

Industry-inspired great science sharing

Frances Hunt (GSSfS Project Officer) discusses BASF Plc's support for the GSSfS campaign and their first sharing event held in Stockport with **Helen Clayton** (solicitor) and **Hannah Ridgway** (science lead)

This article profiles the way in which industry partners can support teachers and pupils to get involved in GSSfS. It explores the practicalities and benefits of an industry who are interested and committed to enriching science learning in their local schools.

Frances: Can you explain why BASF find value in GSSfS?

Helen: At BASF we create chemistry for a sustainable future. As one of the largest chemical companies in the world, our company is founded on chemistry.



We strongly believe that encouraging an early interest in science is important in developing scientists of the future and we want to do what we can to stimulate an interest in science and foster curiosity. We recognise that encouraging young people to consider ongoing study in STEM subjects will be of personal benefit to them but also drive industries like ours in the future. On a very practical basis, with net zero ambitions in the UK and globally being paramount for us all to thrive, we need more people with the STEM skills to drive innovation in this area and we see that supporting initiatives like GSSfS is one way we can promote this ambition more widely.

Frances: How did this involvement develop to hosting your own GSSfS event?

Helen: BASF have been involved with GSSfS since 2017 when we started to take a greater interest in how we could actively influence science education. We recognised further the need to do more when the *10 Key Issues with Children's Learning in Primary Science* by Bianchi et al., 2021 was published. As we work with real-life science applications every day, we wanted to get out into our local community and spread some of that knowledge.

Personal care (handwashing experiment): this session aims to increase children's understanding of our skin, microscopic germs and the importance of handwashing. The experiment involves the use of UV 'germ' gel and testing different ways of washing hands to determine which is the most effective.

Food additives (mousse making): BASF produces an emulsifier called *Lamequick®* used in food production to produce foam and enhance the texture of desserts and creams. This experiment gives the children the opportunity to try and make chocolate mousse both with and without *Lamequick®* to understand how the addition of certain ingredients can speed up a process. And they get to eat the mousse at the end!

Agricultural solutions (Biggest Job on Earth): here we aim to show the children how important farming is to all of us. The session links to the KS1/2 national curriculum for science by showing what plants need for optimum growth and it covers the importance of soil diversity.

In 2021, we set up our own STEM Ambassador team, running STEM Weeks and career events for local primary schools in Stockport, local to our new offices. Now we work with three partner schools, including Larkhill Primary School (Edgeley), St Matthew's Primary School (Edgeley) and Dial Park Primary School (Offerton) which would all be considered to be in areas of high socioeconomic disadvantage.

Our team have developed lessons and experiments around many BASF products and applications, including personal care (such as soaps, shampoo etc.), food additives and agricultural chemicals. These all aim to increase children's science capital and their curiosity in the world around them.

Hosting an on-site Great Science Share seemed to be a natural step in order to:

- provide pupils with an opportunity meet other peers and actively discuss science with them.
- give those pupils exposure to professionals in local STEM industries and time to showcase their science knowledge.
- give a different opportunity for STEM Ambassadors to work collectively with teachers and pupils on site.
- reach more schools in our area to help build local science knowledge.
- raise awareness of our BASF STEM ambassadors and the work they carry out.
- inspire us at BASF to help nurture the next generation of scientists!

Frances: What are your reflections on the BASF GSSfS Stockport sharing event?

Helen: Honestly, it was so much fun!

We had eight schools involved, who involved eight teachers and 64 pupils. All the schools brought investigations to share and there were nine in total, ranging from which rock type would be the best for a skate ramp to which is the best material to use for toilet paper! The diversity of the investigations blew us away! Some had used the *Great Guided Enquiries* so were sharing how they had used coloured sweets to model how the effect of climate change on ocean water temperature affects coral bleaching. It was just great.

The majority of the children were 8-11 years of age and their ability to describe their investigations, as well as the science behind, was phenomenal. I don't suppose I'd fully appreciated the depth of learning that GSSfS could inspire, and the interest the pupils genuinely had to talk to others outside of their own environment about it.

I remember one child explaining how her class had developed their experiment (how does the material an

aeroplane is made from impact how long it stays in the air?) and the infectious enthusiasm that radiated from her as she explained how they had run it and some of the surprising results they got.

Our team of BASF STEM Ambassadors came along to support, and we had a great time questioning the various teams on their techniques and results. Watching the pupils interact with peers from different schools, whom they had never met, about their questions, methods and findings was a real highlight. The added bonus was that they got hands-on with eight other investigations shared by others. It's such a simple concept – to share – and so powerful when you see young children doing it so well. *It certainly inspired us at BASF to continue efforts to help nurture the next generation of scientists!*



Pupils demonstrate the different types of rocks that can be used for a skateboard ramp and invite thoughts on which will be the best option

Frances: What support did you find valuable from the GSSfS team and web resources?

Helen: I had run several GSSfS experiments at my children's school in past years so was already aware of the huge array of experiment ideas and resources that are available on the GSSfS webpage. Lynne Bianchi came along to our BASF Societal Engagement conference in 2023 and provided us with some great input and feedback on our work. In reality the key to our success this year was the partnership between ourselves, the GSSfS team and the schools.



Faye Garner, Science Lead at St Matthew's Primary School explains the nature of working in partnership with BASF.

We got involved with the BASF team in March 2023 for our STEM Week. STEM Ambassadors came into school to run hands-on experiments linked to the curriculum. The pupils enjoyed having learning reinforced in a practical way, for instance modelling the digestive system using tights and food. They also engaged in experiments that linked to BASF's industrial applications, in particular the colour lab work which gives the children chance to create their own bespoke car paint colour, and worm charming to explain the importance of soil health in food production. This really gave pupils, and us as teachers, a better understanding of what BASF did as a company and how their work influenced our lives.

As a result, the STEM Week had a massive impact on our pupils and they got to experience things they normally wouldn't have. The pupils found the BASF STEM Ambassadors were inspirational to be around and learn from.

When we then found out that BASF would be hosting GSSfS nearby we jumped at the opportunity to get involved. Our Year 3 class had a great time coming up with ideas for our investigations, and they eventually decided that they wanted to investigate whether all flowers were the same using microscopes. They seemed fascinated in looking at the different parts of various plant types and finding patterns. Eight children attended the event on the day and presented the investigation to others, whilst the rest of the class took part in the activity in school. What I noticed was how they not only had a wonderful time but really gained confidence in explaining their ideas to other children and to industry professionals.

Societal engagement is a volunteer role for everyone at BASF and it has to fit around our day job. To get an event like GSSfS off the ground would not have been possible to do alone so teamwork was essential. I sourced the event space via Stockport Council and dealt with the insurance and risk assessment angles. The GSSfS team leveraged their contacts with local schools to invite them along and deal with all the event admin, and Hannah Ridgeway (science lead at Vernon Park Primary, a local school) ran the sessions for teachers to ensure they had support through the planning and experiment stages.

The GSSfS team have been so supportive throughout the whole process and have taken on so much of the burden of organising that I would invite other organisations to have a go at running their own GSSfS sessions next year, it's easy!

'The Stockport GSSfS event has been fantastic for our pupils to be involved with. They have gained so much from being able to communicate in different ways to a variety of people about their science investigations.' Teacher, Outwood Primary School, Stockport.

Hannah Ridgway, Science Lead at Vernon Park Primary School describes her experience working with BASF and the GSSfS

Frances: How did you initially get involved with GSSfS?

Hannah: My school had been involved with Great Science Share for Schools for a few years before I joined; we always run our own internal event where every class shares a question on the playground. I first became involved with Great Science Share for Schools in 2021. I was looking for opportunities to raise the profile of science in our curriculum and to make it feel real and relevant to our children. When I looked more into GSSfS and its ethos of pupil-led questions and sharing investigations, it felt like a perfect fit.

The ASPIRES research from King's College London shows that building science capital is crucial if we want all pupils to see science as something for them. GSSfS, especially with industry links like BASF, does exactly that.

Our school serves a community with significant levels of deprivation, and many of our pupils have very little

experience of science beyond the classroom. The idea that they could ask their own questions, investigate them and then share with a wider audience was incredibly powerful. The EEF's *Improving Primary Science Guidance* (2023) highlights that encouraging pupils to ask questions, plan their own investigations and explain findings are high-impact strategies for building scientific understanding. Furthermore, Ofsted's 2021 Science Research Review emphasises that high-quality science education develops pupils' ability to work scientifically and connects learning to real-world contexts. All of these are core values of GSSfs.

Frances: What are the benefits of Stockport hosting its own event?

Hannah: Having a Stockport-based event this year was absolutely fantastic. Previously, travel had been a significant barrier for some schools, particularly those in more deprived areas like ours. A local event meant we could take more pupils to share their work without worrying about long journeys or additional costs.

It also created a real sense of community. Seeing other Stockport schools, local teachers and industry partners like BASF in one place made it feel like a celebration of our children and our area. As a teacher, it was brilliant CPD; I got to see examples of good practice, inspiring investigations and creative ways of approaching pupil-led enquiry that I could take back into my own classroom. The EEF's *Putting Evidence to Work – A School's Guide to Implementation* emphasises the importance of professional development that includes seeing practice in context and learning from peers – the Stockport event allowed exactly that.

Frances: What did your pupils gain from taking part?

Hannah: The gains are huge. In science terms, they learn how to ask meaningful questions, plan and carry out investigations, and communicate their findings clearly, all key skills for the curriculum and beyond. But beyond that, they grow in confidence. They see themselves as scientists, which is something we actively try to develop in our school.

For many of our pupils, opportunities like this are rare. By hosting our own event and then attending the larger Stockport one, every child in Key Stage 2 has a chance to stand up and share something they've worked hard on. Seeing children grow in confidence as they explain their science to others is incredibly rewarding as a teacher. The pride on their faces is incredible. It also builds teamwork, presentation skills and curiosity: qualities that go well beyond science. Ofsted's *Science Research Review* (2021) notes that high-quality science

education should foster a sense of excitement and curiosity, and this event does exactly that. The EEF's research into pupil engagement also shows that giving pupils ownership and an authentic audience increases motivation and resilience.

Knowing that people who work in science day-in, day-out would be there really raised the level of questioning. Pupils thought carefully about choosing questions that felt relevant and impactful. They wanted to be able to explain not just what they found out but why it mattered.

BASF's input also helped pupils make links between their classroom work and real industrial processes. For example, when we explored materials and changes, pupils linked their investigations to products and processes BASF work with, which gave their projects a sense of purpose.

Having BASF involved was fantastic too! When pupils know that scientists from a global company are interested in their questions, it instantly raises the stakes in a positive way. They took more care with their investigations, thought more deeply about their methods, and were far more confident when it came to presenting their findings.

One group of Year 6 pupils told me afterwards, 'I didn't think scientists would want to hear what we think – but they did!' That sense of validation is priceless. The Wellcome Trust's *Science Education Tracker* (2020) found that pupils' engagement increases when they see how science applies to real jobs and problems. Having BASF there made that connection very real for them.

Frances: What would you say to other Stockport schools that are interested?

Hannah: I would say: absolutely go for it. Hosting your own event doesn't have to be complicated, start small if you need to. The Great Science Share team provide brilliant resources and support, and the emphasis on pupil-led questions means that it grows naturally out of what your children are curious about.

For me, one of the most rewarding parts is watching children who might normally be quiet in class grow in confidence as they share their science with others. Seeing them proudly present their ideas makes all the planning worthwhile.

This echoes the EEF's guidance on building partnerships beyond school to enrich learning, particularly in communities with limited exposure to STEM careers, and supports the *Gatsby Benchmark* of linking curriculum learning to real-world opportunities.

Frances: What is the future potential for GSSfS with BASF?

Helen: We would love to continue to support GSSfS and to host an even bigger event in 2026. The feedback from all those involved was so positive. We recognise that should we achieve that ambition we'll quickly need a larger space to host it, so we have approached the local council and Stockport Council have kindly offered a large space in the Stockport Exchange building.

I suppose it's important not to forget to say how that key factors such as accessibility of the space, safeguarding, transport and timing all affect the way schools eventually engage. We followed the format of a sharing event as promoted by the GSSfS team and worked with the teachers to ensure that all risk assessments were in place and that everyone had confidence. Working together with the GSSfS team, responding to their advice and having the prior relationships with local science lead teachers all enabled us to work collaboratively to achieve a really positive outcome.

'I would highly recommend getting involved in GSSfS to anyone in the STEM industry who may be considering it. BASF have been a sponsor since its early days but hosting a GSSfS event here in Stockport has really brought home the real benefits that such a local event can bring to the community around our offices. Colleagues loved spending an afternoon questioning local children who, in turn, clearly benefitted from interacting with industry professionals. Showcasing our industry in an accessible and exciting way helps to highlight both our work at BASF and our industry more widely and hopefully, will encourage more young people to consider a STEM career.' Darren Budd, Managing Director of BASF plc

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BASF STEM ambassadors listening to pupils explain how they came up with and ran their GSSfS experiment

Getting involved

Interested in getting involved?

For more information on how to get involved and potentially run your own GSSfS Share event, visit www.greatscienceshare.org to download a copy of *A guide to getting involved*.

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