



# Overcoming science fear!

## Maxine Roberts describes facing her fears head-on, transforming her science teaching and becoming a science superfan

**W**hen my head asked me if I would consider being Science Co-ordinator after 25 years of being an MFL lead, I laughed at the very idea of it! I have no science background whatsoever. I didn't even pass O-level science. When I started teaching, it wasn't a requirement, which was lucky for me as it meant that I didn't have to retake my O-level exams.

Twenty five years on, I completely understand the value of having science and I see now why it's essential for primary teachers to have that basic understanding. We are living in an ever-changing world and children need to be aware of what's going on

around them, and understand that science is in everything, absolutely everything, that we do. If we, as primary teachers, can't make that known to them and make them aware that science is all around us, not just separate, then we are failing them.

### Science before – the fear

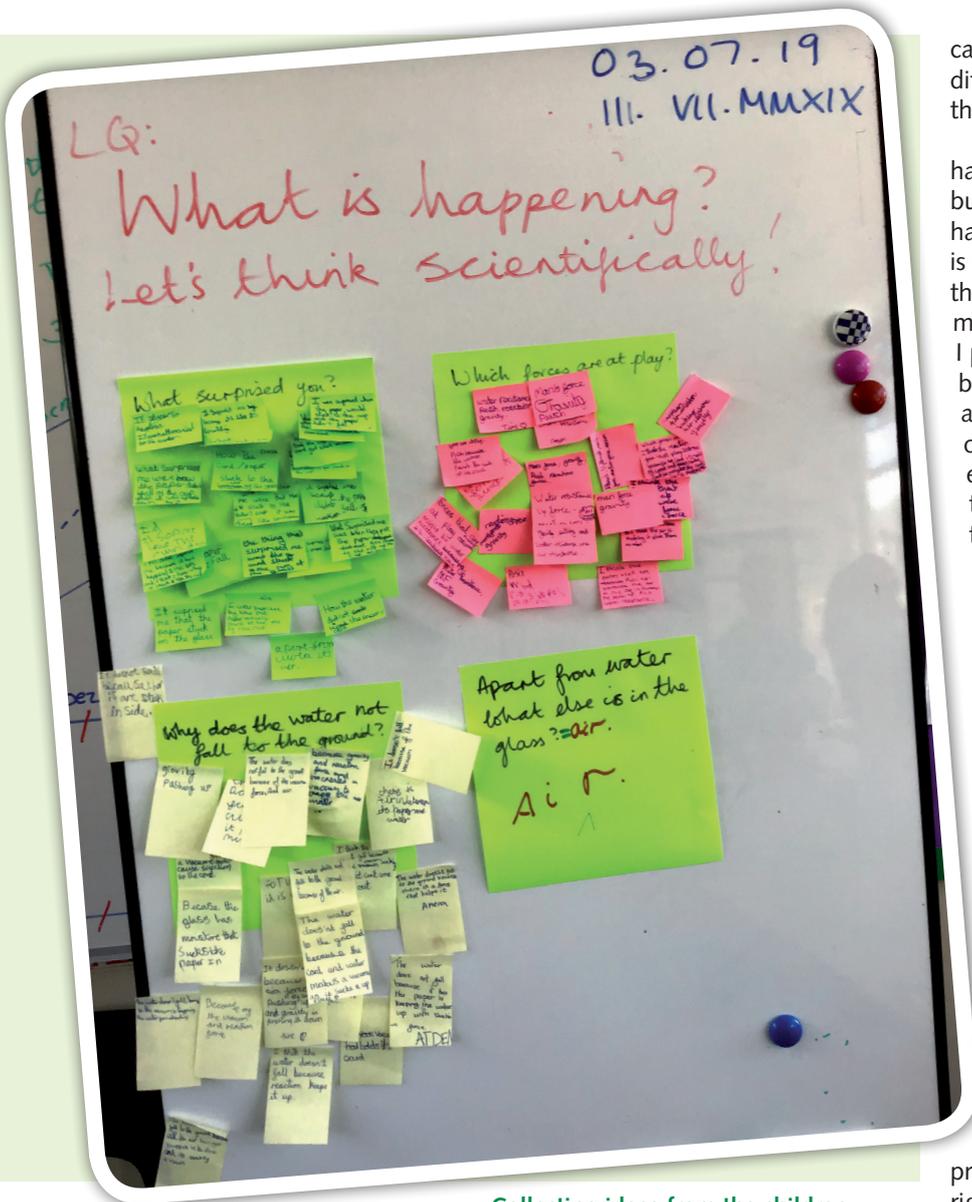
On reflection, my science teaching before becoming the subject lead just wasn't good. I was trying to be in depth with the children but, in reality, I was hanging onto some quite poor planning that'd I'd taken from other people and used. I don't think my lessons were particularly interesting or engaging for the children; there

was much not-very-useful book work happening. Children were less independent, less creative and not doing as much investigation. They were still learning, but in a very different way.

Vitaly, I wasn't letting the children talk to me about their understanding of a concept or subject – I was doing a lot of the leading and not leading them terribly well. If a colleague recommended something to me, I would try to incorporate it into my teaching, but even picking up a new resource was frightening, because I didn't know enough science to feel confident picking up something new, and I felt it was just not my strength.

I didn't feel confident with either the delivery of the lesson or the subject knowledge.

I had really compartmentalised science, which is something I'm pressing to change now I'm Co-ordinator, so we have a more cross-curricular approach, not just in science but across all subjects. This



Collecting ideas from the children

is reminiscent of best practice when I started teaching 25 years ago, and seems to be having a resurgence and is a much better way to teach, as it makes those connections from science to everything else, reiterating this idea that science is all around us.

### Science after – the confidence

If you were observing a science lesson in my classroom now, you would see lots and lots of discussion – whole-class discussions, small groups, peer-to-peer. You won't see me standing at the front of the class and talking to convey facts.

We begin with a discussion about their understanding of a concept or topic, then I support the children in their investigations and bring them back to evaluate. There is much more independent learning in the classroom.

I use Explorify as a starter or a plenary – often it takes over the whole

lesson as the discussions generated are so good – then I have to put in another lesson to do the thing I'd originally planned. I use Zoom In Zoom Out and Odd One Out frequently, and the discussion activities – they really deepen the children's thinking.

Now I'm not afraid to teach a lesson, even if I don't know much about what I'm teaching, because now I know where to go for support. I'm confident enough to work with the children to find answers. I'm teaching forces this year, which I haven't taught for 3 or 4 years (and didn't teach very well then!), but this year I love it because the children and I are having the most brilliant discussions and finding out together. I used the 'Standing on Eggshells' What's Going On activity (see useful links) and the children were absolutely blown away! It led to a great discussion about the shape of the eggs, which bit of the egg is strongest, how the weight mass

can be spread...there were so many different ideas, all of which came from the children.

All these changes to my practice have improved my science teaching but, without a doubt, the thing that has changed the level of engagement is my enthusiasm. The children can feel that excitement and enthusiasm from me, which transfers to them. When I put an Explorify activity up on the board, whatever it is, the children are always really excited. It's a great way of getting them to talk and it doesn't even necessarily need to be about the topic you're doing – it's just about thinking about what they can see.

Science across the school wasn't great at the time I took on the subject leadership either. The profile wasn't high and we simply weren't talking about it. Now, we are talking about it and making the most of every space available for science.

Every display has a principle for science – we have all got to think about why we're doing it. People are using their walls more as working walls and prompts for discussion. The science is there, front and centre. What the children are putting in their books now is really valuable to their learning, rather than book work for the sake of it, and you can see the evidence of the changes in the work that they're

producing. You can see the changes right through the school from Years 1 to 6.

### Working on my subject knowledge

I am constantly trying to improve my own knowledge – I had a great deal to do two years ago to get up to speed and I've informed myself a lot through searching for resources, groups and organisations on the Internet. I am constantly downloading resources and, just in doing that, you're reading them, absorbing that knowledge and making a judgement about what's good, shareable, and what's not. I've done quite a few of the Reach Out CPD modules online to help develop those areas in need of improvement. I encourage my colleagues to do that and I have done various other free STEM courses.

There's a great community of primary science practitioners on Facebook and Twitter. That's how I heard about STEM Learning's CERN

trip (see useful links). Even though I look at STEM courses regularly and get e-mail updates, I saw a post on Facebook saying that there were spaces available and that's how I knew about it! I learned so much at CERN. I've been to many Oxfordshire primary science conferences, which were brilliant, really mind-blowing. I have a few friends who work in science-related jobs, so have had conversations with them along the way. I've created links with our local secondary school – also part of the Academy Trust – our Year 5s and 6s (ages 10-11) go up to them in rotation and work in secondary school science labs with the secondary teachers.

It's all helped to improve and build my knowledge. When I started this journey, I had no idea how much there was out there and I feel a bit disappointed that, prior to me taking this on, there were all these lovely resources that weren't being shared

or talked about. I'm not surprised that the staff are overwhelmed! I find it overwhelming at times looking at all the things that are available. Of course, you do need to pick and choose, but having a small budget, or none at all, does not need to prevent development of science within the school when there are all these great resources out there. You can take your pick and be as creative as you like.

### Sharing with staff

We have had several science-focused staff meetings at school, in which I share resources, plan practice and lead CPD with staff. Science Oxford CPD came in to run a whole staff CPD and I've led some 'Thinking Talking Doing Science' (see useful links) sessions on assessing, progression and practical work, all of which have proved extremely valuable.

I'm really proud because, this year, I have been asked to do a science planning meeting with staff for next year. I think the staff here might be feeling overwhelmed with the changes I have implemented – some staff have adopted the new planning practices but have carried on using some of the same resources they used before. I've really tried to push for them to look at different things to try and make their science teaching more interesting. They know that the resources are there – on our drives – but the next level of

support they need from me is to go through all the resources and point them in the right direction.

### Continuing to raise the profile

As staff, we've made big changes to move towards a unified vision for science and there's now a great deal of enthusiasm for science through the school. We all agreed that science hadn't been a focus for us, but now it is, and that's wonderful. I'm making an effort to find things that continually raise the profile and keep up that enthusiasm for science; for example, we entered the Big Oxford Science event and had finalists, which was really exciting and the buzz around school was amazing!

Taking part in PSQM has been brilliant for really pushing science at school. It has changed the way in which we plan, changed the way we teach and really helped to engage pupils with science. We've combined PSQM with embedding our Academy's Engagement model, which works really well for science as it incorporates higher order thinking and questioning skills. We like to display our planning on screen for the children: the objective, links and questions are all there for the class to see.

PSQM has supported us in pulling all of this together and reinforced that this science journey has a real purpose to it. We've worked really hard and it's looking great.

Up until two years ago, teaching science used to absolutely terrify me. Taking on the Science Co-ordinator role and getting to grips with science was a huge challenge, but one that I threw myself into and now I absolutely love it! This has given me a new lease of life, as well as some headaches along the way. I think it's remarkable that you can get to my age and realise that you can almost start again with a subject and really feel enthused!



**Maxine Roberts** is a class teacher and Science Lead at Harriers Banbury Academy in Oxfordshire. She has responsibilities in many areas of the school (MFL/TRIPS/MLT/RA) but, until two years ago, had not considered science as a natural avenue for her talents.



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### Useful links and references

'Standing on Eggshells' activity:  
<https://explorify.wellcome.ac.uk/en/activities/whats-going-on/standing-on-eggshells>

For details about STEM Learning's CERN visits, please see:  
<https://www.stem.org.uk/cpd/44096/cern-study-visit-and-follow-conference>

For information about 'Thinking Talking Doing Science' visit: <https://tdts.org.uk/>