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.
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)
Our mission and vision

in2scienceUK creates opportunities for young people from low-income backgrounds to progress to STEM degrees and careers, so they can achieve their potential and become the next generation of researchers, innovators and pioneers.

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 has worked with 8 volunteers to find 33 young people inspiring STEM placements across 6 STEM departments in UCL Engineering.

- 93% of these students have no family history of higher education.
- 61% of these students are eligible for free school meals.

- 33 Young People
- 8 Volunteers
- 6 Departments

- Chemical Engineering
- Computer Science
- Medical Physics and Biomedical Engineering
- Science Technology Engineering and Public Policy
- Bartlett School of the Built Environment
- Mechanical Engineering
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).
We surveyed students before and after their UCL Engineering in2scienceUK programmes to assess changes in their science capital.

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>I have read an academic research paper</td>
<td>73% Yes</td>
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<tr>
<td>I have met a scientist or engineer</td>
<td>100% Yes</td>
</tr>
<tr>
<td>I know quite a lot about science and/or engineering</td>
<td>26% Yes, 74% No</td>
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We surveyed students before and after their UCL Engineering in2scienceUK programmes to assess changes in their science capital.

**Before**

- People who are like me work in science and/or engineering: 30%
- I want to become a scientist or engineer: 69%
- Do you know someone outside of your school who would give you feedback on your UCAS application and personal statement?: 27%

**After**

- People who are like me work in science and/or engineering: 50%
- I want to become a scientist or engineer: 90%
- Do you know someone outside of your school who would give you feedback on your UCAS application and personal statement?: 82%
**UCL Engineering in2scienceUK impact**

We surveyed students before and after their UCL Engineering in2scienceUK programmes to assess changes in their science capital.

### Before

- **I understand the content and structure of a range of STEM degrees**
  - Yes: 52%
  - No: 48%
  - Unsure: 0%

- **I understand that there are lots of STEM jobs available to me once I have a STEM degree**
  - Yes: 63%
  - No: 37%

- **I have given a presentation on a STEM topic**
  - Yes: 52%
  - No: 48%

### After

- **I understand the content and structure of a range of STEM degrees**
  - Yes: 82%
  - No: 18%

- **I understand that there are lots of STEM jobs available to me once I have a STEM degree**
  - Yes: 86%
  - No: 14%

- **I have given a presentation on a STEM topic**
  - Yes: 77%
  - No: 23%

Unsure: 0%
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.

Fatuma spent her placement researching the provision of renewable energy services in refugee camps.

Fatuma said: “I have learnt so many new things that have changed my perspective on energy. What stood out for me was social capital in energy policy e.g. making solar panels using the resources available in that country because if something goes wrong they are able to fix it without depending on international support.”

“Before my placement I didn’t know much about sustainability beyond the science school curriculum. in2scienceUK found me the perfect placement that exceeded my expectations and provided everything I wanted” Fatuma

Fatuma Mohamoud: UCL

“My placement has taught me to work independently and analyse research articles, which is something I can apply to my a-level and undergraduate studies”
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 program gives them a unique insight into STEM careers, and they are encouraged to continue with STEM.

The words used most commonly by students to describe their in2scienceUK experience.
in2scienceUK post-placement survey, 2019

Student feedback - in2scienceUK post-placement survey, 2019

“Really opened my eyes to what working in a lab is compared to what I thought it was. It broke down my stereotypes about research and I am now considering it as a career.”

“I have honestly done quite a few university summer schools and work experiences. However, this was really and truly the best one. There wasn’t a day where I wasn’t doing anything. Always busy and always learning. The placement hosts were truly phenomenal. They let us ask questions and dig deeper into their field of work. It was genuinely a great experience and I would definitely recommend to a friend.”

“It was a very useful experience, without the placement I don't think I would be as confident when applying for STEM degrees and top universities.”