

# Inspiring & Involving

Incredible Science • Inspirational People • Astounding Places



 @STFC\_Matters



Public Engagement Strategy 2016-2021

The Science & Technology Facilities Council is one of Europe's largest research organisations. We enable the UK's natural sciences, computing, and engineering communities to continue their world-leading research by working with universities, national laboratories, scientific facilities, and regional campuses, in the UK and abroad.

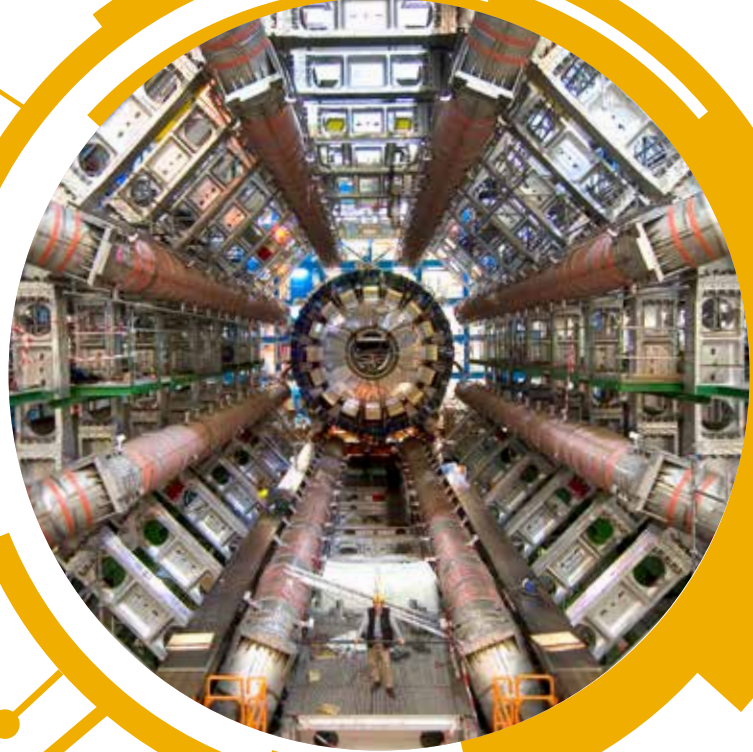
Public engagement with science, technology, engineering, and mathematics (STEM) has always been important to us. We love to talk about our work with the public – sharing the curiosity, excitement, and ambition that drives us to discover and understand new things, and develop technologies that improve our lives.

We are funded by the UK public: listening, understanding and discussing their views of the impact of science and technology on our society is both our responsibility and our privilege.

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## **Our vision is of a society that values and participates in scientific endeavour**

Our science is incredible. From the infinitesimally small world of sub-atomic structure to the inconceivably vast scale of cosmological phenomena, STFC's scientists and engineers are tackling big questions that we know attract people to science as children, and keep them asking questions throughout their lives. What's in outer space? How did the universe begin? What are we all made of? How does the world around us work?

Science and technology are in the public consciousness. Technology improves lives – it helps us communicate, it keeps us safe, and it makes us healthy. Contemporary science is shared on social media, debated on national news, published and discussed online, and is the inspiration for numerous popular and successful films, television shows, and documentaries.

We believe it is vital that society never stops talking about science and technology:

- To explain new discoveries and dispel misconceptions about how the world around us works.
- To explore, for example, the challenges we face regarding our environment, our food supply, and our energy systems in the future.
- To exemplify how science is actually done, and the power of scientific thinking to help teams and individuals create something amazing.

We want to make sure that our scientists and engineers, and our wider community of grant holders, universities, educators, communicators, and science enthusiasts, are part of these conversations.

## **Our mission is to use our stories, community and facilities as the basis of world-class public engagement that inspires and involves people with our science and technology**

With information so freely available and quickly disseminated, public engagement with science is changing. It is easier than ever for people to speak directly with scientists and engineers, or learn about complex subjects when they want, how they want. We need to embrace these changes, and satisfy the demand and expectation from the public for clear, engaging, and accessible content of the highest quality possible.

We will use our outstanding science to inspire people to explore science and technology for themselves, to share their understanding with family and friends, and to consider the benefits of studying STEM in opening doors to a multitude of future careers. As an organisation that does science, we are fortunate enough to couple scientific content with two crucial strengths – our inspirational people, and our astounding facilities.





## Public Engagement and STEM Skills

The UK faces a shortage of people that have the range of STEM skills and qualifications that the country needs in the future; many studies have warned about the future damage to our economy if we do not encourage more people to enter the careers that require this base of STEM understanding. STFC and the UK need talented people to keep us at the forefront of international science. Therefore, we want to inspire both girls and boys to be more likely to understand, study, or work in STEM.

We consider public engagement to be the vital first step in growing the UK's STEM talent pool. A scientifically literate population seeds ambition and interest in STEM careers. We help children, parents, and teachers understand why science is important, and that STEM subjects are a springboard to hundreds of different careers in the UK. Our own community demonstrates the diversity of routes into STEM careers – from work experience, apprenticeships, and vocational experience, alongside graduate or postgraduate qualifications and research. Thus, every aspect of our public engagement seeks not only to inspire the next generation as to the value of science, but also to show that STEM subjects open the door to a hugely rewarding future.



Behind all science and innovation lie stories of cooperation, perseverance, and sharing of ideas that are truly brought to life by the people involved. The stories of our engineers, technologists and scientists show that science and engineering involves teams of people drawn from all genders, ethnicities, and social backgrounds, working to solve problems and understand the unknown. Engaging with the public works both ways – researchers have their perspectives challenged, practices improved, and enthusiasm heightened by public engagement.

Speaking to people about science is one thing, but seeing it first-hand is another. STFC's labs and campuses in Harwell, Daresbury, and Edinburgh are unequalled in the UK, and give us a unique opportunity to let people experience the remarkable scale, ambition, and achievement of UK science. Experience tells us that the public wants to see it for themselves – we have welcomed tens of thousands of people, including thousands of school students and teachers, through the doors of our facilities in the past five years, and the feedback we receive is overwhelmingly positive.




STFC has a strong record in public engagement, so what will we do differently because of this strategy? We want a higher proportion of our audience to be people new to STFC science and technology, and students in late primary or early secondary school. To achieve this, we will work in partnership with others more than we ever have before. This takes effort, and might mean we deliver fewer activities ourselves, but will maximise the overall reach and impact of our public engagement.

Our mission is to inspire people using stories of our science and technology, to create a society that values scientific endeavour. We are excited to invite our community to work with us to make that vision a reality. To achieve that, our strategic focus will centre around **five key aims** for public engagement.

# 1 Showcasing STFC science and technology

We will showcase the huge range of science and technology research and development STFC undertakes as part of national and international collaborations. For public engagement, we separate STFC's work into five themes; *Big Telescopes*, *Our Material World*, *Inside the Atom*, *Big Data & Computing*, and *Dark Sky*. In each theme, there are amazing stories of scientific developments, their impact on our lives, and the people that have been involved.

Over the next five years, we will achieve success through:




-  Sharing the breadth of science and technology supported by STFC, including coordinating large programmes and leading a number of strategic campaigns for selected highlights such as the James Webb Space Telescope.
-  Using the personal stories of the STFC community to inspire our audiences and demonstrate that STEM is enjoyable and accessible for all.
-  Creating and maintaining a high-quality portfolio of accessible public engagement activities and resources that are clearly linked to our five science and technology themes.



# 2 Building the right partnerships

Public engagement in the UK is an increasingly rich, inter-connected landscape. STFC is recognised and sought-after as a leader in STEM engagement. We will work in carefully-selected, mutually-beneficial partnerships to improve the quality, reach, and impact of our engagement even further.

Over the next five years, we will achieve success through:

-  Developing and adopting a partnership charter that provides the framework for building and evaluating sustainable public engagement partnerships.
-  Creating partnerships with clear goals, that deliver excellent STEM engagement and meet the needs of all parties involved.
-  Gathering clear evidence that our partnerships have improved the quality, reach, or impact of the public engagement work undertaken by STFC and our partners.





## 3 Developing and supporting STEM influencers

By developing, supporting, and working with people who have discovered their passion for STEM engagement, we can establish a culture where STEM thrives. We will train and support role models across STFC: making it easy for our staff to engage with the public, and developing networks and champions within our academic community.

### Who are STEM 'influencers'?

We consider STEM 'influencers' to be individuals working in a professional or voluntary capacity with a combination of two important traits. Firstly, they are skilled in engaging their specific target audiences. Equally importantly, they are inspirational communicators who readily pass their passion for STEM onto those around them. For us, this can include individuals ranging from STEM ambassadors, teachers, and youth group leaders, through to professional scientists, engineers, and science communicators.

Over the next five years, we will achieve success through:


-  Raising the public engagement skills of our research communities even further by undertaking appropriate training and networking activities.
-  Working with networks of STEM influencers to inspire young children and their families using stories of STFC science & technology.





## 4 Improving our reach with diverse audiences

Evidence tells us that young children from all backgrounds 'like' science, and yet the UK STEM workforce remains unrepresentative of UK society at large. We believe passionately that STEM in the UK is for everyone, and there must be no barriers based on gender, ethnicity, social background, geography, or any other factor. We will work with experienced partners to ensure an increased proportion of our activities reach families and young children with low 'science capital' to show that science and technology are 'for them' – exhilarating and collaborative, relevant and rewarding.

Over the next five years, we will achieve success through:

-  Working with appropriate partners to increase the proportion of our activities that reach low science capital audiences.

-  Ensuring a greater proportion of our activities are tailored for young children in late primary school and early secondary school.
-  Improving the geographic coverage of STFC engagement across the UK, increasing our reach into areas of the country that are otherwise remote from substantial STEM activities.

### Science Capital

Quantifying someone's exposure to, and appreciation of, STEM is challenging. We choose to use the concept of 'science capital', which studies show is linked to STEM aspiration. Science capital refers to science-related understanding, knowledge, qualifications, interest, and close social contacts. For young children, their own levels of science capital are intrinsically linked to those of their family.






# 5 Delivering high quality public engagement activities and outcomes

For STFC, delivering the highest-quality public engagement is vital, and is how we maximise the likelihood of positive impacts from our programme. We are continually improving our own focus on audience understanding, planning, delivery, evaluation, and sustainability of engagement activities, and will lead our community and partners in doing the same. We are proud of the sustained impact our community has achieved. We will continue to support new approaches that remain ambitious, cross-disciplinary, and collaborative while being based on a foundation of sound planning and evaluation.

Over the next five years, we will achieve success through:



-  Supporting an exciting and diverse portfolio of ambitious and professional public engagement approaches by our own staff and the wider STFC community.
-  Leading the STFC community in what constitutes high-quality public engagement, and demonstrate and share best practice when identified.
-  Inspiring people by using engagement to highlight the diversity of routes into UK STEM careers.



## Evaluating Public Engagement

We are less likely to achieve success without a thorough consideration of how we evaluate our public engagement. STFC focuses heavily on evaluation; we have adopted a number of 'generic learning outcomes' for our engagement activities, supported by underlying evaluation metrics and data collection approaches. These desired outcomes indicate what we hope our audiences do, feel, value, and understand as a result of our work. They guide our thinking in the design of engagement activities, and we will use them as a basis to work with our community to share best practice and improve standards of engagement in the UK.

*STFC is proud of our staff and community, and the high value they place on public engagement. We want to support them to inspire others with their work. This strategy outlines clearly how we will continue to push our own standards and inspire a new generation of people in the UK with STEM, building on the foundations of STFC: Incredible Science. Inspirational People. Astounding Places.*

## STFC sites around the UK

UK Astronomy Technology  
Centre, Edinburgh



Daresbury Laboratory,  
Cheshire



Boulby Underground  
Laboratory, North  
Yorkshire



STFC Headquarters,  
Swindon



Chilbolton Observatory,  
Hampshire



Rutherford Appleton  
Laboratory, Oxfordshire

