

Impact Report | 2020



Improving social mobility and diversity in STEM

Foreword



Jonathan Flowers

BSc MSc MBA FORS FIoD

In2scienceUK Chair of Trustees

2020 was a crucial year in the history of In2scienceUK.

As incoming Chair I was impressed that the trustees and team were undaunted by COVID-19 and determined to run a high quality programme, pivoting the highly-regarded, proven offer to a fully online Virtual Placement Programme.

As this report shows, the shift was truly successful. This is a tribute to the capability, determination and flexibility of our staff team, and allowed us once again to fulfil our moral purpose of increasing diversity and equal opportunity across STEM. We supported a record number of young people, and showed them that STEM careers are attainable for people just like them.

As a trustee board we are delighted that the efforts of 2020 mean that we can now provide high quality online experiences as part of our future offer, to increase our reach and extend our impact. We are also motivated that we currently have more eligible students than we can support. This drives our future agenda of growth, to impact more young people from disadvantaged backgrounds who are interested in STEM degrees, apprenticeships and careers.

Dr Rebecca McKelvey

In2scienceUK Founder and CEO



Our mission, to increase diversity and equal opportunity in STEM, has never been so relevant as it is today. Poverty and social background remain huge barriers to progressing to university and STEM careers. COVID-19 has only highlighted and added to the disparity of opportunity between young people from disadvantaged backgrounds and those who are more affluent. Now, more than ever, we must encourage all young people to achieve their potential in STEM, regardless of their background. This will tackle a skills shortage, improve our economy, and increase diversity, problem solving and innovation in the workforce.

In2scienceUK together with our partners and volunteers provide a solution to these problems. We have transformed our programme to provide young people with a Virtual Placement Programme. Each young person gained access to cutting edge research, inspiring mentoring from top STEM professionals and researchers, as well as careers and university access support and advice. This has been hugely successful and I would like to thank our supporters, volunteers, and researchers who are committed to our mission and work with our young people year on year to make this difference.

Over the next three years we will continue to expand our programme UK wide and support In2scienceUK alumni as they progress towards successful STEM careers and postgraduate research.

Our Vision

In2scienceUK is an award-winning charity that leverages the passion, knowledge and experience of researchers and science, technology, engineering and maths (STEM) professionals and unlock the potential of young people from disadvantaged backgrounds. Young people from disadvantaged

backgrounds face multiple barriers to progressing to university and onto STEM careers which leads to their underrepresentation in the sector. The In2scienceUK programme supports these young people to progress to degrees, apprenticeships and careers to become economically stable.

Diversity in STEM:



Under 10%
of life science
professionals...



15% of
academics...



and 6% of
doctors...

...are from working class backgrounds.

(Social Mobility Commission, 2017)

“ There’s a class barrier to the professions, but it’s more extreme for science. ”

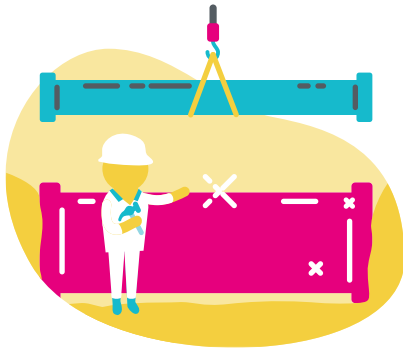
Katherine Mathieson,
Chief Executive of the British
Science Association

We believe in providing high-quality opportunities, passionate role models and support, to empower all young people regardless of background, to become the next generation of innovators and pioneers.

2020 has been a challenging year and has further highlighted the gap in opportunities between young people from disadvantaged backgrounds and those from more affluent backgrounds.

This year with the support and dedication of our partners and volunteers we delivered an inspiring **Virtual Placement Programme** enabling young people to meet researchers and STEM professionals to support their STEM aspirations.

Improving access to STEM science careers:



1 Increases the pipeline of UK STEM professionals

There is an annual **shortfall of 40,000 STEM skilled workers** with the number of future technical jobs forecast to increase. Increasing the numbers of disadvantaged students in these careers would boost the UK's economic competitiveness (Broughton, 2013).

2 Promotes 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 Builds 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 Grows a science literate society

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.

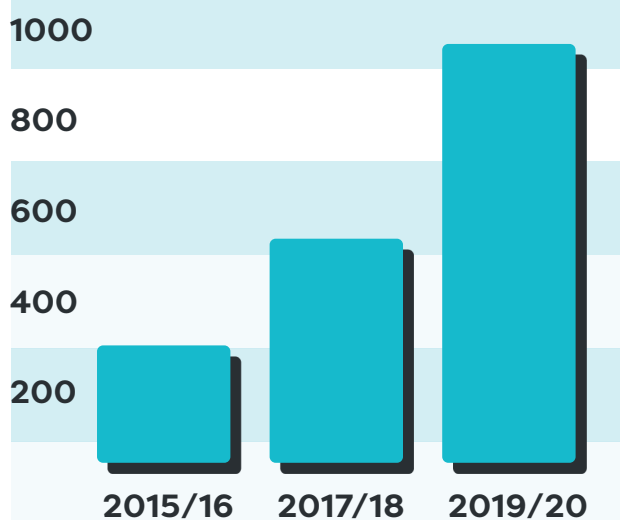


Programme Growth

In2scienceUK has partnered with **researchers, schools, businesses, research centres and higher education institutes** to support over **2000 students** progress towards university STEM education and careers.

This year we have expanded our support in **London** and the **South East**, the **South West of England** and the **West Midlands** to support more young people than ever before.

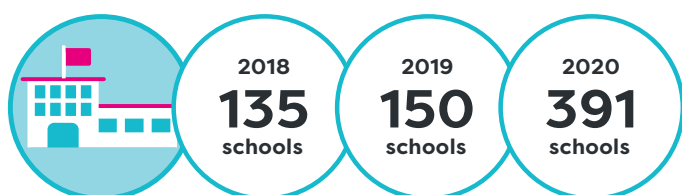
We have expanded the number of young people we work with year on year:



Increasing our reach across the UK



In 2020 we grew the programme to work with **more young people from more schools...**



...who were supported by **more employees and researchers from more institutions.**



“ I feel like I am at an advantage in terms of knowledge as well as career selection. I would definitely recommend this programme to others. **”**

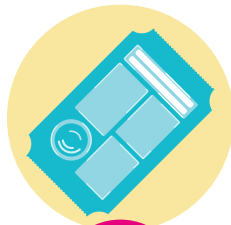
2020 In2scienceUK student

Our Young People

In2scienceUK believes that promoting a STEM education for all, that builds diversity and attracts the brightest students regardless of background and wealth, is vital to drive innovation and success within STEM. Our programme supports these young people to overcome the barriers they may face when

accessing STEM degrees, apprenticeships and careers. Through independent evaluation, the In2scienceUK programme has been shown to increase young people's knowledge of different STEM career pathways, increase their confidence and they feel that people like them work in STEM (ZK Impact Evaluation Report, 2020).

Our 2020 programme supported **567 young people** from disadvantaged backgrounds:



66%

are in receipt of
Free School Meals



83%

have parents who
have not attended
higher education



54%

are on free school meals
and have parents who have not
attended higher education

77% of young people we work with are from Black, Asian and other minority ethnic backgrounds.

45% Asian
or Asian British



26% Black or
Black British

6% Non-white
(other) Ethnicity

23% White

62%
Female



38%
Male

Virtual Placement Programme

This year our young people accessed the In2scienceUK Virtual Placement Programme through a dedicated online platform. Each activity was co-curated with our partners and volunteers to ensure maximum

engagement that focused on ensuring every young person completed the programme with the **knowledge, skills and confidence** needed for future success in the STEM sector. The programme included:

1 Research-focused courses with reading, writing and investigative tasks



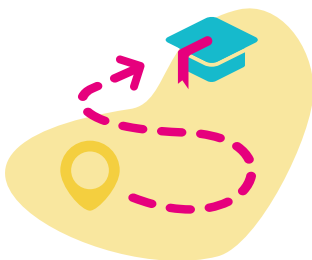
Young people accessed **cutting edge research modules** co-developed by the UK's top researchers and included live lectures, interactive quizzes, pre-reading and a related home-based research task.

2 Online mentoring in small groups from STEM professionals and researchers



Young people were matched with a mentor based on their interests. Sessions covered **goal setting**, and gave them an opportunity to ask questions about STEM careers, latest developments in the sector, university admissions, and life as a researcher.

3 Careers, university and apprenticeship access workshops



Guidance and support on university and apprenticeship applications through online content, as well as **live webinars** on topics including apprenticeships at Abcam and Dyson, applying to medicine, applying to Oxbridge, and writing personal statements. **Employability webinars** to boost professional skills and confidence, covering topics such as CV writing, interview tips and high quality careers advice from STEM professionals.

4 Public engagement competitions



There were several **competitions** to enter, including a STEM haiku, photo, video and blog competition. The competitions help to develop writing, communication and public engagement skills.

The Programme in Numbers

567

young people
from 391 schools



235

volunteers from 42
different institutions,
companies and
organisations



39

skills, admissions
and careers workshops



117

mentor groups



43

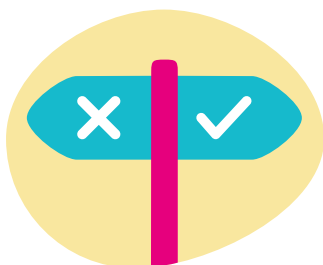
researcher-led courses

Programme engagement:

12,523 student participations, which include attending a webinar, completing a quiz, submitting a task or engagement with a discussion board, across five weeks.

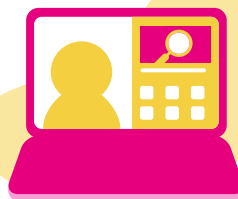
2,029

participations
in researcher-led
webinars



217

hours of mentoring



1,229

participations
in skills, admissions and
careers workshops



1,420

tasks submitted
and quizzes taken

The Virtual Placement Programme gave students **access to an amazing breadth of STEM research** from ‘Learn Python programming and explore the universe’ to ‘Using genomics to understand superbug outbreaks’.

Skills, admissions and careers workshops included: ‘Writing effective personal

statements’, ‘Applying to competitive universities’, ‘Applying for apprenticeships’ and ‘CV and interview tips’, covering careers in artificial intelligence, engineering, data science and more. Our partner universities provided valuable information and tips on the university admissions process, and current students talked about their university experiences.

VOLUNTEER



“ I really enjoyed delivering this session as I received wonderful questions, including valuable comments and ideas, which showed me they enjoyed and engaged with the content. ”

Dr Majid Taghavi,
‘Nature Inspiration for Creative Engineering’,
University of Bristol

STUDENT



“ Before the placement I was anxious about where and what to study at university, but through interesting lectures and tutorial support I feel much happier and far more confident. The way they have provided an outstanding online programme with such short notice (due to the COVID-19 pandemic) is beyond me. I am extremely grateful, thank you very much. ”

Faye

Programme Impact: Science Capital

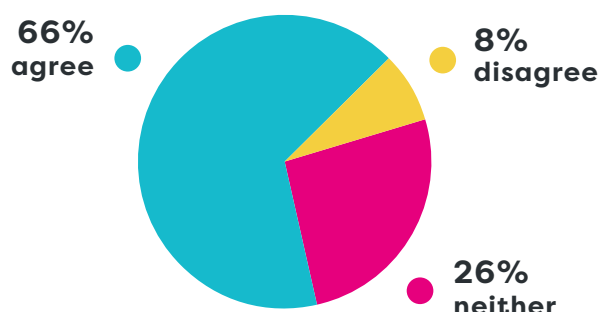
Science capital refers to “all of the science related knowledge, attitudes, experiences and resources that you acquire through life” (Enterprising Science, 2016). The more science capital you have, the more likely you are to pursue STEM at university and beyond. Young people from low-income

backgrounds have lower levels of science capital (Archer et al, 2020). Feeling that scientists are ‘brainy’ and ‘not like me’ is a key barrier to STEM (De Witt, 2013). Meeting a range of STEM professionals helps young people feel that STEM careers are accessible to them.

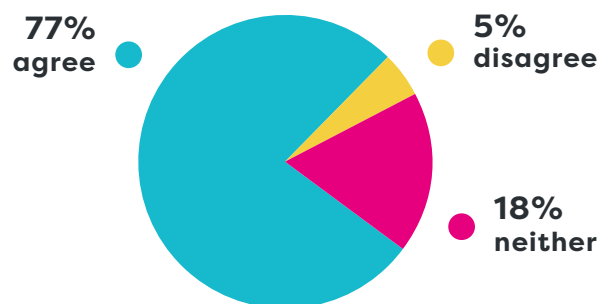
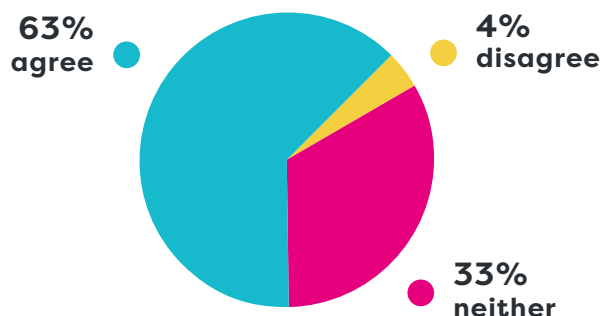
Before the programme

After the programme

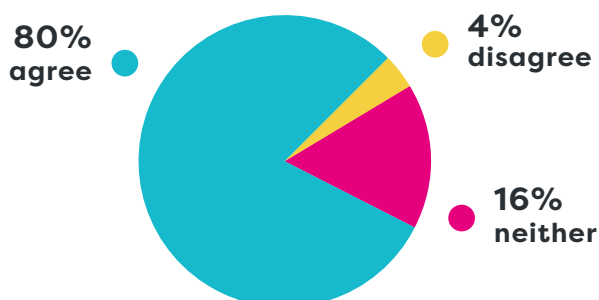
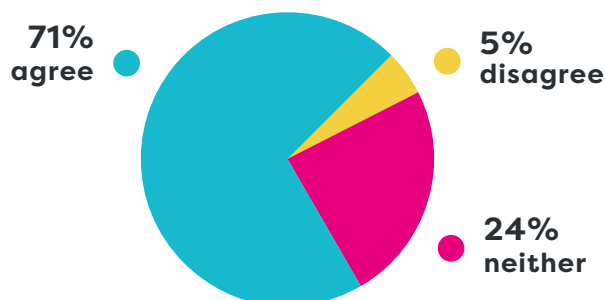
‘People who look like me work in STEM’



‘I know quite a lot about STEM’



‘I feel confident using scientific evidence to make an argument’



Programme Impact: University Access

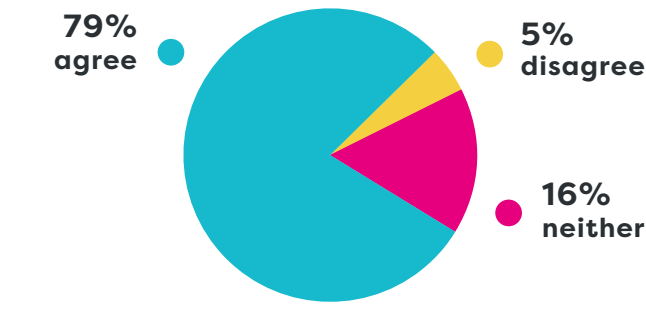
Alongside increasing young people’s science capital, the programme also aims to provide information about **university access** and to support them in making high quality applications.

Understanding the content and structure of a range of STEM degrees is an important factor in young people making informed choices about courses and future careers, as well as understanding the broad range of STEM degrees available.

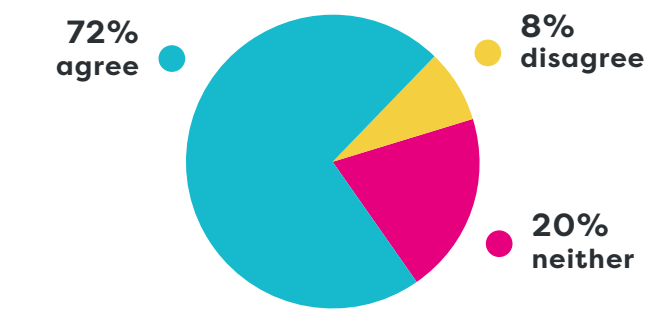
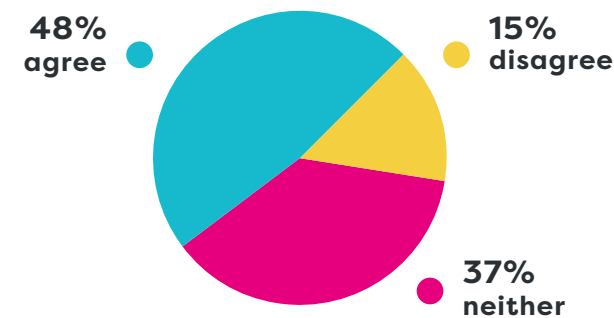
Before the programme

After the programme

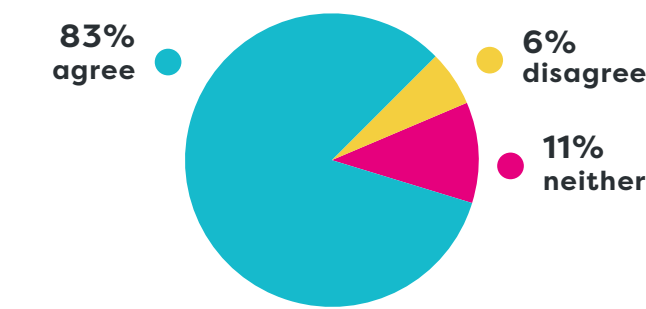
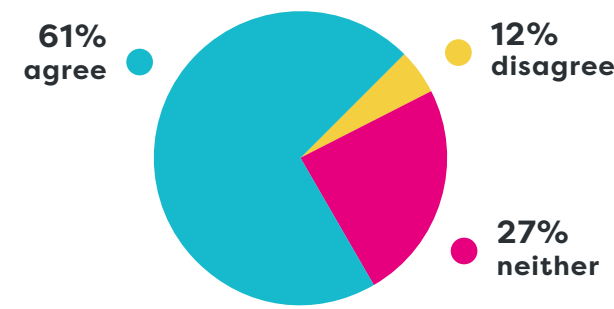
‘I understand the content and structure of a range of STEM degrees’



‘I can confidently write a high quality UCAS personal statement’



‘I know where to get support and advice about the application process’



Programme Impact: Science Careers

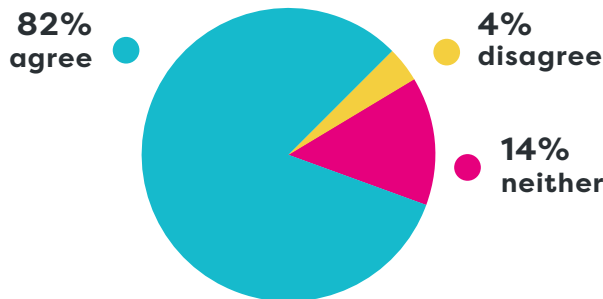
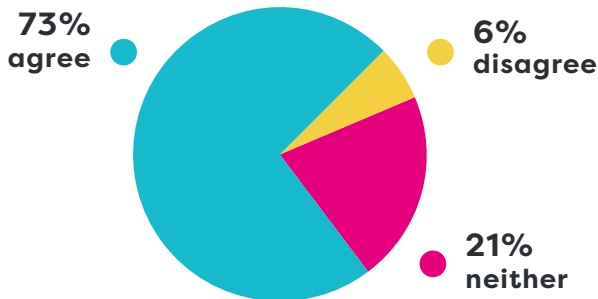
To **increase the diversity of the STEM workforce**, young people need to be confident that there are STEM careers available, and access high quality advice and information on routes into different STEM careers.

As part of the In2scienceUK programme young people were able to hear from a range of STEM professionals about their careers, as well as being able to attend workshops on career options such as data science and medicine.

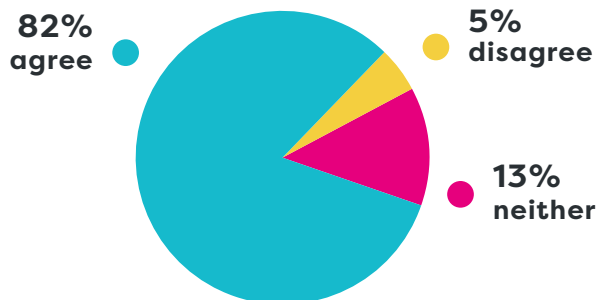
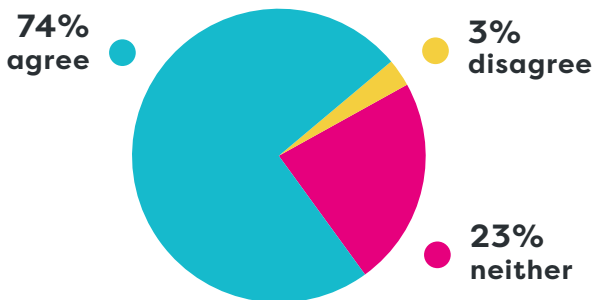
Before the programme

After the programme

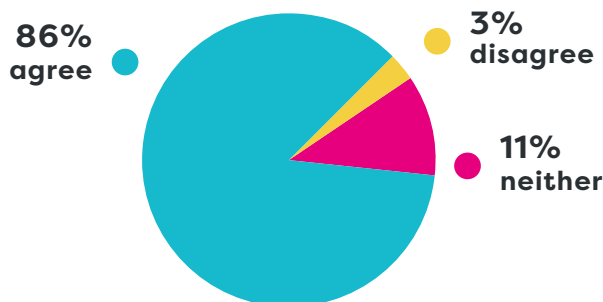
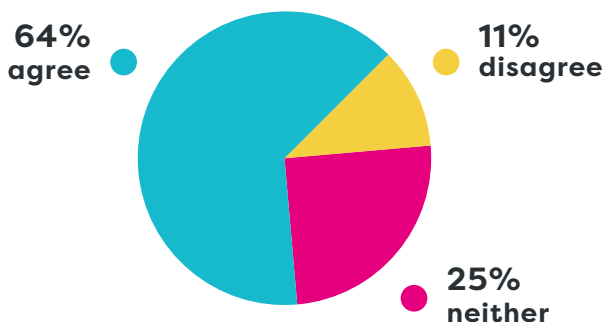
‘I am confident there are lots of STEM jobs available to me, once I have completed a STEM degree’



‘I know a number of diverse careers I could enter with the degree I am choosing’



‘I feel confident introducing myself to a STEM professional via email’



Case Studies - Science Societies



The STEM societies and researchers In2scienceUK work with are passionate about promoting inspiring insights into

cutting-edge research and workshops for talented young people from disadvantaged backgrounds. We are very proud to work with the **Royal Society of Chemistry** who have played a crucial role in delivering life-changing support to students who lack access to these resources through their families and schools.

“

I was honoured and delighted to deliver my talk ‘**What has chemistry ever done for us?**’ to the In2scienceUK class of 2020. I was impressed by the intelligent and insightful questions that the students asked me. I hope that they feel inspired to continue their chemistry studies and pursue a STEM-related career. ”

**Dr Annie Hodgson,
MRSC**



Dr Annie Hodgson, MRSC, has a background in both biological and analytical chemistry. Alongside teaching in the chemistry department at the University of York, Annie is a science communicator, delivering talks and workshops for schools and the public. She is also the editor of the A-level magazine ‘Chemistry Review’.

Faizah, a year 12 student from Oxford, studying biology and chemistry A Levels, was looking for the tools to succeed in pursuing a career in science on this year’s Virtual Placement Programme.

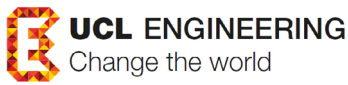
“

This programme was the perfect place to combine my interests in biology and chemistry! The lectures and research we learned about such as CAR T cells, T stem cell memory cells, as well as camelid nanobodies in the field of cancer and virology were fascinating and confirmed my desire to study Biochemistry at university. ”

**Faizah,
2020 In2scienceUK student**



Universities and STEM Departments



As well as supporting young people on the programme, and encouraging their researchers to volunteer for the programme, the universities we work with also provide high-quality information on university admissions while showcasing their undergraduate courses to In2scienceUK students.

We are proud to work with **University College London Engineering**, who have supported **173 young people** interested in engineering careers. **21 UCL researchers** volunteered to support the programme this year and they **mentored 49 young people**, delivered several workshops and webinars including 'The adoption of new clean cooking technologies in Sub-Saharan Africa' and 'UCL Engineering admissions'.

Dr Simon Banks, Faculty Tutor at the Faculty of Engineering Sciences delivered a UCL engineering admissions skills workshop on the Virtual Placement Programme.

“

The work done by In2scienceUK is truly excellent, ensuring that the fascinating and rewarding world of STEM study and careers is open to all, irrespective of background or personal circumstances. Events such as the one with which I was involved are carefully targeted by In2scienceUK, helping to provide practical guidance and advice on how to pursue a passion for STEM, to complement their other work stimulating passion for the why. The students involved were enthusiastic, knowledgeable, and great fun to speak with!

”

**Dr Simon Banks,
Faculty Tutor at the Faculty of Engineering Sciences, UCL**



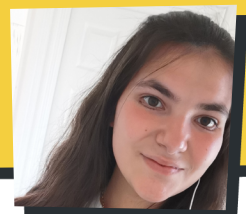
Kalina, a 2020 participant, is interested in Engineering and took part in the Engineering modules and webinars.

“

I loved the programme! All the lectures were very interesting and informative about so many aspects and types of engineering. The lecturers, mentors and everyone else had interesting stories of what they did and how they came to making these important decisions. This helped me so much in finding out what part of engineering interests me.

”

Kalina, 2020 In2scienceUK student



Case Studies - STEM Businesses

In2scienceUK works with **leading STEM businesses** to leverage their employees' passion and expertise to provide bespoke programmes. Here, employees play a crucial role to deliver **life-changing opportunities** to students who lack access to these resources through their families and schools.

We are proud to work with **Roche** who supported **40 young people** as part of the In2scienceUK Roche Scholars Programme. **17 Roche employees** from all levels of the organisation volunteered to support the programme delivering workshops and acting as mentors.



Roche also supported the programme by delivering a number of inspiring workshops which have been attended by over **70 young people**. 'Bench to Bedside: an introduction to Pharma', giving students an insight into the pharmaceutical industry in the UK, and their HR team delivered a workshop on interview tips and tips, providing our students valuable skills for their future.

Siobhán Connor, Mentor and Senior PCOR Scientist, Patient-Centered Outcomes Research (PCOR) at Roche believes that promoting diversity and social mobility is key to developing the UK's next STEM generation.



“

I'm passionate about science, passionate about diversity, and supporting young people fulfilling their STEM potential and In2scienceUK is a great way to support both.

It was great to connect with such passionate students. I learned more about them and their goals. I absolutely recommend In2scienceUK, it's a great way to support the development of the UK's next STEM generation. ”

**Siobhán Connor,
Mentor and Senior PCOR Scientist**



Through the Roche Scholars Programme, and mentors like Siobhán, our young people have had the opportunity to build lasting connections and gain valuable insight.

Goals and Impact Projection

Over the next three years we will **build on our success** by increasing opportunities in academic institutions and businesses, **growing nationally in the UK**, and engaging with In2scienceUK alumni to support them further to progress to STEM careers and PhD programmes.

National growth

In2scienceUK has grown to support young people throughout **London**, the **South East**, **South West** and the **West Midlands**. **Our goal in 2023 is to support 1000 young people** annually across the UK.



Supporting our alumni

We have a vibrant **alumni community** of STEM undergraduates, graduates and early career professionals. Our aim is to grow the In2scienceUK Alumni Programme to provide valuable careers focused support and ensure talented young people gain access to top STEM careers and fulfil their aspirations.



Supporting diversity in academia

In partnership with Wellcome Trust Centre for Human Neuroimaging, we have launched the **In2research Programme**, an innovative initiative that supports those under-represented in academia to progress to PhD programmes and improve diversity and inclusion in the sector. Over the next three years we aim to expand the In2research Programme to research centres and higher education across the UK.



With thanks to our sponsors and supporters

Abcam	Friends and family of Jacky Pallas	Paul Hamlyn Foundation
Autoless	Garfield Weston Foundation	People's Postcode Lottery
BBC Radio 4 Appeal Fund	Guarantors of Brain	Roche
Biochemical Society	HGF IP	Royal Commission for the Exhibition of 1851
Bridge House Estates	Institute for the Physics of Living Systems, University College London	The Royal Society
British Society for Gene Cell Therapy	The IP Federation	Royal Society of Chemistry
Camden Giving	Kasuma Trust	Tesco (Groundworks)
DeepMind	National Institute for Health Research, Biomedical Research Centre, University College London Hospitals	University College London
Department for Culture, Media and Sports	New Scientist Magazine	University College London, Engineering Department
D Young and Co		University of Oxford, Neuroscience Committee
ERA Foundation		

References

- Archer, L., DeWitt, J., Osborne, J.F., Dillon, J.S., Wong, B. and Willis, B. (2013) *ASPIRES Report: Young people's science and career aspirations, age 10–14*. King's College London
- Archer, L., Moote, J., MacLeod, E., Francis, B. and DeWitt, J. (2020) *ASPIRES 2: Young people's science and career aspirations, age 10–19*. London: UCL Institute of Education.
- Broughton, N. (2013) *In the balance: The STEM human capital crunch*, Social Market Foundation
- Desvaux, G., Devillard-Hoellinger, S. and Baumgarten, P. (2007) *Women Matter: Gender diversity, a corporate performance driver*, McKinsey & Company
- De Witt, J., Archer, L. and Osborne, J., (2013) Nerdy, Brainy and Normal: Children's and Parents' Constructions of Those Who Are Highly Engaged with Science. *Res Sci Educ* 43, 1455–1476.
- Greenwood et al. (2011) The Labour market value of STEM qualifications and occupations, Department of Quantitative Social Science, Institute of Education
- Enterprising Science (2016) *Science Capital Made Clear*
- Forbes Insights (2011) *Fostering Innovation Through a Diverse Workforce*, Forbes
- Social Mobility Commission (2017) *State of the Nation 2017: Social Mobility in Great Britain*

To support us contact Dr Rebecca McKelvey:

✉ r.mckelvey@in2scienceuk.org

🐦 [@in2scienceUK](https://twitter.com/in2scienceUK)

🌐 www.in2scienceuk.org



In2scienceUK is a registered charity (1164821)
and company (07706662) in England and Wales

Our registered address:

10 Queen Street Place, London EC4R 1BE

This impact report was designed and produced
by **Research Retold** www.researchretold.com