the forefront of scientific discoveries was an attractive one, and witnessing the long hours and hard manual graft my dad was putting into running a dairy farm was an effective deterrent for that particular career path. My main inspirations did originate from my teachers in both primary and secondary schools, who effectively nurtured my interest in STEM subjects.

3. Where did you grow up, and what was your educational path?

I grew up on a dairy farm in North Shropshire, just outside of a town called Whitchurch. I attended Bishop Heber High School in Cheshire studying Maths, Biology and Chemistry at A-level, before completing a degree in microbiology at Cardiff University. I then took a year out before completing a Post Graduate Certificate of Education (PGCE) in secondary science with biology.

4. How has your career developed after university, and how was it funded?

After University, I took a year out to consider my future, whilst working on my family dairy farm. It didn't take too long to discover that a career in milking cows was not for me. So I looked to gain education-based experience in local schools. I spent some time working as a teaching assistant in a primary school outside of Chester, which was incredibly rewarding. I built on this by having further work experience in the science department of my old secondary school. The combination of these two experiences encouraged me to apply for my Post Graduate Certificate in Education (PGCE)[*]. Deciding to take out another student loan was slightly daunting. However I was confident that I had discovered a profession I was passionate about.

5. Have you had any break-though moments in your research, if so what were they and how did they affect your development?

During my PGCE I had the opportunity to carry out an active research project on science misconceptions, and their impact on teaching and learning. I analysed the use of a teaching resource known as a 'concept cartoon', which looks to tackle common misunderstandings in science head on, by prompting the students to discuss different ideas and theories surrounding a particular topic. The experience showed the benefits of carrying out my own research in the classroom and the ways it could influence my own teaching.

6. What do you regard as your most important discoveries and inventions, and why?

The most important discoveries I have made have all been those that have influenced my teaching. For example trialling a new technique, and finding it successful, or tweaking a strategy or resource I have obtained from a colleague, and then using it in the classroom.

7. Can you think of anything that could have done better, and do you have any regrets?

As I am relatively new to my career I'm fortunate enough to have very few regrets. I thoroughly enjoyed all of the placements during my PGCE. However, if I could do it again I would try to be more daring, and trial a larger variety of different teaching methods. After the first couple of months, I had a few staple templates of lesson plans, which I became comfortable with delivering.

Now I have gained more experience, I recognise the importance of varying tasks in lessons in order to maintain student interest. Having the confidence to try different techniques in the classroom is an essential quality of any practitioner. It is important to motivate yourself to stay outside of your comfort zone, so that the pupils will stay outside of theirs.

8. What other stories do you have about your curious life, including any entrepreneurial and commercial activities, and your other interests?
I am just starting on my career as a science teacher. So I do not have any other experiences to share yet.

9. List six key publications (not necessarily yours), and explain why you have chosen them?

Abrahams, I. and Millar, R. 2008. *Does Practical Work Really Work? A study of the effectiveness of practical work as a teaching and learning method in school science.* International Journal of Science Education 30(14), pp. 1945-1969.

Elliott, K. and Pillman, A. 2016. *Making Science Misconceptions Work for Us.* Teaching Science 62(1), pp. 36-39.

Larkin, D. 2012. *Misconceptions about Misconceptions: Preservice Secondary Science Teachers; Views on the Value and Role of Student Ideas.* Science Education 96(5), pp. 927-959.

Leach, L. (2011. *Engaging students in learning: a review of a conceptual organiser.* Higher Education Research & Development 30(2), pp. 193-205.

Mumm, K. 2016. *Assessment for learning: Why assessment does not always support student teachers' learning*. Journal of Further & Higher Education 40(6), pp. 780-804.

Swaffield, S. 2011. *Getting to the Heart of Authentic Assessment for Learning.* Assessment in Education: Principles, Policy & Practice 18(4), pp. 433-449.

All of the publications were key in supporting my writing as part of my PGCE. They enabled me to investigate specific aspects of teaching and learning, providing a focus and purpose for my own practice.

10. What advice would you give a curious young mind? Imagine your ten year old self, if you started again! Is there a big unanswered question today?
Don't be afraid of being wrong. I originally struggled with my self-belief, and would always rather avoid answering a question than attempt to answer it, at the risk of being wrong. The stigma persists in all schools today. I am passionate about changing pupil perceptions, and always emphasise that getting ideas wrong is the most effective way of learning inside and outside of the classroom.

***Editors note**: The Post Graduate Certificate in Education (PGCE) is the Diploma required in the UK if you want to be a school teacher*