

They say sometimes the first step of a journey is the hardest

James Anderson and Brendan Fox reflect on the value and process of Great Science Share for Schools to teachers and children within Manchester Hospital School

As science teachers at Manchester Hospital School, we believe we have one of the best jobs in education. For our staff there is no such thing as a typical day. It is fast-paced and varied. We teach pupils who can't attend their regular school because of their physical or mental health.

We have a range of sites which focus on differing patient needs from supporting pupils undergoing Proton Beam Therapy at the Christie Hospital, a tier 4 residential unit for pupils recovering from mental health illness, the Royal Manchester Children's Hospital where children could be inpatients for a whole range of health conditions or our Leo Kelly school for young people who are reintegrating to mainstream education.

In the Royal Manchester Children's Hospital setting our 'classroom' is often a hospital ward, and our pupils are patients. It's a very different environment, but the goal is the same: to provide a high-quality education, removing barriers and helping pupils engage with scientific practice. You might see us navigating the corridors of the hospital with our trolleys, which is like a mobile science lab packed with microscopes, models of the human body, and even Virtual Reality headsets. We tailor lessons to the learning the pupil needs while considering the curriculum with their regular school. This helps them stay on track with their peers and makes their return to school a smoother transition.

Shared values with GSSfS

Being a hospital schoolteacher means being flexible, caring, and quick on your feet. Our pupils and their families are dealing with a lot, so we try to provide a 'slice of normal' in their day. The open nature of GSSfS and the way it is adaptable meant that we didn't feel constrained by specific rules and regulations, but that we could take the child-led enquiry focus and blend it into our learning programmes, somewhat seamlessly. We considered how we might focus on a lesson on the solar system, or the respiratory system or it could be a simple experiment to explain the signs of a chemical reaction. In working closely and collaboratively with nurses, doctors and the play team, we found GSSfS contributed well to our approach in making each child's stay a supportive experience.

The fun, hands-on science projects that we usually include in our enrichment activities, like our STEM Club, were a key focus as we constructed a plan for GSSfS, with practical learning such as building small catapults enhancing learning about physics or creating simple circuits consolidating understanding about electricity. Our shared goals of keeping pupils curious and passionate about learning, even when they are significantly unwell, made it clear that this was a good fit.

'Shared projects and joint learning experiences such as the Great Science Share allow pupils to connect, support one another and recognise that they are not alone but are part of a wider network of learners facing and overcoming similar challenges. For staff, collaboration offers opportunities to exchange expertise, share resources and strengthen professional practice; ultimately enriching the learning experiences offered in every hospital setting.' Cath Kitchen, Chair, Hospital School Network (NAHE)

GSSfS as a vehicle for cross-school collaboration

Over the past two years we've wanted to build and build on our previous experiences. The 2025 theme of Connected Science inspired us to find a variety of ways for pupils to connect with peers beyond their ward or classroom to share their voyage of scientific discovery.

We had established contact with Oxfordshire Hospital School to look at professional development and good practice in hospital teaching, and it seemed a natural next step to link our pupils together. The Great Science Share for Schools campaign provided the ideal vehicle for this. We were so pleased when Liz, the science lead in Oxfordshire Hospital School, agreed to be involved.

Using recent research on 'Purposeful practical work in primary science' (Earle et al, 2025) we agreed to focus on hands-on scientific engagement-based activities which would allow pupils to develop their 'working scientifically' practices, expanding their scientific vocabulary and using the assess, plan, do, review cycle.

Each of our teachers chose activities suited to the curriculum stage and development of their pupils. These ranged from modelling the circulatory and respiratory system, viewing cells and structures under the light microscope, building 3D representations of our solar system and investigating renewable power generation.

Steps to success

Step 1: Will it be too difficult?

This was the first question we asked ourselves when our headteacher found out about the campaign. Initially it is easy to think that these types of collaborative events would be hard to plan and deliver in our setting due to logistics.

NAHE has a clear vision: access to science for all pupils in hospitals and a learning community that thrives on high aspirations, connection and shared purpose. Through this innovation, partnership and an unwavering belief in equal opportunities, hospital schools can ensure that science education continues to inspire and empower every pupil in their care, as these case studies illustrate.

<https://www.nahe.org.uk/>

Inclusivity was core in everything we did, so the answer was 'We'll find a way!' as we explored how we could make the campaign work for our teachers and pupils.

Step 2: So many ideas – which is the best for us?

The Great Guided Enquiries are packed full of hands-on sensory engagement ideas linking to themes and real-world contexts as a basis for scientific investigation. We discussed as a staff team how these might work in the hospital: these needed to be experiments which we could take around the hospital and our other sites. We quickly decided we wanted to make a celebration event to bring the wonder and awe of science to the fore.

Investigation questions we took forward were:

Fruit Batteries Investigations

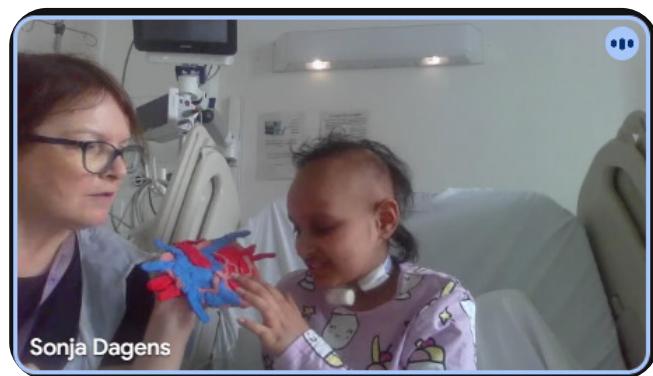
- Does the number of lemons affect the total voltage produced in fruit batteries?
- How does the material used for electrodes affect the voltage produced?
- How does the type of fruit affect the amount of electricity produced?

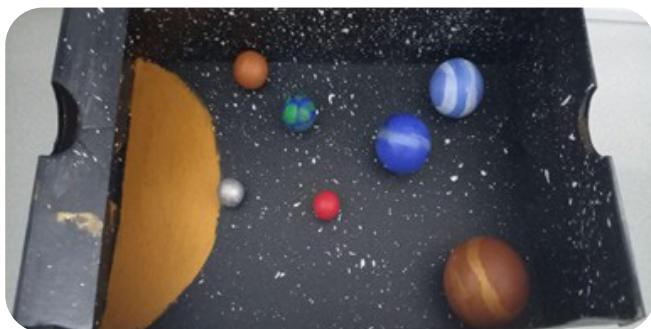
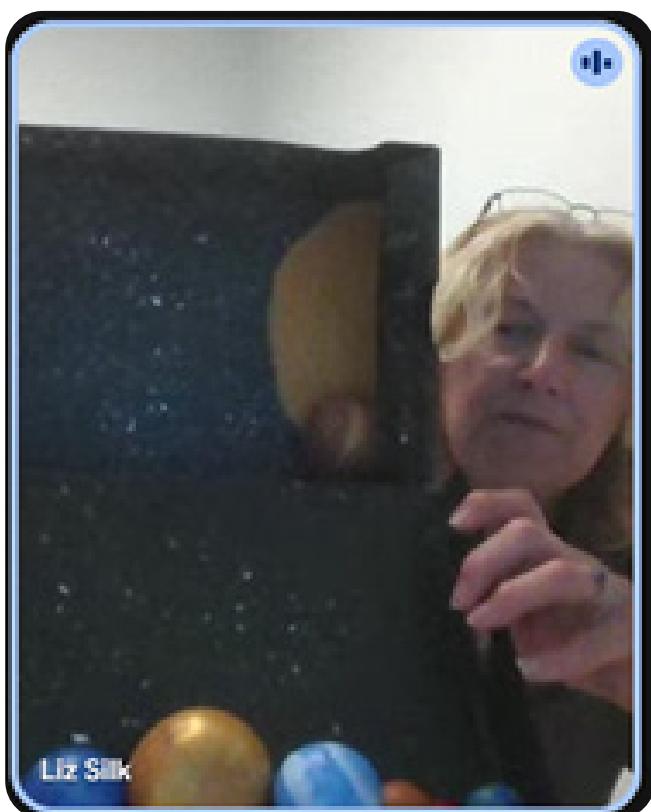
Lava Lamp Investigations

- How do different substances affect the amount of fizz from the effervescent tablet?
- How does the size and number of the tablet affect the number of lava blobs produced in five minutes?
- How does the temperature of water affect the reaction rate and movement of bubbles?
- Does the amount of water and oil affect the movement of blobs?

Water Bag Investigations

- How does the type of bag affect whether the water leaks when the bag is punctured?
- How does the shape of the object affect the seal?





Step 3: Sharing science – overcoming the odds

In our first year we photographed and recorded our activities so that our pupils' work could be shared with pupils in other participating schools. In 2025, we used Google Meet as a platform to set up our virtual science share and agreed our day and time for 'the big meet'. We felt nervous about how our pupils might react to being in a virtual classroom with other pupils they didn't know, for many of our pupils they had not been in a 'classroom' for some time. It was this feeling of isolation and difference which we hoped to break down. We needn't have worried, the pupils were fantastic, some a little shy at first but as we introduced ourselves from each of our settings it became clear that there was much more common ground than there was difference. For some of our pupils, seeing others



Sharing with new audiences through Google Meet!

in their situation helped to make them feel part of something bigger and not as an individual in a ward separate from the world. A pupil explained how she had created a model of the lungs using modelling clay, one pupil showed us their 3D solar systems, one created from a shoe box and polystyrene balls, the other from a toilet roll! Another pupil displayed pictures of objects from the sensory garden viewed through the microscope and quizzed us on which each image might be.

Lessons learned: what's our message to you... whichever setting you are in!

After our initial reservations were put aside and we took the plunge to participate in the Great Science Share we learned that sometimes taking a risk and trying new things can bring unexpected rewards. While it is often easy to see the potential barriers, for example complying with strict hospital safety and infection control protocols, the positives can significantly outweigh the difficulties. Being able to explain to the children that they were involved in the Great Science Share along with pupils across the country and internationally gave them a sense of connection to life outside the ward, a feeling of being part of something and reducing their isolation. For us, practical experiments and the highly visual and hands-on nature of science sparks the natural curiosity of students, who may be otherwise withdrawn due to their illness and helps to normalise the hospital environment for our students.

The immense therapeutic value of this hands-on science experience provided a powerful, positive distraction from pain, fear and boredom, helping to reduce anxiety associated with being in a hospital.

REFERENCE

Earle, S., Read, S., Bianchi, L. & Jordan, J., 2025. Purposeful practical work in primary science. Bath: Bath Spa University & The University of Manchester, for the Nuffield Foundation. Available at: https://data.bathspa.ac.uk/articles/online_resource/Purposeful_practical_work_in_primary_science/28615676 [Accessed 7 Nov 2025]

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High hopes for the future

We are privileged in hospital education to work with inspiring children and families who walk tremendously difficult paths every day.

It's a challenging job, but it's also incredibly rewarding. Seeing a young person's face light up when they understand a new concept, or when they're able to escape into a lesson for a little while is a powerful reminder of why we're here. We're not just teachers; we're a source of support, stability and normalcy for families whose worlds have been turned upside down.

I always marvel at their bravery and remind myself that when something may seem difficult and daunting my first step pales into insignificance compared to these wonderful young people I meet. We are on our Great Science Share journey and we hope to branch out further in the future linking with all the hospital schools nationally and perhaps, in time, even internationally to share not only science and learning but community and connection. We look forward to seeing how our science share grows in 2026 and beyond.

'Linking with other hospital school science teams is always an inspiring way to share ideas on the challenge of teaching science in different settings, whether teaching bedside or in other teaching spaces where science equipment is limited! The chance to join the Great Science Share is a lovely opportunity for the OHS to link with the MHS, and for us all to see what our staff and pupils are doing in science.' Liz Silk, Science Lead, Oxfordshire Hospital School

'Being in a classroom can be a daunting experience for these young people. The practical elements of the Great Science Share and nurturing environment help to develop the young person's sense of wellness and support their overall progress.' Kirsten Taylor, Lead Occupational Therapist, Galaxy House

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