

Science shared, stories told

Sara Jackson and Mandi Banks-Gatenby explain how GSSfS complemented a Home Education programme linked to Manchester Museum

In June 2025, families from the Greater Manchester area who home educate gathered in the Fossils and Dinosaurs Gallery at Manchester Museum to share their science learning. This was our first Elective Home Education (EHE) Family Science Share event held in collaboration with the Great Science Share for Schools (GSSfS) team. The event showcased how important place is in the learning process and how informal learning spaces, such as museums, can act as catalysts for high-quality science engagement and communication.

Understanding EHE: diverse learners, shared curiosity

Elective Home Education (EHE) in the UK refers to a legal option where parents take full responsibility for their child's education outside the school system. Recent UK Department for Education data indicates that more than 111,000 children were recorded as EHE in autumn 2024, compared to an estimated 80,900 children in autumn 2022 (Department for Education, 2024). This growth reflects a wide spectrum of motivations: some families seek flexibility to tailor learning to individual interests, others prioritise approaches that better support neurodiverse learners, and many are drawn by pedagogical philosophies that emphasise autonomy and creativity.

The richness of the EHE community lies in its diversity. Some families bring deep disciplinary expertise such as engineering, medicine, or ecology, while others approach science with curiosity and a desire to learn alongside their children. This creates fertile ground for

peer-to-peer knowledge sharing, where learners and parents exchange ideas, demonstrate experiments, and co-construct understanding. At the Manchester Museum event, this approach was evident as children explained their projects not only to visitors but to each other, sparking conversations that extended beyond the displays.

These practices demonstrate the concept of funds of knowledge (Moll *et al.*, 1992), which recognises the cultural and experiential resources embedded in households and communities. When learners draw on everyday experiences, whether it's a passion for mechanics, observing nature, or engaging in creative arts, there is an opportunity to connect scientific ideas to meaningful contexts. By valuing these funds of knowledge, educators and institutions can design experiences that honour what families already know and do, while opening pathways to new scientific thinking.

Funds of Knowledge: This concept, developed by Moll *et al.* (1992), recognises the valuable knowledge and skills that learners acquire through everyday life in their homes and communities. These include practical know-how, cultural practices, and informal expertise that can enrich formal education when acknowledged and integrated.

How did we get here? Building the partnership: from grant to gallery

The journey to the Museum GSSfS event began with the small grant award to support practical science engagement for EHE families. An online launch meeting in March 2025 brought together a diverse group of parents and carers. This led to the formation of a Science Steering Group comprising of parent volunteers. Two practical workshops were held at Manchester Museum that introduced science practical skills via microscopy and cell modelling to 30 participants aged 5–14; and explained the way pupils would share their science within a GSSfS celebration event.

The Museum Science Share Event



GSSfS Heart stand

Inquiry and informal learning

The inclusive and child-led nature of enquiry being promoted by the Great Science Share for Schools campaign is what gelled with the EHE steering group's ambitions. The opportunity to allow learners to share both structured investigations and spontaneous interests was ideal to enable peer-to-peer knowledge sharing, where learners and parents exchange ideas and scientific findings.

Enquiry-based learning was evident throughout in what resulted in an in-person science share. Learners posed questions, tested ideas, and explained findings to peers and adults in the museum setting which inspired dialogue and made science feel accessible and exciting.

The range of science questions exposed learners' curiosity and approach to science:

- **How does blood flow in the heart?** One learner presented a detailed model of the human heart, explaining how blood flows through its chambers, linking this to how modern medicine and cardiology tools help diagnose heart conditions.
- **How does gravity affect the way that water travels?** Another family shared their learning via a poster representing their understanding of science concepts obtained from a practical activity at home building a 'Heron's Fountain': a water-based model demonstrating principles of pressure and gravity.
- **How do fossils provide evidence for how life has changed over time?** A sibling pair hosted a palaeontology exhibit sharing knowledge of fossil samples and discussed how scientists use evidence to

understand prehistoric life and evolution. The Fossil Gallery couldn't be a more fitting place to share this learning!

- **How does the shape and size of a toy car affect how fast it travels?** The monster truck investigation involved measuring speed and mass, with learners testing how different toy configurations affected motion: it was hard to predict how much speed reduction a polystyrene Nerf gun dart would cause compared to other toys tested!
- **Why are trees amazing?** One child created a visual science display combining artwork and ecology to explain photosynthesis, biodiversity, and the role of trees in climate regulation.

Although not shared visually on the day, another learner explored the acidification of oceans using red cabbage indicators to test pH changes. This investigation was inspired by GSSfS Guided Enquiry: *The Great Ocean Share* which highlighted how the campaign's open access resources can work ideally for EHE families beyond the classroom.

'The children all came up with such a breadth of topics to explore, and it was great to see them telling each other – and other visitors to the museum – about their projects. The Fossil Gallery location couldn't have been better!' Parent

So how does a non-traditional classroom space work for GSSfS?

On reflection, the Fossils Gallery at Manchester Museum was more than a venue, it was a catalyst for learning across parents and pupils within families. It offered a space where the power of place-based learning could be explored, where the physical environment became part of the pedagogy. Surrounded by towering dinosaur skeletons and ancient artefacts, learners were immersed in a space that invited them to engage with real-world science phenomena. It encouraged them to work their muscles of curiosity and dialogue and provided a judgement-free space where they could learn together with others, gaining a sense of belonging within the EHE community. For many EHE families, this was their first time presenting science in a public setting, and this was a springboard to enabling learners to collaborate with other learners who they may otherwise not have met.

'My son, who can be shy, was so inspired he is now set on participating in potential future events. His ideas are already in motion on experiments he would like to try out.' Visiting EHE parent

Place-Based Learning emphasises learning that is rooted in local environments and contexts. It connects scientific ideas to real-world settings, encouraging learners to engage with their surroundings and community through inquiry and exploration (Gruenewald, 2003).

As confidence grew, so did the sense of community. The collaborative atmosphere grew organically. Families who had never met before began exchanging ideas, and children eagerly explained their projects to one another, often surprising their parents with their confident communication! Later, when two visiting primary school groups entered the gallery, the EHE learners rose to the occasion speaking clearly, answering questions, and proudly sharing their science stories. These interactions exemplified the informal, peer-led nature of the event and highlighted how place-based learning supports inclusion and confidence. The day ended with certificates of participation awarded beneath the *T. rex, Stan*, a symbolic moment that captured the spirit of the event: science as a shared, lived experience.

Why place matters for confidence and inclusion

Place-based learning does more than provide a backdrop; it shapes how learners see themselves in relation to knowledge. Being surrounded by authentic artefacts and a public audience signalled to families that their science learning was valued. For EHE



children who often learn in private spaces, presenting under *Stan the T. rex* transformed their identity from 'home learner' to 'science communicator'. This shift builds confidence because the environment legitimises their efforts and invites dialogue with others, including school groups and museum visitors. Such encounters support inclusion by breaking down barriers between formal and informal learners, showing that science belongs to everyone, everywhere.

'The joy in their eyes when they were able to show all their hard work and more importantly what they were passionate about is a memory I will hold dear.' Parent

So, what's next for the UoM/EHE Family Science project?

This Great Science Share was not a one-off. It marked the beginning of a broader learning ecosystem that can connect and benefit educators and teachers from EHE families, Manchester Museum, and the wider GSSfS community. Whereas the EHE families will continue their work with their learners, the museum will continue to act as a **connector**, bridging access to initiatives, spaces, equipment, and expertise. These will broaden and enhance learner experience, whilst also giving time for funds of knowledge to influence the learning pathway.



Future plans are underway to develop **lab-based workshops** that will allow EHE learners to explore science in more formal settings, supported by researchers and educators whichever way these are exploited, we firmly recognise the benefit of developing family confidence in science enquiry and

communication using the resources and webinars, including the *Great Guided Enquiries*, Toolkit and Theme. The sharing event is something that is special, and its open and inclusive nature makes GSSfS a perfect fit to rounding off the year!

Conclusion: a catalyst for ongoing curiosity

The first EHE Family Science Share at Manchester Museum was more than an event, it was a catalyst for change. It showed that curiosity thrives in non-traditional contexts, and that when science moves beyond the classroom into spaces like museums, learners can explore, question, and share on their own terms. For EHE families, often overlooked in STEM outreach, this reinforced that their voices and experiences matter in science learning.

The event didn't just connect scientific ideas; it connected people, communities, and institutions around a shared passion for learning. In doing so, it embodied the GSSfS 2025 theme of Connected Science, demonstrating that connection is not only conceptual but relational and spatial. By acting as connectors, the museum and university provided access to spaces, expertise, and audiences, enabling informal learning communities to flourish. This model has the potential to reshape outreach strategies, ensuring that science becomes a shared cultural practice rather than something confined to schools.

Finally, this experience reinforces a vital message: science belongs to everyone, and it is everywhere! When educators, museums, and universities open their doors to informal learners and recognise them as equal contributors, they enrich the scientific conversation and broaden participation. When we open science to families, to communities, and to everyday life, we don't dilute its power, we amplify it! Informal, non-traditional learning spaces like museums are not just venues; they are catalysts for curiosity, inclusion, and lifelong engagement with science. We can't wait to do it all again year on year!

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