ROYAL SOCIETY OF CHEMISTRY

Reshaping recognition

Achievements and learnings from the five-year evolution of our prizes

Contents

Foreword

Every day, hundreds of thousands of people in the chemical sciences work to improve the world around us. Researchers across academia and industry, entrepreneurs, educators, apprentices and technicians (among many others) work together to advance scientific knowledge, tackle our most urgent challenges, and encourage future generations of scientists.

Although much of this work happens behind the scenes, in my role as Chief Executive of the Royal Society of Chemistry, I have seen how recognising this excellence is so important. It has helped people progress in their careers, inspired innovation, and showcased the importance of chemistry.

For more than 150 years, our prestigious prizes have celebrated excellence across our community. But as the nature of scientific work has evolved, so too must the ways in which we recognise and reward our community. That is why in 2018 we commissioned an independent review of our recognition programmes.

Over the past five years, we've taken action to implement the recommendations from that review and evolve our prizes. Drawing on advice and expertise from our members, governance bodies, and prize winners, we have broadened our prizes to include teams and collaborations, and expanded our recognition for educators, technical professionals and those early in their career. We now require prize winners to sign a code of conduct and offer them new ways to share their work and stories with the world. This report highlights the outcomes we have seen from evolving our prizes.

As a result of these changes, I believe our prizes now better reflect the different types of excellence in the chemical sciences and all those that contribute to it.

However, our work is not done, and this is just the start of our journey. I hope sharing our progress to date encourages others to reflect on how we celebrate scientific achievement so that we can continue this journey together to benefit the scientific community.

Dr Helen Pain MBE CSci CChem FRSC
Chief Executive, Royal Society of Chemistry

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Background: why rethink recognition?

Prizes are an important feature of the scientific landscape, and we at the Royal Society of Chemistry have proudly recognised chemical scientists ever since awarding our first Faraday Medal in 1869.

In 2018 Professor Sir John Holman, the then RSC President, commissioned an independent review of our recognition programmes, with a focus on our prizes and awards. This was against the backdrop of a desire for change, both from our members directly involved in our prize programme, and in response to wider forces in the scientific community. At that time people questioned the influence of prizes on science culture, their interplay with inclusivity and diversity, and the ways in which they do or do not reflect different types of excellence, achievement and impact.

Chaired by Professor Jeremy Sanders CBE FRS (University of Cambridge), the 2019 independent *Review of RSC Recognition Programmes* set out to create a modern vision for recognition in science, as well as specific recommendations for how we could evolve our prize portfolio to achieve that vision. The review panel considered views gathered through extensive consultation with our community as well as perspectives captured over the years from winners, judges, members, RSC staff and the wider community since the previous review in 2008. They also factored in the wider recognition landscape, including work by other organisations and professions within and beyond science.

The review found that our prizes were – and are – valued deeply by those who receive them and by the wider chemical sciences community. In addition to this strong support for many aspects of our prizes, there was also an exciting opportunity and imperative to evolve and ensure that our recognition activities continually reflect, celebrate and incentivise the positive practice and impact of chemistry in a changing world.

The review identified **four** important purposes of recognition for us to focus on, namely to:

1. Validate the achievements of individuals and teams, and support career progression

2. Advance or provide incentives in an area, and to inspire and support others

3. Communicate, highlight, and celebrate chemistry

4. Raise the visibility of the RSC and its mission

The report also detailed recommendations for the RSC:

Clarify the purpose and audience for recognition: understand why we recognise, and who we aim to reach.

Rationalise our prizes: clarify and simplify our recognition portfolio where possible, while preserving the legacy and historical significance of our prizes.

Broaden what we recognise: move beyond recognising retrospective achievements by individuals in scientific research to better reflect the importance of education, collaboration and innovation.

Improve inclusion and diversity: ensure that we reflect the full breadth of excellence across the chemical sciences.

Set clear expectations around conduct: expect the highest standards of those we recognise given their position as inspiring role models and ambassadors.

To read the 2019 review in full, visit rsc.li/re-thinking-recognition

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Outcomes: changes to whom, what and how we recognise

We started implementing the recommendations of the review in late 2020. This section summarises the changes we have seen in the people and achievements we recognise. Numbers are based on comparison of four-year windows: 2017–2020 and 2021–2024.

Section 3 gives more detail about the specific actions we have taken and the lessons we learned through implementation.

Teams and collaborations

- **We increased the percentage of prizes we award to teams from 5% to 30%.** In the last four years we have recognised 84 teams. Prize winners have included different types of teams, collaborations and partnerships, including academia-industry and UK-international collaborations; and we have recognised groups ranging from two to as many as 89 people.
- **We have recognised more than five times as many** members of the chemical sciences community – an increase from 316 to 1,847.

"Teamwork has been key to our success, and it is really all about the young people's engagement in STEM. The recognition the prize gives to the young people involved and to the wider school is humbling. The fact the RSC recognises the importance of inclusion in science with this award is significant."

Cumbernauld Academy STEM Club
2023 Team Prize for Excellence in Secondary & Further Education

"This research is a shining example of the need for interdisciplinary work, combining physics, chemistry, mathematical modelling, environmental science and a wide range of engineering disciplines, from mechanical to robotics. This makes a strong case for collaborative research, to bring experts in all these areas together to try new ideas and apply different approaches. Embracing diversity by including people from not only different research areas, but also with different backgrounds and ways of thinking is the only way to solve such complex challenges."

Dr Jacqueline Edge, University of Birmingham – The ReLiB Project
2024 Environment, Sustainability and Energy Horizon Prize

Winner demographics

- **We doubled the proportion of people we recognise who work in schools and colleges.** This has included, for the first time, recognising educators who work in the primary education sector.
- **We doubled the proportion of people we recognise who work outside of universities** – an increase from 13% to 26% of our prize winners.
- **A significantly greater proportion of our prize winners are early career scientists.** Since implementing changes, 36% of our prize winners are PhD candidates, postdoctoral researchers, apprentices and students, compared to just 4% previously.
- **We recognise more people in technical roles in both academia and industry.** 'New' roles that we see frequently represented among our winners include engineers, technicians, process chemists, experimental officers and clinicians.
- **A greater proportion of our individual prize winners are 'first-time' winners** – an increase from 67% to 75%.

	Number of prizes awarded	Number of prizes awarded to individuals	Number of prizes awarded to teams	Total number of people recognised	Number of affiliations represented by prize winners	Number of countries in which prize winners are based
2017 – 2020	284	270	14	316	117	14
2021 – 2024	284	200	84	1,847	358	28

"I was stunned and elated to be recognised by such a highly regarded institution for the work I do, especially as someone without a science background. It was also very encouraging to know that what I am doing is having an impact on those around me, and encouraged me to keep pushing forward and enhancing what I do."

Stuart Naismith, Gartcosh Primary School
2023 Excellence in Primary Education Prize

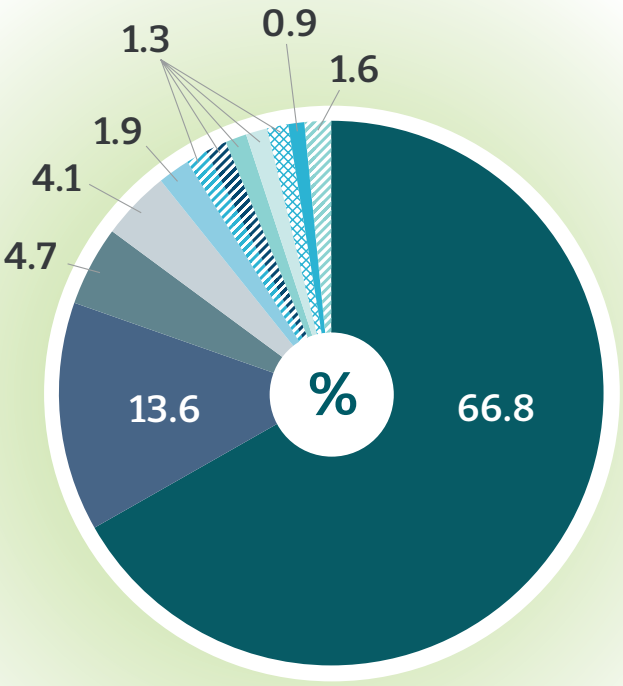
"This kind of recognition is incredibly valuable – especially coming from the Royal Society of Chemistry. Linking that level of prestige with apprenticeships helps raise awareness and reach people who might not even know science apprenticeships exist. It gets the message out there and encourages other organisations to consider apprenticeships as a real option. It shows what's possible through this route and puts apprentices in the spotlight in a way that hasn't really happened before. You can see the stigma around apprenticeships starting to break."

Harriet Bean, BASF
2024 Apprentice Prize

"The RSC Technical Excellence Prize is brilliant recognition of our years of work together. It's great to see technical staff at other facilities recognised too – we represent just one of the suite of tools and techniques needed to answer the scientific challenges of the day. We are honoured that our dedication has been recognised."

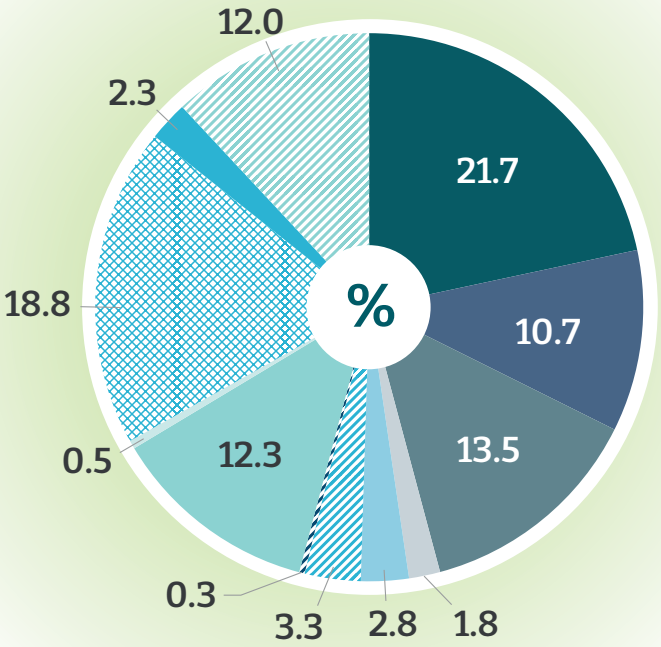
Dr Muralidharan Shanmugam and Adam Brookfield AMRSC, EPSRC UK National Research Facility for EPR spectroscopy
2025 Technical Excellence Prize

2017 to 2020: 316 people



- Professor
- Assistant or Associate Professor/Lecturer/Reader
- Researcher/Scientist
- Technician
- VP/Director/CTO/CEO
- Teacher/Educator/ Teaching Assistant
- Apprentice
- Postdoctoral researcher
- Experimental officer
- PhD student
- Manager
- Other*

2021 to 2024: 1,847 people



*Other includes roles such as consultants, engineers, undergraduate and Master's students, process chemists, clinicians, outreach professionals, analysts, technology transfer officers, and many more.

Diversity

- **We transformed our diversity data processes.** In 2023, we introduced a standardised anonymous collection method, developed by our in-house inclusion and diversity experts. We now track the diversity of nominators, nominees and prize winners across a broad range of characteristics, and publish a summary alongside our announcement of prize winners each year.
- **We observed substantial and sustained growth in the proportion of our nominators, nominees and prize winners who are women.** We have tracked gender diversity data in our prizes for several years.

	% of prize nominators who are women	% of prize nominees who are women	% of prize winners who are women
2017 – 2020	16	19	25
2021 – 2024	26	30	38

Conduct expectations

- **We introduced a requirement for prize winners to sign our Code of Conduct Declaration for Recognition and adhere to the principles outlined in our Code of Conduct for membership.** Every single winner of an individual prize has signed the declaration since 2021.
- **We developed and published our approach** to nominee and prize winner conduct giving further transparency and clarity to our decision making process.

Visibility and reach

- **We transformed the way we announce and celebrate our prize winners**. We pivoted to digital-first, inclusive celebrations to give each of our winners greater visibility and allow our community to celebrate together. Our announcements have consistently drawn the greatest daily number of visitors to the prizes section of our website each year. In 2023, the two digital celebrations (June and November) saw tens of thousands of unique visitors to our web gallery in total.
- **We built on and developed new platforms for prize winners to celebrate their work.** Our prize winners take part in a range of activities linked to their prize, including developing films and workshops, and taking part in events and symposia. In 2023, our winners delivered at least 164 prize lectures and education workshops. A total of 28 winners received their prizes at RSC conferences and meetings.

"Having the prize profiles online is great. I always find it helpful that you get the winner biography, the citation, and some photos, maybe some kind of personal statement. There is a really good job done of promoting the people – online visibility and in-person visibility. It does feel like a genuine celebration of people."

Professor Paul McGonigal MRSC, University of Oxford
2022 Harrison-Meldola Early Career Prize for Chemistry

"The way the Centenary Prize is arranged with the lecture tour definitely made me engage with it more, and I really enjoyed it. I met a lot of people and made some connections that might lead to future collaborations, so I am excited about that!"

Professor Michelle Chang, Princeton University
2022 Centenary Prize for Chemistry and Communication

"The film is a real gift to us as a team. We've been given a tool that we can use to highlight the science behind the team's work in a totally different way. In that sense, it is an 'active' award rather than a 'passive' award."

Dr Martin Eastgate FRSC, Bristol Myers Squibb – Team P(V)
2022 Organic Chemistry Horizon Prize

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From recommendations to implementation: what we did, how we did it, and what we learned

The recommendations from the review were wide-ranging, and many were closely interconnected. We realised that meaningful change would take time and sustained effort, and could not happen all at once.

For instance, the recommendations related to diversity could not be addressed through an isolated set of actions; it required a holistic approach integrated across multiple areas, from the way we promote and advertise our prizes, to the way we collect nominations, through to winner celebration.

Similarly, rebalancing our recognition activities and making space for new types of prizes would involve complex decisions, including redesigning or stopping prizes.

Governance and community insight

Implementing the recommendations required both high-level oversight, to maintain momentum and a big-picture view, and detailed domain-specific expertise, to ensure that new recognition mechanisms were designed effectively for their intended purposes and audiences.

Additionally, many of our prizes were historically supported by several individual trust funds, generously gifted over the years by donors who shared our commitment to recognising excellence in the chemical sciences. These funds have enabled us to celebrate achievements across a wide range of areas, forming a rich legacy of recognition spanning more than 150 years.

WHAT WE DID

- **Our Trustees** endorsed a five-year implementation plan to deliver against the review's recommendations.
- We established a **high-level oversight group** to monitor overall progress, provide strategic guidance, and bring together expertise and challenge from across the community. This group also considered cross-cutting themes, such as conduct and inclusion and diversity.
- The oversight group worked closely with several **key member community groups**, each of which played a vital role in shaping our evolving recognition activities by offering challenge, insight and specialist expertise at different points:

Awards Working Group/ Research & Innovation Prize Committee

Education Awards Working Group

Inclusion and Diversity Prize Working Group

Industry Prize Working Group

Subject Community Councils

- Our Trustees approved the creation of a new consolidated fund: the **RSC Recognition Fund**. The trust brings together 30 historical prize funds under a single umbrella, with a clear charitable purpose: *to advance the science of chemistry and its application for the public benefit by recognising excellence through awards, prizes and other means*.

  This consolidation allows us to manage our programmes more effectively, respond flexibly to the evolving needs of the chemical sciences community, and ensure that our recognition activities remain impactful and inclusive for generations to come. The spirit and intent of the original gifts remain at the heart of the RSC Recognition Fund.

Evolving our prizes

This section outlines specific changes we made to our prizes. Some actions appear more than once, showing some of the complexity of this evolution as different strands interact and reinforce one another.

For example, introducing new team prizes for education, across all levels from primary to higher education, enabled us to simultaneously address multiple recommendations from the review:

- deliberately intensify efforts to ensure that recognition reflects the diversity of people and contributions in science **(recommendation 1)**
- increase recognition of teams and collaborations **(recommendation 2)**
- increase recognition of education in schools and colleges **(recommendation 5)**
- increase recognition of education in higher education providers **(recommendation 6)**
- ensure recognition supports scientists at all career stages **(recommendation 10)**

Changed portfolio structure

In 2019 we had around 90 different prizes, almost 80% of which recognised the academic research of individuals. We strategically evolved our portfolio with consideration given to the overall structure and individual prize purpose.

Our evolved prize portfolio recognises and celebrates:

- those delivering impact to help improve accessibility, inclusivity and diversity in the chemical science community
- exceptional contributions made by our member volunteers who support our work in a variety of ways
- research and innovation across all career stages and core areas of chemistry
- contributions to the chemical sciences made by apprentices, early career scientists in industry, partnerships, technicians, and those in technical roles
- discoveries and advances in the chemical sciences made by teams, groups and collaborations
- educators and education teams across primary, secondary and further, and higher education levels
- different types and sizes of groups, teams, collaborations and partnerships across academia, industry and education

The new structure continues to complement other RSC recognition, for example awards made by our interest groups and our journal lectureships.

"What an honour! To be recognised for the voluntary work I do as Chair of the Formulation Science and Technology Interest Group and as Interest Group Representative for the Member Networks Committee is truly amazing. There are so many fantastic volunteers working to advance the chemical sciences so to be nominated and awarded this prestigious award is beyond anything I thought possible. Truly, truly grateful."

Dr Helen Ryder MRSC, The University of Manchester, Henry Royce Institute
2021 Award for Exceptional Service

Recognising excellent teams and collaborations

Historically, recognition in the chemical sciences, particularly through prizes, has focused on individual achievement. The increasingly multidisciplinary and cross-domain nature of research, innovation and education mean that advances in those sectors are usually a collective effort. The review highlighted an opportunity to better recognise and highlight collaborative contributions.

WHAT WE DID

- We launched **new** **Horizon Prizes**, developed with support and guidance from our Subject Community Councils. Each of our eight subject communities now awards Horizon Prizes for developments in their area of the chemical sciences, including education. These prizes are specifically designed to recognise groups, teams and collaborations that are opening up new directions and possibilities in their field. Every individual who contributed to the discovery, advance or initiative is recognised.
- We introduced **new** **Team Prizes for Excellence in Education**, which celebrate teams or collaborations that have had a positive impact on pupils across primary, secondary, further and higher education. Prize winners have included chemistry departments and teams within the same school or university, and also collaborations comprising local networks.
- We launched **new** **Technical Excellence Prizes** that recognise the crucial contributions made by technicians and those working in technical roles. We made these open to both individuals and teams to reflect the different environments and ways in which technicians work.
- We expanded our Industry-Academia Collaboration Award to a **new** **Innovation Through Partnership Prize**. This prize recognises outstanding partnerships that are delivering impact for the chemical sciences, and is now more inclusive of different types of partnerships between organisations, working either between or across sectors.
- Our **Inclusion & Diversity Prize** continues to recognise outstanding teams, as well as individuals.

We have heard from recipients that team prizes can be particularly meaningful – particularly for those who have previously been recognised as an individual, either by the RSC or another awarding body. The experience has validated the collective nature of their work, and has allowed them to share the recognition fully with each of their colleagues who made it possible.

Recognising teams presents unique challenges. Teams vary widely in type, size and structure. Some are natural long-standing teams, but some are transient, with members joining or leaving, and some form around specific projects or initiatives. This can make it difficult for nominators and nominees to identify who should be included on a nomination or acceptance form as part of the team. Rather than trying to explicitly define a team, we have taken a flexible and inclusive approach, offering guidance and support to help people navigate these questions.

As an example, we ask Horizon Prize nominators to provide 'outputs' in support of the nomination – such as published research articles, patents or pieces of software. We designed this in part to help define the team, suggesting to nominators that they consider authors as well as anyone else who has been a key contributor. At the point of acceptance, we also double-check with team contacts that they have included everyone they intend to, minimising the risk that an individual is inadvertently missed.

We have also tried to ensure that our team prizes are genuinely inclusive by considering each element of the recognition process. For example:

- We enabled self-nomination to make it easier for teams to put themselves forward.
- We provide certificates for each individual team member and offer flexible options for items like trophies, ensuring they can be displayed prominently in shared spaces or across multiple locations if the team is not based in one place.
- We developed celebration mechanisms that the team can enjoy together. For example, Horizon Prize winners have the opportunity to have a short, professionally produced film made about their work, while team recipients of Education Prizes receive support to run an event or a collaborative workshop to share good practice with and inspire the community.

Recognising teams has allowed us to celebrate a broader range of activities and contributions, and to diversify the people, roles and career stages represented amongst our prize winners.

"RSC Prizes are always a guarantee for visibility and quality. Awarding a prize to a team instead of an individual was very appealing – for our development, having a single person awarded would not account fully for how it had happened."

Professor Javier Pérez-Ramírez FRSC, ETH Zürich – Sustainable methanol team
2022 Environment, Sustainability & Energy Horizon Prize

"Being able to present something tangible to my bosses and my organisation – evidence that what I'm doing is important and recognised both within the community and internationally – has been hugely impactful. My organisation even issued a press release about it, and they were genuinely excited. It was also great to receive the trophy, which they now want to display in a public space in the building to highlight the achievement."

Dr Cara Lubner, National Renewable Energy Laboratory – Electron Bifurcation
2023 Faraday Horizon Prize

Recognising excellence in education

Teachers and educators play a crucial role in the chemistry ecosystem, inspiring curiosity and nurturing the next generation of scientists and innovators. Their contributions span sectors from primary schools through to universities. Prior to the review, our education-focused recognition offering consisted of five prizes: three aimed at those working in higher education, and only one dedicated to those working in schools.

WHAT WE DID

We launched a new family of **Education Prizes**, designed to celebrate outstanding contributions across all sectors of education. These include:

- **three prizes for Excellence in Primary Education**
- **three prizes for Excellence in Secondary and Further Education**
- **three prizes for Excellence in Higher Education**
- **three Horizon Prizes for Education** that celebrate groundbreaking innovations and initiatives marking a step change in education
- **the Nyholm Prize for Education**, which we retained and continues to celebrate substantial and sustained impact within the sector, but now has more sector-inclusive criteria and is open to both individuals and teams.

Each education sector now has dedicated prizes for both individuals and teams, including specific prizes for early career educators.

We designed selection criteria to be accessible to people working in different roles within education, and have seen a range of roles reflected in nominations and prize winners.

We reviewed and simplified nomination forms, removing requirements for CVs and references to focus on a single supporting statement, with the ambition to make submitting a nomination more straightforward and accessible.

We also adjusted the timing of the Education Prizes in response to feedback from the education community to align the nomination window with a more accessible time for educators within the UK academic calendar. Our nomination window is now open over the summer term, with winners announced in the autumn.

Reaching new audiences, particularly in primary education, has been a challenge. This sector is less familiar with our recognition programmes. Primary school teachers also interact with the RSC in different ways to other groups in our community (for example, via our educational resources, rather than through our subject communities or interest groups), and we continue to explore ways to build awareness and engagement.

While the announcement of the change in timing was not universally popular, it has largely been successful. We heard from our education community that the end of the academic year is a more natural time for educators to reflect on achievements and prepare nominations, and from winners who said that they wouldn't have been able to make a nomination on the previous timeline. As a result, we have seen growth in nominations. Holding a separate announcement of Education prize winners has also allowed us to give educators more of a spotlight, distinct from other recognition activities, which has been positively received.

We have diversified our celebration mechanisms to ensure that recognition is meaningful and accessible. Prizes are often presented in the workplace by key members of our education community, allowing colleagues and students to share in celebrations. We support winning teams to deliver workshops and events within their local area, helping to amplify their impact. Some Higher Education Prize winners take part in our well-established prize lecture programme, which takes place at universities across the UK and Ireland, and provides a platform to share their work and inspire others. Several winners have also taken part in teacher support sessions and workshops to help their contemporaries benefit from their experiences.

"It [the prize] has added to credibility to my abilities, not only as a chemistry teacher but in my standing as a professional. Delivering the teacher support sessions had to be the highlight."

Wendy Winnard MRSC – STFC
2023 Excellence in Secondary Education Prize

Recognising excellence in inclusion and diversity

At the time of our review, our **Inclusion and Diversity Prize** was the newest addition to the RSC's prize family, first being awarded in 2017. The review offered a valuable opportunity to assess how the prize was functioning, how it was being received by the community, and consider how it might evolve to better serve its purpose. To guide this process, our Inclusion and Diversity Committee established a dedicated sub-group.

The prize was originally designed to be very broad and inclusive of various forms of excellence in the inclusion and diversity space. The sub-group identified that this approach was working well in the current landscape, with a significant increase in the number of high-quality nominations and a wide range of initiatives in nominations. However, they also identified that the review had encouraged greater clarity on the purpose of any prize.

WHAT WE DID

- **We put greater emphasis on impact.** The sub-group agreed that the purpose of the prize should be to recognise and celebrate novel and innovative approaches or initiatives that have made a difference and had an impact on others in the community. We amended the selection criteria and the nomination form to better support nominators in providing information about the impact that initiatives had had on the community. In line with the purpose above, the prize gives winners the platform to disseminate their work and share it with the broader community.
- **We increased the frequency of the prize.** Originally awarded biennially, the prize is now awarded each year. This change reflects the growing number of community-led initiatives to support diverse talent to access and thrive in the chemical sciences.
- **The prize can have multiple winners.** The sub-group identified that it would be beneficial to have the flexibility to share the prize where multiple nominations were very strong in a common area, and this would align with the ethos of the prize. This was reflected for the first time in 2025, where two individuals and one team were recognised for excellence in strategic and operational inclusion within the UK Higher Education system.

Recognising excellence in research

In 2018, more than 70% of our prizes were awarded to individuals for excellence in chemistry research, with most of these prizes aligned with our subject communities. The review suggested that this balance was not quite right, and so to address this and create space for new elements of recognition, it made sense to start our evolution by looking carefully at our individual prizes for research.

Due to historical reasons and the organic way in which our prizes had developed over time, communities had different types of prizes and different numbers of prizes. We saw an opportunity to make our prizes easier to navigate, particularly to those who are not familiar with them.

Subject Community Councils undertook a comprehensive review of their prizes. They considered the purposes of recognition identified in the review, as well as their prizes' history, scope and eligibility criteria. They were able to identify prizes with overly narrow or overlapping scopes, those with historically low nomination numbers, and those lacking diversity in nominations. They showed commendable leadership by making difficult decisions to discontinue certain prizes.

They were supported by our oversight group who, considering recommendations from the review, had proposed a 'core' structure of prizes that could apply across each of our communities, providing recognition opportunities for individuals at different career stages, and also for teams and collaborations.

WHAT WE DID

- **We established a 'core' prize structure.** All seven 'science' subject communities now follow a consistent structure comprising five prizes: three for individuals (early career, mid-career and a prize without career-stage restriction) and two for teams and collaborations (Horizon Prizes). We introduced naming nomenclature to more clearly indicate this core structure (see section on Naming Prizes)
- **We broadened the scopes of our research prizes.** All of our Subject Community Prizes are now explicitly inclusive of research excellence in any area of activity represented within the community. These changes help to maximise our nomination pools, minimise redundancy, and are forward-looking to be inclusive of emerging areas of chemistry.
- **We created a digital prize archive.** This preserves the rich history and legacy associated with historic prizes and of prize winners.

Stopping or phasing out prizes was emotionally and practically challenging, with many having deep historical roots and strong community attachment. The process of establishing the new portfolios took a lot of time, with several iterations, workshops and meetings.

Flexibility and understanding were key. It was crucial that our oversight group allowed Subject Community Councils the space to advocate for retaining a small number of prizes outside of the core structure. This flexibility acknowledged different community priorities and different types of historical importance. Examples of prizes that were retained outside of the core structure are our Dalton Emerging Researcher Prize and Bader Prize for Organic Chemistry.

Community input was extremely valuable throughout the process of change: as well as consulting on their own prizes, Subject Community Councils played a vital role as sounding boards during the design of the Horizon Prizes. Their feedback and views significantly shaped their current form, ensuring that they would be fit for purpose.

Recognising a greater range of roles

Between 2017 and 2020, two-thirds of our prize winners were professors at universities. There was scope for us to improve by recognising all the roles that are vital to the development of research: not just academic leads, but also students, technicians, and those working in industry. As discussed above, recommendations from the review also emphasised the need to expand our recognition of excellence of those who teach.

We also wanted to create more space to spotlight those whose work is often behind the scenes and not quite as visible. This includes technicians whose expertise and skills are essential to the functioning of schools, laboratories and research environments, and apprentices who represent highly valuable routes into careers in the chemical sciences.

WHAT WE DID

- We ensured our new **Education Prizes** were accessible to anyone working in the education sector, regardless of role. Prize winners to date have included teachers, technicians, lecturers and teacher developers.
- We expanded our **Apprentice Prizes** to recognise up to three apprentices each year.
- We launched new **Technical Excellence Prizes** that recognise the crucial contributions made by technicians. We made these open to both individuals and teams, to reflect the different environments and ways in which technicians work.
- We refreshed our **Rising Star in Industry Prize** to take account of the distinction between industry and academic early career pathways.
- We launched **Horizon Prizes** that recognise innovations in research made by groups, teams and collaborations, and recognise all of the individuals involved in that work.

Increasing the proportion of our prizes that go to teams has led to a natural expansion in the types of roles we recognise. This is partly due to the nature of teams that bring together different people with complementary expertise and skills to achieve a specific outcome.

Recognising excellence at different career stages

In 2018, only our prizes for research had career-stage stratification. The review heard a strong view that we should extend recognition opportunities to different career stages, and to other domains.

Individuals flourish professionally in a demonstrable way at different points in their careers for many reasons, and there was an opportunity for us to be proactive in showing that excellence can manifest at these different points.

Considering purposes of recognition, the review also heard that it was important for earlier career prizes to focus on supporting those individuals, giving them profile and encouragement to kick on in their career.

WHAT WE DID

- We launched **early career prizes in Education**, to recognise those within the first five years of their career in education. We designed eligibility criteria to be deliberately inclusive of those who have changed direction to work in education later in life.
- We introduced new **mid-career prizes** in research, designing eligibility criteria to create differentiation between existing early career prizes and extend the period of opportunities for mid-career researchers. In combination with discontinuing other prizes, this had the overall effect of providing greater balance across career stages.
- We refreshed and expanded our **Rising Star in Industry Prize and Apprentice Prizes** respectively, to highlight how chemists outside of academic research are creating impact in the earliest stages of their career.

- Our **prizes for teams** also naturally recognise a range of people, from undergraduate students through to senior directors.

Evolving how we run our prizes

Many of our prizes share common challenges in terms of how they run. This presented both opportunity and complexity: while we could address some aspects holistically, such as setting expectations around conduct, and how we name our prizes, other elements required more tailored approaches to reflect distinct purposes and audiences. The following section explores how we've evolved these underpinning processes.

Governance and oversight

The review recommended that we should continue to strengthen the governance of and guidance about our recognition portfolio to ensure appropriate oversight and consistency (recommendation 14).

WHAT WE DID

- **We separated out oversight of our prizes from the selection of prize winners.** This change has helped to provide greater clarity for individuals involved.
- **We embedded oversight of prizes within boards and committees across our governance structure.** For example, our Inclusion and Diversity Committee have oversight of our Inclusion and Diversity Prize.
- **We are developing mechanisms to share insights from selection processes with oversight groups.** RSC staff play a key role in sharing good practice and insights between recognition schemes.

Setting conduct expectations

Recognition carries influence, and with that comes responsibility. As prize winners are in a visible position, it is essential that those we recognise uphold the highest standards of professional conduct and demonstrate the behaviours expected by the sector.

The review suggested we should require that prize winners comply with our professional code of conduct. As a membership organisation with an established code of conduct and disciplinary process for our members, we were in a position where we did not need to develop these from scratch. It made sense to use these processes so that we had 'one standard' in relation to conduct. However, our processes did not account for prize winners who are not members of the Royal Society of Chemistry.

We are grateful for the thoughtful discussions and insights shared by colleagues across the RSC, our Professional Standards Board, as well as staff at the American Geophysical Union, whose experience and guidance helped shape our approach.

WHAT WE DID

- We introduced a requirement for nominators to confirm, to the best of their knowledge, that there are no known conduct-related impediments to their nominee receiving a prize.
- We developed procedures for our selection panels, to support them through rare occasions where there may be concerns relating to the professional conduct of a nominee. Our approach is detailed in our **online FAQs**.
- We introduced a procedure for the Secretary to our Professional Standards Board to check if a proposed winner is the subject of a current RSC disciplinary process or has had a historical finding of breaching our Code of Conduct.
- We now ask all individual and team prize winners to sign our Code of Conduct Declaration for Recognition and agree to follow and adhere to the principles outlined in our Code of Conduct for membership.
- We proposed amendments to our Disciplinary Regulations, which were accepted by both our Professional Standards Board and Trustees to:
  - include those who sign our declaration.
  - allow a Disciplinary Panel to remove or rescind awards, prizes and other recognition, if there are reasonable grounds to do so.
  - include that a member receiving a sanction through our disciplinary process will be ineligible to receive any of our prizes for a period of five years (unless otherwise determined).

The requirement for prize winners to sign our declaration has been straightforward for us to incorporate into our acceptance process. Since introduction, all individual prize winners have signed the declaration. The majority of winning teams also sign, noting that it is not always possible for us to reach every team member.

Due to the very rare nature of conduct-related cases associated to those individuals that are recognised, it is difficult to assess impact; however, our processes relating to nominees has brought clarity to selection meetings, supporting panel members and chairs to navigate potentially challenging situations with confidence and consistency.

Naming prizes

In 2018, many but not all of our prizes were named after individuals. These names were introduced for a variety of reasons, often to honour significant figures in the history of chemistry, or to reflect the wishes of donors. While names can carry historical value, they may also present barriers in terms of accessibility and inclusion.

The review recommended that we retain eponymous names where they are part of the history and heritage of the prize; but more importantly, also recommended that the name of every prize should clearly communicate what the prize is for. This applies whether or not the name includes an eponymous component.

WHAT WE DID

- We began to implement this recommendation in 2021 by naming all new Education Prizes according to what they recognise, prioritising clarity and consistency.
- For prizes named eponymously, we introduced a 'dual naming' format. For example, *Organic Chemistry early career prize: Hickinbottom Prize* combines a clear description of the prize's purpose with its historical name.
- We reviewed our nomenclature to ensure consistency. Some of our prizes for research were called 'prizes' and others 'awards', largely for historical reasons. This created a perceived and unhelpful hierarchy. We standardised our terminology to refer solely to 'prizes', and harmonised rubrics describing career stages across the portfolio.
- Our oversight group reviewed our approach to eponymous naming and agreed to not add eponymous names to new prizes, or to existing prizes that are not currently named after an individual. We will review this approach in the coming years.

Encouraging diversity in our prizes

The review recommended that we should evolve our selection processes to better reflect the diversity of people and contributions to science.

As winners are selected based on our published criteria, it is therefore essential that we have a diverse nominee pool. Our work has therefore centred on attracting a broader range of nominations.

WHAT WE DID

We have taken a variety of actions to encourage diversity at different levels:

Structural changes – in brief, what our prizes are, what they look like and what they are awarded for. Examples of changes we have made are outlined earlier in this report and include:

- expanding our recognition of teams
- expanding our recognition of education and educators
- rebalancing our prizes for research towards earlier career stages
- discontinuing prizes with narrow scopes and small nomination pools, and broadening the scopes of other prizes
- simplifying the nomination process for our early and mid-career prizes by reducing or eliminating requirements for references
- renaming prizes to make it clear what they are recognising and to reduce barriers for those less familiar with them.

Elements relating to decision-making – the review recommended that we continue work to review and evolve selection processes. A key principle has been to ensure that the selection of prize winners is based on transparent processes and clear criteria, giving potential nominees and groups confidence that we have developed and used good practice in minimising bias in the selection of winners.

Examples of actions we have taken include:

- continuing our practice of not disclosing the identity of nominators to selection panels
- continuing our practice of combining individual review with a collective selection meeting to allow the benefits of individual expertise to come through whilst minimising the effects of individual bias
- introducing a new scoring rubric that is tailored towards the selection of prize winners, helping panel members to identify nominations in contention to win prizes and to look for points of difference between them

- continuing to provide implicit bias training for all selection panel members in advance of reviewing nominations, and playing a short video on decision-making in groups at the start of selection meetings
- continuing to ensure that all selection meetings are overseen by an independent observer, who monitors discussions and provides constructive challenge to the panel when needed
- anonymising journal names of supporting publications for a subset of prizes, which aligns with our signing of the **Declaration on Research Assesment (DORA)**
- expanding the size and diversity – in terms of gender, ethnicity, geography, sector and career stage – of people on our selection panels to encompass a greater breadth of our community.

Changing the culture – this is hardest to do and requires long-term and ongoing effort. Examples of actions we have taken include:

- normalising career breaks/interruptions in prize eligibility criteria, creating space on nomination forms for nominators and nominees to provide greater context, and ensuring this information is taken into account by selection panels
- publishing **frequently asked questions** to help to demystify processes and encourage new nominees and nominators
- establishing and supporting community working groups, who encourage others to expand the breadth of people, teams and collaborations nominating and being nominated for prizes
- trialling a nomination 'rollover' approach to retain nominations for longer and to try to ensure individuals and teams are not deterred if they do not win a prize at their first attempt.

"One thing I really appreciate is how you've set up nominations to roll over into the next year – that way they stay live in the system. That definitely removes a barrier, especially for people who might otherwise give up on putting themselves forward."

Dr Louis Morrill, University of Bath
2022 Organic Chemistry early career prize: Hickinbottom Prize

Celebrating our prize winners

The review recommended that we should develop our celebration and publicity activities in a strategic way that is linked to the purpose(s) and audience(s) for recognition (recommendation 13).

WHAT WE DID

We evolved our celebration mechanisms for our different types of prizes so that they align with the purpose of the recognition, whilst being meaningful for recipients. This has included:

- establishing a biennial online digital announcement, with a dedicated web page for each prize winner. The online format allows the whole community to participate in the celebrations, wherever they are.
- evolving our **Prize lectures** programme, to support and encourage individual career progression and raise the profile of winners of our Research & Innovation and Higher Education prizes.
- producing videos to communicate, highlight and celebrate the scientific discoveries recognised by our Horizon Prizes, and the teams, collaborations and groups behind the achievements.
- providing opportunities for Education Prize winners to deliver workshops and events. While team events often take place at their host institution, an individual might be invited elsewhere in the UK and/or conduct an online session, which enables them to reach an international audience.

"Presenting a 40-minute talk at the Dalton 2023 meeting was a highlight of both this prize and my career so far. Having the opportunity to present my PhD research and interests to the community was really amazing."

Dr Richard Kong AMRSC, The University of Edinburgh
2022 Dalton Emerging Researcher Prize

"I wanted to thank the RSC again for this award and the fantastic opportunity to speak to chemists around the country about the work we do. As a process chemist, I find people often don't understand the role – which we can only remedy by going out and speaking about it. I had a fantastic time engaging with scientists I might not necessarily have met otherwise, and a great opportunity to engage directly with students. This has given ideas for future collaborations as well as enhancing my network."

Dr Katherine Wheelhouse FRSC, GSK
2022 Organic Chemistry mid-career prize: Robert Robinson Prize

4

Reflections and continuing our journey

Transforming our recognition portfolio has been a complex and rewarding journey. It required sustained effort, prioritisation and courage to make difficult decisions. We did not and could not do everything at once: implementation took time, and we learned to balance ambition with resources available to us.

The review challenged us to think deeply about the purpose of recognition and how it can be used to celebrate excellence, drive change, and reflect the diversity of contributions in chemistry. While most recommendations focused on our prizes, the principles we developed apply more broadly across our recognition activities.

The support from our member communities, from the very start of commissioning the review, throughout the implementation phase and as the new prizes establish themselves, has been instrumental to the transformation. Their advice, guidance and constant input as we iterated and evolved our prizes was invaluable, and has helped us to establish a culture of continual improvement.

Our aim was to work towards a prize portfolio that reflects chemistry at its best, highlighting and incentivising the many facets of excellence and diversity that are important for chemistry and the multiple ways in which chemical scientists make the world a better place, and we are proud of what we have achieved.

This is not the end of our journey. We will continue to listen, learn and evolve, ensuring that our prizes and recognition activities remain a source of inspiration, celebration and progress for the chemical sciences community and beyond.

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What we have learned about recognition

Over the course of this transformation, we have gathered a set of practical insights that we believe can support not only our own future work but also others seeking to evolve their recognition programmes.

Whether reviewing an existing prize portfolio, designing new awards or exploring how recognition can better reflect the values and diversity of a particular community, these learnings are intended to be adaptable and replicable.

Our core messages for others thinking about recognition are:

- **Establish who the target audience is.** Involve the people whom recognition activities are meant to celebrate right from the beginning.
- **Be clear on the "why."** Define the purpose of recognition activities and who they are for. This clarity will guide every decision.
- **Align everything to purpose.** Make sure recognition activities reflect their purpose and resonate with their target audiences.
- **Celebrate diversity.** Driving change will take coordinated actions across structures, processes and culture.
- **Give it time.** Meaningful change doesn't happen overnight. Be patient, stay resilient, and don't be afraid to adapt and iterate when opportunities to learn present themselves.

We would welcome the opportunity to share our experiences, and hear from others undertaking similar work. Please feel free to contact us at **awards@rsc.org**.

Acknowledgements

The transformation of our prizes has been a truly collaborative community effort, and we would like to thank everyone who contributed and generously gave their time over the last six years to make this happen. Your expertise, robust discussions, guidance and insights have been invaluable to the successful evolution of the prize portfolio.

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[1]Affiliations at time of report publication.

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