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.

Programme growth

Stephen Hancock
in2scienceUK Director of Regions

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)
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 **13 young people inspiring STEM placements** across 6 STEM departments in Exeter.

- **13 Students**
- **8 Volunteers**
- **6 Departments**

92% of these students have no family history of higher education.

42% of these students are eligible for free school meals.

From 3 Schools

- Medicine
- Psychology
- Computer Science
- Engineering
- Geography
- Bioscience
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 Exeter 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><strong>I have attended a lecture on a STEM topic</strong></td>
<td></td>
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<tr>
<td><img src="67%25_image" alt="67%" /></td>
<td><img src="90%25_image" alt="90%" /></td>
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<tr>
<td><strong>I have met a Scientist or Engineer</strong></td>
<td></td>
</tr>
<tr>
<td><img src="64%25_image" alt="64%" /></td>
<td><img src="100%25_image" alt="100%" /></td>
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<tr>
<td><strong>I have written an essay about a STEM topic</strong></td>
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<tr>
<td><img src="33%25_image" alt="33%" /></td>
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<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>I know quite a lot about science and/or engineering</td>
<td>58% No</td>
<td>73% Yes</td>
</tr>
<tr>
<td>Anyone can become a scientist or engineer</td>
<td>88% Yes</td>
<td>100% Yes</td>
</tr>
<tr>
<td>People who are like me work in science or engineering</td>
<td>47% Yes</td>
<td>82% Yes</td>
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**Exeter**

**in2scienceUK impact**

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

### Before

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>Do you know someone outside of your school who would give you feedback on your UCAS application and personal statement?</td>
<td>41%</td>
<td>100%</td>
</tr>
<tr>
<td>I am motivated to go to a top university to study a STEM subject</td>
<td>71%</td>
<td>82%</td>
</tr>
<tr>
<td>I understand the content and structure of a range of STEM degrees</td>
<td>35%</td>
<td>64%</td>
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### After

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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.

Caroline spent her placement identifying which species of bacteria was responsible for causing damage to mammalian tissues in local pondwater. By extracting the DNA, analysing it using a DNA sequencing machine and using a microscope to compare it to known samples, Caroline was able to work towards the solution.

Caroline said: “The highlight of my placement was using research level equipment, used by biologists in the lab. I especially enjoyed seeing the electron microscope and helping with the actual science being conducted by our host and her PHD student.”

“This placement has encouraged me to follow my passions into university onto higher things. I’m really looking forward to finding out even more about the world I’ve yet to discover.”

“I really enjoyed my time in the lab and working with people who have real knowledge and experience in their field. Learning from them was a blast!”
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.

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.**”