



Inclusion & Diversity Strategy to 2025

Enabling inclusive access
and progression in the
chemical sciences

Foreword



“Chemistry should be for everyone”, we said in our 2018 report *Diversity landscape of the chemical sciences*. Two years on, we must accept that however we look at it – data, stories of lived experience, or just common sense – the sad truth is that, today, chemistry does not welcome everyone.

The 2018 report drew together the best available data and evidence – and in many places still found a lack of both. So we worked harder to collect, analyse and publish more data. Each research project, survey and event contributed more data that supported the same conclusion: there are many groups of people who face barriers to entering and staying in chemistry in the UK, and they are under-represented compared with the general population.

The data confirm the stories we hear from members of the chemistry community: that the issues of bias and discrimination are real, current, and harmful; that these biases are baked into the systems and institutions that chemistry is built on; and that countless talented people are driven out from chemistry – or are never able to join us at all.

Given the overwhelming evidence of discrimination and exclusion, we need more than ever to have a powerful, all-encompassing approach to reducing and eliminating inequality in chemistry. This **Inclusion & Diversity Strategy** sets out that approach until 2025: we will increase the diversity of people choosing the chemical sciences and fulfilling their potential for a truly inclusive community.

What does this mean in practice? First, our work on improving how we collect and use **data and evidence** has only just begun. We will base all of our interventions and initiatives to improve inclusion and diversity in the chemical sciences on the best available evidence.

We then have two clear, measurable aims: to increase the representation of under-represented groups both **entering** and **progressing** in chemistry. Our evidence shows under-representation in chemistry of women at senior levels, Black chemists retained at postgraduate level, people from deprived socio-economic backgrounds entering chemistry, LGBT+ people, disabled people, and more. Through our ongoing research we will likely find more under-represented groups of people, and we will aim to increase their representation too.

All of this is more powerful when done in **collaboration** with others. By identifying key partners and sharing best practice we will extend the reach and influence of our work. And by driving the development of cross-sector standards, we can begin to embed longer-term improvements in the scientific ecosystem.

This strategy truly pushes the Royal Society of Chemistry harder and further than ever before. This is not an action plan for diversity activities. It is a fundamental shift in how we approach everything we do. Just as inequality sadly permeates all of science, our belief in equality will permeate every project, event, process, policy and message. Chemistry will benefit, society will benefit – and it is the right thing to do.

Chemistry does not welcome everyone – but it should, and it will.

A handwritten signature in black ink that reads "Helen Pain".

Helen Pain CSci CChem FRSC

Acting Chief Executive Officer, Royal Society of Chemistry

Introduction

For us, inclusion and diversity are central to advancing excellence in the chemical sciences. We know that people thrive in institutions and organisations where they feel they belong, and that diversity of thought, perspective and experience are required for individuals and organisations to be successful.

By 'inclusion', we mean that people feel they belong in the world of chemical sciences. By 'diversity' we mean anything that can make us different from others. This includes (but is not limited to) demographic background such as gender, ethnicity, age, disability, as well as areas such as socio-economic status and education.

[Read further information about our definitions of inclusion and diversity.](#)

Our research to date has shone a light on how perceptions of the chemical sciences can dissuade some from joining or progressing in the profession. We also know that chemists from different backgrounds can have a wide range of experiences of their profession purely because of their identity. Both of these factors result in a sense of exclusion for some.

Inclusion and diversity are about equality and equity of opportunities for talented people. Creative perspectives and innovative approaches have been shown to lead to better science. The chemical sciences community, including universities, institutions and industry, funders, learned and professional bodies and publishers, need to act to improve inclusion and diversity in their environments and give recognition to the diverse contributions that chemical scientists make to advance science and society at a global scale.

Our approach

For these reasons, our current *Inclusion & Diversity Strategy to 2025* focuses on four fundamental components: firstly, we will further our research into the experiences of chemists and potential chemists from different backgrounds. Central to our inclusion and diversity work is the requirement for everything to be **evidence-driven**.

Once gathered, the key evidence and data will then be used to underpin our actions in the next two areas of the strategy: **attracting** more chemists from different backgrounds into the profession, and then ensuring they are able to fulfil their potential and **progress** through their career, based on their skills and capability, without being hindered by their demographic background.

The fourth and final area of the strategy focuses on **sharing** the knowledge, skills and experience developed in stages one to three with colleagues, partners and counterparts on a global basis, supporting us in collectively accelerating progression on inclusion and diversity. Advancing knowledge and progression within the chemical sciences is an international endeavour, therefore this strategy has an important global component.

The Inclusion & Diversity Strategy at a glance

Central objective: To increase the diversity of people choosing the chemical sciences and fulfilling their potential for a truly inclusive community.

Key aims:

- 1 Collate, analyse and use data to ensure an evidence-driven approach.
- 2 Investigate perceptions of who can be a chemical scientist.
- 3 Support early career chemists, encompassing all career routes to the profession.
- 4 Ensure fair and equal progression for talented chemical scientists.
- 5 Learn from, and share with, our global partners the insight, knowledge and tools to progress inclusion and diversity across the chemical sciences worldwide.

This strategy will run until 2025. To ensure that it has the desired impact, we will continue to develop a range of measures to monitor progress and the impact of our work. These include:

- measuring the number of partners we successfully work with and provide expert advice to,
- engagement of key stakeholders and champions to foster change in the culture of chemistry, and
- the improvement in diversity resulting from our work.

The strategy can be summarised as follows:



The strategy and action plan

The strategy has been developed with the purpose of supporting people from all backgrounds to enable access to and success in careers across the chemical sciences. It focuses firstly on gathering data and evidence on inclusion and diversity across key aspects of attraction and progression and, where appropriate, supporting our partners worldwide in collecting and using similar data to inform work on a global basis.

Once collated and analysed, the evidence will be used to guide and prioritise our work on inclusive access and progression, enabling individuals to fulfil their potential. Some of these actions are outlined within the strategy, with a comprehensive implementation plan to be developed once the strategy is in place. The final stage will be to share our insights, findings, tools and good practice with our partners across the UK and internationally, and to continue monitoring while acting to positively influence inclusion and diversity in the chemical sciences.

Evidence-driven inclusion and diversity

We have led ground-breaking research into important diversity-related topics. Our *Diversity landscape of the chemical sciences* report, published in early 2018, provided evidence that the chemical sciences were not fully representative of the diversity of wider society. There was a striking lack of gender diversity, particularly at senior levels, leading us to investigate the underlying causes in our *Breaking the barriers* report using both qualitative and quantitative evidence. A number of significant barriers were identified and we committed to delivering appropriate actions while calling on the support of the community and relevant organisations.

The *Diversity landscape of the chemical sciences* research indicated the need to address gaps in the current evidence base and create a clearer picture of the benefits of a more inclusive and diverse chemical science community. Systemic and interrelated themes around race and ethnicity, disability, and socioeconomic background are specific areas where we need to do better. The first step of this strategy therefore focuses on gathering evidence and data, which will be used to inform actions throughout the remainder of the strategy.



Enabling data-gathering

- Developing guidelines to enable data gathering and analysis on a global basis



Identifying key findings

- Leading and partnering on the collation, meta-analysis, interpretation and sharing of I&D data



Evidence-led actions

- Using data and evidence to drive attraction, retention and progression work



Enabling data-gathering

High quality evidence is required to ensure our actions have the greatest impact. Such evidence is provided by high quality data, both qualitative and quantitative. Across the chemical sciences some areas of diversity are already well researched. However, in other areas there is a dearth of good quality data. Accordingly, as a first step, we will gather data, not only through our own members, membership and publishing business, but also by analysing data on educational participation and attainment in chemistry, higher education statistics and funding bodies, and industrial and government reports. We will encourage and support other organisations to follow our example.

We will do this by:

- Expanding on the success of publications such as *Diversity landscape of the chemical sciences*, *Breaking the barriers*, *Exploring the workplace for LGBT+ physical scientists* and *Is publishing in the chemical sciences gender biased?*, we will identify, scope and conduct new ground-breaking inclusion and diversity research for the chemical sciences.
- Developing guidelines for data collation and analysis, including:
 - a. Diversity data guidelines: the importance of collecting good quality data, the effective use and storage of data.
 - b. Data collection points: identifying opportunities for collecting both qualitative and quantitative data, for example from recruitment, progression and retention, engagement perceptions, through to membership, conference attendance, and committee activity.
 - c. Global considerations: sources of information to check current legalities of collecting demographic data in different countries.
 - d. Good practice in analysing, interpreting and using data.
- Discussing and sharing relevant data and evidence and guidelines with global influencers and partners.



Identifying key findings

- We will continue to lead and partner on the collation, meta-analysis, interpretation and publication of up-to-date inclusion and diversity evidence and data. The results will be shared at events, through publications and with organisations and identified partners, together with recommendations for practical actions that the community can take forward to address the identified issues. Importantly, success and achievements identified through this process will also be shared in order to spread good practice and maintain motivation in tackling inclusion and diversity issues.



Identifying actions through evidence

- We will review the research findings and, in consultation with relevant specialists and the community, identify specific actions that support areas pertinent to attracting and progressing diverse talent across the chemical sciences.

Inclusive access

Enabling inclusive access to the chemical sciences starts with ensuring that students from all backgrounds are able to access excellent chemistry education. This has been an important focus for us for many years. Our current work includes: enabling educators from primary through to higher education to teach engaging and effective chemistry; influencing the development of chemistry curricula; supporting the recruitment and retention of teachers; helping young people to make informed choices about careers in the chemical sciences, for example through our campaign [A future in chemistry](#); and influencing the development and implementation of technical and vocational routes. Much of our work is done in partnership with other organisations.

We invested in a five-year longitudinal study, [Chemistry for All](#), focused on how to raise aspirations of students from disadvantaged backgrounds or social groups who do not traditionally take up science careers. We will extend this project by funding the implementation of actions to address the findings of our study. Our new *Supporting teachers in challenging circumstances* project aims to understand the challenges that chemistry teachers face when teaching and engaging with students from disadvantaged backgrounds. This project will further enable the delivery of an engaging curriculum aimed at inspiring students and showing the importance of chemistry in everyday lives.

While significant projects are underway at both school and undergraduate level to promote inclusive access, more data and evidence are needed to inform and underpin our work. We need to understand the disparities between the proportion of underrepresented groups in the general population and at each stage of the chemistry pipeline. We can then address and overcome the barriers that are preventing appropriate representation in our profession ([this article includes recent data](#)). There are three key transitions in the pathway from education to profession for which improved support is needed for those from underrepresented backgrounds: from school to university, from university to postdoctoral research, and finally the move into early career.



Engaging with students, teachers and lecturers

- Showcasing diverse careers in chemistry
- Breaking barriers for underrepresented groups



Supporting postdoctoral chemical scientists

- Broadening horizons for postdoctoral chemical scientists through research projects and international connections



Stepping stones into careers

- Providing support to early career chemists



Engaging with students, teachers and lecturers

Opening eyes to what is possible and creating aspirations in children is a critical step in tackling stereotypes and assumptions about who can be a chemist. In order to ensure that a wider range of students see the potential in studying chemistry and following a career in chemistry, we will continue to work with key partners and to encourage community-driven projects to:

- Develop support for schools and colleges by working with relevant organisations and by endorsing community-driven projects.
- Build on the findings from the [Chemistry for All](#) research to support the chemistry community in carrying out effective outreach programmes.

The remaining of this part of the strategy is focused on providing opportunities for undergraduate and graduate students to discover and explore a variety of career options across the chemical sciences, in particular centering on underrepresented groups. We will:

- Develop guidelines for schools, colleges and university chemistry departments to show how they can implement more inclusive curricula, together with checklists for measuring current levels of curriculum inclusivity and accessibility.



Supporting postdoctoral chemical scientists

This part of the strategy is designed to reduce the disproportionate loss of talent into the profession, in particular within postgraduate student and postdoctoral populations. The approach consists of providing proactive, step-by-step support as individuals make their decisions through these career transition points. We will:

- Broaden the reach and scope of our current mentoring programme, with particular focus on reaching and supporting underrepresented groups. Building on the success of our programme, we will further enable access for academic and industrial chemical scientists to benefit from face-to-face and remote mentoring opportunities with a diverse pool of global mentors. We will gather and analyse data to understand the diversity of our current pool of mentors and mentees and where appropriate, improve our practice. A campaign to further raise awareness of this programme will be developed.



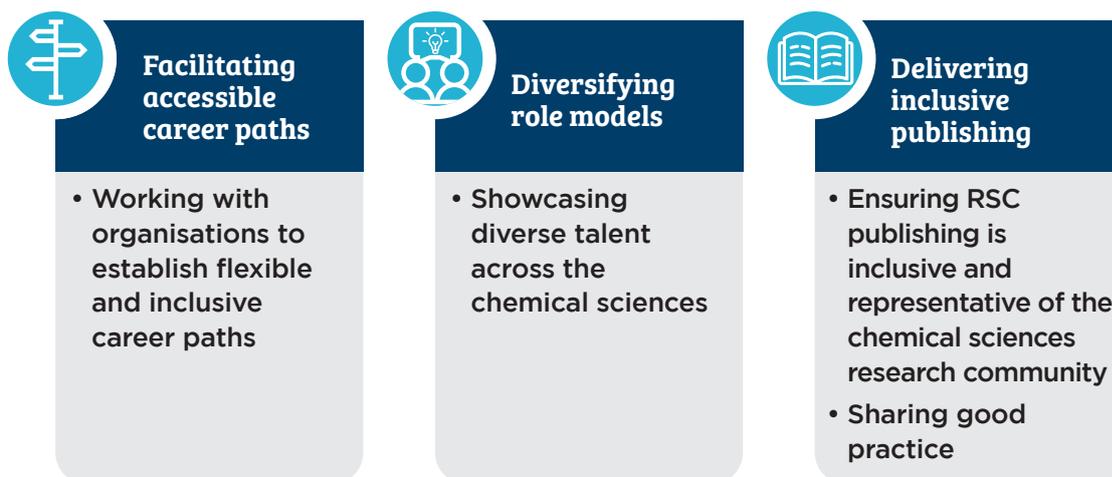
Stepping stones into careers

Effective onboarding is key to people feeling connected to a new workplace environment, in particular for individual chemists within minority groups. This part of the strategy focuses on establishing clear, supportive and enabling stepping stones for all our members in an inclusive manner. It is based on the following two activities:

- By means of the mentoring programme outlined above, we will identify, develop and work with a diverse group of global volunteer mentors. We will match these mentors with early career chemists, providing both mentors and mentees with training and support, to build their skills and maximise the benefit from the relationship. We will monitor the success of the programme, using satisfaction measures from both parties, in addition to monitoring retention and early-career success criteria.
- We will develop and publish a guideline on inclusive and effective onboarding of new employees in industry, education and policy-making, with a particular focus on activities of most benefit to underrepresented chemical scientists.

Inclusive progression

This element of the strategy focuses on supporting individuals to fulfil their potential and, in doing so, ensuring the retention and development of diverse talent across the chemical sciences. Included in this are three key components: career paths, role-modelling, and representative publishing.



Facilitating accessible career paths

This element is designed to tackle two of the biggest contributory factors to loss of talent; the clarity of potential career paths and the flexibility within them. It focuses on three main points:

- motivation
- constructive challenge of traditional promotion processes, and;
- enabling development of leadership skills.

We will:

- Review our professional registration activities, collecting and analysing data to assess diversity from application through to award. Participation of underrepresented groups will be increased through targeted promotion of professional registration. We will work with industry to ensure that more organisations reach accredited status while further promoting our registration activities within academia. These processes will be monitored and new resources such as tailored training in decision-making will be introduced.
- Build on our Joliot Curie programme, which supports early career researchers in academia, with a focus on underrepresented groups including and beyond gender.
- Explore opportunities for supporting early career chemists in industry and policy-making roles.
- Produce guidelines on progressive and inclusive career promotion strategies.
- Work in partnership with key organisations to deliver an analysis of the gender pay gap in the chemical sciences and share this with the community to drive change and increase equality.



Diversifying role models

A sense of belonging is critical for attracting people into an organisation or profession as well as for performance and retention. A crucial factor affecting the extent to which people feel they belong is whether there are others like themselves. This increases a sense of fit, safety and standing. This part of the strategy therefore focuses on more active role-modelling across the profession. We will:

- Conduct research to understand the factors behind the sense of belonging in the chemical sciences. After identifying appropriate methodologies, we will investigate the impact of a sense of belonging on underrepresented groups and communicate our findings.



Delivering inclusive publishing

Publication metrics remain well-recognised markers of scientific success and have an important impact on career progression and therefore retention. Any biases within the publishing system have the potential to culminate in individuals having an undeservedly poorer publication record. Our report *Is publishing in the chemical sciences gender biased?* identified subtle biases throughout the publishing pipeline and laid out commitments to further ensure that the publishing we oversee is as free of bias as possible and is representative of the chemical sciences research community. Our new *Framework for action in scientific publishing* report is aimed at removing biases from chemical sciences publishing. It maps out progressive actions required to improve outcomes on inclusion and diversity at all stages of the scientific publishing process.

This part focuses on our role as a key publisher in the chemical sciences and our commitment to uncover biases, working with the research community and other publishers to reduce and remove them to ensure that chemistry is for everyone. We will:

- Use our framework as a basis to undertake comprehensive analysis and reporting on our authors, reviewers and editorial decision makers, reviewer recruitment, editorial board members and associate editors with a view to reflecting the research community. New training and resources will be provided to empower editors and peer reviewers in order to eliminate bias.
- Develop guidelines to enable the collection and use of diversity data (including but not limited to gender and nationality) throughout the publishing process.
- Continue to scrutinise our publishing processes to ensure continued progress and review the accessibility of our publishing platforms with a view to providing inclusive systems.
- Work with other scientific publishers to further develop the framework and set standards for driving change in inclusion and diversity in publishing which, ultimately, will drive change in the research culture.

Empowering and influencing partners

Given the global nature of the chemical sciences, we have the ambition to make a difference to the landscape for inclusion and diversity across the chemical sciences. There are many actions included in this strategy that have the potential to make a significant difference to our discipline. The final stage of this strategy therefore is to collaborate with strategic partners around the world regarding the key insights, learning, tools and good practice, and to continue monitoring and playing an influential role in driving inclusion and diversity.



Engaging partners

- Continue to identify and engage key partners and influencers on a global basis



Sharing information

- Sharing research findings, implications, tools and good practice



Fostering inclusive cultures

- Supporting and partnering with organisations to drive inclusive cultures across the chemical sciences



Engaging partners

For us to expand our reach and impact with regard to inclusion and diversity in the chemical sciences, we need to further develop our partnerships on a global scale. We will do this by:

- Identifying and mapping existing potential global partners. These key influencers will include universities, chemical societies and organisations. Where geographical gaps are identified, research will be undertaken to identify potential partners.
- Developing and implementing an engagement plan for newly identified and existing partners. This will help us to ensure successful and effective partnerships.



Sharing information

- We will use and share appropriate media, including conference platforms, publications, and our website. We will share with, and learn from, our partners, working together to build knowledge of the latest inclusion and diversity-related insights, tools and guidance.



Fostering inclusive cultures

Inclusion and diversity-related research and good practice are constantly progressing. We are keen to ensure that key information is readily disseminated within the community, and lead by example through our own inclusive culture.

We will:

- Develop and share a series of practical guides on inclusive behaviour, including:
 - a. Policy position statements
 - b. Inclusive meetings and events
 - c. LGBT+ toolkit for individuals, managers, employers, and allies
 - d. Effectively tackling exclusive behaviour
 - e. Tackling bullying and harassing behaviours
 - f. Establishing and running effective sponsorship programmes
 - g. Role-modelling inclusion: the ripple effect of inclusive leadership
 - h. Underrepresented groups and the meaning of allyship
 - i. Resources to reduce bias in decision-making
- Ensure that inclusion and diversity are embedded across all our activities and processes and that all our operations, from governance to staff, follow an inclusive culture.

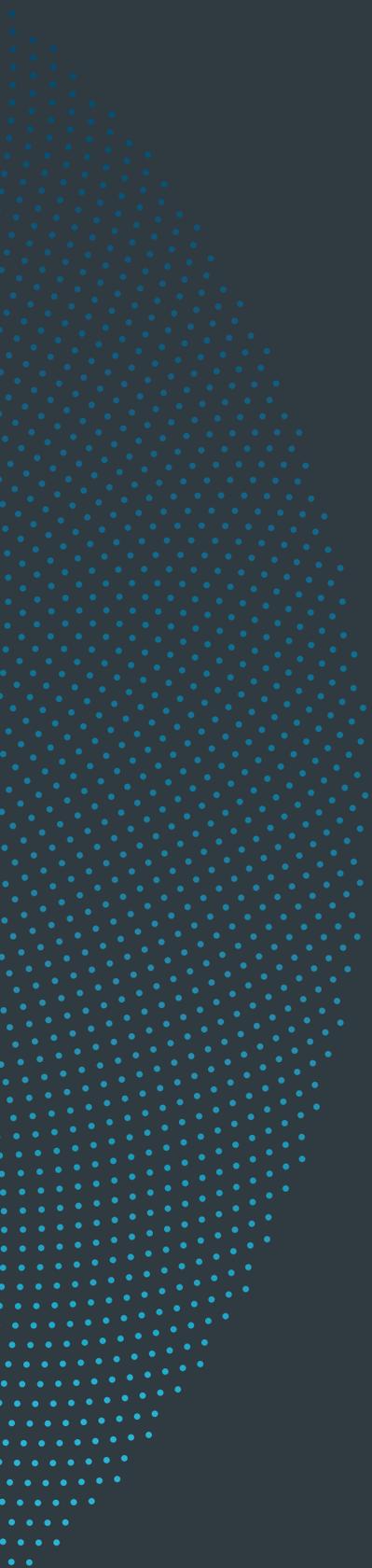
Measuring impact

Measuring engagement with and impact of the activities outlined in this strategy will be key to knowing whether we are achieving our central objective of increasing the diversity of people choosing and able to fulfil their potential in the chemical sciences. We will therefore develop a range of measures to enable us to monitor our impact. These will include:

- Reporting biennially on the diversity of all of our activity areas: governance, publishing output, member committees and divisions, membership, grants, events and education activities.
- Monitoring the effect of changes to RSC practices and processes implemented based on analysis of the diversity data biennial report.
- Broadening our engagement with a more diverse group of talented chemists across the pipeline measured through diversity data monitoring of RSC activities.
- Monitoring the diversity data of our publications based on evidence and assessing community engagement and satisfaction with our services.
- Tracking the engagement of people with content in social media that promotes new diverse talent.
- Tracking the engagement of postdocs and early career chemists in the revised mentoring scheme, together with a survey designed to measure the impact of the mentoring programme on their career prospects and satisfaction.
- Engagement and satisfaction levels of our members and partners in using inclusion and diversity-related resources provided by us.
- Growing our partnerships with key organisations and developing strategic alliances with other stakeholders, including industry, measured through stakeholder mapping, communication statistics and outputs.

In summary

This strategy has been developed to support an **inclusive chemical sciences** community across schools, academia, industry and policy-making and to attract and develop diverse talent. This is an ambitious strategy, and one that has the potential to substantially affect the experiences of individual chemists, institutions, organisations and the profession overall, for the benefit of **everyone**.



Royal Society of Chemistry
www.rsc.org

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Thomas Graham House
Science Park, Milton Road
Cambridge, CB4 0WF, UK

T +44 (0) 1223 420066

Burlington House
Piccadilly, London
W1J 0BA, UK

T +44 (0) 20 7437 8656

International offices

Beijing, China
Shanghai, China
Berlin, Germany
Bangalore, India

Tokyo, Japan
Philadelphia, USA
Washington, USA