Homemade harmonica

"But what if the schools don't come?"

Liz Lawrence and **Kulvinder Johal** reflect on bringing scientists and artists together to collaborate and share as part of the GSSfS campaign

We were putting together our plans for the first London Borough of Barking and Dagenham Science Share in 2018. What became an exciting and innovative element of our Great Science Shares had a rather inauspicious beginning as a contingency plan.

After some tense moments trying to find a venue in a borough where space is at a premium, we had found a conveniently located primary school that was happy to host. As a Primary Science Quality Mark (PSQM) school, Gascoigne Primary takes its science seriously and, in the process of expanding into a second building, it had a corridor of new classrooms that were not yet occupied by classes. We booked them for the full day, sent out information to all borough primary schools and were planning our sharing schedule.

Four or five schools had assured us that they wanted a table but, even with a closing celebration in the hall, we were not sure we could sustain the sharing for the whole day with so few projects. We decided that we needed a plan to fill any potential gaps in the schedule and make the event sound even more exciting to the schools that were wavering. What we needed were some special guests and something a bit different!

Linking to the Arts

Barking and Dagenham has a long history of good practice and collaboration with prestigious partners in the creative Arts. For many years, Liz had worked with local artist and art teacher Jim Scott, and dance teacher Bobbie Gargrave, on creative projects and courses linking science, design & technology, art and dance. Bringing some of that practice into the GSSfS to enrich the science experience and showcase creative links seemed a logical next step.

Jim Scott was commissioned to work with all children taking part in the GSSfS event, making a giant artwork inspired by some of the enquiry questions. Science was at the heart of it, with habitat-focused questions including 'What are the different life cycles in the layers of the Amazon rainforest?' Two separate schools also considered the problems and possible solutions to plastic pollution, exploring the threat to our natural world from pollution.

While Liz was linking with Jim, Kulvinder was drawing on the contacts that she had made as a science subject leader. Her strong focus on enriching science was enhanced by her role as a Primary Science Teaching Trust Fellow. She invited Dr. Helen Mason, Reader in Solar Physics at Cambridge University, whose leadership of SunSpaceArt made her the perfect special guest for an art-linked GSSfS, to the event. Widening our natural environment theme, she also invited Dr. John Richard Dudeney OBE, Former Deputy Director of the British Antarctic Survey, and Charlotte Pike from Geobus.

Outcome and impact 2018

On the day, Helen and John hosted a very popular table, with art and science activities linked to space and the question, 'What invisible light comes from the sun?' John shared insights about his trips to Antarctica, including stunning images in books and on screen, as well as a set of his

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Artwork in progress: Life on land

Artwork in progress: Oceans and the Dead Zone

Artwork completed

explorer's clothing and kit.

At the Geobus table, children were able to examine a range of geological samples and ask lots of questions. They were thrilled to meet real scientists, ask questions, share their own projects and make links between those scientists' work, some of their own enquiry questions, other work they had done in school and the artwork they were creating.

As well as having time to share their own work and explore the other sharing tables, children were timetabled in groups to visit Jim the artist and add their contribution to the giant artwork. Created on a huge roll of paper, this was built up on a background shaded from the yellows and greens of healthy land habitats, through to the blues of the ocean, to the brown of a dead and polluted future.

Stimulated by images, leaves and rubbish provided by Jim, their own and others' work for the Science Share and the images from Antarctica, each group used pastels, charcoal and chalks to add layers of living things and manufactured detritus to create a continuum from vibrant life to almost lifeless.

The finished artwork was displayed on the hall floor at the end of the day for everyone to walk around and admire. Teachers reported that children found such a strong visual representation of a familiar and current issue very powerful, generating discussion back at school and an increased interest in linking science and art.

And we needn't have worried – on the day, we had 9 schools bringing around 70 children from age 7-11 (Years 3-6) occupying 14 tables of questions and activities.

GSSfS 2019 – the musical one!

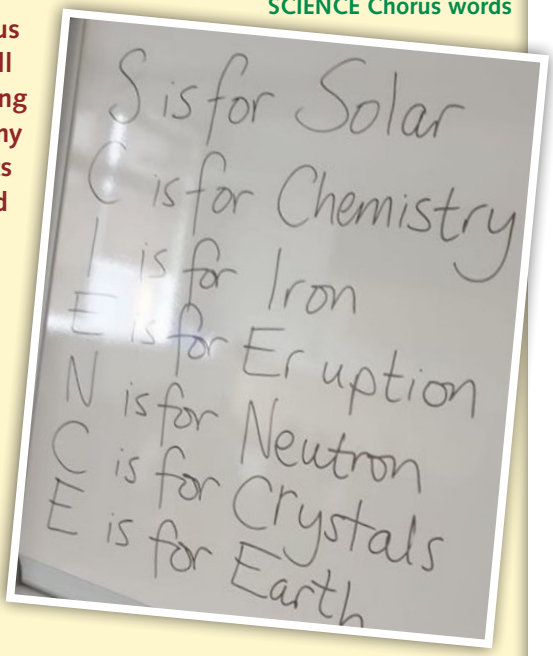
In 2019 we were once again lucky enough to secure a corridor of empty classrooms, this time in the still expanding primary department of Eastbrook School (an all-through school in Dagenham). This enabled us to invite another scientist and to create a separate creative Arts space within our Science Share to continue the theme. Taking inspiration from the Great Science Groove, Kulvinder invited a former colleague from Northbury Primary, music specialist Danielle Wakefield, and the school kindly gave permission for her to join us for the day. We also invited Robert Ratford, a locally based former secondary science teacher now doing science outreach, to share his passion for microscopy with a long table of different microscopes and specimens.

Word had got around and we expanded to more than 120 children, this time including some 6-7 year-olds (Year 2), from 13 schools, with 21 scientific questions. There were also some excellent marshals and helpers from among the older pupils in the host primary (fantastic organisation beforehand and on the day from Julia Cutri, our contact in the school) and all the Eastbrook primary pupils were able to visit at some point during the day to try out the activities.

During the day, once again visiting the creative Arts room in small groups for a collaborative project, children composed a song, drawing on the science that they were sharing, and rehearsed it. The performance at the end of the day, complete with instrumental accompaniment, was a triumph.

Describing the experience in her own words, Danielle writes:

SCIENCE Chorus words



'I originally wrote the chorus for the song and had it spell out the word "science" using scientific terms that I had my selected Northbury students help me pen. I then decided to leave gaps in the verses to make it more interactive with the schools involved and decided they would each write a short verse to be "rapped" over the music.

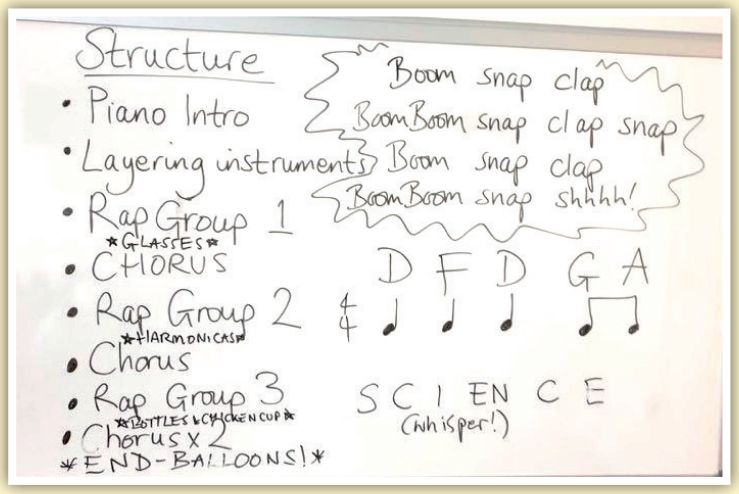
'This worked perfectly in terms of content, as all the schools seemed to be covering different areas so there was lots of diversity.

'I also wanted to merge the two subjects of science and music and decided to create some homemade instruments so there was opportunity to discuss the concept of pitch and how sound is created. I made harmonicas from lolly sticks, paper and rubber bands. There were pitched glasses of water, "chicken in a cup", which involved paper cups, string and wet tissue. For the finale, all the children got to let go of an inflated balloon, which created an ear-catching sound and also was visually interesting!

'I loved this project as it allowed for so much creativity, which is what music is about. It allowed children to be creative with it too, regardless of their musical ability. I think the students really engaged and enjoyed the idea of writing and performing their own rap; they also enjoyed experimenting with the "scientific instruments". It also helped to embed their scientific learning, as they were using their previously acquired knowledge to write their verses.

'It was just a lovely experience and so much fun! I would do it again any day!'

SCIENCE Song structure



Reflections

The comment boxes that we had in all the sharing rooms yielded lots of positive feedback from the children. Much of it was about how much they had enjoyed sharing their own enquiry, or focused on interesting things that they had learned from the other sharers, but several children also shared their enthusiasm for the musical link and the homemade instruments and teachers later reported that this was also widely commented on when reviewing the day back at school.

The main impact of the GSSfS will continue to be the opportunity for children to share *their own* work with a wider audience, building their own understanding of themselves as scientists and the science that they are learning. However, the additional exposure to 'real' scientists and the chance to explore science through the lens of the creative Arts have definitely brought an extra dimension to our Great Science Shares and something that we seek to maintain. Our big question is

Weblinks

SunSpaceArt:

https://www.sunspaceart.org/ is a STFC-funded project led by Dr. Helen Mason OBE (University of Cambridge), which brings together scientists and visual artists to work with Key Stage 2 (upper primary) and Key Stage 3 (lower secondary) children on STEAM projects.

Geobus:

https://www.geobus-london.org.uk/

Liz Lawrence CSciTeach is an advisory teacher at BDSIP, PSQM Senior Regional Hub Leader for London and the South East and a member of the ASE Futures Committee.
E-mail: lizlawrence10@btinternet.com

Kulvinder Johal is a PSTT Regional Mentor for London and the South East and is also very proud to be Great Science Share Regional Champion.
E-mail: kulvinder.johal@pstt.org.uk
Twitter: @Kulvinderj