

Impact Report 2019

University College London



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

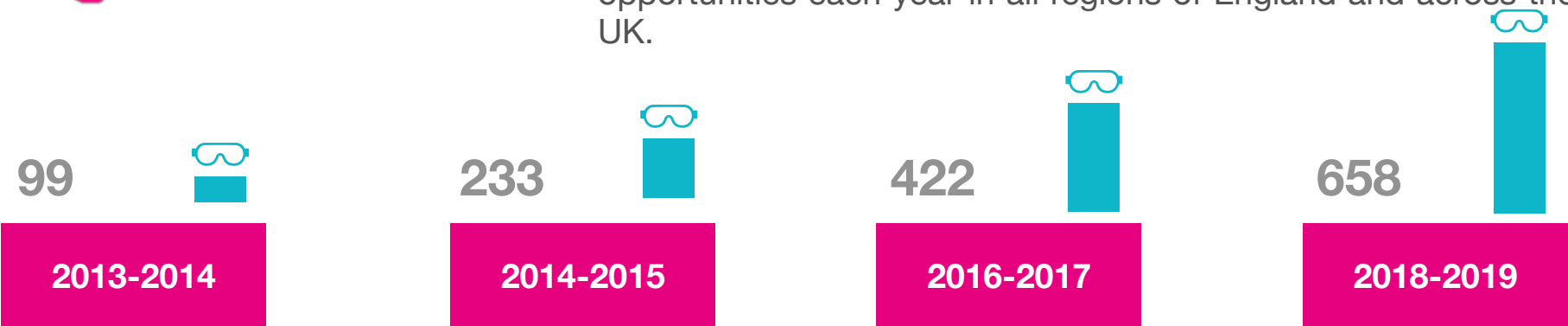
Programme growth



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.

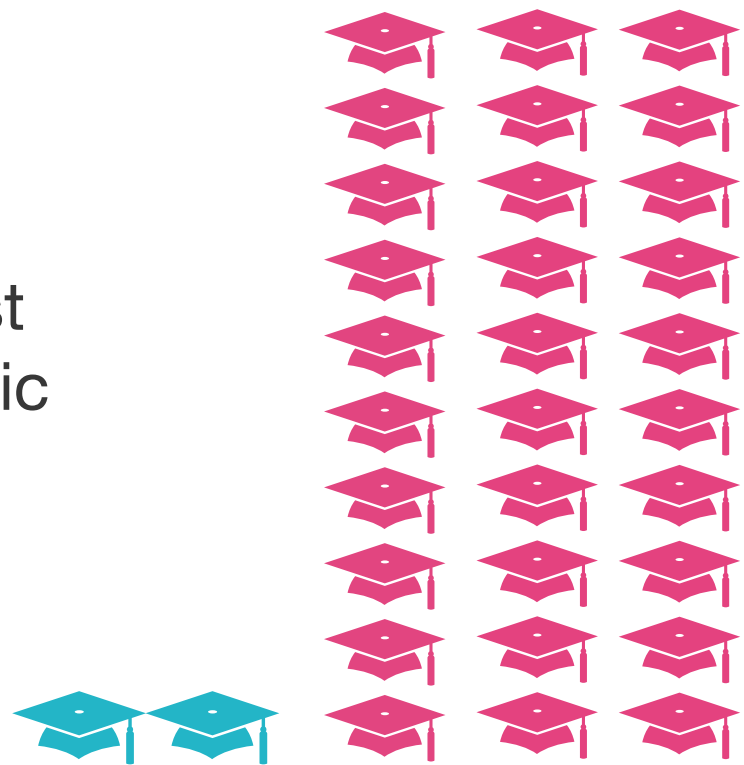


= number of students

Defining the problem

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....

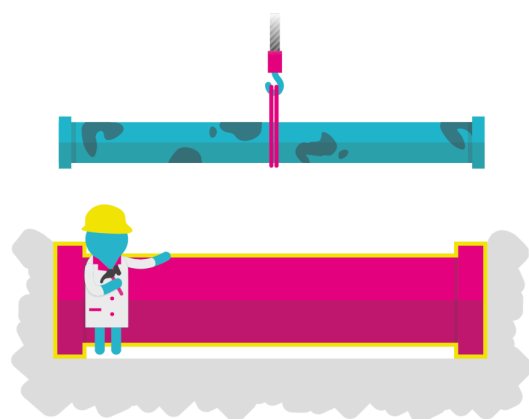
...are from working class backgrounds

(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 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:

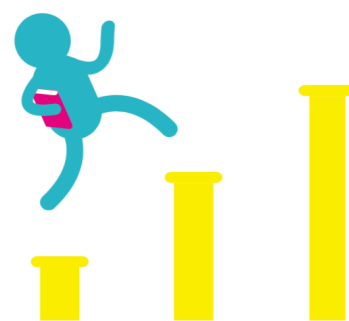


1. Increase the pipeline of UK STEM

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.

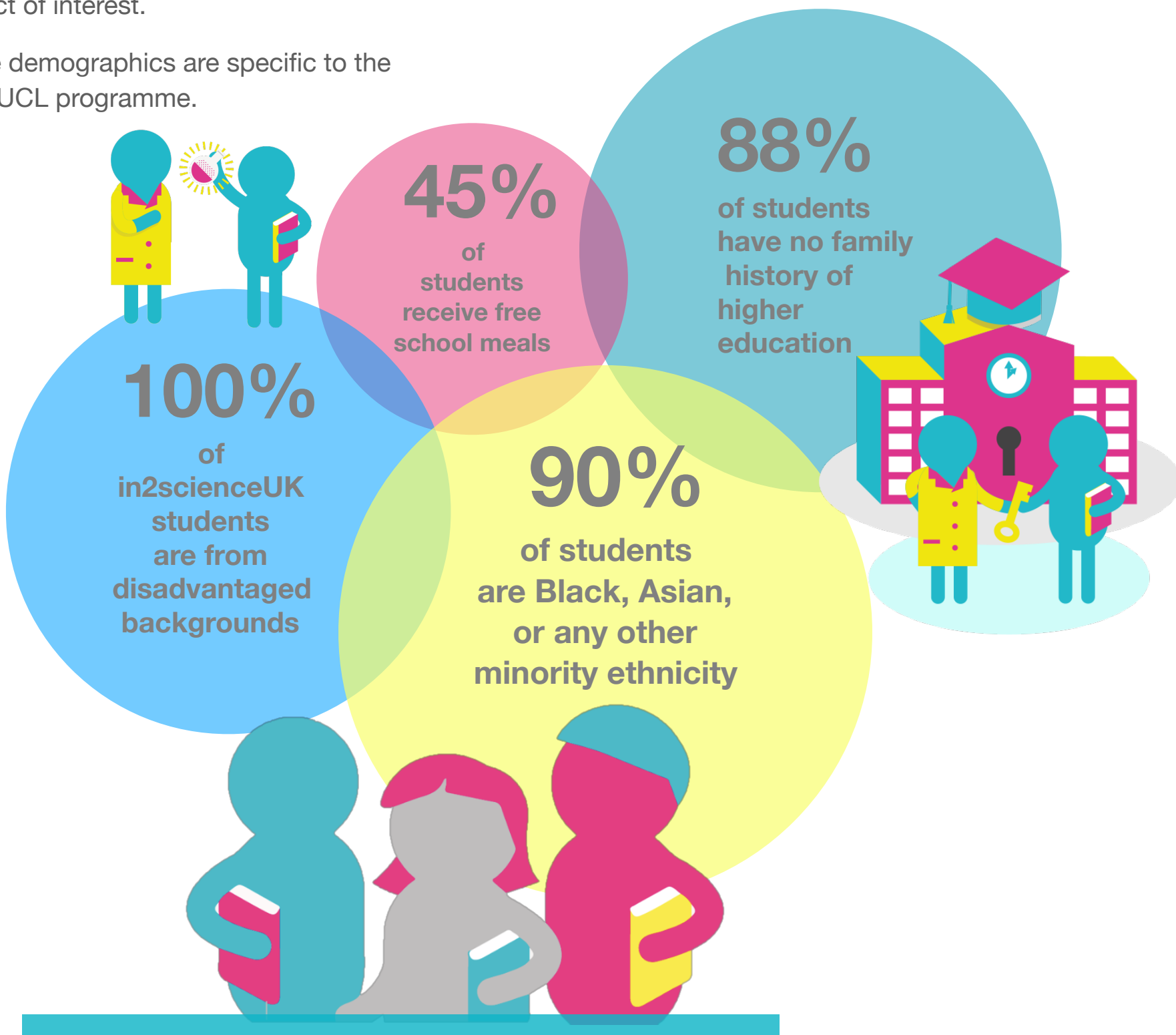


Students

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.

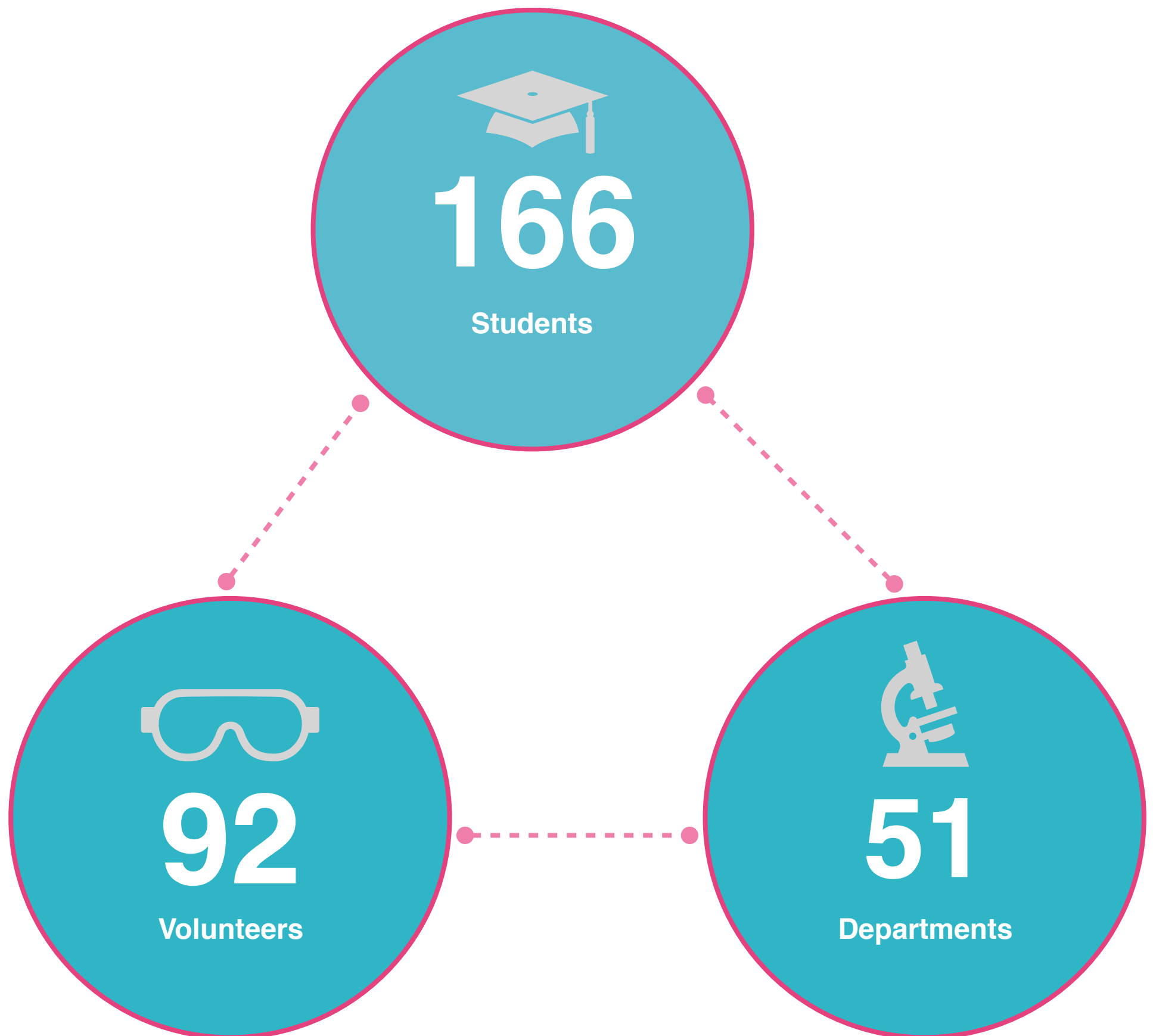
We work hard to ensure that students who will most benefit from our programme are offered a place. Students are selected based on their free school meals eligibility, family higher education history and deprivation levels in their local area. **We work only with students attending non-selective state 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 UCL programme.



in2scienceUK: UCL in 2019

in2scienceUK has worked with **92 volunteers** to find **166 young people** inspiring **STEM** placements across **51 STEM departments** in UCL.



Science capital

What is science capital?

What you know

Knowledge and understanding of science



Who you know

Family interest in science, contact with people in science-related professions



Science literacy and confidence with scientific thinking

Contacts, encouragement and support

Science Capital



How you think

View of science as relevant to the everyday world

Science-related values, attitudes and dispositions



Everyday science

Talking about science, engagement with science media and learning contexts

Integrating science and confidence with science into everyday life

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.

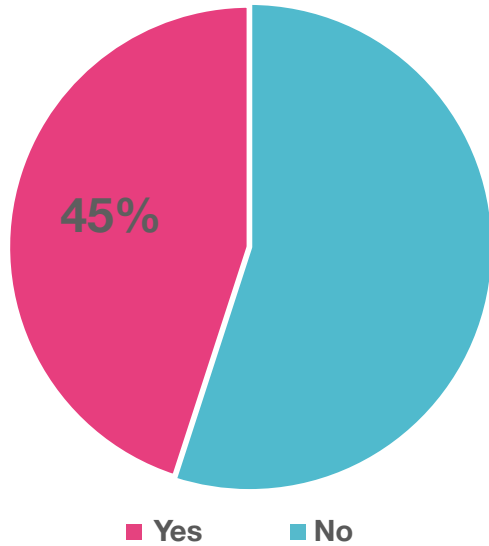
UCL

in2scienceUK impact

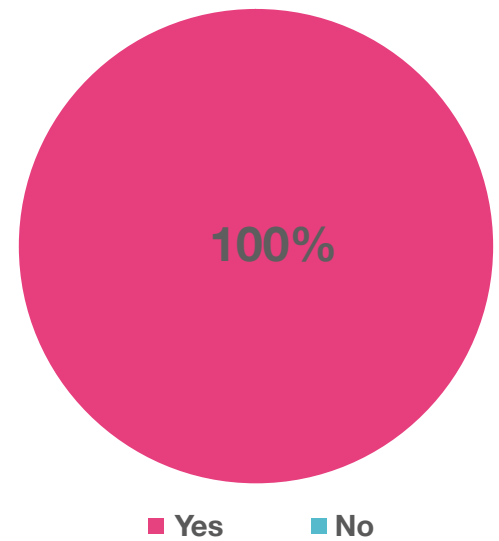
We surveyed students before and after their UCL in2scienceUK programmes to assess changes in their science capital

Before

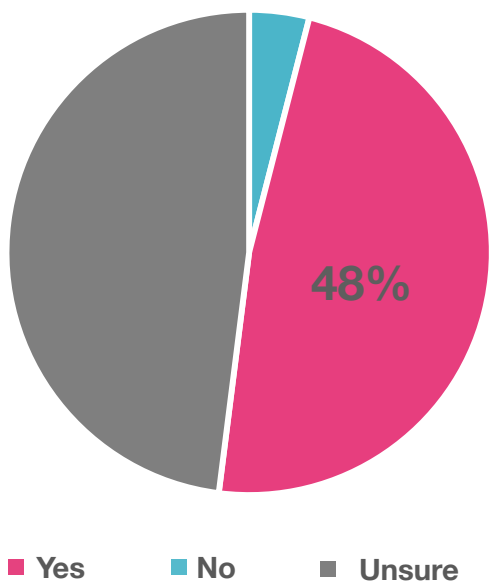
I have met a scientist or engineer



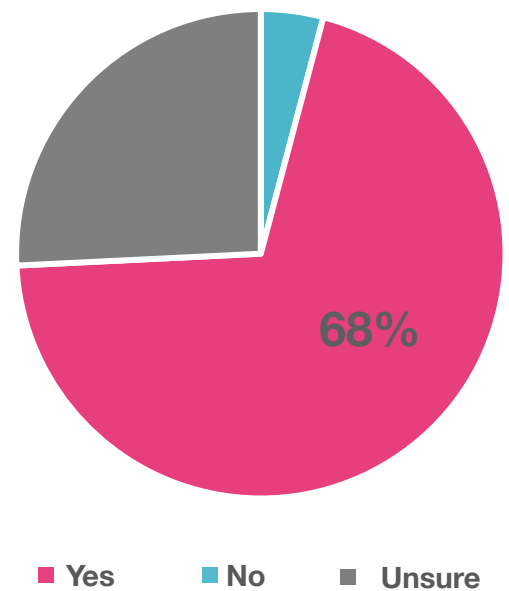
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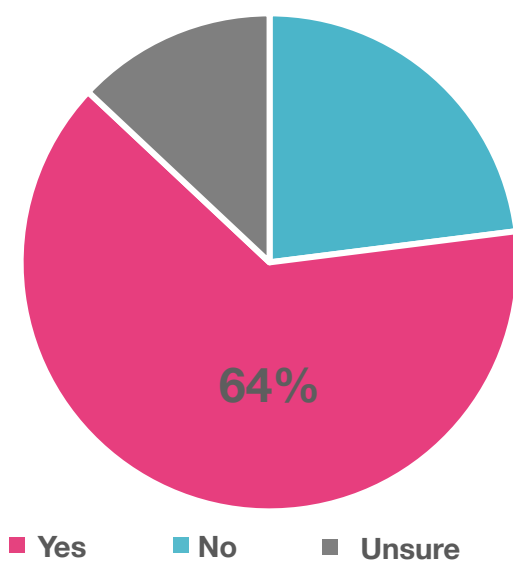
I know quite a lot about science and/or engineering



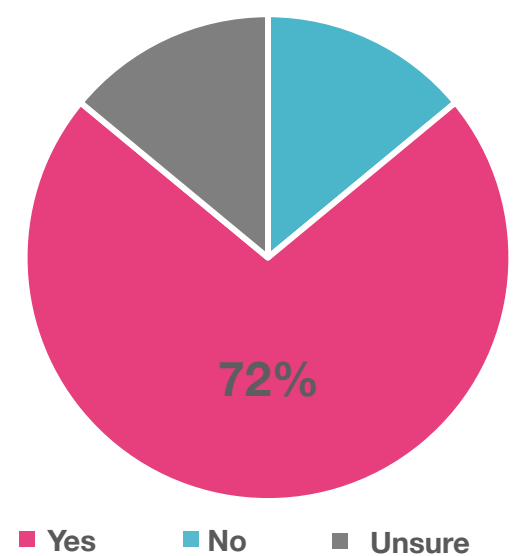
I know quite a lot about science and/or engineering



Anyone can become a scientist or engineer



Anyone can become a scientist or engineer



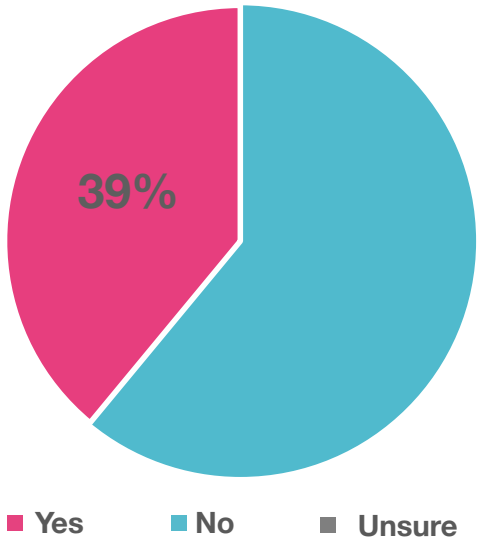
in2scienceUK impact

UCL

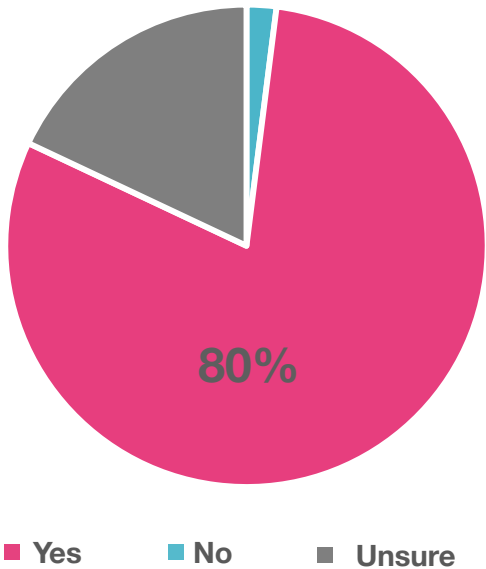
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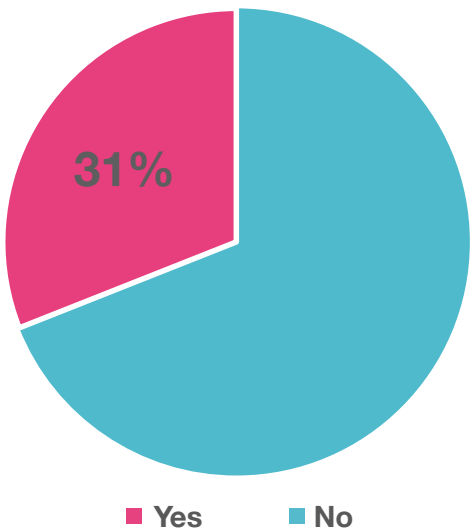
I know someone outside of my school who would give me feedback on my UCAS application?



I feel confident that I have the ability to study at a top 30 university in the UK

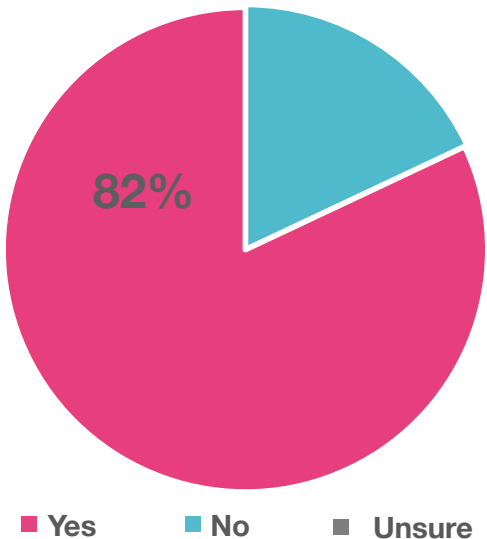


I have written an essay about a STEM topic

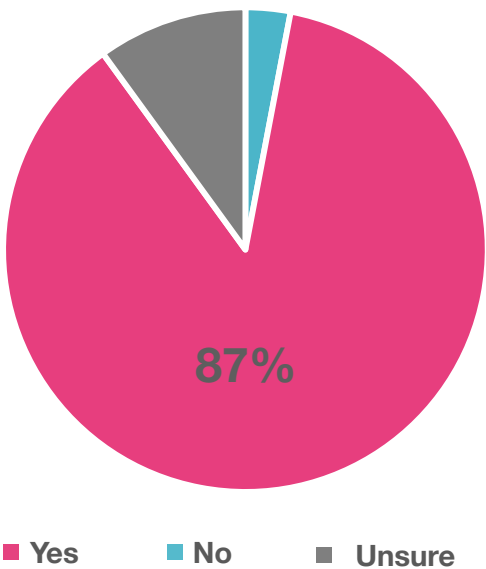


After

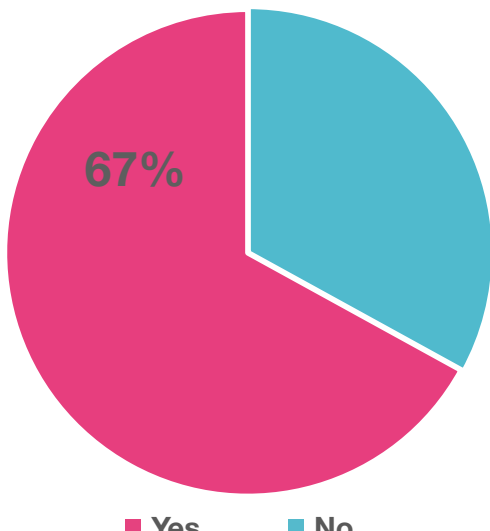
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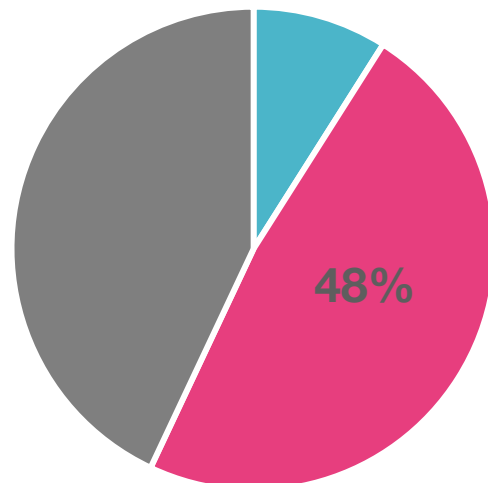
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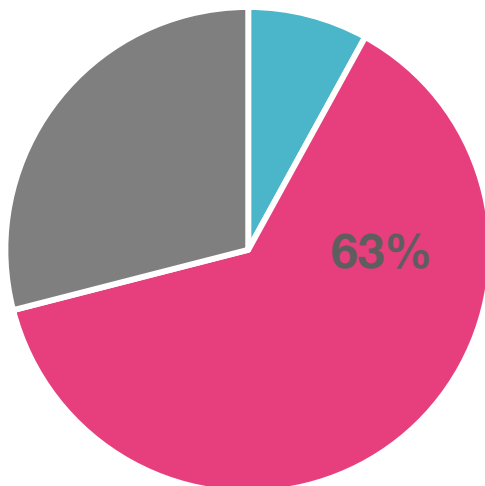
Before

I understand the content and structure of a range of STEM degrees



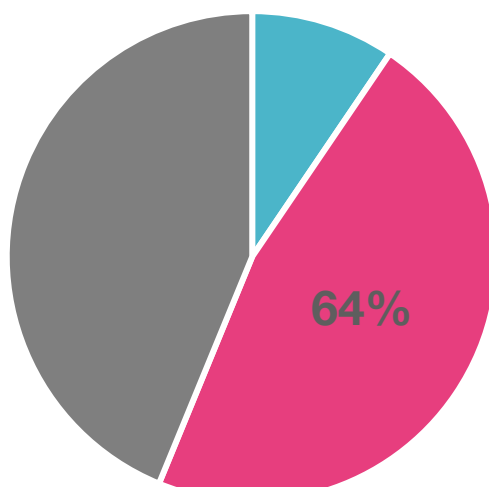
■ Yes ■ No ■ Unsure

I feel confident introducing myself to a science or engineering professional in person



■ Yes ■ No ■ Unsure

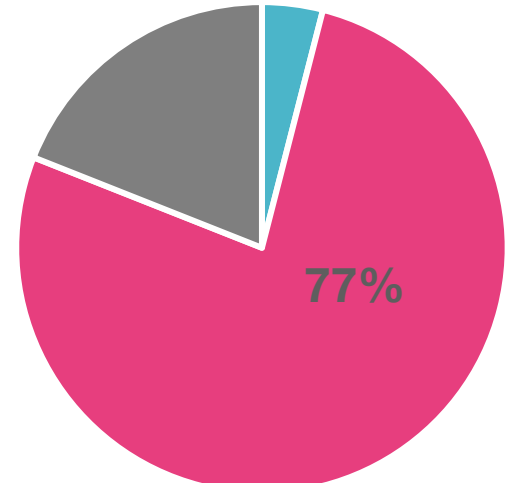
I want to become a scientist or engineer



■ Yes ■ No ■ Unsure

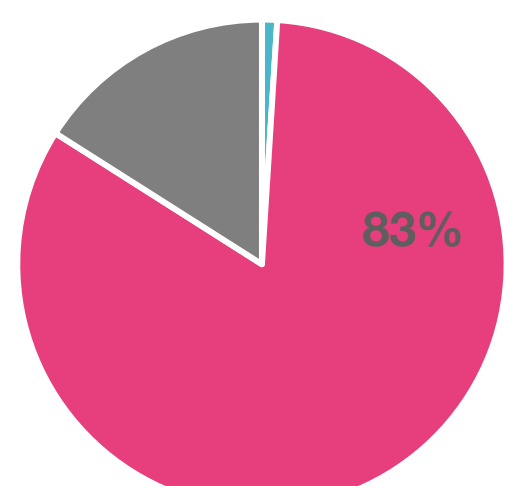
After

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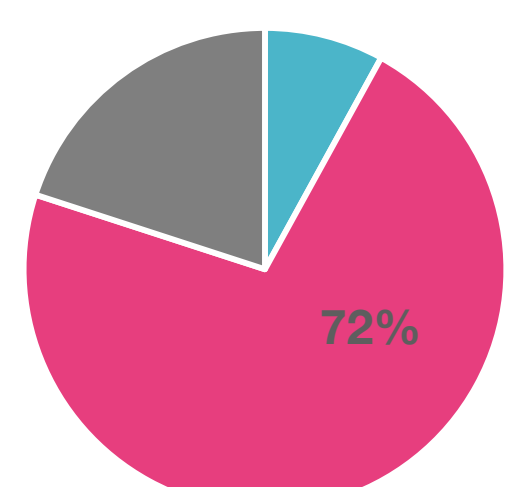
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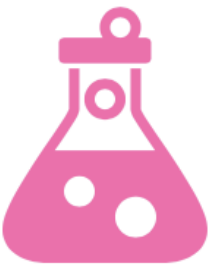
Science capital

Our impact

Science Capital: **Who you know**



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.

Case Study

Public engagement and promoting diversity in STEM is at the heart of what we do. Our inspirational volunteers most of whom are researchers benefit from engaging with young people from a background they might never meet in everyday life. Our public engagement writing, film and image competitions ensure research can be easily disseminated to students, their families and the community.

Case Study

Shaw Chifamba:
UCL Wolfson Institute for
Biomedical Research

“*I got to be directly involved within the lab and work alongside everybody else as an equal, rather than just a work experience student.*”



Shaw carried out his placement at the Wolfson Institute for Biomedical Research where he worked alongside Dr Christina Buetfering in the Neural Computation Lab. The aim of the research Shaw was involved in, was to understand more about where items are encoded in your brain by recording the neural activity in mice when they are identifying objects.

“There are great opportunities out there to work with incredible people. Programmes like in2scienceUK really help you access those opportunities and give you a unique experience.” Shaw

Shaw would like to study artificial intelligence, spend more time in labs at university through summer programmes and possibly do a PhD that combines the fields of computer science and neuroscience.

Case Study

UCL

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.



Case Study

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*”

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 school science curriculum. in2scienceUK found me the perfect placement that exceeded my expectations and provided everything I wanted” Fatuma

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 believe this programme has helped me gain the knowledge I required to assist me **choose a university course**. I believe it's also an **excellent place to look at research in practice.**"

“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.**”

I had never thought that I would ever do anything research related in my life, however my in2scienceUK placement showed me that research and medicine go hand in hand. I really enjoyed my time at UCL research labs and I think I will definitely conduct research in the future.

Sana, on placement at UCL Targeted Intervention

Sana, on placement at UCL Targeted Intervention





With thanks to our hosts, sponsors and supporters:

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