



The Thornton Primary STEAM Team 2018

Hayley Sherrard and Joanne Jarvie review the GSSfS Cook-along that has enabled children to share science far and wide

Great Science Share takes to the air!

As an accredited provider of professional learning opportunities, health and safety advice and support for STEM educators in Scotland, SSERC has been a long-term supporter of the GSSfS – raising the profile of the campaign throughout Scotland over the last five years. As the 2018 campaign got underway, SSERC decided that the time was right to take an even more active role in supporting the event. But as we began to put plans in place, a key question arose... how could a leading provider of STEM professional learning for educators bring pupil voice directly into our contribution and do justice to the aims of the GSSfS?

The answer was surprisingly close at hand – to work with pupils at a local school to produce and broadcast their own version of SSERC's live interactive professional learning model (the SSERC Meet) directly into classrooms across Scotland.

Pupil-led live interactive science

For 10 years, SSERC has been broadcasting SSERC Meets – professional learning events where teachers join in a live, interactive

'cook-along'-style workshop from the comfort of their own schools. Typically running as a two-hour twilight, colleagues take part in investigations, activities and discussions with other practitioners from across Scotland. The sessions are fully resourced – all schools receiving a box of kit to support the activities covered in the SSERC Meet. The content is a mix of live presentation and pre-recorded videos, broadcast via Adobe Connect technology.

We knew the model was successful and popular with teaching staff – completed evaluations showing that 99.5% of participants rate these events as either 'very good' or 'good'. In 2019, 28% of SSERC's early years and primary activity was delivered via SSERC Meets. However, would this model work as a pupil-led event produced by pupils for pupils as part of the GSSfS?

● It became apparent that there were a number of key points that had to be taken into account when planning a pupil-led GSSfS SSERC Meet: Due to the potential number of schools involved, resources could not be

supplied;

- The content of the session would need to inspire pupils of all ages to explore their ideas after the event, stimulating questions and providing a range of potential investigations that the class teacher could support;
- The practical activity would need to fit into the school day and be as accessible as possible; and
- The event would be planned and delivered by a group of pupils – with SSERC support provided for filming and broadcasting.

So, where to find a group of pupils willing to get involved in this project and a teacher able to support them in this innovative project? Step into the picture, Thornton Primary and their fabulous pupil-led STEAM Team along with their teacher, Joanne Jarvie (Primary Science Teaching Trust Fellow



O-wing glider

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and SSERC Primary Cluster Mentor).

Flights, camera, action...

Working closely with the STEAM Team, two ideas for GSSfs SSERC Meets were developed, both with a focus on forces. O-wing gliders were chosen in 2018 and rocket mice in 2019. Both activities required simple resources and were accessible to pupils of a range of ages – important considerations if these interactive, practical sessions were to be a success.

The STEAM Teams put together storyboards and scripts, rehearsed and carried out the activities in front of the camera. In both films, the STEAM Team focused on explaining the science, as well as demonstrating how to carry out practical activities in real time. The STEAM Team provided ideas for further investigations and supporting and inspiring pupils (and teachers) to carry on investigating after taking part in the initial event.

Once the films were finished, edited and uploaded onto SSERC's Adobe Connect platform, all was ready for the live GSSfs events in June. Recruitment was rapid and over 60 schools from across Scotland signed up to take part. We decided to limit the number of schools to 60 to ensure that the STEAM Team could answer any questions in real time. Each school received a link to access the event, along with supporting materials and a list of resources required.

Going live!

The STEAM Teams arrived at SSERC HQ on the day of the GSSfs, ready for final preparations. Both STEAM Teams were incredibly professional in front of the camera and mastered the technology with ease. The session interspersed the pre-recorded videos with live presentations by the STEAM Team members, pupils taking part alongside the videos and carrying out the practical activities in real time. The sessions were broadcast live, running from 11:45am to 12:30pm, fitting in with the school timetable and allowing time for further pupil-led investigations throughout the rest of the day.

The participating schools were not visible on screen – all schools



Rocket mouse ready for blast off

communicated via the Adobe Connect chat facility, asking questions and sharing updates. Schools also shared photographs via Twitter.

How did it go down?

Every school was asked to complete an online evaluation form – providing information on the number of pupils taking part, their experience on the day and any feedback that would help to improve

future sessions.

In 2018, 27 out of the 63 schools registered completed the online evaluation. These 27 schools reported that 595 pupils took part from these settings. 96% of pupils indicated that they would 'definitely' like to take part in another GSSfs SSERC Meet and the remaining 4% said 'possibly' – depending on the theme.

In 2019, 65 schools were allocated a place – 30 schools completed the evaluation form after the event, reporting that 898 pupils took part from these settings. Feedback indicated that 87% of pupils would 'definitely' like to take part in a future GSSfs SSERC Meet and 13% said 'possibly'.

Evaluations from both 2018 and 2019 showed that pupils from across the primary age range took part in the event. There were a number of examples of entire schools taking part together – older pupils working with younger ones.

As the event is streamed live into schools, the smooth running of the videos is dependent on the individual schools' connectivity. There were some comments about technical issues in the evaluation forms – some schools reporting a delay in the video streaming or problems with sound. As these potential issues had been anticipated in advance, all registered schools received support materials to ensure maximum participation and to help with follow-up investigations.

Some quotes from completed evaluations:

The activity was engaging and it was lovely to watch other children teaching the lesson.

You made sure we could understand the activity and we could message you if we had any problems.

I liked that the children led the lesson. My class responded well to this and thoroughly enjoyed the end result.

Resources were easy to follow and explained everything needed to carry out the activity.

Technology let us down at the school and we were still able to complete the activity.

Activity was achievable, easily organised but very engaging! We were able to see and understand the science and talk about what was happening, as well as how to improve results.

We liked the concept of making the rocket mouse. It was great to see the other schools and speak to everyone live. It was so interesting to see the live video on the screen and we were so excited!

The demonstration and guidance from other pupils – the children responded to that enthusiastically.

Fun and a great learning opportunity. Crosses all primary levels.

GSSfs 2020

Obviously plans for the 2020 GSSfs had to be changed due to COVID-19, but as our contribution to GSSfs has

Making the O-wing glider – image shared via Twitter





Ready to make O-wing gliders – image shared via Twitter

than ever to make use of online platforms to share learning and ideas on both a large and small scale. Our evaluations show just how much pupils value and engage with peer-to-peer teaching online, so we see the potential

for more opportunities for this type of interaction in the future.

SSERC's unique way of supporting the GSSfs has inspired pupils from Avoch Primary School in the Highlands to make a range of their own 'cook-along' science videos during lockdown. They were supported and encouraged by their teacher, Cath Milne (PSTT Fellow and SSERC Primary Cluster Mentor). The videos can be viewed via the SSERC TV YouTube channel: <https://tinyurl.com/yxhrtzrq> <https://tinyurl.com/yyy6mrtq> <https://tinyurl.com/y36kymaz>

Both GSSfs SSERC Meet sessions (O-wing gliders and rocket mice) have a strong link to physics – a stimulus for exploring and explaining forces. Our ongoing research shows that some primary teachers lack confidence

in teaching this area of the science curriculum and so it would be interesting to explore how the pupil-led GSSfs SSERC Meet supports practitioner professional learning.

SSERC continues to support the GSSfs and will be one of the new GSSfs Regional Champions for Scotland – plans are already in the pipeline to make the GSSfs SSERC Meet in 2021 even bigger than ever!

Hayley Sherrard is Senior Education Manager at SSERC. SSERC is a Scottish Local Authority-owned organisation, providing accredited professional learning opportunities, health and safety advice and support for STEM educators across Scotland and beyond. SSERC acts as the Lead Liaison for STEM Ambassadors in Scotland and leads the Young STEM Leader Award Programme.

Joanne Jarvie is a teacher at Thornton Primary, located near Kirkcaldy in Fife. There are 234 pupils on roll, including a nursery. Thornton Primary has a thriving pupil-led STEAM Team and was awarded the Education Scotland STEM School Award in 2016

taken the form of a virtual event since 2018, we already knew that this type of remote session was both practical and engaging. As an alternative to new sessions for 2020, SSERC edited footage from the 2018 O-wing glider event to make a pupil-led lesson that could be followed by children working at home or in hubs across the country. This lesson was shared as part of the main GSSfs day on 16th June 2020. This recording is currently still available to view at <https://www.youtube.com/watch?v=BgxUMedVSIU&feature=youtu.be>

Where next?

The events of 2020 have given us all time to reflect and adapt – circumstances have made it necessary for more educators



Delivering sustainable improvements in primary science teaching and learning

The PSQM programme provides a framework that enables science subject leaders to develop and strengthen their leadership practice, whilst increasing the profile and quality of science within their school. The process supports subject leaders to plan for improvement in science teaching and learning across the school and evaluate the impact of action taken.

PSQM enables schools to evaluate and improve all aspects of science teaching and learning, raising the profile of science and inspiring staff to make connections between science and other subjects. PSQM facilitates links with outside organisations to further enhance science within school, improves children's science capital and the final accreditation evidences and celebrate the schools' commitment to a broad and balanced curriculum.

What does the cost of PSQM include?

- The cost of taking part in PSQM in 2021-22 is £850. This includes:
- The equivalent of 2 days training delivered in live online sessions, for two members of staff (normally the school science subject leader and another member of staff)
 - on-line mentoring throughout the process
 - a framework for self-evaluation and development
 - all PSQM resources via the PSQM VLE
 - a framed certificate (upon successful completion of PSQM)

“Children are now asking more questions, aspiring to work in a STEM related career and taking part in more science related activities at home. The children love investigating and are now naming and using scientific enquiry skills more confidently.”

Science subject leader, PSQM School



“I have seen the lasting impact of PSQM through both science teaching and learning in my school. In particular I am thrilled to see children who are able to articulate their science learning with a new depth of confidence and understanding, something noted by an inspector in our recent Ofsted inspection.”

Headteacher

Further information: Please see the attached case studies of schools who have participated in PSQM. Further information about PSQM can be found at psqm.org.uk or please email psqm@herts.ac.uk