Empowering students from low-income backgrounds to achieve their potential and progress to STEM degrees and careers, to become the innovators and pioneers of the future.

Promoting social mobility and diversity in STEM.
Foreword

Dr Rebecca McKelvey
in2scienceUK Founder and CEO

Our mission is to support all young people, regardless of wealth, to achieve their potential and progress to degrees and careers in the science, technology, engineering and maths (STEM) sector. We know that poverty and social background remain huge barriers to progressing to university and high skilled STEM and research careers. This is worrying as it doesn’t just lead to a waste of talent, it results in a huge under-representation of people from these backgrounds in the sector. Research shows that diverse workforces improve problem solving, innovation and developing a pathway to social mobility for poor communities. Importantly, focusing on diversity will also help to tackle the ever-growing skills shortages impacting the STEM arena, which is crucial to our economy.

The in2scienceUK programme works by leveraging the passion and expertise of researchers and STEM professionals and puts them at the heart of the solution. These inspiring volunteers support the young people we work with by hosting work placements, delivering workshops and skills days and acting as mentors and role models. This year our brilliant volunteers delivered over 4 years worth of mentoring and support hours. They have really made the difference. I would like to thank all of our supporters and volunteers who are committed to our mission and work with our young people year on year.

Stephen Hancock
in2scienceUK Director of Regions

Programme growth

In 2019 we have continued to expand our programme, enabling us to give more young people the opportunity to participate in exciting STEM placements, across the South East, South West and East of England.

This impact report highlights the success of these experiences and the positive impact our volunteer hosts have in providing in2scienceUK students with the knowledge, skills and confidence to pursue careers in STEM.

In 2020, we will be expanding our programme to the Midlands. By 2022 we aim to provide over 1,000 placement opportunities each year in all regions of England and across the UK.

99 2013-2014
233 2014-2015
422 2016-2017
658 2018-2019

= number of students
in2scienceUK addresses two critical national challenges: a deficit of STEM skilled workers in the UK and the fact that young people from low-income backgrounds are less likely than their wealthier peers to progress to university and onto STEM careers.

18 year olds from the most advantaged socioeconomic group are 15 times more likely
to enter a highly selective university compared to the least advantaged group
(UCAS End of Cycle Report, 2018)

Diversity in STEM

Under 10% of life science professionals... 15% of academics... 6% of doctors....

...are from working class backgrounds
(Social Mobility Commission, 2017)
in2scienceUK creates opportunities for young people from low-income backgrounds to progress to STEM degrees and careers, so that they can achieve their potential and become the next generation of researchers, innovators and pioneers. We work towards a future where young people feel able to pursue STEM careers regardless of their background, and where STEM professionals reflect the diversity of the UK.

Improving access to STEM careers would:

1. **Increase the pipeline of UK STEM**

   There is an annual shortfall of 40,000 STEM skilled workers with the number of future technical jobs forecast to increase (UK Commission for Employment and Skills Report, 2017). Increasing the numbers of disadvantaged students in STEM careers is vital for the UK’s economic competitiveness (Broughton, 2013).

2. **Promote social mobility**

   As STEM workers typically earn 20% more than in other fields, getting more young people from low-income backgrounds into these professions promotes social mobility and fights economic inequality (Greenwood et al., 2011).

3. **Build a more diverse workforce**

   Businesses with diverse and inclusive cultures perform better financially, reduce staff turnover, and maintain increased creativity and problem solving capacity (Desvaux et al., 2007; Forbes Insights, 2011).

4. **Increase science capital**

   There are economic, political and social benefits to increasing science capital in all segments of the UK. In this technological age, it is vital that all people have the tools to communicate effectively, assess complex information and distinguish fact from fiction.
in2scienceUK works with students from the most disadvantaged backgrounds and provides them with the skills, knowledge and confidence they need to progress to university and further training on to STEM careers.

We work hard to ensure that students who will most benefit from our programme are offered a place. Students are selected based on their free school meals eligibility, family higher education history and deprivation levels in their local area. We work only with students attending non-selective state schools, and give priority to students with no other opportunities and from backgrounds under-represented in STEM and in their subject of interest.

These demographics are specific to the 2019 King’s College London programme.
in2scienceUK: King’s College in 2019

in2scienceUK has worked with 37 volunteers to find 63 young people inspiring STEM placements across 10 STEM departments in King’s College London.
Science capital refers to “all of the science-related knowledge, attitudes, experiences and resources that you acquire through life” (Enterprising Science, 2016). The more science capital you have, the likelier you are to pursue science at A-Levels, university and beyond.

Young people from low-income backgrounds have lower levels of science capital and lack access to quality careers advice and university application support (Archer and Moore, 2016). They are also more likely to find science difficult to engage with, and may view it as irrelevant to their values or everyday life. This affects their ability to explore and make informed choices about science career paths. in2scienceUK works to tackle these barriers by enhancing these students’ science capital.

in2scienceUK’s impact reflects the components of science capital, including engagement with and confidence in STEM, scientific literacy, and the availability of careers advice and role models.
King’s College London in2scienceUK impact

We surveyed students before and after their King’s College in2scienceUK programmes to assess changes in their science capital.

**Before**

- **I have met a scientist or engineer**
  - Yes: 48%
  - No: 56%
  - Unsure: 100%

- **I know a number of diverse careers I could enter with the degree I am choosing**
  - Yes: 56%
  - No: 87%
  - Unsure: 51%

- **Anyone can become a scientist or engineer**
  - Yes: 51%
  - No: 68%
  - Unsure: 56%

**After**

- **I have met a scientist or engineer**
  - Yes: 100%
  - No: 100%
  - Unsure: 100%

- **I know a number of diverse careers I could enter with the degree I am choosing**
  - Yes: 100%
  - No: 100%
  - Unsure: 100%

- **Anyone can become a scientist or engineer**
  - Yes: 100%
  - No: 100%
  - Unsure: 100%
We surveyed students before and after their King's College in2scienceUK programmes to assess changes in their science capital.

**Before**
- **I know someone outside of my school who would give me feedback on my UCAS application?**
  - Yes: 36%
  - No: 68%
  - Unsure: 6%

- **I feel confident that I have the ability to study at a top 30 university in the UK**
  - Yes: 84%
  - No: 16%
  - Unsure: 0%

- **I know where to seek support and advice about the university application process**
  - Yes: 54%
  - No: 46%
  - Unsure: 0%

**After**
- **I know someone outside of my school who would give me feedback on my UCAS application?**
  - Yes: 68%
  - No: 31%
  - Unsure: 11%

- **I feel confident that I have the ability to study at a top 30 university in the UK**
  - Yes: 91%
  - No: 9%
  - Unsure: 0%

- **I know where to seek support and advice about the university application process**
  - Yes: 81%
  - No: 19%
  - Unsure: 0%
We surveyed students before and after their King's College in2scienceUK programmes to assess changes in their science capital.

**Before**

- **I understand the content and structure of a range of STEM degrees**
  - Yes: 49%
  - No: 27%
  - Unsure: 24%

- **I feel confident introducing myself to a science or engineering professional in person**
  - Yes: 66%
  - No: 27%
  - Unsure: 17%

- **People who are like me work in science or engineering**
  - Yes: 41%
  - No: 27%
  - Unsure: 32%

**After**

- **I understand the content and structure of a range of STEM degrees**
  - Yes: 81%
  - No: 17%
  - Unsure: 2%

- **I feel confident introducing myself to a science or engineering professional in person**
  - Yes: 77%
  - No: 17%
  - Unsure: 6%

- **People who are like me work in science or engineering**
  - Yes: 65%
  - No: 27%
  - Unsure: 8%
Before their in2scienceUK placement, 45% of students had met a scientist or engineer.

After their in2scienceUK placement, 100% of students had met a scientist or engineer.

These students are given the opportunity to engage with science in a wider context. Students who have met a STEM professional can better understand what a career in science may look like, and gain high-quality, informed, career support. These experiences with science outside of the classroom can inspire, and allow them to maintain their passion for science in the future.
in2scienceUK works with volunteer STEM researchers in academic settings to provide students with inspirational work placements, giving insights into cutting-edge research and promoting access to universities.

Mariam spent her placement in the Department of Physics at King's College London. She was involved in a project involving the interaction of lipid molecules and culminating in the formation of a Micelle. This project was part of ongoing research into the delivery of drug based treatments.

Through this research, Mariam was able to learn about computer programming in order to carry out a specific process during the project. “This was a great opportunity to experience something outside of my A-levels. A great way to get hands on experience with people working in science and to see what they do in their daily lives.” Mariam.

This experience gave Mariam exposure to the different routes into a career in science, “It was eye opening - a lot of people working there had different experiences as to how they got to where they are today”
Our impact

We collect qualitative as well as quantitative data to gain an in-depth understanding of students’ experiences and the impact of our programme. We endeavour to visit every student during their placement and encourage them to leave comments in the post-placement surveys. From this, we can see that students feel that the programme gives them a unique insight into STEM careers, and they are encouraged to continue with STEM.

Below are some of the comments from the post-placement survey.

“I really enjoyed my experience and am very grateful for having the opportunity to meet with so many amazing scientists. I also learnt about how important bioinformatics is and how having the skill will improve my employability.”

“The placement was enjoyable and I learnt a lot about cancer biology. It helped me decide that research is the kind of STEM career I wish to pursue.”

“My in2scienceUK experience has completely pushed me out of my comfort zone. Not only did I meet like-minded people, but I also met some inspiring scientists who showed me their passion for science. This programme (from the PhD students, workshops, experiments, presentations, meetings, to other in2scienceUK students) reassured me that research is a career I would enjoy doing.”
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