

London Wonder

Impact Report



BIG IDEAS

Introduction

London Wonder, in its second successful year, is an outreach programme designed to inspire secondary school students from the London Borough of Barking and Dagenham to see themselves in STEM careers.

Delivered by Big Ideas and funded by the Royal Commission for the Exhibition of 1851, the programme introduces students to real-life scientists and engineers from the Royal Commission and brings cutting-edge research into classrooms. The opportunity for Royal Commission award holders to develop their experience of public engagement in a meaningful setting is at the heart of this initiative.

This year, London Wonder built on the pilot's success by continuing to focus on empowering students and teachers, representation through diverse role models, and experiential learning both in schools and at the Great Exhibition Road Festival with eight 1851 Award Holders taking part.

The programme is closely aligned with UK STEM policy objectives, particularly those outlined by the Department for Education, the Royal Society, and the Gatsby Foundation. These include increasing STEM capital, improving access for disadvantaged groups, and enhancing teacher confidence and industry engagement.

Programme Aims

- To provide public engagement experience for 1851RC Award Holders.
- To raise awareness and excitement among secondary school students about the wide-ranging opportunities within STEM.
- To challenge perceptions of who belongs in science and engineering by showcasing relatable and diverse role models.
- To build confidence and communication skills among Royal Commission 1851 Fellows.
- To support teachers with relevant, co-designed STEM enrichment content and strategies.
- To strengthen links between schools and national STEM institutions, resources and events.



Programme Highlights

- Over 300 young people aged 11–18 took part in interactive STEM workshops.
- 4 secondary schools participated across Barking & Dagenham.
- Students reported they felt more confident in understanding STEM subjects after the programme.
- 8 fellows from the Royal Commission of 1851 participated.
- Fellows reported improved science communication skills.
- Teachers reported that they would recommend the programme to colleagues.

Programme Delivery Overview

Collaboration with partners

London Wonder 2025 was delivered with funding from the Royal Commission for the Exhibition of 1851 and programme delivery was executed by the Big Ideas team. The Royal Commission assisted in providing STEM role models from their cohort of Award Holders with further support from the LBBD Local Authority and teachers in LBBD secondary schools. Collaboration with Barking and Dagenham Borough Council and school science leads helped tailor the programme to meet school needs and time constraints.

Fellows from the Royal Commission were matched with participating schools following teacher consultations. The result was bespoke delivery designed around specific challenges, curriculum priorities, and student interests.



Schools engagement

Four schools participated in London Wonder 2025:

1. **All Saints Catholic School** – Barking & Dagenham
2. **Greatfields School** – Barking & Dagenham
3. **Barking Abbey School** – Barking & Dagenham
4. **Eastbury Community School** – Barking & Dagenham

Big Ideas co-designed each workshop with an assigned Fellow during structured consultations. Teachers requested hands-on, engaging sessions, delivered in person and tailored to their student demographic.

Common priorities raised by teachers:

- The importance of STEM role models reflecting their diverse student communities.
- Student interest in engineering and medicine.
- Need for hands-on and engaging activities that are curriculum-linked and accessible.

Academic and Pre-professional Engagement

Royal Commission 1851 Fellows brought their current research into the classroom, supported by Big Ideas through training and structured development sessions. Fellows represented a wide range of scientific disciplines and backgrounds, offering students a window into real-world STEM careers.

Fellow sessions followed the following structure outlined by Big Ideas:

- Personal journeys into science and engineering.
- Introduction to their field of research.
- Practical or design challenges connected to real-world STEM applications.

Bespoke courses included:

- Designing, building and pitching medical innovations/cures that solve medical problems.
- Designing and pitching a sustainable solution that could improve one of the functional components of a city; integrating technology, environmental awareness, and practicality.
- Exploring green energy and magnetic levitation through hands-on prototype builds.
- Understanding solar energy through the testing of different colors and frequencies of light and designing a sustainable house that considers solar power, building materials and heating/cooling.
- Creating characters and scenarios that weigh the advantages and disadvantages of increased reliance on AI and organizing a class debate around the arguments.
- Designing packaging that is sustainable to produce, aesthetic and protective without compromising on cost or post-consumer ecological impact.



“It was exciting learning about how energy via solar panels can be more prevalent in the future.”

Year 10 student, Eastbury Community School

Festival Participation

As part of the programme, all participating schools were invited to attend the Great Exhibition Road Festival in June 2025 and explore the 1851der Tent—a dedicated space showcasing Royal Commission Fellow research through interactive demos and hands-on science.

Students were also invited to participate in the Design and Engineering Photo challenge. With cash prizes for the top three photos, students were tasked with capturing the most unique view of what science, design and engineering looked like through their eyes. Disposable cameras were provided at the 1851der Tent and students explored the festival grounds, finally returning their cameras for Big Ideas to develop the film.

Despite challenges such as Eid and GCSE exams falling around the festival, **15 students** attended and received a £10 travel stipend to enable their participation. They explored cutting-edge exhibits including quantum physics, AI in healthcare, and Rube Goldberg engineering challenges.

Programme Outcomes



Raising STEM capital

- Students said they now felt more confident understanding STEM subjects.
- Before the workshop, most students had never met a scientist or engineer. Afterward, 100% had.
- Student interest in STEM increased.
- Engineering, medicine and renewable energy emerged as top career interests.

These outcomes align with the UK STEM Learning aim to build science capital (stem.org.uk), designed to help students see that “science is for me,” aligning with London Wonder’s goals of increasing student confidence by exposing them to real science professionals and relatable contexts. London Wonder also directly supports this policy priority of Gatsby Benchmark 4 ([Gatsbybenchmarks.org.uk](https://gatsbybenchmarks.org.uk)), to connect curriculum with careers, through 1851 Fellows’ workshops designed around current and authentic research.

Changing perceptions

- Students reported they learned something new about STEM careers.
- Students commented positively on having Fellows who looked like them and shared similar backgrounds.
- Students reported they were more likely to consider a career in science or engineering after the event.

“It was nice to see how applicable the science was to day-to-day life.”

Year 10 student, Eastbury Community School

Teacher confidence

- Teachers found the co-produced workshops beneficial and informative.
- Many teachers said they would integrate the content into future lessons.
- Teachers requested Fellows' downloadable resources to refer to in the curriculum long-term.



“The year 7s were expressing verbally how they so enjoyed the session and found out about different jobs out there!”

Science Head Teacher

Fellow development

A core strength of London Wonder lies in the professional growth opportunities it offers Royal Commission 1851 Fellows. This year, 100% of participating Fellows reported improved public engagement skills, highlighting significant gains in confidence, engagement, and their ability to simplify complex scientific topics for younger audiences. These interactions not only enhance Fellows' communication skills but also deepen their appreciation for fostering a more inclusive community of STEM professionals.

Looking ahead, Big Ideas is committed to expanding this aspect of the programme. We plan to celebrate and showcase the Fellows' development and impact more prominently, beginning with organised discussions and presentations at the 2025 Christmas Drinks event. This will offer Fellows a valuable platform to share their experiences, reflect on their growth, and inspire the wider Royal Commission and Imperial community with the programme's successes.

By emphasising Fellow development alongside student and teacher engagement, London Wonder reinforces the Royal Commission's commitment to nurturing STEM ambassadors who are equipped to lead, communicate, and innovate across diverse audiences and settings.

“It was really inspirational working with the students. They are brilliant and their creativity blew me away. Gave me hope.”

1851 Fellow

Strategic Alignment

London Wonder 2025 strongly aligns with the strategic priorities of the Royal Commission for the Exhibition of 1851, complementing their mission to support the development of future STEM leaders through education, engagement, and innovation.

In particular, the programme advances the Royal Commission's strategy by:

- Enhancing STEM capital and widening access to scientific careers among underrepresented and disadvantaged groups in London.
- Supporting Fellows' development as science communicators and mentors, strengthening the Commission's role in nurturing exceptional STEM talent.
- Building meaningful, sustained connections between schools and national STEM institutions, aligned with the Commission's commitment to fostering science education and public engagement.
- Building a new audience for the institutions on Exhibition Road by encouraging LBBD youth to explore GERF.

Legacy and Recommendations

With a three-year commission in place, London Wonder is well-positioned to deepen its long-term impact. Continued collaboration with schools, Fellows, and the Royal Commission will ensure the programme evolves to meet student needs while supporting strategic priorities.

Building on insights from this year's delivery, we recommend:

- Continuing to expand the programme's reach to include more students in Barking and Dagenham, maintaining a focus on LBBD as an Education Investment Area.
- Streamlining our in-class resources into a digital "pack" so teachers can independently build on and incorporate workshop content into their curriculum year-round, thereby continuously connecting students with Exhibition Road and STEM leaders.
- Offering Fellow training earlier in the academic year to strengthen co-creation and delivery readiness.
- Exploring in-school alternatives to the Great Exhibition Road Festival to reduce scheduling and travel barriers. This final aspect remains a work-in-progress as the numbers of young people attending is modest. Teachers in participating schools had reported that 50 students were planning to attend, but during GERF2025 we only saw 15 young people. The Festival coincided with Eid and the weather was poor on the non-Eid day. We are exploring alternative approaches to boost LBBD engagement with Exhibition Road.

Conclusion

London Wonder 2025 demonstrated the power of well-designed, locally delivered STEM engagement to increase aspiration, confidence, and curiosity. By bringing together cutting-edge

science, diverse role models, and enthusiastic teachers, the programme offered students a glimpse into what's possible, inspiring many to see themselves in STEM for the first time.

Big Ideas and the Royal Commission for the Exhibition of 1851 thank all the students, teachers, and Fellows who made this year's programme a success.



"Student's saw female engineers representing the field."

Head Teacher

"A great opportunity to improve your communication skills. Breaking down complex concepts to be easily understood. Good opportunity to inspire a young generation about the wide STEM career opportunities they have."

1851 Fellow

Find out more www.big-ideas.org