Children sharing their work at the science fair

Leading on science and raising the profile

Amberlee Marshall writes about taking on the role of Science Co-ordinator, changing expectations, and raising the profile of science in her school

If you had visited my school last year, you would have seen nothing to distinguish science from any other subject: we didn't take part in Science Week or even teach science on a weekly basis. We'd had two different subject leads in two years so, after being given the role of Science Leader while I was on maternity leave, I decided that it was time to raise the profile of science in the school and restore it as a core subject alongside English and maths.

Getting decent CPD in Norfolk, as with many other areas of the country, can be difficult, so I was lucky to be sent to a science leader boot camp to set me up in the role. I didn't know anything about what was expected of me, having come from a non-scientific background, so it was useful to get the basics of what to do as a Science Leader and really made me realise what I'd taken on! We looked at the Ofsted expectations and setting up a file, as well as more practical, hands-on skills around working scientifically. I left with a solid understanding of the five types of scientific enquiry and how to teach them. It set me off in good stead to come back to school, take stock and implement some of the things I'd heard about – Explorify and PSQM (see useful links).

Explorify was mentioned by the leader of the course and it is being

We've found that the best way to share Explorify isn't to tell people, but to show them. We've created an interactive presentation, complete with script, that can be used to deliver a quick yet comprehensive introduction to Explorify:
https://explorify.wellcome.ac.uk/blog/staff-meeting-presentation

As with the Explorify activities themselves, we've done all the hard work for you! The presentation demonstrates a selection of our most popular activity types and will help staff to navigate the easy-to-use website.

mentioned everywhere I go now! It was the easiest thing to implement from the course; I came back and shared it with my teachers during a staff meeting the very next week. I showed it on screen and we did a few activities together, so everyone knew what it was all about – I even set up logins for each teacher, so all they had to do was take the login and get going. There was no excuse not to do it!

Starting the day in a scientific way

We have always done early morning work so the routine was a familiar one, but this was usually some reading or quick maths. I saw this as a great way to implement more science – it's up there as a core subject and needs to be there along with everything else, so there was no reason not to be using that time to do it. Initially, I asked that teachers implement Explorify as early morning work, once a week, as the children come in. That time for me, as a teacher, can be pretty frantic, so it's great to know exactly what I'm doing and Explorify really helps with that.

The children start arriving at 8.45am, so we use that first 15 mins of the morning to get them thinking a bit differently, in a more scientific way, to get those science questions going around in their heads and prompt them to use some great science vocabulary. Each class does their science early morning work on a different day, whichever works for them, and I can pop in and see what they're up to. There have been some slips, of course. It hasn't happened every week, but it's a positive step in raising the profile of science within the school.

Freedom to think

I like doing Odd One Out activities with my class, as I find they're great at getting vocabulary going, getting children talking, and hearing about their different points of view. We did the 'Sources of Light' Odd One Out (see useful links) recently and one of the children suggested that they were all symbols of God (we are a Church of England school). It's not science-related, but it's wonderful how the children find the cross-curricular links without you having planned them. It wasn't what we were talking about that day, but the great thing about Explorify is that there's no right or wrong answer. Especially during this early morning work, when there aren't any specific learning objectives to be achieved, they can really explore their ideas wherever their minds take them. It's wonderful seeing the children relax and have the freedom to think. That was different for the children particularly in upper Key Stage 2 (ages 10-11) with SATs, where they are so focused on right or wrong answers – are you getting a tick or a dot? But science isn't about that, it's about *Exploring*.

Although we'll often do a little bit of writing alongside our science early morning work, we don't mark for spelling – if it was a writing exercise and was marked, the children would be more hesitant to get their thoughts and ideas down. We use the back of our science books to separate this from the main science work we are doing, in case it doesn't fit with the unit. Those activities that do fit, or might serve as a hook into a different lesson, will go in the front of the book with the rest of the work. Teachers of the younger classes tend to print off the pictures or questions, so they've got them in front of them. In my Year 4 (age 9) class, I use the interactive whiteboard and write questions that I would like them to consider around the activity, and then we discuss them before we start the day of lessons. It really depends on your class – there are many different ways that you can use Explorify to get the best from the children. The children really enjoy starting their day in this way, often coming in and asking *'Is it an Explorify day today?'*.

Changing the way we plan

When wanting to bring science back to the fore to compete with English and maths, I knew that asking teachers to plan science would be key to getting it into the weekly timetable of lessons. This was one of the things that undertaking the PSQM helped me to implement. For example, now there are some non-negotiables that I expect to see in planning from each teacher: that the five types of scientific enquiry are all there; there's an outdoor learning element; and cross-curricular writing (we do practical in science, then write it up in English time).

We're already starting to improve our own subject knowledge using ReachOut CPD – we spent a whole staff meeting just doing modules on ReachOut, not talking about anything, just dedicating time to building confidence in some areas in which we were not so confident. It's important that the teachers know where the help is if they need it and that the time is available for them to do it.

I didn't want to be one of those leaders who cracks the whip and makes what might seem like excessive demands without providing all the tools to support teachers to produce their plans. I have to do it too – I'm teaching Year 4, so I have to incorporate all these things into my own planning. I wanted to give everyone the 'how', as well as the 'what', and make sure that all the tools were there to help them if they needed them.

Taking science home

As well as raising the profile of science within the school, I've been trying to engage parents with our science

Science snake takes flight

journey in the hope that they will start talking about science to the children outside school. We've done this in a few ways: we trialled a science fair with parents last year in which parents saw the science that was taking place. It was a great opportunity for children to 'present' their work back to their parents and share that learning. It went really well and the feedback was all very positive. The science fair is now a non-negotiable in planning – in the future, every class will lead a science fair at least once a year.

Along with a 'science experiment of the month' on the science page of our school website, we also send a little kit home with each child to encourage a bit of scientific discussion. Each class has a toy snake known as the 'science snake'. Every week, the snake goes home with a different child along with a copy of *Whizz Pop Bang* magazine, a long list of websites that they can use for experiments or activity ideas, and a book, and they simply are asked to do some science with these and send the work back with some photos of the things that they did.

I've taken the same approach with this as I have with planning – we're asking parents to go out of their way to take part, but giving them enough tools and resources to make it as simple as possible to participate, rather than making big demands and sending them off to go and get it done!

Last year, 'science snake' went home to a family with a parent in the RAF and it happened to be the week of the RAF 100 Flypast to mark the RAF centenary, so our science snake got to ride in the cockpit during the flypast! The snake doesn't usually get such an exciting outing, but we have found that this helps to build up science capital and raise the profile of science with parents as well as in school. It is optional, but we've never had a parent send it back and say that they didn't want to, or couldn't, find time to do it.

What's next? Still to do...

It's vital to show children more examples of scientists. This is so important in our area, as aspirations in schools in West Norfolk are not always high. Having access to people who use science in their day-to-day work is vital. As a rural school, we have found it hard to get STEM Ambassadors in for talks and visits. It is those children who need this the most, living in such a rural area and having little contact with science careers. They don't want to keep listening to me! We're thinking of trying Facetime/Skype meetings with some Ambassadors, which is not ideal, but better than nothing.

It would be great to see more children getting excited about moving up to secondary to do science and then welcoming them back after a year to hear them tell me that they're scientists! I know that a child decides whether science is for them or not by the age of about 11, so, as primary school teachers, we play such an important role in inspiring the next generation of scientists.

More practically, I want to use the resources that we have more efficiently – developing our pupil science ambassador role with Year 6 (age 11) ambassadors becoming science technicians – getting teachers to prep the previous Friday and let the technician know what they want so that they can keep track of what's in the cupboard, what's being used, etc. It's really getting the technicians to spy a bit for me too, in a nicer way than me standing over them and seeing what's happening! This also helps us to keep track of the resources as well as making sure that everything in there is really getting used and that we have everything we need.

I want to go further to engage the whole school with more whole-school events – I have dabbled during Science Weeks (slowest spinner), but want to tie in with STEM and maths and do one every term, particularly during roll-up week (children going up to new classes), when we are slightly less focused on the curriculum. Seeing more cross-curricular links is a priority – we are planning a book week around *Secret of Puffin Rock* to kickstart this. There's lots of science to tie in/hook up with that.

I hoped that the time that marked the start of my Science Co-ordinator role would serve as a benchmark – we didn't have much science happening in school, so I thought that if we start from here and spend the year doing PSQM we'd see a marked difference and start as we mean to go on. My aim was to bring science to the foreground again, and I think that we've really done that and that Explorify has certainly helped with this.

Amberlee Marshall became Science Co-ordinator in January 2018 and, more recently, in January 2019, Assistant Head at St. Martins. She currently teaches a Year 4 class.

Useful links and references

Primary Science Quality Mark information can be found: http://www.psqm.org.uk/

'Sources of Light' activity:
www.explorify.wellcome.ac.uk/en/activities/odd-one-out/sources-of-light