

GSSfs and the world around us!

Neil McAllister reflects on the power of a whole school community approach to science sharing



Fairview Primary School was my own primary school, although I don't remember doing too much science back then. When I moved to my post-primary school, science was not a subject I particularly enjoyed but I achieved a Double Award Science at GCSE with a C grade. In essence, that was my last experience of science before I became a teacher. Why the life story?... I hear you ask.

I wanted to provide a context for my journey to becoming the science leader in school – or 'The World Around Us Leader', as we know it in the Northern Ireland (NI) Curriculum. For us, science is not a core subject and falls into a cross-curricular learning area with History and Geography.

Science within a Northern Ireland school

My early years of teaching 10-11 year-olds saw a very prescribed approach to science, driven by what needed to be covered as part of the statutory 11+ Transfer Test. Experiments were teacher-led and left little room for children to investigate or follow up on their own questions. But at least science was happening. With the revised curriculum in NI, launched in 2000, science dropped off the curriculum and became virtually non-existent in many schools. If we are honest, Fairview was one of these schools, and that



included my classroom too.

It was the support of a schoolteacher mentor that inspired me to bring science back to life by exploring how it could be the catalyst for great work in literacy and numeracy. She was an experienced teacher and drew on her knowledge of a topic-based approach to curriculum design. She was a role model and I felt empowered, suddenly seeing how science could be central to my work as an effective teacher. And so my journey began.

● A few key things happened from there: I engaged in a number of CPD

courses, affiliated to the National Science Learning Centre, to develop science in my own classroom and year group;

● I took on the role of 'The World Around Us Leader' in school and continued to seek out CPD opportunities that encouraged my colleagues too! and

● I achieved a Primary Science Teaching Trust (PSTT) Award, which opened the door to a local cluster of teachers and schools, essentially laying the foundation for my vision of science in Fairview.

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With PSTT support, I set up a cluster of five local primary schools in Ballyclare, through which staff from all the schools met a couple of times a term to share ideas and resources for science and to develop further resources. I sought to involve as many staff as possible from my own school, covering all age phases to empower them to also integrate science throughout the school.

a school, were about. Having got science happening again in school, we wanted to embed it in every classroom, make it exciting, make it investigative, make it answer the pupils' questions.

Engaging with the Great Science Share for Schools (GSSfS) in 2017 gave us a chance to showcase best practice. Teachers share ideas, but don't always see the outcomes. Most classes took part in the GSSfS and every class came to visit the hall and see what was being shared. Pupils were talking to teachers from other classes and year groups and telling them about their science. The following year, we introduced Trusted Colleague Network (TCN) into school, where teachers got to visit other classrooms and see colleagues teaching a lesson. Through this, staff were able to see high quality science lessons, and not just hear about them.

Our 2018 GSSfS saw almost every class involved and children sharing their science. In fact, we had to run two sessions to accommodate it, with other cluster schools, parents and friends also invited.

What made the difference at Fairview?

The difference from our first year was confidence. Pupils and staff talked with more insight and pride about how questions were generated in class and how they collaboratively went about investigating. The child-led approach was much stronger.

As Subject Leader, I was able to give more time to visiting classrooms and supporting staff to move from just 'doing' science to planning for high quality outcomes. We began to focus on science skills and I worked with my team to map a progression of science skills through school. We linked our science skills with the statutory comments in the NI Curriculum for 'The World Around Us' and placed the Great Science Share as a core event in our school calendar.

The support of my principal was also crucial – it enabled me to get into classrooms, and seeing science lessons happening was vital in getting a clear picture of what was going on. Staff valued the support – being keen to step up their science yet not always sure how. A visit, a chat and feedback, sharing some ideas and also enabling staff to see their colleagues through the Trusted Colleague Network (TCN) have made such a difference to the quality of learning and teaching in science at Fairview.

The improvement and impact from the first to the second Great Science Share was incredible. From just showing science in the first attempt, to having children working from a key question in which they were interested by the second year was the shift that it needed. From reluctance from some teachers to take part to a desire to showcase various examples of classroom practice in the second year showed to me how far the staff have come, and how quickly.

Factors that I think made a big difference were:

- The thematic approach to science, where every year group developed science opportunities that linked with a theme. This led to science becoming meaningful and also provided opportunities for developing literacy, numeracy and ICT. Science was not an add-on!

- As subject leader, I met with most year groups over the year, pointing them towards resources to increase engagement in science enquiry and questioning: for example, Explorify's 'The Big Question' has been an important scaffolding tool for teachers beginning to think about building science around a question; the Council for Curriculum, Examinations & Assessment has produced two outstanding resources, 'Earth Science' and 'Growing for the Future', as well as a number of STEM Thematic Units that link directly to many of our current KS2 topics (<https://ccea.org.uk/learning-resources/stem-thematic-units>); PSTT resources, 'I Can Explain', 'Titanic Science' and 'Science in my Pocket' are excellent, and the range of resources made available during lockdown have been outstanding ('Science for One', 'Science Fun at Home'); and, finally, the Royal Society of Chemistry education



Science takes centre stage

Placing 'The World Around Us' as a key focus in our School Development Plan led to me working to achieve a Primary Science Quality Mark (PSQM) Gold Award (as it was then). This PSQM journey was another game-changer. It required full buy-in from the whole staff but, with so much groundwork already in place, this was an easy sell. Suddenly, science was at the forefront of what we, as

website (<https://edu.rsc.org/>) has brilliant ideas for developing topics with all manner of science.

- PSTT Fellow and Regional Mentor, Lesley Hunter, has produced four books entitled 'Here's My Topic, Where's My Science', a perfect starting point for all our topics in school, from P1 to P7 (ages 4-11).

- Engaging with social media forms, in particular on Twitter, where there is a tremendous source of ideas and inspiration from stars like @SciencesSparks, @whizzpopbangmag, @Glasgow, @DrJoScience, to name a few!

- Building a central bank of practical resources in school, to which staff had open access.

- The introduction of a new assessment structure using Teacher Assessment in Primary Science (TAPS, Bath Spa University), where science skills were put at the forefront of their investigations. This gave staff, and indeed pupils, a clearer focus to their work and, when pupils talked about their science, they knew what skill they were developing. They were familiar with the language.

It needs to be noted that the impact of the TAPS methodology on Fairview's science journey cannot be underestimated. The cornerstone of TAPS is the development of science skills and staff have been empowered to take ownership of this. Now, when pupils are engaged in science lessons in Fairview, they are aware of the skill they are developing, skills directly linked to the Northern Ireland Curriculum and the *Science and Technology: Progression Guidance* document. Equally as important has been the contribution of staff to creating TAPS tasks. As well as the bank of tasks on the TAPS website, we have a number of our own tasks in Fairview that year groups have developed (and which may eventually make it to the TAPS website as well).

Continuing to make the science great!

The 2019 Great Science Share in Year 3 (ages 6-7) was huge. Staff and



pupils talked about it all year – what they would share, can they have more than one table to share their science? Other cluster schools again took part. Parents, grandparents, STEM Ambassadors, political representatives, school inspectors and post-primary teachers all got involved. Every class took part.

Moving from not doing science at all, to doing science but with no real purpose other than fun or to complete a worksheet, to currently purposeful investigative science, built around questions generated by the pupils through inspiring teaching, focused on a progression of science skills through school.

The GSSfS has enabled staff to see pupils in action from other classes and year groups, build on best practice, generate ideas and excitement and showcase all that is good about science in our school. The TAPS tasks, which are often the basis for the science shared at the Great Science Share, are enabling staff to be empowered to enrich the learning and teaching in their own class and year group through science. In our recent school inspection, it was reported that *'...the learning and teaching were characterised by: interactive, investigative learning experiences; open-ended questions;*

and appropriately challenging learning opportunities that matched the individual needs of the children'.

It has been very noticeable how pupils showcasing at the Great Science Share have a specific question that they are investigating and a clear idea of the skill they are developing. It sounds simple, but it is evidence of huge strides being taken in the right direction!

With pupils empowered to investigate, we now have teachers empowered to facilitate this new type of learning. This was highlighted in our recent ETI inspection 2019: *'The highly effective links between the school and the natural and man-made environment connect, enrich and extend the children's learning'.*

This year (2019/20) has been a strange one in school due to COVID-19, with such a huge chunk cut off the end. The Great Science Share 2020 was very different, as everything happened at home, but this was potentially the best year yet! Just under 75% of our pupils contributed to the Great Science Share, either through posting on Twitter or sending to their teacher on SeeSaw. Every staff member made it a priority to stimulate pupils and get them investigating. Staff have spent time sourcing ideas for science and, with pupils being out of class, there has been time to do this. That in itself has been a lesson.

We have come a long way with science in Fairview, with a gradual empowerment of pupils and staff. The Great Science Share has given the whole school community an opportunity to showcase that improvement each year. We are looking forward to the next step and to 2021!

Neil McAllister is the Deputy Headteacher of Fairview Primary School (Northern Ireland).

Website: <https://www.fairviewps.co.uk/>