ROYAL SOCIETY OF CHEMISTRY

Beyond access:

How socioeconomic background shapes the chemistry pipeline

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Foreword

Chemistry has always relied on talent, curiosity and imagination. But talent alone is not enough if the systems around people do not allow that talent to be recognised, supported and fulfilled. This report asks us to look honestly at how socioeconomic background shapes the experiences, opportunities and career trajectories of undergraduate chemistry students in the UK, and to recognise that background should never define anyone's potential.

Inclusion is central to our purpose at the Royal Society of Chemistry. We want the chemical sciences to be a place where people from every background can belong, contribute and thrive. That means looking beyond access to higher education alone. Getting into university can be an important step, but it is not the whole story. What happens next – in lecture theatres, laboratories, research groups, placements, professional networks and early career pathways – matters just as much.

The evidence in this report shows that socioeconomic background is not a marginal factor. It influences belonging, confidence, identity, access to support, and the recognition of potential. It also intersects with other aspects of identity, creating barriers that can be compounded, hidden or too easily overlooked. Students from lower socioeconomic backgrounds bring ambition, resilience, adaptability and motivation. The issue is not a lack of aspiration or ability. It is that opportunity is not equally available, and the effects of unequal opportunity can accumulate across a whole career.

That matters deeply to us as an organisation. Chemistry needs the widest possible range of people, perspectives and experiences if it is to meet the challenges facing society, from health and sustainability to energy, materials and the environment. When people are held back by financial pressures, limited networks, unpaid opportunities, unspoken expectations or a lack of belonging, the loss is not only personal: it is a loss for our science, our community, and wider society.

This work is only the beginning. Socioeconomic inclusion is complex. It cannot be understood through a single measure, nor addressed through one-off initiatives. We need better evidence, more sustained action and a deeper understanding of how lived experience shapes progression through chemistry education and into chemical science careers. We also need to challenge the assumptions that sit behind our definitions of merit, potential and success.

The recommendations in this report speak to the breadth of action required. Universities and chemistry departments, funders, regulators, policymakers, employers, professional bodies and wider partners all have a role to play. We must work together to embed changes in attitudes, behaviours, systems and policies, from student support and paid opportunities, to data collection, accreditation, professional standards and inclusive career pathways.

The RSC is ready to play its part: as an advocate, a convenor, and a champion for change. We will use our voice and our influence to help ensure that socioeconomic inclusion is understood not as a peripheral issue, but as essential to the future health and strength of the chemical sciences.

I am grateful to every student and contributor whose experiences have shaped this work. Their voices challenge us, but they also give us reason to act with confidence and urgency. I hope this report encourages reflection, conversation and – most importantly – practical change. Full inclusion will happen not by accident, but because together we choose to make it happen.

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

Dr Ale Palermo FRSC
Head of Global Inclusion
Royal Society of Chemistry

1 Executive summary

This report summarises our findings on how socioeconomic background (SEB) influences educational experiences, career aspirations and professional development among undergraduate students in the chemical sciences in the UK. It considers both systemic and individual barriers, as well as how overlapping identities like gender, race, ethnicity and disability affect people's sense of inclusion and belonging, and their participation within the chemical sciences.

Using a mixed-methods approach that combines qualitative and quantitative survey data with focus groups and interviews, our research provides both broad and in-depth insights into student experiences.

This research demonstrates that SEB is not a marginal factor, but a foundational condition that influences students' experiences. It shapes who feels a sense of belonging within the chemical sciences, who can access opportunities, and who is most likely to progress within the discipline. Consequently, SEB has a significant impact on retention in the chemical sciences and, ultimately, the diversity of perspectives and ideas in our discipline.

These are the major findings from our research that highlight complex and interlinked challenges:

- **Opportunity in the chemical sciences is not experienced equally.** Students from lower SEBs face a combination of barriers that affect their educational journeys, including limited access to networks and informal knowledge, financial precarity, and barriers to participation in extracurricular and career-building activities. As a result, progression within their degrees is often shaped by constraint and risk management rather than aspiration.
- **Students from lower SEBs demonstrate strong motivation and commitment.** Chemical sciences undergraduate students from lower SEBs frequently express equal or higher levels of career ambition compared to their peers from higher or intermediate SEBs. However, this ambition is often harder to realise in practice, highlighting the way that disparities in outcomes are driven by unequal access to opportunity.
- **Belonging is a key driver of retention and progression.** Undergraduate students from lower SEBs are significantly less likely to report a sense of belonging within the chemical sciences, with knock-on effects for confidence, engagement and long-term career intentions. This reflects both material inequalities and cultural factors, including perceptions of chemistry as a field shaped by implicit norms, networks and expectations that favour those from more advantaged backgrounds.
- **SEB operates intersectionally, compounding the effects of other protected characteristics and personal experiences.** Undergraduate students navigating multiple structural and social factors experience cumulative and often hidden barriers, which can amplify challenges related to confidence, access to support and progression pathways.

While institutional support, inclusive teaching practices and financial assistance can mitigate some of these challenges, provision is uneven and not always aligned with students' needs. Access to mentoring, paid opportunities and professional networks can significantly enhance outcomes, but students who could benefit most are often least likely to access them.

Our findings point to a clear conclusion: improving equity[1] in the chemical sciences requires **moving beyond initiatives focused mainly on access to a career in chemistry.** Instead, there needs to be **systemic change across the entire undergraduate student journey.** Addressing socioeconomic inequalities **must** go beyond widening participation, and include transforming cultures, structures and expectations within higher education and professional pathways.

This study provides evidence to support stakeholders, including the Royal Society of Chemistry (RSC), in developing more equitable pathways through the chemical sciences, while informing future targeted interventions, policies and practices to improve inclusion, retention and progression across the chemical sciences.

[1] Equality means giving everyone the same resources and/or opportunities.
Equity means providing support tailored to individual needs to ensure fair outcomes.

These are our main recommendations for the key stakeholders' groups:

Universities & chemistry departments should:

1. **Embed contextual identity into pedagogy and support** by providing resources and training to academic staff to recognise how SEB interacts with gender, race, ethnicity, disability and geographical region in shaping learning experiences, and by replacing 'one-size' support with flexible, student-informed models that everyone can benefit from.
2. **Update data collection models to account for SEB and belonging** by moving beyond single indicators, such as free school meals, and include parental occupation, self-perception and lived experience to identify hidden or unrecognised contexts. Make belonging, inclusion and wellbeing explicit KPIs alongside attainment.
3. **Adopt strengths-based definitions of merit** by revising recruitment, assessment and progression criteria to recognise resilience, adaptability and non-traditional pathways. Provide students with guidance throughout their higher education journey alongside accessible, subject-specific support.
4. **Ensure equitable access to enrichment opportunities to extend and share social and cultural capital** by offering paid academic or industry-related schemes, such as lab-based internships, research placements and volunteering openings. Ensure that support, mentoring, career guidance and access to professional networks are embedded within the curriculum and available for all students.

Regulators, funders & policymakers should:

1. **Invest in sustained interventions and research** by prioritising funding for longitudinal programmes that encourage collaboration between schools, colleges, universities and employers. Programmes should track students' experiences and identity shifts throughout the student lifecycle, including progression, participation in enrichment, postgraduate transition and financial strain.
2. **Consider SEB when creating policies and regulations** by encouraging the use of standardised approaches to measure SEB and by prioritising metrics on intersectionality, contextual identities and lifecycle understandings.
3. **Review funding structures to address inequality** by expanding stipends, bursaries and paid pathways into research careers, and reducing reliance on unpaid placements or self-funded mobility opportunities.
4. **Align funding with inclusive practice** to reward institutions that demonstrate embedded, systemic inclusion and participation improvements beyond pilot programmes.

The role of the Royal Society of Chemistry

We will:

1. **Advocate for sector-wide recognition of the importance of contextual identity, culture and norms** by positioning SEB as intersectional and relational, and by adopting and championing language that moves away from current narratives towards a more inclusive vision of who can become and thrive as a chemist.
2. **Act as convenors for cultural change** by bringing together universities, employers, funders and policymakers to share good practice. We will communicate opportunity gaps contributing to regional inequalities across chemistry education and careers.
3. **Amplify diverse student voices and promote inclusive practice** by providing platforms where students can articulate their own SEB identity and experiences and where chemistry departments can share learnings and good practices. We will raise further progression routes into and through chemistry and explore how these relate to SEB and retention.
4. **Inform the continual evolution of RSC accreditation and professional standards development** by using this report and future research, with a view to embedding expectations and initiatives that actively target individuals from diverse SEBs.
5. **Ensure equitable access to RSC initiatives** by making our free membership, career services and professional networks accessible to all students. We will actively recruit those students less likely to self-select into these opportunities. We will raise awareness of the support available to students experiencing financial hardship from the RSC's Chemists' Community Fund.

A note on terminology

When discussing socioeconomic background, it is important to recognise that language can perpetuate existing inequalities, stereotypes and narratives based on deficit. Rather than focusing on what people lack, language should acknowledge individuals' strengths and the wider context that shape their circumstances. Individuals' identities are complex and multifaceted, and care should be taken to adopt a language that takes this into account.

Throughout this study, we report SEB using 'higher', 'intermediate' or 'lower' groupings derived from the occupation of the main household earner when the individual was aged 14 (referred in this report as 'parental occupation').[2] This approach supports consistency in our analysis while acknowledging that SEB exists on a spectrum, where broad categories such as 'high', 'intermediate' and 'low' can obscure important nuances and variations in lived experiences.

When reporting on SEB, we provide detailed information to reflect the various forms of intersectional challenges that individuals may have experienced. We avoid pejorative and stereotyping language that reinforces misconceptions about individuals from diverse SEBs. Instead of using words that encourage deficit framing, we replace "disadvantage" or "deprivation" with terms that clearly define the context in which their outcomes and opportunities are impacted, such as "under-resourced".[3] By doing so, we aim to capture limitations in access to cultural, educational or social capital, rather than focusing only on financial constraints, while also avoiding implicit bias.[4]

Although we strive to use the most up-to-date terminology, we recognise that language and understanding of inclusivity continue to evolve, and terms considered appropriate today may become outdated over time.

[2] Social Mobility Commission. This measure is widely regarded as the most robust indicator of SEB due to its clarity, high response rates and applicability across age groups and national contexts.

[3] South-West Social Mobility Commissions Substack. Fixing a broken tongue. https://swsmc.substack.com/p/fixing-a-broken-tongue

[4] Weale, S. (2023) Warning over unconscious bias against working-class pupils in English schools. The Guardian, 3 October. https://www.theguardian.com/society/2023/oct/03/warning-unconscious-bias-working-class-pupils-schools-england

2 Introduction

Individuals from lower SEBs are underrepresented and disproportionately encounter barriers to progression in chemistry careers.[5] These barriers manifest across multiple stages of the academic and professional pipeline, from entry into a chemistry degree to progression within the chemical sciences workforce.

To get a better understanding of the representation of different SEBs across all undergraduate (UG) degrees in the UK, and how this compared with chemistry degrees, we analysed the Higher Education Statistics Agency (HESA) data across all subjects against chemistry between the years 2019/20 and 2023/24.[6]

Table 1. SEB distribution of UG students in chemistry ("Chem") compared with all subjects ("All Sub") from academic years 2019/20 to 2023/24. SEB is based on the occupation of the main household earner when the student was aged approximately 14.

SEB	2019/20		2020/21		2021/22		2022/23		2023/24	
	All Sub (%)	Chem (%)	All Sub (%)	Chem (%)	All Sub (%)	Chem (%)	All Sub (%)	Chem (%)	All Sub (%)	Chem (%)
Higher	35.6	40.6	35.5	40.3	36.0	40.8	33.2	37.0	32.1	36.5
Intermediate	12.2	12.9	11.9	12.4	11.8	11.8	10.6	10.6	9.9	9.9
Lower	13.7	14.5	13.8	14.5	13.8	14.3	11.9	12.0	10.8	10.9
Not classified	13.0	13.0	12.4	12.5	11.7	11.8	13.6	14.5	14.2	15.9
Unknown	25.5	19.1	26.4	20.3	26.7	21.2	30.6	25.9	33.0	26.8

[5] Chemistry World (2024). Empowering voices: advancing social mobility in the chemical sciences. https://www.chemistryworld.com/webinars/empowering-voices-advancing-social-mobility-in-the-chemical-sciences/4019372.article

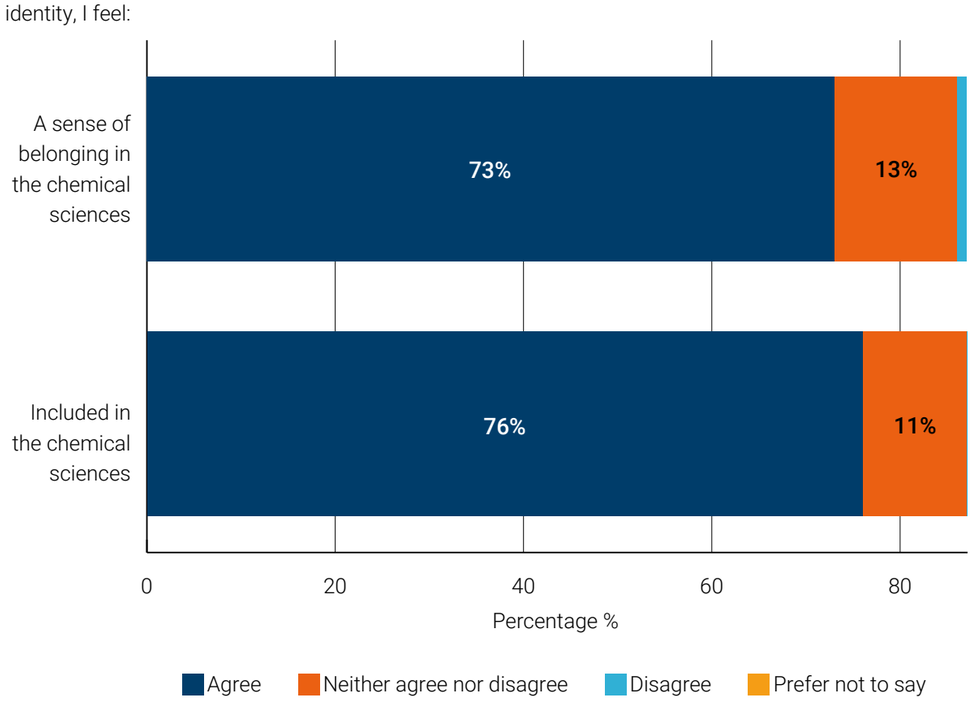
[6] Overview of chemistry and All subject Undergraduate students at UK Higher education institutions between 2019/20 until 2023/24 provided by JISC Services Ltd based on the HESA Student record. The Jisc Services Standard Rounding Methodology has been applied, with all plots in FPE (Full Person Equivalent) with subjects filtered based on Subject of study (CAH2) (2019/20 onwards): (07-12) Chemistry

The data shows that, compared to all UG subjects, chemistry has attracted slightly higher concentrations of UG students from higher SEBs across the years. Although differences between chemistry and all subjects are marginal at the lower end of the SEB distribution, when averaging the SEB distribution from 2019 to 2024, chemistry exceeds both the "all subjects" UG profile (34%) and the UK benchmark for higher SEB participation (37%) in the working population,[7] standing at 39%.

This trend is also reflected in the average distribution of SEB normalised after excluding "Not classified" and "Unknown" (Figure 1).

This demonstrates that chemistry draws disproportionately from higher SEBs, reinforcing concerns about heightened social selectivity at the upper end of the socioeconomic distribution and the need for chemistry-specific research and interventions.

▼ **Figure 1.** Socioeconomic distribution of UG students in chemistry compared with all subjects, averaged from 2019/20 until 2023/24 included (maximum standard deviation of ± 2% across SEB categories). Data normalised after excluding "Not classified" and "Unknown".



[7] Social Mobility Commission (2020) Cross-industry toolkit. https://socialmobility.independent-commission.uk/toolkit/cross-industry-toolkit/

While this initial quantitative analysis provides important insights on the representation of diverse SEBs in chemistry UG degrees, it is not sufficient to fully understand the lived experiences underpinning the observed trends. Qualitative evidence is required to develop a more comprehensive understanding of the underlying causes, motivations, lived experiences and factors shaping progression of individuals from diverse SEBs in chemistry.

This research aims to address a fundamental question: **in what ways does SEB shape educational experiences, career aspirations and progression pathways within the chemical sciences?** It focuses specifically on UG students, who are at a critical intervention point in the chemical sciences pipeline, where decisions about belonging, progression and future careers are shaped.

Socioeconomic inequalities in chemistry are particularly visible at UG level, before attrition and self-selection narrow participation at later stages. This stage therefore offers the greatest potential to influence experience, belonging and access to opportunity across networks and career pathways. Understanding these experiences for UGs is therefore essential to preventing inequality from compounding across the chemistry career journey, and is a strategic imperative for the chemical sciences workforce.[8] Diverse perspectives drive innovation, strengthen problem solving and enhance the resilience of the scientific workforce.[9] Without targeted initiatives, systemic barriers risk perpetuating cycles of exclusion and limiting the sector's ability to attract and retain talent from all backgrounds.

This research therefore seeks to provide a robust evidence base to inform policy, practice and future initiatives aimed at sustaining widening participation and fostering a culture of belonging in the chemical sciences. It also offers a methodological framework that can be applied across other disciplines to investigate how SEB influences the retention and progression of UG students in STEM.

2.1 Research aims and objectives

This study examines the factors shaping the educational progression, career aspirations and professional development of chemical science UGs from diverse SEBs across the UK, including international students. It explores systemic and individual barriers, intersectional experiences of inclusion and belonging, and interventions aimed at improving equity within the chemical sciences.

By addressing these research objectives, we seek to generate actionable insights to support key stakeholders, including the RSC, in creating more equitable pathways into and through the chemical sciences.

This research uses a mixed-methods approach combining quantitative (survey) and qualitative (focus groups and interviews) methods to provide both breadth and depth of understanding (further detail on methodology can be found in Appendix 1, 2 and 3). This enables robust, nuanced insights into student experiences.

[8] Royal Society of Chemistry (2025). Future workforce and educational pathways. https://www.rsc.org/policy-and-campaigning/discovery-and-innovation/future-workforce-and-educational-pathways

[9] Royal Society of Chemistry (2026). Our inclusion and diversity strategy to 2030. https://www.rsc.org/policy-and-campaigning/science-culture/our-inclusion-and-diversity-strategy-to-2030

2.2 Who engaged with this research

To ensure that the research did not examine SEB in isolation, we also considered how it intersects with protected and other characteristics. We monitored participants' gender, ethnicity, disability status, LGBT+ status, mature student status, caring responsibilities and care experience.

Regional analysis was prioritised to understand the multifaceted nature of opportunity and progression across the UK, and to assess regional disparities in access to chemistry education.[10]

Although the survey was specifically targeted at UG chemistry students, of the 863 responses received, 15% were from postgraduate (PG) students and 70% were from UG students. The remaining 15% of respondents consisted of secondary school and sixth form students, working and retired individuals. The analysis presented in this report only accounts for the responses of UG students.

A substantial majority of UG students (73%) were studying chemistry exclusively, and a further 19% were enrolled in subjects allied to chemistry or joint programmes. Almost all students (97%) studied full time, and 90% attended their courses primarily in person. A breakdown of the UG students' respondents based on geographical distribution, year of their degree, institution type, gender, age, race, disability status and RSC membership can be found in Figure 2.

[10] Royal Society of Chemistry (2025). Shaping the future of chemistry in higher education. https://www.rsc.org/policy-and-campaigning/education/shaping-the-future-of-chemistry-in-higher-education

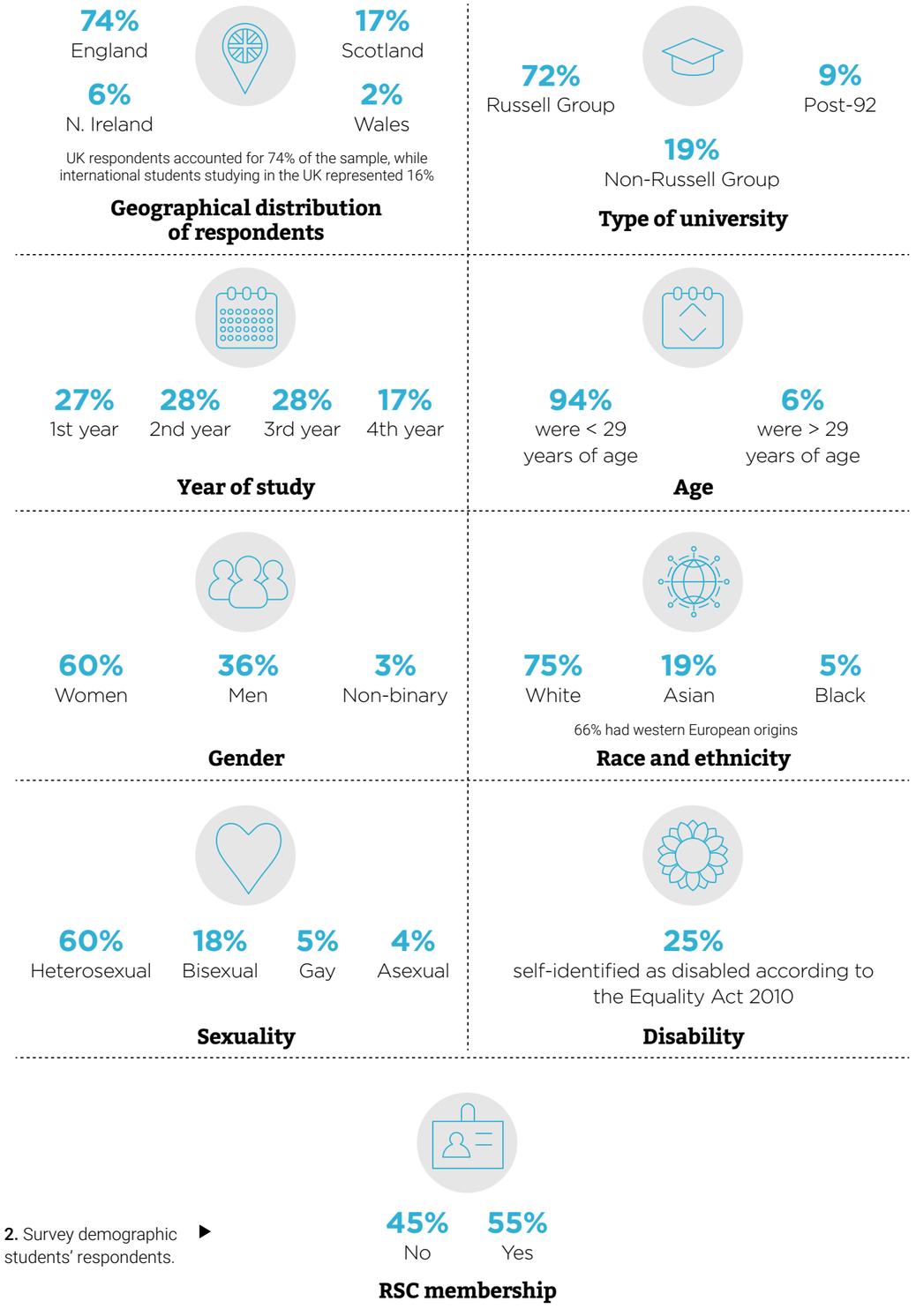


Figure 2. Survey demographic for UG students' respondents. ▶

[11] Survey findings are contextualised using HESA undergraduate enrolment data for Physical Sciences, enabling indicative comparison with the wider student population. Subject uptake dashboard | HESA https://www.hesa.ac.uk/data-and-analysis/open-data-tools/subject-uptake-dashboard

3 Defining socioeconomic background

SEB is defined here using parental occupation at age 14 for its ability to produce a distribution of SEB and accessibility across nationalities, in line with the Social Mobility Commission guidance.[12] This measure captures long-term access to financial, educational and social resources, and allows comparison across all students, including international students in the UK.

In addition, this research also captured how students perceived their own SEB, with the aim of recognising that socioeconomic identity is experienced subjectively and contextually, and that self-perception can shape confidence, belonging and engagement in academic environments.

Additional indicators such as school type, eligibility for free school meals (FSM) and highest parental occupation were also included, as these factors often intersect with structural inequalities and may influence student experiences.

While these measures provide a strong and nationally aligned framework for understanding SEB, this study did not directly examine factors such as parental relationship status or Adverse Childhood Experiences. This was a deliberate decision to balance the depth of data collected with respondent sensitivity and accessibility. However, future research could explore these factors to capture the complex and overlapping experiences that influence socioeconomic outcomes, identity and participation in academic and workplace settings.

3.1 Parental occupation as the primary indicator of socioeconomic background

Nearly two-thirds (63%) of UG students who responded to our survey reported parental occupations in professional or managerial roles, while 23% identified with parental occupation from working-class backgrounds. 74% of respondents attended a state school in the UK, while 23% reported eligibility for FSM, with 63% reporting parental education levels with a degree or higher. Overall, these trends are consistent with the underrepresentation of chemistry students from lower SEBs reported in our HESA data analysis.

To ensure the robustness of parental occupation as a primary indicator for SEB, we analysed the correlation between parental occupation at age 14 and the other three measures of SEB among the respondents (Figure 3).

When using parental occupation at age 14 as the identifier for SEBs, our analysis indicates that students from lower SEBs are slightly more likely to have attended state schools, been eligible for FSM and have parents without degree-level qualifications. Students from higher SEBs show the opposite pattern, with very low FSM eligibility and high levels of parental degree attainment. Students from intermediate backgrounds consistently fell between these two groups.

[12] Social Mobility Commission (2021). Simplifying how employers measure socio-economic background: An accompanying report to new guidance. https://www.gov.uk/government/publications/understanding-a-workforces-socio-economic-background-for-change/simplifying-how-employers-measure-socio-economic-background-an-accompanying-report-to-new-guidance

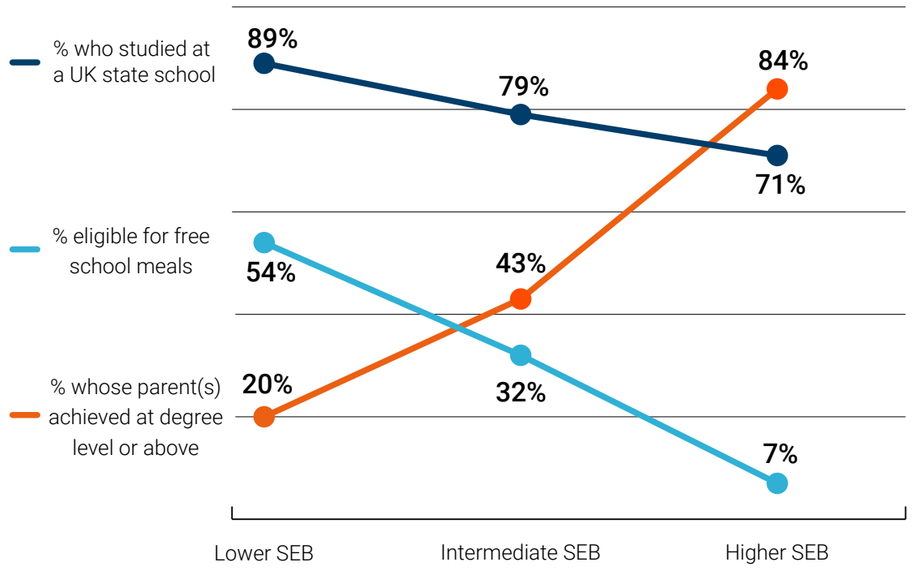


Figure 3. Relationship between parental occupation (primary SEB measure) and other indicators of socioeconomic background (n=602).

Together, these patterns demonstrate that parental occupation is a robust and meaningful indicator of SEB among respondents. Therefore, parental occupation was used as the primary measure throughout this study, with other indicators used to enrich interpretation and contextual understanding rather than define SEB in isolation.

3.2 The perception of socioeconomic background

To investigate the relationship between actual and perceived SEB, we asked survey respondents how they would describe their SEB. Most respondents self-identify as coming from an intermediate SEB (Figure 4). Notably, 76% of respondents from higher SEBs self-described as coming from either an intermediate or lower SEB (Figure 5). In contrast, around two-thirds of respondents from intermediate and lower SEBs self-identified in line with their measured SEB based on parental occupation.

A reasonably strong alignment between perceived and estimated SEB was observed only among respondents from intermediate and lower SEBs. Respondents from higher SEBs were the least likely to self-identify in line with their measured SEB, indicating limitations in the consistency of self-reported SEBs across the sample.

Across the different measures of SEB, our research shows that attendance at a fee-paying school is the strongest indicator of students perceiving themselves as coming from a higher SEB. In contrast, lower SEB is consistently associated with FSM eligibility, attendance at a state school and low levels of parental education (see Figure A1-A3 in Appendix 4).

Self-perception of SEB enables individuals to articulate their lived experiences in ways that traditional metrics often fail to capture, so understanding the mismatch between actual and perceived SEB is important for identifying and addressing barriers faced by students.

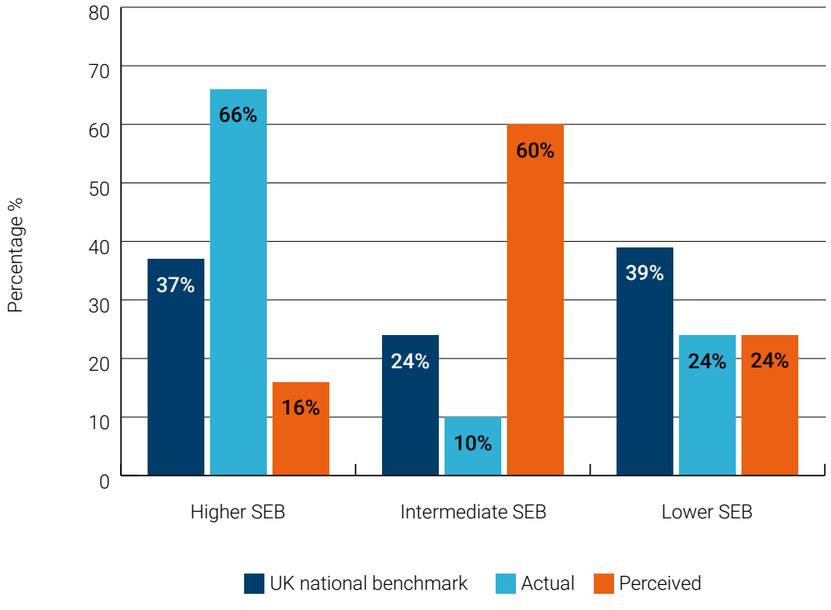


Figure 4. SEB measured by the UK national benchmark, actual SEB based on parental occupation and perceived SEB (n=602).

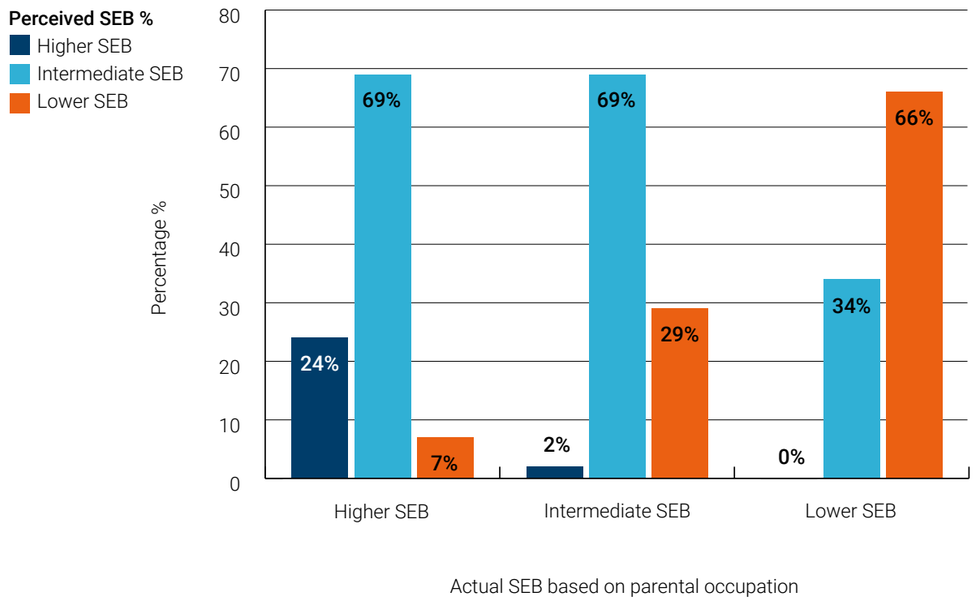


Figure 5. How would you describe your socioeconomic background by parental occupation? (n=566). 'Prefer not to say/unsure' excluded.

Several factors may contribute to this disconnect:

- Perceptions of SEB are often shaped more by personal experiences, social comparisons, cultural norms and community influences than by formal socioeconomic classifications.
- SEB classifications can imply stability and uniformity, yet experiences of upward or downward social mobility often blur identity boundaries. For example, students from professional family backgrounds may not feel fully aligned with a higher SEB upbringing and instead position themselves as having an 'intermediate SEB'.
- Self-assessment is frequently influenced by relative comparison rather than objective measures. Students with parents from professional backgrounds may perceive themselves as 'intermediate' when comparing their circumstances to wealthier or more privileged peers.
- Additionally, self-identifying with a higher SEB may feel socially uncomfortable or misaligned with personal values, particularly in contexts that emphasise equality and social inclusion. This may lead respondents to select a more neutral category.

Overall, these findings demonstrate how early access to economic, educational and social resources shapes participation in chemistry at UG level. Students from higher SEBs are more likely to enter the chemical sciences with greater social and science capital,[13] reinforcing existing inequalities in confidence, opportunity and progression.

[13] Archer, L et al. ASPIRES3 Summary Report: Chemistry (2023). https://discovery.ucl.ac.uk/id/eprint/10182298

4 Identity is relative, contextual and intersectional

Identity is not fixed, but it is shaped by context. Where people are, and who they are surrounded by, influences how they see themselves and how they are perceived by others. Differences become more noticeable through contrast with those around them.

There is a crucial difference between measuring socioeconomic status at a single moment and understanding someone's wider SEB. Where a person starts in life continues to influence opportunities, barriers and belonging throughout their career. Misunderstandings about SEB, particularly when compounded by intersection with other marginalisations, risk obscuring real barriers and reinforcing inequitable outcomes.

4.1 Identity, context and belonging in the chemical sciences

Our findings show that students across all SEBs recognise the significant influence socioeconomic factors play in shaping education and career journeys. These influences are understood to be both positive and negative.

Crucially, there is a shared awareness that students from lower SEBs experience barriers and challenges that can affect access, progression and outcomes.[14] These challenges often lead to feelings of isolation, uncertainty and reduced confidence, which in turn can limit engagement and progression into the profession.

Challenges affecting students in the chemical sciences can broadly be categorised as intrinsic (specific to the individual, such as protected characteristics) or extrinsic (external factors beyond the individual, such as regional inequalities), each exerting distinct influences on educational experiences and outcomes. Students frequently encounter a combination of these influences, shaping both their engagement with the discipline and their perceptions of belonging.

> *"I came into first year with a really strong passion for chemistry, and still have this, but I feel like I'm constantly fighting uphill at university and I don't really see the point anymore. There's a lot of entrenched elitism and university feels unfair if you don't come from the ideal background to study."*
>
> **Man, 20-24, higher SEB**
> White, Northern Ireland

> *"Those around me (my family) have little understanding about what I do as an undergraduate chemist, which is sometimes disheartening when they have assumptions and stereotypes about students being lazy […]. In terms of career trajectory, I would say being the first person to go into higher education in my family keeps me motivated to keep going and have my family be proud of me."*
>
> **Woman, 20-24, lower SEB**
> White, Scotland

[14] Social Mobility Commission (2025) State of the Nation 2025: The evolving story of social mobility in the UK. London: Social Mobility Commission. https://socialmobility.independent-commission.uk/publication/state-of-the-nation-2025-the-evolving-story-of-social-mobility-in-the-uk/

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4 Identity is relative, contextual and intersectional

> *"I think the biggest impact was on my perspectives about careers and life. Growing up (in a working class area/family in the North East), I wasn't even aware of most higher-paying jobs […]. Then I came to a Russell Group uni, met lots of middle-class people, and the ceiling of my career goals changed. I like to phrase it like, I never knew anyone whose parents went to work in a suit. But my middle-class counterparts from London etc were completely surrounded by that. I think career ambition is talked about a lot less in working class communities (for better or worse)."*
>
> **Woman, 20-24, higher SEB**
> White, England

> *"I think my background has definitely affected me positively. I'm the youngest of three children, and by the time my Highers came around, my parents were a little bit better off than they had been in the past. We moved house and I had space to study that my sisters didn't. A lot of people don't."*
>
> **Focus group participant**
> Scotland

Some factors tend to be closely linked – for example, region, educational background and access to resources – while others converge to make a single barrier to progression.

Intrinsic and extrinsic factors frequently intersect, creating compounded barriers. While individual background elements present unique challenges, it is often the cumulative effect of factors that most significantly impacts UG student experience and progression.

Our research shows that when facing challenges, students might feel overwhelmed by multiple pressure points at once, with different aspects of their background overlapping, causing unique stressors that have a cumulative and negative impact. This can be exceptionally draining to deal with on a day-to-day basis. As a result, some students can suffer from longer-term issues such as burnout, while others may lose interest in the discipline altogether. This can be common among groups who face barriers that require considerable effort to address on an ongoing basis (e.g. adjustments related to a disability, difference or impairment), as well as for those where barriers ultimately reflect broader societal issues and are therefore seen as unlikely to be fixed overnight (e.g. discriminatory attitudes and the overall lack of representation).

These dynamics illustrate how intersecting

> *"I'm not getting the same level of support as other people, because I just had too many issues for them [school and university support services]."*
>
> **Focus group participant**
> Scotland

"I found a natural love for science throughout high school. However, it also was almost obvious to myself that university was not an option for me as it was 'very expensive'. I had consistently performed well in school but had not been able to take part in many school trips so I had completely ruled out university...The sense of being othered can run really deep in your mindset. Even now as a probationer chemistry teacher, there are huge moments of imposter syndrome."

Man, 30-44, lower SEB
White, Scotland

"Coming from a low-income household, I was lucky enough to be offered a full bursary for secondary school. Even through that, it's very obvious that I didn't have the same opportunities as my peers, as they were able to participate in many extracurricular/supercurricular activities that I knew I would never be able to afford. Also, coming from an uneducated background, I didn't know how to progress my career/make something of myself so I don't just repeat the pattern, and it's something I still struggle with at uni because I don't know where to look for advice."

Woman, 19 or under, lower SEB
Middle Eastern or North African, England

influences can shape educational and career trajectories within the chemical sciences.

Experiences of belonging are shaped not only by their individual identity, but also by how SEB is recognised and discussed within academic environments. Several participants described reluctance to speak openly about their SEB, noting that class was rarely acknowledged as a key factor of inclusion and diversity initiatives. For some, participation in this research represented the first opportunity to reflect explicitly on how their SEB had shaped their educational trajectory. This lack of opportunity for discussion can reinforce feelings of isolation, particularly when students perceive themselves as 'othered' from peers.

Evidence-based interventions, financial support, mentoring, inclusive teaching and outreach can create equitable pathways for all students. However, these initiatives must be co-developed using an intersectional lens and aligned with the primary drivers shaping UG students' career trajectories, with their needs and lived experiences driving every interaction.

4.2 The impact of protected characteristics on education and career progression

Intrinsic factors are broadly tied to protected characteristics and can influence confidence, engagement and academic performance. Ultimately, these factors can amplify inequalities for students from lower SEBs and compound existing barriers to progression.

Findings from our focus groups and interviews show that intrinsic factors can negatively impact students' determination and ability to engage with the chemical sciences due to a sense that they cannot achieve their goals. Some of the impacts include:

- **dampened enthusiasm** – feeling held back by factors beyond their control and, in turn, diminishing their optimism and enthusiasm for the chemical sciences.
- **decreased confidence** – feeling they don't fully belong in the chemical sciences, losing confidence in contributing, and struggling to express their authentic selves.
- **need for self-advocacy** – often needing to develop strong self-advocacy skills to access support. This constant need to seek help can be mentally exhausting, gradually undermining their resilience and overall wellbeing.
- **mental health struggles** – barriers linked to personal characteristics can significantly impact students' mental health, often causing increased stress, anxiety and symptoms of depression.
- **flexibility required** – such as needing accommodations and allowances to overcome intrinsic barriers. The constant vigilance and self-advocacy required can create additional challenges, such as meeting deadlines, and can contribute to stressful experiences.
- **falling behind** – when barriers hinder progress, students feel they are falling behind their peers, which can diminish confidence in their abilities and be detrimental to their mental health.

While intrinsic factors influence the education and career paths of undergraduate students, respondents did not always explicitly link their challenges to personal characteristics. When asked about the impact of these characteristics on education and career progression (Figure 6), more than half of respondents reported that these factors had little or no impact. Among those who identified an effect, perceptions varied, with some students viewing aspects of their identity as advantageous and others as limiting. This disconnect may reflect how intrinsic factors are shaped and experienced through wider structural and cultural contexts, rather than being recognised as independent drivers. Disability was most consistently associated with a negative impact on career progression, suggesting that the effect of personal characteristics becomes more visible when combined with systematic barriers. Gender was also seen as slightly more likely to have a negative effect, highlighting ongoing inequalities in how different identities are experienced in educational and professional settings.

Figure 6. Impact of protected characteristics on UG educational and career progression (n=602). The percentages on the right side of the graph represent the net impact score for each characteristic. This score is calculated as: (%Positive responses) – (%Negative responses).

However, this finding should be interpreted considering the demographic profile of respondents, which may have influenced how personal characteristics are perceived and reported. Across all protected characteristics, there is marked variation in how different minoritised groups perceive the impact of their background on their educational and career progression.

4.2.1 Socioeconomic background interaction with protected characteristics

Our analysis of the interaction of SEB with protected characteristics shows that higher SEB is associated with more positive outcomes for both individuals identifying as White and non-White. However, non-White respondents, regardless of SEB, were more likely to report that race had negatively affected their progression (See Figure A4-7 in Appendix 4).

> *"As an international student in the chemical sciences, I have experienced both the benefits and challenges of inclusivity. Studying in a diverse environment has broadened my perspectives, but language and cultural differences can sometimes create barriers to communication and networking."*
>
> **Man, 19 or under, higher SEB**
> East and Central Asian, international student

Students from racially marginalised and minoritised ethnic backgrounds cited biases and lack of representation.

> *"Being both from an ethnic minority background and from a low-income family created additional barriers."*
>
> **Focus group participant**
> Wales & Northern Ireland

Women were significantly more likely than men to report that gender had negatively affected their education and career progression across all SEBs (See Figure A8-9 in Appendix 4). Evidence from our focus groups and interviews showed that women described challenges around representation and belonging throughout their career trajectories, suggesting that gender-based barriers continue to shape experiences of progression and inclusion over time. However, regardless of gender, lower SEB continues to have a negative impact on UG students' progression.

> *"I am in a male-dominated field, and that is made clear to me. I feel less respected and undervalued than my male counterparts. I feel as though I have to be excellent to receive the same benefits as mediocre male colleagues."*
>
> **Woman, 20-24, higher SEB**
> White, England

> *"Women are quite underrepresented... It is very male dominated, and that makes me feel like it's going to be harder to get into or it discourages me slightly. Also, the fact that there's less academics who are females, there's less relatability."*
>
> **Woman, 20-24, lower SEB**
> England

Our findings indicate that disability status is viewed as the biggest barrier to progression for both men and women, but more strongly for women (See Figure A10-12 in Appendix 4). Disabled students reported facing structural challenges in laboratory-based courses.

> *"I got adjustments for my disabilities, but it was honestly kind of too late, because I was pushing myself so much in labs that I genuinely was getting much more ill."*
>
> **Woman, 20-24, lower SEB**
> England

While more than eight in 10 respondents across all groups felt that sexual orientation had little or no impact on their progression, non-heterosexual individuals from intermediate or lower SEBs were more likely to report a negative impact (See Figure A13-14 in Appendix 4).

> *"As a white, privileged male I don't usually experience any form of discrimination from the science industry. But when colleagues learn of my sexual orientation (gay), I often feel shunned, looked down upon, and sometimes even have noticed people recoil away from me...I feel assaulted and offended, but have estimated it is due to the age distribution of chemists, who have been bought up in another generation."*
>
> **Man, 19 or under, intermediate SEB**
> White, England

4.3 The impact of the environment and external circumstances

Our research indicates that students from lower SEBs have less access to the resources that support progression and success in the chemical sciences compared with their peers from higher SEBs. Respondents from lower SEBs frequently described relying on chance encounters, informal advice or individual mentorship to access opportunities that others encountered routinely through more established networks. While many respondents from lower SEBs demonstrated high levels of motivation and determination, progression was often perceived as dependent on personal resilience rather than institutional support. In contrast, students from higher SEBs more commonly described a clearer understanding of available pathways and greater confidence in navigating academic and professional environments.

Qualitative data also show lower awareness and uptake of opportunities among UG students from lower SEBs. Students described how limited outreach, alongside financial and time pressures, restricted their ability to engage, even when opportunities were available. Furthermore, when support was available, it was often perceived as lower in quality than the support offered to those from higher SEBs, increasing the risk of falling behind. Overall, the research highlights how extrinsic factors shape aspirations, access to opportunities and progression within the chemical sciences.

Financial constraints make it significantly harder to focus on studies and achieve academic success. Cost-of-living pressures and relocation costs disproportionately affect lower SEB students.

> *"At university, I'm surrounded by people who've gone to private schools or international students. They're paying a lot more money and have a much more financially stable background than I do...it affects every different aspect of being at university."*
>
> **Man, 20-24**
> intermediate SEB, England

> *"Coming from a lower socioeconomic background has shaped my educational and career trajectory, presenting both challenges and opportunities. Financial constraints meant balancing part-time work with studies, limiting access to extracurricular opportunities. However, these experiences fostered resilience, time management and determination."*
>
> **Woman, 25-29, lower SEB**
> White, England

Family background: Lower awareness of available options and opportunities makes it more difficult for students from lower SEBs to access support and networking contacts, and to envision themselves as part of the chemical sciences community.

> *"The way you dress, the way you speak, even the references you get – all these things signal your background and affect how people treat you."*
>
> **Focus group participant**
> England

> *"I have found that my current standing leaves me with the least benefits. Richer students have easier access to companies and internships. While I am considered low income, I am not "poor" enough to receive any form of assistance."*
>
> **Woman, 19 or under, lower SEB**
> South East Asian, England

Support networks: The support underpinning an individual's passion for chemistry, both in terms of moral encouragement and educational assistance, plays a critical role in determining their success and influences the quality of resources available to them.

Employment market trends: These factors shape perceptions of whether a career in chemistry is achievable, raising concerns about job availability and the ability to earn a sustainable income within the chemical sciences.

> *"Chemical sciences don't pay enough at the early stages. I don't want to do a PhD ever because academia is toxic and to excel in chemical sciences, I think at some point you have to do a PhD."*
>
> **Woman, 20-24, lower SEB**
> South East Asian, international student

> *"Poor pay, and lack of opportunity to form [networks] in a field where who you know can be more important in finding the next position [than] what you know, [are particular challenges] in academia."*
>
> **Woman, 30-44, higher SEB**
> White, England

Location/region: Location influences exposure to chemistry, the quality of education, the cost of study and living, and the availability of support systems. In some cases, relocation may be necessary to access educational or employment opportunities.

> *"There are limited internships available in my home city compared to London, and with high rents in London, my parents cannot be named as guarantors if finding accommodation. To some extent, being from a low-income background does motivate me [to] work hard to secure a stable future. However, combined with financial worries, which are my main concerns, sometimes it can be overwhelming."*
>
> **Woman, 20-24, lower SEB**
> South East Asian, England

> *"In terms of education...it really does depend on the area where you live. I mean, I feel like if you're given better resources, obviously you'll do well, whereas people who aren't, won't."*
>
> **Focus group participant**
> England

School quality/resources: The quality of laboratory facilities varies considerably, and access to research opportunities is often inconsistent. Likewise, support services differ significantly across institutions.

> *"I always felt like my school didn't have as many lab experiments as other schools. When I came to university, I had fewer practical skills than others...I think it starts from a very young age, like primary school. Some kids have science kits at home and parents who can explain things, while others don't have those resources."*
>
> **Focus group participant**
> Wales & Northern Ireland

Such factors influence access to opportunities, awareness of support and perceptions of career viability.

4.4 Why belonging matters for progression and retention

Belonging is more than a feeling, it is an important predictor of success in higher education.[15] A genuine sense of belonging not only supports mental health and confidence, but also drives innovation, collaboration and career progression. Yet many chemists, particularly those from underrepresented groups, still face barriers that leave them feeling excluded.

Undergraduate students who feel accepted and valued are more likely to thrive academically and socially. In the chemical sciences, belonging influences confidence in laboratory settings, engagement with research and aspirations for future careers. When belonging is absent, students are more likely to disengage, limit their ambitions or leave the discipline altogether.

Strengthening belonging can be a powerful lever for improving equity, participation, and retention and progression in the chemical sciences. By addressing SEB-related barriers, we can build a discipline in which every student, regardless of class or background, can see themselves as valued, capable and integral to the chemical sciences community.

Belonging operates at the intersection of identity, community and institutional culture. While inclusivity often refers to structural representation and policy, belonging reflects the individual experience of integration and acceptance. Belonging is therefore closely linked to:

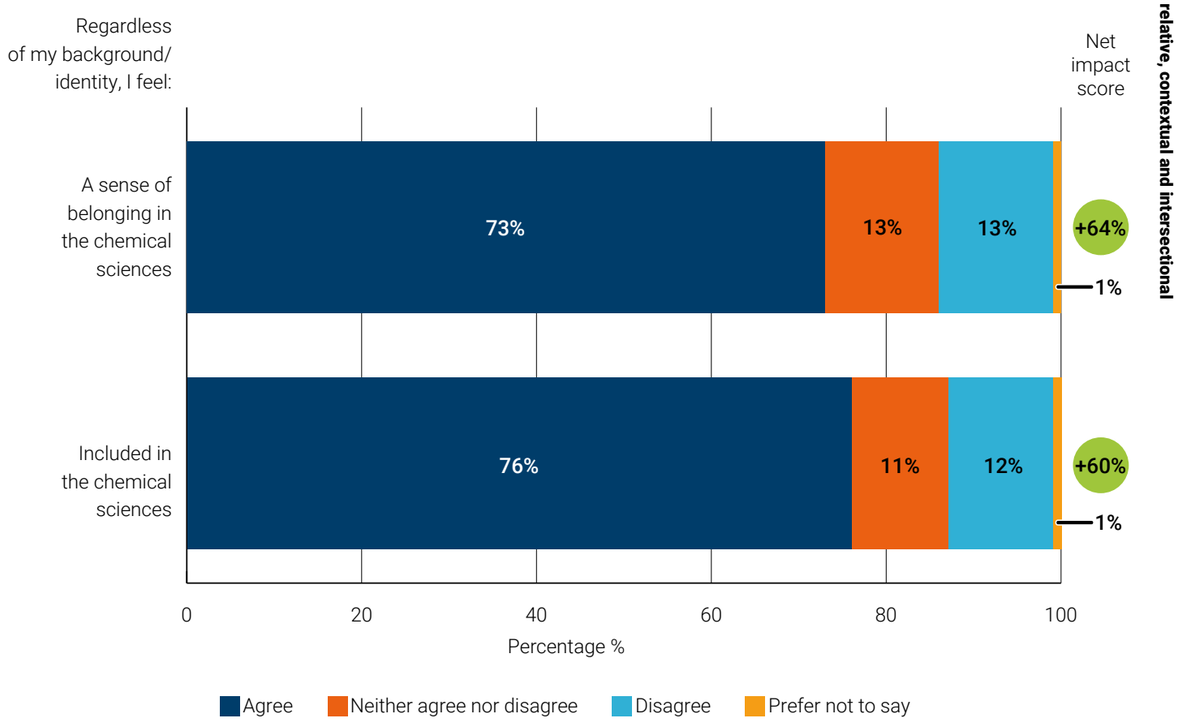
- **Retention and progression:** Students who feel they belong are more likely to engage actively in learning and research, seek support when needed and persist through challenges, and complete their studies.
- **Mental health:** Lack of belonging correlates with isolation and imposter syndrome.
- **Workforce diversity:** Attrition among underrepresented groups perpetuates inequities.

4.5 Feelings of belonging are closely linked to perceptions of opportunity

When students believe that success in chemistry is dependent on unspoken rules, family science connections or cultural capital, those from lower SEBs may disengage or limit their ambitions, even when academically capable. Conversely, environments that make opportunity visible and attainable can mitigate the cumulative effects of earlier barriers and challenges, supporting persistence within the discipline. The impact of SEB on students' sense of belonging was explored through the survey, with around

[15] Royal Society of Chemistry (2022). A sense of belonging in the chemical sciences. https://www.rsc.org/policy-and-campaigning/science-culture/belonging-in-the-chemical-sciences

Figure 7. To what extent do you agree or disagree with the following statements? Base: All undergraduate students (n=602).



three-quarters of students agreeing that they feel included/a sense of belonging in the chemical sciences (Figure 7).[16]

Across both sense of belonging and feeling included in the chemical sciences, there is a consistent socioeconomic gradient. Respondents from lower SEBs reported less positive experiences and higher negative responses than those from intermediate or higher SEBs. While the majority of respondents in all groups reported positive experiences, the gap between lower SEBs and higher SEBs is persistent and meaningful (Figure 8 and Figure 9).

[16] The survey found no major differences in students' outlook on the chemical sciences beyond those reflected in measures of belonging and inclusion. Broader perceptions of the field, such as future prospects or societal impact, were not directly measured.

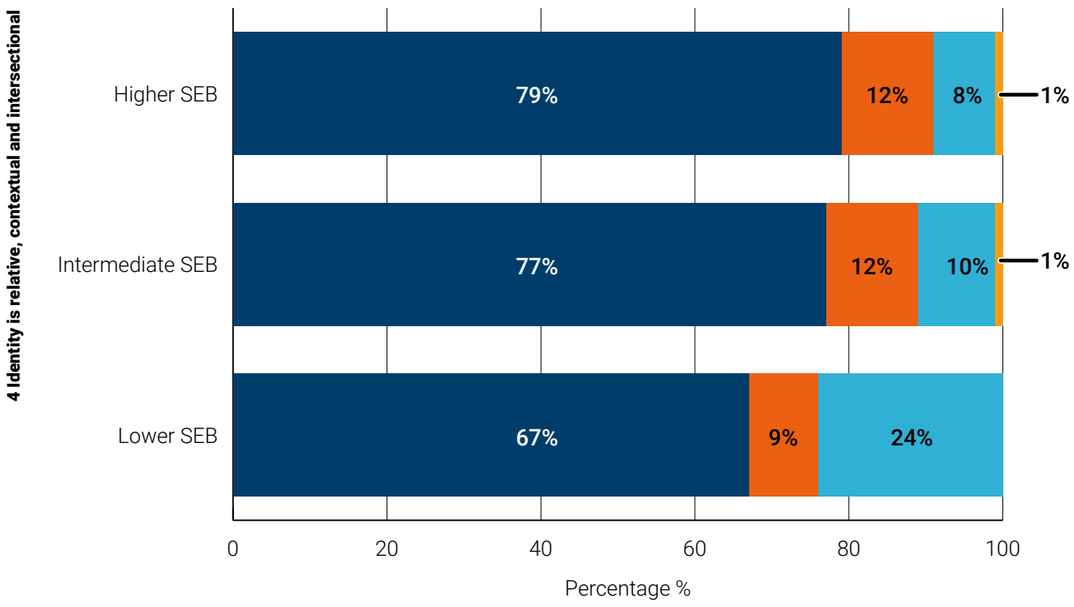


Figure 8. Proportion of students reporting that they feel included in the chemical sciences, by self-described socioeconomic background (n = 602).

This suggests that coming from a lower SEB can erode one's sense of inclusion in the chemistry community. Students from lower SEBs may feel less represented or face subtle barriers that make them question if they 'fit in'. In contrast, those from higher SEBs often feel more at home in these environments.

> *"I feel like not having relatives in science means that there is a sort of 'hidden knowledge' that I didn't receive... connections to work experience opportunities that my peers... already had."*
>
> **Woman, 19 or under, lower SEB**
> White, England

> *"The people I was with were from privileged backgrounds or stable homes. There is always the feeling of alienation when you can't relate to people who have not had any real struggles in life."*
>
> **Man, 25-29, intermediate SEB**
> Mixed Asian White, England

However, while SEB emerged as a significant factor, our qualitative data indicates that it interacts with other aspects of identity and lived experience, shaping how belonging is felt and expressed across different groups.

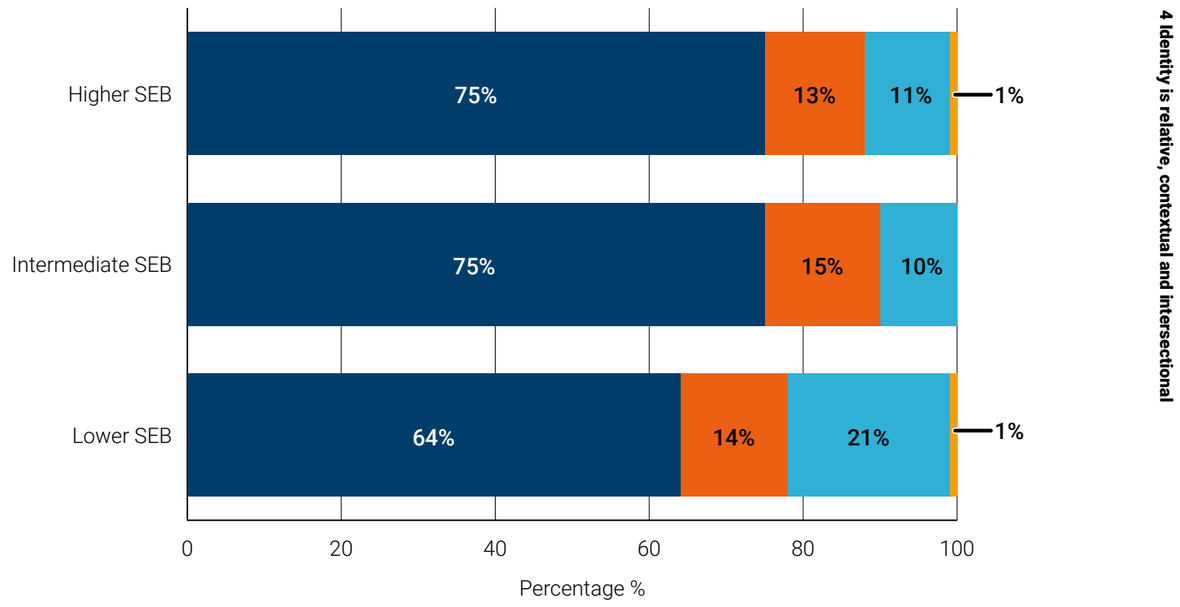


Figure 9. Proportion of students reporting a sense of belonging in the chemical sciences, by self-described socioeconomic background (n = 602).

> *"I'm an adult. I've got my own house, I've got a car, I've got a family. So compared to someone who's 19 years old, who's got all the time in the world to do this degree, then I think that's had quite an impact...I feel confident interacting with others but yeah, there have been times where I felt out of place."*
>
> **Focus group participant**
> England

The survey results showcase that women from lower SEBs often reported compounded challenges in feeling included (some described isolation as "someone like me, in a male-dominated field"). By contrast, men from lower SEBs did not report the same level of isolation, suggesting a gendered dimension to belonging.

> *"Being a woman in chemistry is very difficult. The higher up the ranking you go, it is becoming more and more difficult, to the point that I can see why many women choose to leave our field. It is not enough to say that we want women in sciences. We need to change the way we treat them."*
>
> **Woman, 30-44, intermediate SEB**
> White, international student

When considering the intersection of disability and SEB, disabled students from lower SEBs face amplified barriers to inclusion, combining financial hurdles with accessibility challenges. During interviews and focus groups, disabled students reported feeling a double disadvantage (e.g. struggling to afford adaptations or support) and those from low-income households were the most likely to disagree that they feel included.

"As someone with Tourette's, I can find it difficult as I have been in situations where I'm not trusted to do my own work."

Woman, 20-24, higher SEB,
White, England

"I find sometimes that my dyslexia has a large disadvantage on how others view me and my abilities and have often been discounted because of this."

Woman, 20-24, higher SEB,
White Sub-Saharan African, England

In summary, SEB has a clear influence on students' sense of belonging in the chemical sciences. Students from lower SEBs consistently reported weaker belonging, reduced inclusion and less confidence in their place within the discipline compared with more advantaged peers. This 'belonging gap' is one of the most pronounced disparities in the data set and highlights the influence of cultural and financial factors on how 'at home' students feel in chemistry learning environments.

Although sense of belonging is often viewed as an individual experience, it is strongly influenced by broader factors such as representation and institutional inclusion. Uneven belonging leads to lower engagement, weaker attainment and a higher withdrawal risk for lower SEB students, while also increasing stress and imposter syndrome that undermines confidence and wellbeing. When these students disengage or leave chemistry, the discipline loses future talent and diversity, narrowing the pipeline and limiting the innovation and equity essential for a thriving chemical sciences sector.

"I have faced challenges, particularly in environments dominated by white, cisgender English men. My strong foreign accent often made me feel judged, and despite my pronunciation of chemical terms (especially Greek and Latin words) being accurate, I was sometimes told to 'speak properly' because they did not understand me. Additionally, I occasionally encountered condescending remarks such as, 'I don't know how it works in your country, but here in the UK…', which made me feel excluded and, at times, subjected to subtle or even overt racism… While I have met many open-minded and supportive individuals in the field, these negative experiences made me realise that inclusivity still has a long way to go in certain scientific workplaces."

Woman, 25-29, intermediate SEB,
White, international student

Royal Society of Chemistry I Beyond access: How socioeconomic background shapes the chemistry pipeline

5 Opportunity is not experienced equally

To understand how SEB shapes pre-university conditions that influence entry, retention and progression in the chemical sciences, we analysed data from the survey, focus groups and in-depth interviews. We examined how differences in access to educational resources, family science capital and early exposure to chemistry create unequal starting points long before students enter higher education.

"Compared to people from higher socioeconomic backgrounds, I sometimes feel I set lower goals for myself. However, I feel I am more satisfied with my life and what I have achieved given where I have come from. When I was younger, I wasn't aware it was possible for someone from my background to go to university."

Man, 20-24, lower SEB
White, England

Rather than revisiting experiences of belonging, confidence or progression during university, we focused on how structural advantages and disadvantages build up earlier in students' educational journeys, shaping the expectations and academic identities needed to progress into higher education.

5.1 Socioeconomic background as a foundational condition

Our research shows a strong and consistent relationship between SEB and UG students' wellbeing, confidence and aspirations. Students from higher SEBs reported more positive experiences across all measures, including higher wellbeing, more favourable treatment by others, and greater confidence in their educational and career prospects.

In contrast, students from lower SEBs were significantly more likely to report negative outcomes, underscoring the enduring influence of SEB on both present experiences and future opportunities. As SEB decreases, positive experiences decline sharply while negative experiences increase across every measure (See Figure A20-21 in Appendix 4).

The scale of these differences is substantial. Positive ratings of overall quality of life fall from 81% among students from higher SEBs to 22% among those from lower SEBs, while negative ratings increase from 10% to 52%. Similar gaps are evident in educational and career aspirations, where positive responses decline from around three-quarters to around one-quarter. Perceptions of how others treat respondents follow the same pattern, with positive experiences reported at roughly four times the rate among higher SEB students.

These disparities reflect unequal starting points that are established prior to entry into higher education and sustained across educational and career progression.[11] Differences in school quality, access to guidance and exposure to enrichment opportunities shape students' experiences and expectations well before university.[17]

Students from higher SEBs were more likely to describe their upbringing as providing stability, continuity and support for academic development, while those from lower SEBs more frequently reported material and structural constraints that have shaped both their quality of life and their confidence in academic settings.

[17] Royal Society of Chemistry (2022-2025). The Science Teaching Survey. https://www.rsc.org/policy-and-campaigning/education/the-science-teaching-survey

"We would get two mock interviews, classes every morning… interview archives going back to the 1990s… amazing people helping you on your personal statement."

Woman, 25-29, intermediate SEB
England

Importantly, SEB does not operate as a single, isolated variable. Parental occupation, parents' educational attainment, environmental factors and access to both social and science capital interact to shape early engagement with chemistry and wider STEM subjects.

"Growing up in a disabled single-parent household has made it far more challenging to engage in opportunities around education and career due to other commitments. Also, no one in my family had a degree or skilled career, making my [trajectory] mysterious to my family. This meant that to know how to achieve and progress, I had to do a lot of self-learning."

Woman, 20-24, lower SEB
White, England

"Due to being rather well off with well-educated parents, going to university was pretty much never not an option. I immediately applied for an integrated master's, as just a bachelor's wasn't really an option in my mind."

Man, 20-24, higher SEB
White, England

These factors influence not only attainment, but also the expectations about who chemistry is for. Rather than directly influencing outcomes, SEB functions as a contextual factor influencing the development of aspirations, self-belief and preparedness.

5.2 Access to educational resources and the development of academic interest

Our findings indicate that students from higher SEBs are more likely to have attended independent (fee-paying) schools and consistently reported greater access to well-equipped laboratories, extracurricular science activities and enrichment beyond the core curriculum, supporting confidence, skill development and sustained interest in chemistry for these students. In comparison, lower SEB students were more likely to have gone to state schools and may have had fewer science enrichment opportunities at school, frequently described "under-resourced" school environments, limited opportunities for practical experimentation and lower awareness of pathways into chemistry beyond compulsory education.

"I have gotten to live in many different socioeconomic classes…This led to me being in an array of state, independent and SEN schools, and they all target children with certain backgrounds. There is a massive difference in how children from upper classes get taught and advised, particularly in regard to higher education. In some schools, apprenticeships, T-levels and going into the workforce from sixth form are emphasised, and in others, university is almost expected from the students. You are very much funnelled into a certain trajectory based on which socioeconomic background your school, peers and family are."

Woman, 19 or under, higher SEB
Black, England

This finding demonstrates that practical laboratory experiences, specialist teaching and structured outreach activities are particularly influential in fostering enthusiasm for chemistry and in supporting students to view the subject as both accessible and professionally viable.[18]

When it comes to university choices, this trend of different experiences continues. Students from higher SEBs were overrepresented in Russell Group universities, while those from lower SEBs were more likely to attend non-Russell Group or Post-92 universities. With only 17% of UG students from lower SEB attending Russell Group universities, this pattern is constant with broader socioeconomic differences in university access, with students having the support and encouragement to attend top universities. Meanwhile, those from lower SEBs may opt or are limited to other universities, possibly due to needing to live at home, financial considerations or not meeting entry requirements.

The consequences of these disparities extend beyond subject-specific knowledge.[19] The qualitative evidence from the research indicates that UG students who experienced limited practical exposure prior to university often entered higher education feeling underprepared relative to their peers, even where their academic attainment was strong. Inequalities in provision and participation highlight how these differences translate into psychological and cultural differences, demonstrating how unequal access to resources and social capital shapes trajectories into academia and beyond.

5.3 Family background, science capital and aspirational horizons

Family background emerges as a powerful mediator of early academic pathways, particularly through what is often described as 'science capital'.[20] Students whose parents have experience of higher education or STEM-related careers benefit from informal guidance, familiarity with academic and professional pathways, and support in navigating educational decisions. These advantages are often subtle but cumulative, influencing subject choice, confidence in decision making and awareness of long-term career opportunities.

Among students from higher SEBs, 79% reported that their parents were very or somewhat involved in their university choice, in comparison to just 40% of students from lower SEBs. 44% of lower SEB students reported no parental involvement at all, compared to 6% of higher SEB students.

Our research also indicates that parental involvement in university decision making is higher among students whose parents hold degrees, while first-generation students and those from lower SEBs are more likely to report navigating educational choices independently, often with limited access to institutional knowledge or professional networks. Students from lower SEBs are significantly less likely to receive informed parental input into decisions about postgraduate study or career planning.

[18] Royal Society of Chemistry (2020). Is chemistry accessible for all? Learning from five years of outreach to widen participation. Available at: https://www.rsc.org/policy-and-campaigning/science-culture/is-chemistry-accessible-for-all

[19] The 93% Club (2025) The Big State School Survey https://www.93percent.club/thebigstateschoolsurvey

[20] Moote, J., Archer, L., DeWitt, J., MacLeod, E. (2020). Science capital or STEM capital? Exploring relationships between science capital and technology, engineering, and maths aspirations and attitudes among young people aged 17/18. J Res Sci Teach. 2020; 1– 22. doi: 10.1002/tea.21628

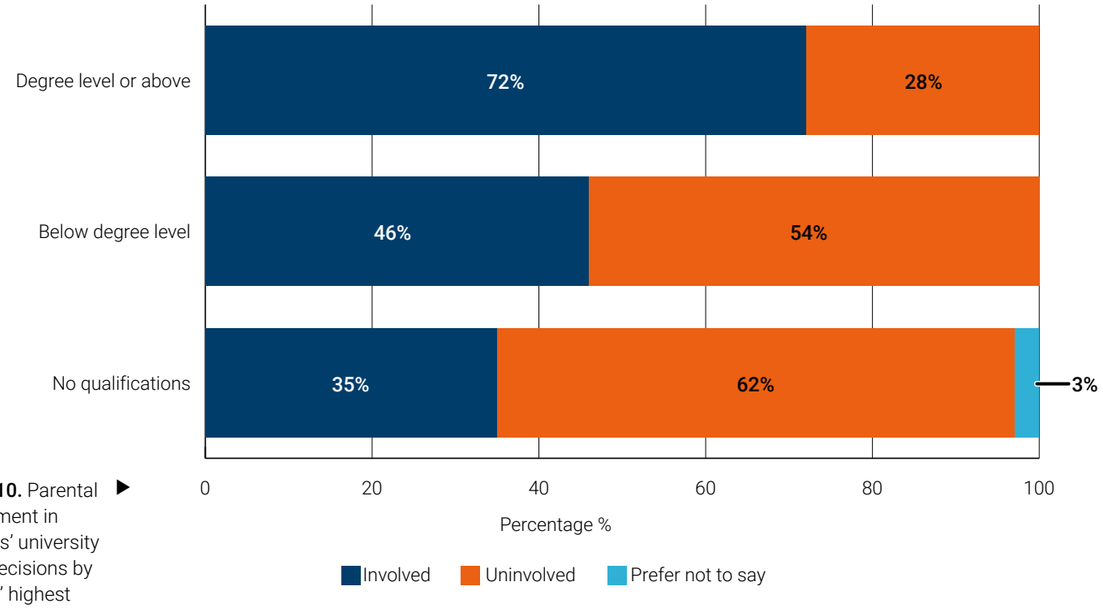


Figure 10. Parental involvement in students' university study decisions by parents' highest qualification level (n = 602).

They are also more likely to report uncertainty about application processes, funding mechanisms and labour market expectations, introducing an important comparative insight in this regard.

Qualitative evidence from our research challenges the deficit-based assumptions about career aspirations, with students from lower SEBs frequently articulating strong motivation and a clear desire to pursue a career in chemistry. However, without access to financial resources, guidance and networks, this motivation was difficult to sustain. Students' ambitions are genuine and sustained, yet continually negotiated in response to financial precarity, uneven access to guidance and networks, and structural inequalities embedded in education to employment pathways. This highlights how disparities in progression are not driven by a lack of ambition, but by structural constraints that limit the translation of aspiration into opportunity (See Figure A22-23 in Appendix 4).

Engagement with professional bodies and disciplinary networks is associated with slightly greater clarity of career intention for some groups, particularly disabled students. However, access to these networks is itself structured by social inequalities. Students who might benefit the most from additional social and cultural capital are often the least likely to access or recognise it, resulting in a compounding effect whereby uncertainty is reproduced rather than mitigated. Even when students possess strong academic ability and motivation, limited access to informal guidance can constrain the translation of aspiration into action.

5.4 Early inequalities, intersecting factors and implications for higher education

SEB does not operate in isolation and often intersects with other dimensions of inequality. Evidence from our research indicates that SEB frequently intersects with protected characteristics such as disability, ethnicity, gender and regional inequalities in shaping pre-university experiences. These intersections produce compounded disparities, including reduced access to resources, lower confidence in academic preparedness and greater reliance on self-advocacy from an early stage.

> *"My school was extremely underfunded, so practicals in science were limited. I had to work throughout my first year at uni in order to feed myself. This gave me lower than average grades and made me unable to apply for an industry year, summer placement or year abroad."*
>
> **Woman, 25-29, lower SEB**
> White, England

While these inequalities originate prior to entry into higher education, they have direct implications for universities seeking to improve retention and progression. Unequal starting points influence how students engage with teaching, assessment and support once enrolled, and help explain why students with similar attainment may experience markedly different outcomes. Interventions focused solely on admissions or financial support, while necessary, are insufficient if they do not also address gaps in preparation, information and confidence that students bring with them into university.

Our findings underline the importance of university-level interventions that explicitly recognise and respond to these early inequalities. Transparent and inclusive communication of opportunities, structured academic support, proactive advising and targeted widening participation initiatives play an important role in mitigating the cumulative effects of socioeconomic inequalities. Addressing pre-university inequalities reinforces the role of higher education institutions to take deliberate, evidence-informed action to support UG students from diverse SEBs.

6 Reframing higher education in the chemical sciences

Students bring rich social, cultural and experiential knowledge shaped by their lives, communities and environments. These lived experiences influence how they think, learn and engage with chemical concepts and laboratory practice.

Valuing the different forms of knowledge that students can bring into academic spaces enables them to fully participate and to feel valued and supported.

Inclusion in the chemical sciences means creating environments where different ways of learning are not only accepted but seen as integral to the chemical sciences. In doing so, these perspectives can challenge established theories, expand disciplinary boundaries and lead to better science.

6.1 Career intentions and motivations

A central finding across our research is that, on average, 81% of UG students expressed an intent to pursue a career in the chemical sciences. Students from lower SEBs are at least as likely, and in some cases more likely, to express an intention to remain within the field compared with those from higher SEBs. This challenges common deficit narratives that frame under-resourced students as less ambitious, less motivated or less committed than other students.

Intention alone is not a reliable indicator of access, retention and progression within the chemical sciences. While UGs from lower SEBs often report stronger levels of aspiration, often cited as evidence of resilience or motivation, they may also reflect constrained choice. For some UGs, continuing in a career in chemistry may reflect limited alternatives rather than genuine opportunity, with persistence shaped by constraint and the need for secure employment rather than access to broad career opportunities.

Students' motivations for pursuing careers in chemistry are consistently described as multifaceted. Students from higher SEBs are more likely to articulate a desire to make a positive societal contribution and have confidence to pursue their passions, as opposed to focusing on a career that is perceived as more realistic or relatable.

> *"Having a high socioeconomic background meant that I had the capacity to aspire to a high career and the resources to do so."*
>
> **Woman, 20-24, intermediate SEB**
> White, Scotland

> *"Through my relatively privileged socioeconomic background, I have had greater exposure to individuals who are able to provide me with opportunities."*
>
> **Non-binary, 25-29, higher SEB**
> White, England

In contrast, students from lower SEBs emphasise expectations of financial stability, return on educational investment and employability, especially through industry-based roles in sectors such as pharmaceuticals, materials science and manufacturing.

> *"I believe that I had to be more focused on providing for myself after graduating... I did not have freedom to explore many options."*
>
> **Woman, 30-44, lower SEB**
> White, international student

> *"Not being in a rich family... I'd prioritise what I'm good at and what will gain me the most achievements or money over my own enthusiasm."*
>
> **Woman, 19 or under, higher SEB**
> international student

> *"I have to earn money on my own for living and university tuition fee. This drove me to apply [to the] school of pharmacy in a military university. Although I did get free resources from the military university, the trade-off is restriction of working location, type and [relatively] low wages."*
>
> **Man, 30-44, lower SEB**
> South East Asian, international student

This divergence should not be interpreted as a lack of idealism among students from lower SEBs. Rather, it reflects differential exposure to risk. Students without access to financial safety nets are less able to tolerate prolonged insecurity, unpaid labour or uncertain career trajectories. As a result, motivations are shaped by necessity as much as by interest, reinforcing the conditional nature of aspiration.

6.2 Financial constraint and structural choice

Financial considerations represent one of the most significant differentiators in UG experience. Students from lower SEBs are more likely to report that their choice of university and course was influenced by cost, geographical proximity and the need to balance study with paid employment. These constraints persist beyond entry, limiting students' ability to engage in extracurricular activities, unpaid paid internships and professional networking opportunities.

> *"During university, having to work means I cannot dedicate more time to study... My resulting worse grades compared to my peers who do not work is perceived negatively... I feel I have less energy to explore opportunities and a reluctance to pursue them in favour of financial security."*
>
> **Woman, 20-24, lower SEB**
> White, England

During focus groups and interviews, students consistently mention the cost of postgraduate study, the inadequacy of doctoral stipends relative to living expenses, reliance on unpaid or low paid internships, and the geographic concentration of chemistry jobs in high cost urban areas. For students from lower SEBs, uncertainty about funding, accommodation costs and the affordability of further study encourage shorter planning horizons and risk-averse decision making. Furthermore, long-term academic or research focused ambitions are often sacrificed or diminished in response to the need for immediate financial security.

"I always had to work extra hard. I had no fail-safes, and my family could not afford to help me financing university etc. I always had to choose to study closer to home since I could not afford to visit otherwise…Often, my family did not understand the challenges and the time commitment, which meant I spent a lot of time balancing the two very distinct worlds… I could never afford to take on relevant work experience because I needed part-time jobs instead, and within the group of people I know, there was never opportunities for referrals etc."

Woman, 25-29, lower SEB
White, England

"I'm only able to obtain a master's degree through an undergraduate integrated master's programme. Student finance would not cover a separate master's course, and my family are not in the position to help me pay for it."

Woman, 20-24, higher SEB
White, Northern Ireland

Our research provides strong evidence that many under-resourced students perceive their SEB as having a negative impact on the goals they set for themselves. Meanwhile, widespread uncertainty about 'next steps' leads some UG students to delay decisions, enter non-chemistry employment to stabilise finances, or rule out postgraduate study altogether, despite academic capability.

"I'm looking at roles in the pharmaceutical industry, because they offer better job security and higher salaries compared to academic research positions."

Focus group participant
Wales and Northern Ireland

"I want to do banking because it pays well."

Woman, 20-24, lower SEB
South East Asian, England

6.3 Diversity, representation and peer context

Our data shows that UG chemistry cohorts in the UK are relatively diverse compared to UK national demographics. It is recognised that diverse peer groups provide emotional validation and mutual support, particularly for students navigating similar socioeconomic constraints. For many lower SEB students in the UK, peer relationships function as compensatory social capital, offsetting limited familial or professional networks.

"My peers are a sense of relatability… we all understand each other's struggles."

Man, 20-24, lower SEB
White, England

"At university, I was fortunate to find a supportive environment with amazing classmates who valued curiosity and collaboration."

Woman, 25-29, intermediate SEB
White, international student

"They had what were called Pal Mentors…you could meet with them… to get advice from them on how to navigate uni. And that was really useful."

Woman, 20-24, lower SEB
England

"In first year, it was quite difficult to know who to go to…I've grown really good connections with the pastoral support team…I know exactly who to go to."

Man, 20-24, intermediate SEB
England

UG students also expressed concern that this diversity diminishes at postgraduate and professional levels, influencing their perceptions of long-term belonging in the discipline. This anticipatory exclusion highlights how UG experiences are influenced not only by present conditions, but by their expectations of future inclusion.

"When you look…at the employees… I didn't see much diversity…I was just a bit like…are they going to understand you? Are you going to feel…welcome?"

Man, 30-44, lower SEB
Wales

6.4 Enablers for positive undergraduate experiences

The central challenge is not a lack of aspiration among students from under-resourced backgrounds, but a misalignment between aspiration and structural support. High motivation frequently coexists with high risk, and this mismatch threatens to narrow participation further along the educational and career pipeline, particularly at postgraduate and early career stages.

From our research, **supportive relationships with academic and professional staff** emerge as a key factor to help students to navigate academic and personal challenges more effectively. Approachable lecturers, tutors and laboratory staff who provide reassurance, flexibility and explicit guidance play a particularly important role for students lacking external academic support. Such practices help to demystify expectations and reduce reliance on implied knowledge that might advantage more privileged students.

Access to financial support is one of the most frequently referenced enablers of a positive and inclusive UG experience according to our focus groups and interviews. Qualitative findings consistently indicate that financial and economic status is perceived by students as a significant factor in shaping inclusivity within the chemical sciences. Financial constraints meant balancing part-time work with studies, limiting students' capacity to participate in extracurricular activities and devote time to their UG course.[21] Hardship funds, bursaries, paid research opportunities and travel grants reduce immediate stress, while also enabling participation in enrichment activities that build confidence and career capital. However, financial support alone is not sufficient to address the full range of complex barriers experienced by students from lower SEBs.

Engagement with professional bodies and external networks can mitigate disparities in social capital, offering students access to mentoring, information and a broader sense of disciplinary belonging. However, while

[21] Higher Education Policy Institute (2025). More than two-thirds of full-time students now undertake paid work during term time, major survey reveals. https://www.hepi.ac.uk/2025/06/12/more-than-two-thirds-of-full-time-students-now-undertake-paid-work-during-term-time-major-survey-reveals/

engagement has the potential to mitigate disparities in social capital, qualitative findings from this study indicate that awareness and confidence in accessing such networks mean that their benefits are not distributed equitably.

Co-designing professional engagement initiatives with UG students who have lived experience of socioeconomic and intersectional inequalities can help ensure that support mechanisms are accessible, relevant and responsive to real needs, such as time and financial pressures.

Students from lower SEBs demonstrate considerable agency in navigating undergraduate challenges, employing coping strategies such as peer support, careful time management, boundary setting and selective engagement with opportunities perceived as high value. These strategies reflect adaptability and determination, and in many cases contribute to academic persistence. However, the burden of continually having to self-manage structural barriers can lead to emotional and cognitive strain.

Crucially, undergraduate intervention is necessary but insufficient. Without aligned action across earlier education and later career stages, gains made during undergraduate study may not translate into sustained socioeconomic diversity in STEM professions.

7 Engagement with RSC membership

We analysed the findings from the research against RSC membership to understand how different factors shape academic experiences and career intentions of UG students in chemistry. This analysis looked at differences between RSC members and non-members, the influence of SEB, intersectional effects combining SEB with protected characteristics such as gender, disability and ethnicity, and contrasts between undergraduate and postgraduate experiences.

Notably, 55% of respondents to the survey were non-members of the RSC. As membership is free for UG students based in the UK, this finding indicates a lack of awareness about this opportunity among the UG population. Overall, the demographic profile of UG respondents who were RSC members was broadly similar to that of non-members. As a result, RSC membership at the UG career stage does not appear to be strongly associated with any one single demographic characteristic. Similarly, RSC membership was not associated with higher or lower levels of inclusion or belonging in the chemical sciences: 72% of members compared to 75% of non-members. This may indicate that UG students develop a sense of community through other contexts, such as their university courses or departments, regardless of RSC membership. However, this also suggests that UG students are not fully engaging with the wider opportunities that professional networks beyond their institution can provide.

Intention to pursue a career in the chemical sciences was high across all groups, with little difference between RSC members (87%) and non-members (82%). This difference is small and may reflect self-selection, with students already committed to a chemistry career being slightly more likely to engage with professional bodies such as the RSC. What this shows is that most students, whether RSC members or not, intend to pursue a career in the chemical sciences, whilst membership is associated with a slightly higher commitment to staying in the field.

Interestingly, more RSC members who self-identified as disabled reported intending to pursue a career in the chemical sciences (90%) compared with disabled non-members (71%). However, this cannot be taken as statistically significant evidence of a causal relationship given the smaller number of disabled non-members in the sample.

8 Summary of findings and recommendations

1 Identity is relative, contextual and intersectional. Understanding the career trajectories of undergraduates requires acknowledging their diverse environments.

- SEB is not a marginal factor, but a major force influencing belonging, identity formation and the recognition of potential in chemistry.
- SEB intersects with individual protected characteristics, producing compounded and often hidden barriers that cannot be addressed through single characteristic based policies.
- Traditional data categories underestimate socioeconomic inequalities: high levels of ‘unknown’ SEB and the invisibility of care experienced students point to the need for additional evidence approaches.
- Students from lower SEBs bring strengths – including resilience, adaptability and motivation – which remain under recognised in current definitions of merit and potential.

8 Summary of findings and recommendations - continued

2 Opportunity is not experienced equally, and understanding this requires acknowledging both structural inequalities and the lasting impact of lived experience across an individual’s career.

- Educational pathways into chemistry are socially stratified from an early age, with unequal access to high quality teaching, subject choice, encouragement and enrichment.
- Students from lower SEBs demonstrate high ambition and aspiration, but opportunity is constrained by structural barriers, financial precarity, unpaid placements, limited networks, and travel and relocation costs.
- Unequal starting points compound over time, with small, early inequalities accumulating into substantial gaps in postgraduate progression, research opportunities and workforce retention.
- Institutional support can mitigate these effects, but provision is uneven and fragmented, leading to postcode- and institution-based inequity.

8 Summary of findings and recommendations - continued

3 **Reframing higher education in the chemical sciences is not just to open the door, but to transform what happens once students enter laboratories, lecture theatres and research environments.**

- Opening the door to higher education is insufficient if laboratory, teaching and research environments continue to operate on implicit norms that privilege prior advantage.
- Chemistry learning and research cultures that normalise long working hours, informal sponsorship and unspoken expectations disproportionately disadvantage students from lower SEBs.
- Those facing hidden or unrecognised barriers require targeted, long term support embedded within mainstream provision, not peripheral programmes.
- Inclusive departments, peer networks and visible allyship demonstrate that cultural change is possible, but responsibility cannot rest on individuals or students' resilience alone.

9 Recommendations for key stakeholders and partners

Universities & chemistry departments should:

1 **Embed contextual identity into pedagogy and support** by providing resources and training to academic staff to recognise how SEB interacts with race, ethnicity, gender, disability and geographical region in shaping learning experiences, and by replacing 'one-size' support with flexible, student-informed models that everyone can benefit from.

2 **Update data collection models to account for SEB and belonging** by moving beyond single indicators, such as free school meals, and include parental occupation, self-perception and lived experience to identify hidden or unrecognised contexts. Make belonging, inclusion and wellbeing explicit KPIs alongside attainment.

3 **Adopt strengths-based definitions of merit** by revising recruitment, assessment and progression criteria to recognise resilience, adaptability and non-traditional pathways. Provide students with guidance throughout their higher education journey alongside accessible, subject-specific support.

4 **Ensure equitable access to enrichment opportunities to extend and share social and cultural capital** by offering paid academic or industry-related schemes, such as lab-based internships, research placements and volunteering openings. Ensure that support, mentoring, career guidance and access to professional networks are embedded within the curriculum and available for all students.

9 Recommendations for key stakeholders and partners - continued

Regulators, funders & policymakers should:

1. **Invest in sustained interventions and research** by prioritising funding for longitudinal programmes that encourage collaboration between schools, colleges, universities and employers. Programmes should track students' experiences and identity shifts throughout the student lifecycle, including progression, participation in enrichment, postgraduate transition and financial strain.

2. **Consider SEB when creating policies and regulations** by encouraging the use of standardised approaches to measure SEB and by prioritising metrics on intersectionality, contextual identities and lifecycle understandings.

3. **Review funding structures to address inequality** by expanding stipends, bursaries and paid pathways into research careers, and reducing reliance on unpaid placements or self-funded mobility opportunities.

4. **Align funding with inclusive practice** to reward institutions that demonstrate embedded, systemic inclusion and participation improvements beyond pilot programmes.

Royal Society of Chemistry I Beyond access: How socioeconomic background shapes the chemistry pipeline

9 Recommendations for key stakeholders and partners

9 Recommendations for key stakeholders and partners - continued

The role of the Royal Society of Chemistry. We will:

1. Advocate for sector-wide recognition of the importance of contextual identity, culture and norms by positioning SEB as intersectional and relational and by adopting and championing language that moves away from current narratives towards a more inclusive vision of who can become and thrive as a chemist.

2. Act as convenors for cultural change by bringing together universities, employers, funders and policymakers to share good practice. Communicate opportunity gaps contributing to regional inequalities across chemistry education and careers.

3. Amplify diverse student voices and promote inclusive practice by providing platforms where students can articulate their own SEB identity and experiences and where chemistry departments can share learnings and good practices. Investigate further progression routes into and through chemistry and explore how these relate to SEB and retention.

4. Inform the continual evolution of RSC accreditation and professional standards development, using this report and future research, with a view to embedding expectations and initiatives that actively target individuals from diverse SEBs.

5. Ensure equitable access to RSC initiatives by making our free membership, career services and professional networks accessible to all students. Actively recruit those students less likely to self-select into these opportunities. Raise awareness of the support available to students experiencing financial hardship from the RSC's Chemists' Community Fund.

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Stephen Hendry, Ilaria Meazzini, Nelson Menezes and Ale Palermo.

11 Appendices

11.1 Appendix 1: Methodological approach

Research design

A mixed-methods design was adopted to ensure both breadth and depth of understanding. This approach combined quantitative and qualitative techniques, enabling triangulation of findings and providing a nuanced picture of student experiences. The combination of large-scale survey data and in-depth qualitative insights ensures that the findings are both statistically robust and grounded in lived experience. By employing a mixed-methods approach, this study provides a comprehensive examination of the socioeconomic factors influencing student experiences in the chemical sciences.

Survey

The quantitative strand comprised an online survey distributed to students in the chemical sciences. The final sample consisted of 863 complete responses, representing a diverse cross section of students across the UK, including international students studying in the UK. Despite the survey targeting UG students, a total of 130 (15%) PG respondents completed it, indicating a strong level of interest among PG students.

The survey collected:

- **profile data:** SEB, educational history and protected characteristics.
- **attitudinal data:** perceptions of belonging, barriers to progression and career intentions.

SEB was primarily measured using parental occupation at age 14, in line with UK government guidance as the most accurate and reliable indicator of SEB. Additional measures, such as eligibility for FSM, school type and parental education level, were analysed to validate this approach and explore related dimensions of SEI.

Focus groups and interviews

Following the collection of quantitative data, a series of focus groups and depth interviews were conducted to provide narrative accounts of student experiences and allowed for exploration of themes emerging from the quantitative data.

- **Focus groups:** Six groups were convened, comprising 36 participants in total. Groups were organised by geographical origin (England North, England South, Midlands, Scotland, Wales & Northern Ireland, and international) to capture regional variation and contextual factors.
- **Interviews:** 15 interviews were conducted, each lasting 45 minutes. These interviews enabled participants to share personal stories in greater detail, offering insights into the cumulative impact of socioeconomic disadvantage and its intersection with other identity factors.

Participants for the qualitative research were selectively sampled recruited from the survey responses to ensure diversity across SEB categories, gender, race and ethnicity, disability status, and caring responsibilities.

Analytical strategy

Quantitative data was analysed using descriptive and comparative techniques to identify patterns across socioeconomic groups and other demographic variables. Qualitative data was thematically analysed, with coding frameworks developed to capture recurring themes related to barriers, coping strategies, and perceptions of inclusion and belonging. Integration of findings occurred at the interpretation stage, allowing for a holistic understanding of how structural and individual factors shape student trajectories.

Ethical considerations

The research adhered to ethical standards for social research, including informed consent, confidentiality and data protection. Participants were assured that their responses would remain anonymous and that findings would be reported in aggregate form. Special attention was given to accessibility and inclusivity throughout the research process, including the design of survey instruments and facilitation of focus groups. Trauma-informed practices were applied to ensure that discussions were handled sensitively.

11.2 Appendix 2: Survey

01: SOCIOECONOMIC BACKGROUND

We'd like to start off by asking you some questions about your socioeconomic background.

ASK ALL: SINGLE SELECT

S10. What was the occupation of your main household earner when you were aged about 14?

Modern professional and traditional professional occupations such as: teacher, nurse, physiotherapist, social worker, musician, police officer (sergeant or above), software designer, accountant, solicitor, medical practitioner, scientist, civil engineer or mechanical engineer	**1**
Senior, middle or junior managers or administrators such as: finance manager, chief executive, large business owner, office manager, retail manager, bank manager, restaurant manager, warehouse manager	**2**
Clerical and intermediate occupations such as: secretary, personal assistant, call centre agent, clerical worker, nursery nurse	**3**
Technical and craft occupations such as: motor mechanic, plumber, printer, electrician, gardener, train driver	**4**
Routine, semi-routine manual and service occupations such as: postal worker, machine operative, security guard, caretaker, farm worker, catering assistant, sales assistant, HGV driver, cleaner, porter, packer, labourer, waiter or waitress, bar staff	**5**
Long-term unemployed (claimed Jobseeker's Allowance or earlier unemployment benefit for more than a year)	**6**
Small business owners who employed fewer than 20 people such as: corner shop owners, small plumbing companies, retail shop owner, single restaurant or cafe owner, taxi owner, garage owner	**7**
Other such as: retired, this question does not apply to me, I don't know	**98**
I prefer not to say	**99**

ASK ALL: SINGLE SELECT

S20. Which type of school did you attend for the most time between the ages of 11 and 16?

State-run or state-funded school	**1**
Independent or fee-paying school	**2**
Independent or fee-paying school, where I received a means-tested bursary covering 90% or more of the overall cost of attending throughout my time there	**3**
Attended school outside the UK	**4**
Other (please specify)	**97**
I don't know	**98**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

S30. If you finished school after 1980, were you eligible for free school meals at any point during your school years?

Yes	**1**
No	**2**
Not applicable (finished school before 1980 or went to school overseas)	**3**
I don't know	**98**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

S40. What is the highest level of qualification achieved by either of your parent(s) or guardian(s) by the time you were 18?

Above degree level (for example MA, MSc, MPhil, PhD)	**1**
Degree or equivalent (for example first or higher degrees, postgraduate diplomas, NVQ/SVQ Level 4 or 5	**2**
Below degree level (for example A level, SCE Higher, GCSE, O level, SCE Standard or Ordinary, NVQ/SVQ, BTEC)	**3**
No qualifications	**4**
I don't know	**98**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

S50. How would you describe your socioeconomic background?

High	**1**
Intermediate	**2**
Low	**3**
Prefer not to say / unsure	**99**

ASK ALL: MATRIX [RANDOMISE ROWS]

S60. What impact, if any, has your socioeconomic background had on the following aspects of your life?

The overall quality of my life	**1**
How others treat me	**2**
The educational / career goals I set for myself	**3**
My academic / career achievements	**4**

Very positive	**1**
Somewhat positive	**2**
Little or no impact	**3**
Somewhat negative	**4**
Very negative	**5**
Prefer not to say / unsure	**99**

ASK ALL: FREE TEXT

S70. Please share any additional thoughts or experiences you have related to how your socioeconomic background has influenced your opportunities, challenges, or perspectives in life.

In particular, we are interested in how you feel this may have impacted your educational and career trajectory and progression.

Free text box

02: DEMOGRAPHICS

We would now like to gather some additional demographic information about you, to help understand how your socioeconomic background combined with other factors may have influenced your opportunities, challenges, or perspectives in life.

ASK ALL: SINGLE SELECT

D10. What is your age group?

19 or under	**1**
20-24	**2**
25-29	**3**
30-44	**4**
45-59	**5**
60-74	**6**
75 and over	**7**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

D20a. With which gender do you most identify?

Please select one option:

Woman	**1**
Man	**2**
Non-binary or gender diverse	**3**
Other (please specify)	**98**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

D20b. Are you trans?

Yes	**1**
No	**2**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

D30. Please indicate from the list which best describes your sexual orientation:

Asexual	**1**
Bisexual	**2**
Gay	**3**
Lesbian	**4**
Heterosexual/Straight	**5**
Pansexual	**6**
Prefer to self-describe (please specify)	**98**
Prefer not to disclose	**99**

ASK ALL: MULTI SELECT

D40. What are your ethnic origins?

Please select ALL the geographic areas that apply to you:

Western Europe	**1**
Eastern Europe	**2**
Central Europe	**3**
North Africa	**4**
Sub-Saharan Africa	**5**
West Asia / Middle East	**6**
South and Southeast Asia	**7**
East and Central Asia	**8**
Pacific / Oceania	**9**
North America	**10**
Central America and Caribbean	**11**
South America	**12**
Prefer to self-describe (please specify)	**98**
Prefer not to disclose	**99**

ASK ALL: MULTI SELECT

D50. How would you identify yourself in terms of race?

Please select ALL the groups that apply to you:

Asian or Pacific Islander	**1**
Black	**2**
Gypsy or Traveller	**3**
Hispanic or Latino/a/x	**4**
Indigenous	**5**
Middle Eastern or North African	**6**
Roma	**7**
White	**8**
Prefer to self-describe (please specify)	**98**
Prefer not to disclose	**99**

ASK ALL: SINGLE SELECT

D60. Please indicate from the list which best describes your religion or belief:

Atheism	**1**
Buddhist	**2**
Christian	**3**
Hindu	**4**
Jewish	**5**
Muslim	**6**
Sikh	**7**
No religion	**8**
Other (please specify)	**98**
Prefer not to say	**99**

ASK ALL: SINGLE SELECT

D70a. Do you self-identify as disabled?

Yes	**1**
No	**2**
Prefer not to say	**3**

ASK ALL: SINGLE SELECT

D70b. The Equality Act 2010 defines a disabled person as "someone who has a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on their ability to do normal daily activities".

Do you have a condition that falls within this definition?

Yes	**1**
No	**2**
Prefer not to say	**3**

ASK IF D70B = 1: MULTISELECT

D70c. Please indicate which of the following best describes your disability, long-term health condition or impairment (whether mental or physical).

Please select all that apply

Autism	**1**
Blind/visual impairment	**2**
Deaf/hearing impairment	**3**
Mental health condition	**4**
Mobility impairment	**5**
Long-term health condition (e.g., diabetes, cancer, chronic heart disease, epilepsy, HIV)	**6**
Neurodivergent/specific learning difficulty (e.g., ADHD, dyslexia)	**7**
Learning disability	**8**
Other (please specify)	**9**
None of the above **[EXCLUSIVE]**	**98**
Prefer not to say **[EXCLUSIVE]**	**99**

ASK ALL: MULTISELECT

D80. Please indicate from the list which best describes your current caring responsibilities.

By caring responsibilities, we refer to regular day to day responsibilities for an adult and/or child(ren):

Please select all that apply.

Primary or sole carer	**1**
Joint carer	**2**
Other (please specify)	**97**
None **[EXCLUSIVE]**	**98**
Prefer not to say **[EXCLUSIVE]**	**99**

ASK ALL: MULTISELECT

D90. Have you ever been placed in the care of a local authority (e.g., foster care, residential care, or children's homes)?

Please select all that apply

Yes, I was in care as a child	**1**
Yes, I am currently in foster care	**2**
Yes, I am in residential care	**4**
No, I have never been in care **[EXCLUSIVE]**	**3**
Prefer not to say **[EXCLUSIVE]**	**99**

ASK ALL: MATRIX [RANDOMISE ROWS]

D100. For each of the following characteristics, please select the option that you feel best describes the impact that it has had on your educational and career progression.

Age	**1**
Gender	**2**
Sexual orientation	**3**
Race / Ethnicity	**4**
Disability status **[ONLY SHOW IF DISABLED]**	**5**
Religion or belief	**6**
Carer status **[ONLY SHOW IF A CARER]**	**7**
Experience of the care system **[ONLY SHOW IF BEEN IN CARE]**	**8**

Very positive	**1**
Somewhat positive	**2**
Little or no impact	**3**
Somewhat negative	**4**
Very negative	**5**
Prefer not to say / unsure	**99**

ASK ALL: MATRIX [RANDOMISE ROWS]

D110. To what extent do you agree or disagree with the following statements?

Regardless of my background/identity, I feel:

Included in the chemical sciences	**1**
A sense of belonging in the chemical sciences	**2**

Strongly agree	**1**
Somewhat agree	**2**
Neither agree nor disagree	**3**
Somewhat disagree	**4**
Strongly disagree	**5**
Unsure	**99**

ASK ALL: FREE TEXT

D120. Please share any additional thoughts or experiences you have related to inclusivity or a sense of belonging in the chemical sciences.

Free text box

03: OTHER BACKGROUND INFORMATION

Thank you for your time so far. We'd now like to finish off the survey with a few questions about your education and career, intended to help us understand your responses better.

ASK ALL: MULTI SELECT

B10. Please indicate which best describes your current status.

Please select all that apply.

Full time (studying)	**1**
Part time (studying)	**2**
Full time (working)	**3**
Part time (working)	**4**
Currently on parental leave	**5**
Currently on long term health leave	**6**
Currently on career break	**7**
Retired	**8**
Unemployed	**9**
Other (please specify)	**98**
Prefer not to disclose	**99**

ASK IF B10 = 1 OR 2 (IN STUDY): SINGLE SELECT

B20. Which of the following best describes your current stage of study?

Secondary school (GCSEs or equivalent)	**1**
Sixth form or college (A-levels, BTECs, or equivalent)	**2**
Undergraduate student	**3**
Postgraduate student (e.g., Master's, PhD)	**4**
Apprenticeship or vocational training	**5**
Not currently studying	**6**
Other (please specify)	**98**
Prefer not to say	**99**

ASK IF B20 = 3, 4, OR 5: SINGLE SELECT

B30a. What year of study are you currently in?

1st year	**1**
2nd year	**2**
3rd year	**3**
4th year or more	**4**
Unsure / prefer not to say	**99**

ASK IF B20 = 3, 4, OR 5 AND B30B ≠ 4 (A UNIVERSITY OUTSIDE THE UK): SINGLE SELECT [ALPHABETICAL]

B30b. Which university do you attend?

Drop down list of universities	**1**
A UK university not on this list	**2**
A university outside of the UK	**3**
Prefer not to say	**99**

ASK IF B20 = 3, 4 OR 5: SINGLE SELECT

B30c. How involved were your parent(s) or guardian(s) in your decisions around where / what to study at university?

Very involved	**1**
Somewhat involved	**2**
Somewhat uninvolved	**3**
Not at all involved	**4**
Not applicable / prefer not to say	**99**

ASK IF B20 = 3, 4 OR 5: SINGLE SELECT

B30e. Which of the following best describes your current mode of study?

Full-time (in-person / on campus)	**1**
Full-time (remote / distance learning)	**2**
Full-time (hybrid – i.e. a mix of in-person and remote learning)	**3**
Part time (in-person / on campus)	**4**
Part time (remote / distance learning)	**5**
Part time (hybrid – i.e. a mix of in-person and remote learning)	**6**
Other (please specify)	**98**
Not applicable / prefer not to say	**99**

ASK IF B20 = 3, 4, OR 5: SINGLE SELECT

B40a. What course are you currently studying?

Chemistry only (BSc, MChem, MSci)	**1**
Chemistry with Teaching degree	**2**
Chemistry with another subject (please specify)	**3**
A subject allied to chemistry (e.g. forensic science, biochemistry)	**4**
Other (please specify)	**99**

ASK IF B40A = 4 (SUBJECT ALLIED TO CHEMISTRY): SINGLE SELECT

B40b. What is the name of the course you are currently studying?

Free text box

ASK ALL: SINGLE SELECT

B45a. At the moment, do you intend to pursue a career in the chemical sciences?

Yes	**1**
No	**2**
Prefer not to say	**3**

ASK IF B45A = 2: SINGLE SELECT

B45b. Why do you say that?

Free text box

ASK ALL: SINGLE SELECT

B50a. What is your current country of residence?

Drop down list of countries	**1**
Prefer not to say	**2**

ASK ALL: SINGLE SELECT

B50b. This question is about the country or nation to which you belong. Please indicate which best describes your nationality.

Drop down list of countries	**1**
Prefer not to say	**2**

ASK IF B50A = UK: SINGLE SELECT

B60a. Which of the following UK regions do you currently live in?

England	**1**
Scotland	**2**
Wales	**3**
Northern Ireland	**4**
Channel Islands	**5**

ASK IF B60A = 1 (CURRENTLY LIVING IN ENGLAND): SINGLE SELECT

B60b. Which region of England are you currently living in?

North England	
North East	**1**
North West	**2**
Yorkshire and the Humber	**3**
Midlands (Central England)	
East Midlands	**4**
West Midlands	**5**
South England	
East of England	**6**
London	**7**
South East	**8**
South West	**9**

ASK IF B60A = 2 (CURRENTLY LIVING IN SCOTLAND): SINGLE SELECT

B60c. Which region of Scotland are you currently living in?

Central Belt	
Glasgow and surrounding areas	**1**
Edinburgh and surrounding areas	**2**
Falkirk	**3**
Stirling	**4**
Clackmannanshire	**5**
North Lanarkshire	**6**
South Lanarkshire	**7**
Highlands and Islands	
Inverness and the Highland regions	**8**
Western islands (Outer Hebrides)	**9**
Orkney Islands	**10**
Shetland Islands	**11**
North East Scotland	
Aberdeen and Aberdeenshire	**12**
Moray	**13**
South of Scotland	
Borders, Dumfries and Galloway	**14**
West of Scotland (Excluding Glasgow)	
Argyll and Bute	**15**
North Ayrshire	**16**
East Ayrshire	**17**
South Ayrshire	**18**
Renfrewshire and Inverclyde	**19**
East of Scotland (excluding Edinburgh)	
Fife	**20**
Dundee and Angus	**21**
Perth and Kinross	**22**
Other – Remote and rural areas	
Another remote area not listed (please specify)	**23**

ASK IF B60A = 3 (CURRENTLY LIVING IN WALES): SINGLE SELECT

B60d. Which region of Wales are you currently living in?

North Wales	**1**
South East Wales	**2**
South West and Central Wales	**3**

ASK IF B60A = 4 (CURRENTLY LIVING IN NORTHERN IRELAND): SINGLE SELECT

B60e. What type of area in Northern Ireland are you currently living in?

Rural area	**1**
Urban area	**2**

ASK IF B60A = 5 (CURRENTLY LIVING IN CHANNEL ISLANDS): SINGLE SELECT

B60f. What type of area in the Channel Islands are you currently living in?

Rural area	**1**
Urban area	**2**

ASK IF B50A = UK: SINGLE SELECT

B65a. Is the UK region where you currently live the same region that you grew up in?

Yes	**1**
No	**2**

ASK IF B50B = UK AND B50A ≠ UK (UK NATIONAL BUT NOT CURRENTLY LIVING IN THE UK): SINGLE SELECT

B70. Which of the following UK regions do you originally come from?

England	**1**
Scotland	**2**
Wales	**3**
Northern Ireland	**4**
Channel Islands	**5**

ASK IF B65B = 1 (GREW UP IN ENGLAND) OR B70A = 1 (LIVING ABROAD BUT ORIGINALLY CAME FROM ENGLAND): SINGLE SELECT

B80a. Which region of England are you originally from?

North England	
North East	**1**
North West	**2**
Yorkshire and the Humber	**3**
Midlands (Central England)	
East Midlands	**4**
West Midlands	**5**
South England	
East of England	**6**
London	**7**
South East	**8**
South West	**9**

ASK IF B65B. = 2 (GREW UP IN SCOTLAND) OR B70A = 2 (LIVING ABROAD BUT ORIGINALLY CAME FROM SCOTLAND): SINGLE SELECT

B80b. Which region of Scotland are you originally from?

Central Belt	
Glasgow and surrounding areas	**1**
Edinburgh and surrounding areas	**2**
Falkirk	**3**
Stirling	**4**
Clackmannanshire	**5**
North Lanarkshire	**6**
South Lanarkshire	**7**
Highlands and Islands	
Inverness and the Highland regions	**8**
Western islands (Outer Hebrides)	**9**
Orkney Islands	**10**
Shetland Islands	**11**
North East Scotland	
Aberdeen and Aberdeenshire	**12**
Moray	**13**
South of Scotland	
Borders, Dumfries and Galloway	**14**
West of Scotland (Excluding Glasgow)	
Argyll and Bute	**15**
North Ayrshire	**16**
East Ayrshire	**17**
South Ayrshire	**18**
Renfrewshire and Inverclyde	**19**
East of Scotland (excluding Edinburgh)	
Fife	**20**
Dundee and Angus	**21**
Perth and Kinross	**22**
Other – Remote and rural areas	
Another remote area not listed (please specify)	**23**

ASK IF B65B. = 3 (GREW UP IN WALES) OR B70A = 3 (LIVING ABROAD BUT ORIGINALLY CAME FROM WALES): SINGLE SELECT

B80c. Which region of Wales are you originally from?

North Wales	**1**
South East Wales	**2**
South West and Central Wales	**3**

ASK IF B65B. = 4 (GREW UP IN NORTHERN IRELAND) OR B70A = 4 (LIVING ABROAD BUT ORIGINALLY CAME FROM NORTHERN IRELAND): SINGLE SELECT

B80d. What type of area in Northern Ireland are you originally from?

Rural area	**1**
Urban area	**2**

ASK IF B65B. = 5 (GREW UP IN CHANNEL ISLANDS) OR B70A = 5 (LIVING ABROAD BUT ORIGINALLY CAME FROM CHANNEL ISLANDS): SINGLE SELECT

B80e. What type of area in the Channel Islands are you originally from?

Rural area	**1**
Urban area	**2**

04: FINAL THOUGHTS

ASK ALL: FREE TEXT

F10. Thank you for your time. You have now reached the end of the survey. If you have anything else you'd like to say about any of the topics we have covered, please do so below.

Free text box

11.3 Appendix 3: Focus groups and in-depth interviews

11.3.1 Overview of demographics from focus groups and interviews participants

Participants were recruited exclusively from online survey respondents who had registered their interest in further involvement. These individuals were then selected for either a focus group or in-depth interview. Recruitment targeted a diverse range of backgrounds and characteristics across SEB, region, age, race and ethnicity, gender, disability and caring responsibilities.

In total, 36 participants were selected for the focus groups, with group composition structured by participants' place of origin:

- England – North
- England – South
- England – Midlands
- Scotland
- Wales & Northern Ireland [22]
- International students

15 participants were interviewed, representing a mix of ages, genders, sexual orientations and socioeconomic backgrounds. Most identified as coming from lower or intermediate socioeconomic backgrounds, and over half reported that this had negatively affected aspects of their lives. Additional barriers commonly cited included race or ethnicity, age, gender, disability, and religion or belief.

The majority of participants had never been in care, and only a small number were carers. Participants were geographically diverse, currently living across several regions of England, Scotland, Wales and Northern Ireland, with varied childhood origins, including some who did not grow up in the UK.

Overall, the qualitative research reflected a broad range of lived experiences and perceived structural barriers affecting educational and career progression.

[22] Participants were combined due to low sample sizes

11.3.2 Guide for focus groups and interview discussions

SECTION 1: BACKGROUND / JOURNEY SO FAR
INTERVIEW = (6 MINUTES)
GROUP = (12 MINUTES)

To begin, we'd like to get a sense of your background within the chemical sciences.

- **To get started, please tell us in a couple of sentences about you – such as what you're currently studying and a little bit about your career / educational history.**
- **What is it that sparked your initial interest in entering the chemical sciences profession / studying a degree in the chemical sciences?**
- **Building upon what we just discussed, what, if anything, currently attracts you towards a career in the chemical sciences?**
  - Are there any aspects of a career in the chemical sciences that makes you uncertain or put you off the idea?
    - [IF SO], What might else you choose to do in your career?
      - Why is this preferable to you?
- **Finally, how would you describe your current experience as a chemical sciences student?**
  - What are the positives?
  - Are there any drawbacks or challenges that you've experienced?
    - If so, what are they?
  - To what extent, if at all, do you feel the chemical sciences are inclusive based on experiences so far?
    - Why? *[Moderator to probe on any factors that might make students not feel included]*
    - [IF NOT], In what ways do you feel the profession could be improved or changed to make you or others feel more included?

SECTION 1: BACKGROUND / JOURNEY SO FAR
INTERVIEW = (6 MINUTES)
GROUP = (12 MINUTES)

We'd now like to move on from your journey so far to talk a little about the future and any career goals and aspirations you may have, as well as any key barriers that might impact your progression within the chemical sciences.

- **What are your immediate career plans for when you finish your undergraduate studies?**
  - PROMPT: Do they intend to pursue further study or enter into employment (if looking to gain employment, would this be in industry or academia)?
    - Why / why not? *[Moderator to probe on any major motivations/ barriers]*
  - In what ways, if at all, have your career plans changed or evolved over time?
    - [If changed] What factors influenced this? *[Moderator to probe on any key events, individuals or circumstances that shaped their plans]*
- **Do you have a strong sense of your career goals for the next 5-10 years?**
  - [If so] Probe fully on career aspirations – what is driving these
  - To what extent, if at all, do you feel you have been kept informed of the potential next steps or career pathways available to you within the chemical sciences throughout your degree?
    - Were there any career paths that you wrote off due to barriers preventing you from pursuing a future in this field?
      - [If so] Which career paths and what barriers prevented you from pursuing this?
  - What support, if any, would you need to receive to help you achieve these career goals?
    - Who might be best placed to provide you with this support?
  - What, if anything, might prevent you from achieving your career goals?
    - *PROMPTS: Need to start earning money, lack of support, lack of confidence*
  - [If not] Why not?
    - *PROMPTS: More focused on immediate concerns, prefer to 'live in the moment' / not worry excessively about the future*

SECTION 3: IMPACT OF SOCIOECONOMIC BACKGROUND
INTERVIEW = (16 MINUTES)
GROUP = (30 MINUTES)

We'd now like to discuss factors that might have influenced your experiences and progression within the chemical sciences so far. As before, please feel free to speak freely, but do not feel obligated to answer or share any information that you're not comfortable to do.

- **Firstly, in what ways, if any, do you feel your background has influenced your educational / career progression within the chemical sciences so far, either positively or negatively?**
  - *[Moderator to emphasise that there may have been multiple factors impacting them and encourage participants to explore how these might intersect]*
  - *PROMPTS: Socioeconomic background, gender, race, disability status, UK nation etc.*
  - Which factors do you feel have had the most impact on your life?
    - Why?

We'd now like to discuss some specific aspects of your background that may or may not have impacted your educational / career progression in a little more detail

1. FINANCE

- **To what extent, if at all, did your households financial situation influence your life, particularly your educational opportunities and career aspirations while you were growing up?**
  - If so, in what ways?
  - [IF SO] Probe – engagement with STEM clubs after school, family history of working in the chemical sciences
- **Were there any particular challenges you faced in your pre-university / Higher Education Institution (HEI) education due to financial constraints / pressures?**
  - *PROMPT: Access to resources, extracurricular activities*
- **To what extent, if at all, did your financial situation impact your decision-making around further study?**
  - *PROMPT: Impact on when / where they studied, impact on spending habits while at university, having to get a job alongside study, student loans, need for scholarships etc.*
    - *[Moderator to probe on the impact this had on student's progression / mental wellbeing]*

2. SUPPORT, GUIDANCE & ADVICE

- **To what extent, if at all, do you feel supported in your educational / career goals?**
  - PROMPT: Quality of teaching they receive, any support systems in place to help them progress
  - Do you feel supported to set ambitious goals for yourself?
  - Do you feel supported to achieve your goals?
  - Are there any key areas where you struggled to find or access support?
    - How, if at all, do you seek to overcome these barriers?
- **To what extent, if at all, are you able to access guidance or advice with your studies?**
  - How does having / not having that access that affect your educational opportunities or career aspirations?
  - *PROMPT: Lack of shared experiences, role models etc.*
- **To what extent, if at all, do you feel you are able to access professional networks within the chemical sciences at this stage in your studies?**
  - Was this encouraged / offered by your university?
  - To what extent / in what ways do you feel this has impacted your future prospects?

3. ACCESS TO RESOURCES

- **To what extent, if at all, did your school / college provide access to science-specific resources (such as lab equipment or extracurricular science programs)?**
  - How did this affect your interest in chemistry / your educational attainment?
- **Were you able to attend any advanced science courses or summer programs before university?**
  - [IF NOT], Do you think that impacted your preparation for chemistry studies?
- **While at university, to what extent, if at all, do you have access to science-specific resources to help you learn / progress?**
  - *PROMPT: Mentoring opportunities, high quality labs / study facilities, work placements, access to study spaces (including if still living at home), access to laptops/computers if unable to finance these yourself etc.*
  - How has this affected your educational attainment / career goals?

4. SOCIAL IMPACT

- **To what extent, if at all, would you say you feel a sense of belonging within the chemical sciences?**
  - What is most significant in making you feel like you belong?
    - *[Moderator to probe around RSC's 5 enablers to belonging – connection, diversity, intention to belong, inclusion and respect – looking to establish which of these are most important and any ways these could be improved]*
  - Have there been any key interactions or support that have shaped your feelings of belonging within the chemical sciences, either positively or negatively?
    - *[Moderator to probe on any specific experiences that have / have not made them feel like they belong and why]*
- **To what extent, if at all, do you think your background has shaped your own confidence / the way you interact with others within the chemical sciences?**
  - PROMPT: Lack of confidence, imposter syndrome etc.
- **To what extent, if at all, do you think your background has shaped how others have interacted with you within the chemical sciences?**
  - PROMPT: Being treated differently, hierarchical systems, lack of connections/networks
- **Have you ever felt out of place in academic or social settings because of your background?**
  - [IF SO], In what ways and how did that affect you?

5. NEXT MINI-SECTION

- **What do you think are the main barriers that students with varying levels of socioeconomic status might face when looking to enter the chemical sciences profession?**
  - Why?
- **To what extent, if at all, do you think your background has impacted your sense of belonging within the chemical sciences?**
  - What changes, if any, would you suggest to make the chemical sciences more accessible to students from different backgrounds?
- **Looking ahead to the future, to what extent, if at all, do you think your socioeconomic background will influence your career trajectory within the chemical sciences?**
  - Why?

6. INTERNATIONALS MINI-SECTION

- **What were the most significant influences in your decision to study in the UK?**
  - *PROMPTS: Quality of UK institutions, Promise of global opportunities, friends / family members who studied here, good place to live, work experience, want to work in the UK, networking opportunities, increased employment rates / social mobility etc.*
  - What concerns, if any, did you have about studying in the UK?
    - *PROMPTS: Lack of support with unique challenges, struggles integrating into UK academic culture, job placements or struggles gaining employment, visa issues, cost of living, hidden costs of education, struggles making friends, lack of a support system*
- **To what extent, if at all, has your experience studying in the UK aligned with / met your expectations?**
  - Has anything surprised you at all?
    - If so, what?
- **Overall, are you happy with your choice to study in the UK?**
  - Why / why not?

SECTION 4: COPING STRATEGIES / SUPPORT OPTIONS INTERVIEW = (8 MINUTES) GROUP = (15 MINUTES)

We'd now like to move on from discussing your background and the challenges you face and talk about how you deal with these challenges, and any support you receive / would like to receive to help you overcome these.

- **When considering the socioeconomic or other background factors that have had an impact on your educational / career progression, which do you feel are most important for you to receive support with?**
  - Why?
  - What might this support look like?
    - Where might it come from?
      - *Probes: RSC, Education provider, Family and friends, student finance, free online resources, mentors etc.*
    - When would it be most important for you to receive this support?

- **What, if anything, do you currently do to address any challenges you have identified?**
  - Why? *[Moderator to probe on how any relevant coping strategies provide value]*
  - Do you use / are you aware of any support mechanisms in place to help you with challenges?
    - *PROMPTS: University hardship, pay day loans, family, student loans and other organisations etc.*
- **To what extent, if at all, do you feel it is currently easy to access support for the challenges you have identified?**
  - [IF RECEIVE SUPPORT], Where from and how did you find out about this?
  - *Probes: RSC, Education provider, Family and friends, student finance, free online resources, mentors etc.*
  - To what extent do you find this support valuable?
    - Why? / Why not?
  - Can you think of any ways in which this support could be improved?
  - [IF DO NOT RECEVIE SUPPORT] Are you aware of any support options available to you?
    - [IF SO], Why have you not chosen to utilise these?
  - Are there any barriers that might prevent you from accessing any support that is on offer to you?
    - *Probe: Lack of time, cost, difficulty accessing / meeting criteria etc.*

SECTION 5: SUPPORT SOURCES
INTERVIEW = (5 MINUTES)
GROUP = (10 MINUTES)

We'd now like to finish by exploring in a little more detail the role you see for the Royal Society of Chemistry (RSC) in supporting you, as well as any challenges that you feel it is best placed to help with, as well as what role other providers might play in supporting you.

- **To what extent, if at all, are you aware of the support available to you through the RSC?**
  - What support and resources from the RSC are you aware of?
- **Overall, what do you feel is the role of the RSC in terms of supporting chemical sciences students like you?**
  - *Probes: career support, financial support, improving pathways into the profession etc.*
    - Are there any challenges in particular that you feel the RSC appears best placed to help you with?
      - Why?
  - What specific support options, if any, would you like to see from the RSC?
  - Do you have any preference to how you hear about the support options available?
    - *Probes: Email, social media, university staff*
- **Currently, to what extent, if at all, do you feel supported by the RSC with the challenges you face?**
  - Why do you say this?
    - [Moderator to probe on any specific types of support they receive, taking specific note of the challenges this would help alleviate]
  - Are there any challenges that you'd expect to see the RSC offer support with that it doesn't seem like they do?
    - [If so] What are these?

- **Are there any challenges or factors impacting your life in the chemical sciences that you believe others are better placed than the RSC to provide you support with?**
  - If so…
    - What challenges would you turn to the RSC for?
    - What challenges would you turn to others for? Why is this?
      - *[Moderator to probe on what other sources participants might use and which challenges / factors this would impact]*

CLOSE
INTERVIEW = (2 MINUTES)
GROUP = (5 MINUTES)

- **Finally, if there was one thing you feel the RSC could implement/focus on to better improve inclusivity within the chemical sciences, what would that be and why?**
- **Before we finish, does anyone have anything else to add in relation to what we've discussed today? Thanks, and remind participants that they can email with any further comments & close.**

11.4 Appendix 4: Supplementary graphs

Figure A1 – How would you describe your SEB defined by eligibility for FSM

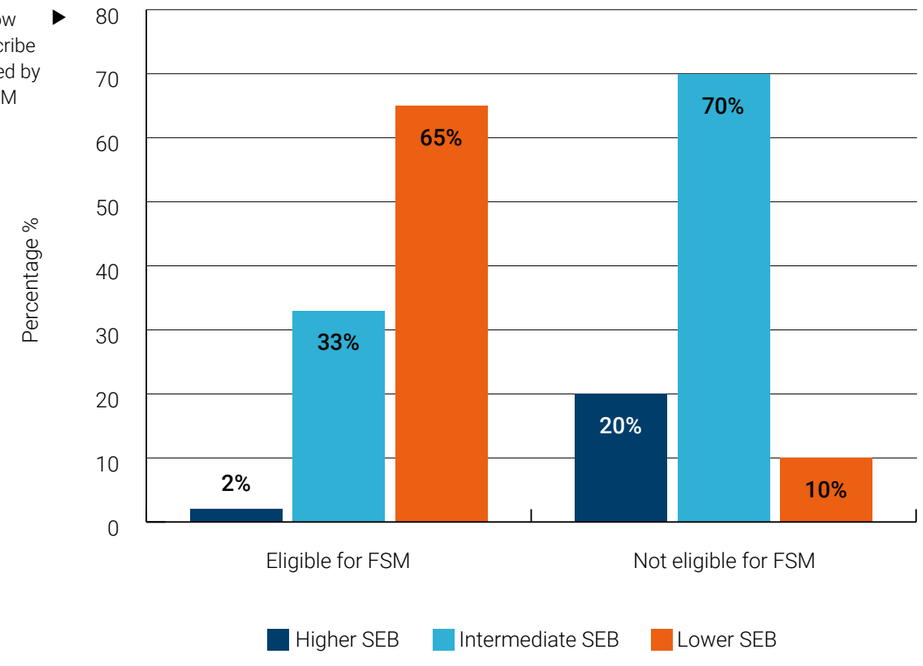
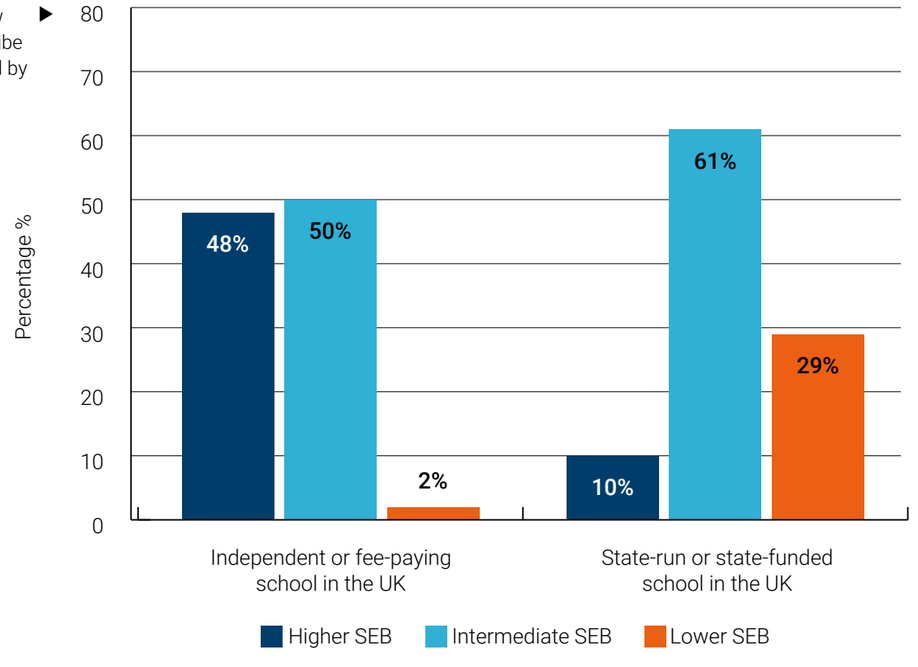


Figure A2 – How would you describe your SEB defined by type of school



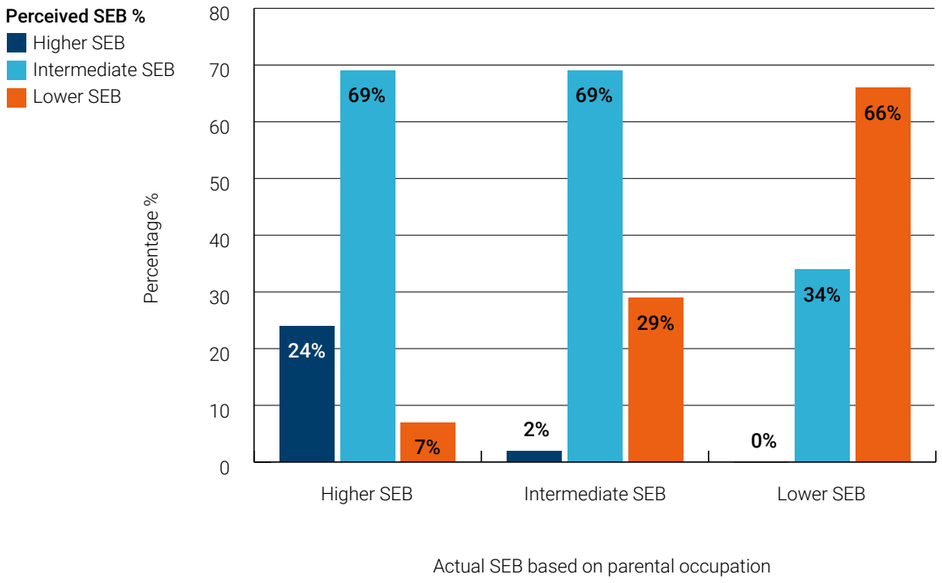


Figure A3 – How would you describe your SEB defined by highest parental educational attainment

Figure A4 – Impact of SEB White

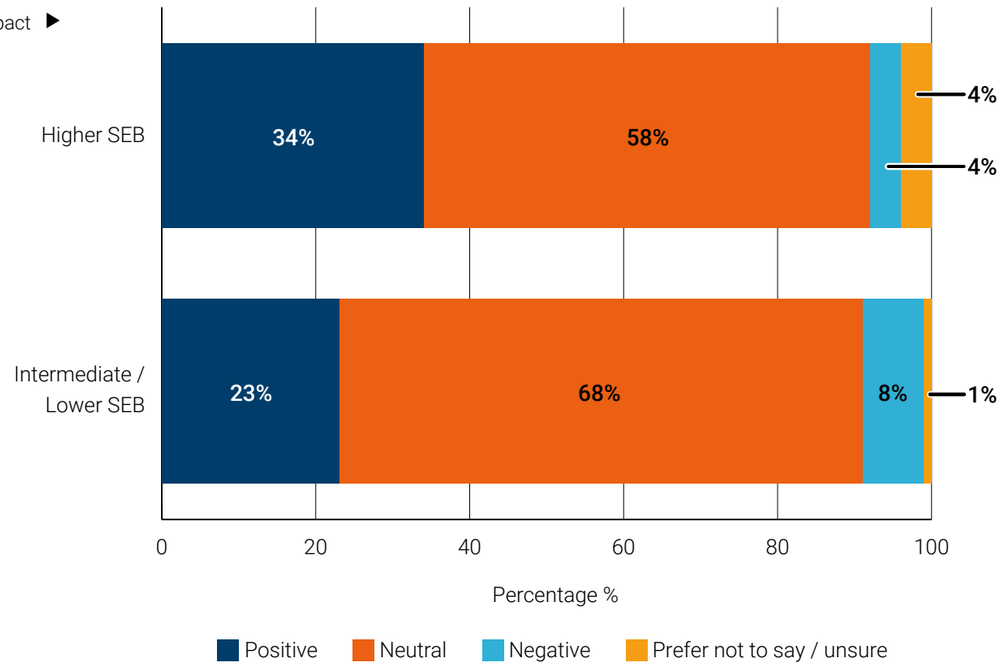


Figure A5 – Impact of SEB non-White

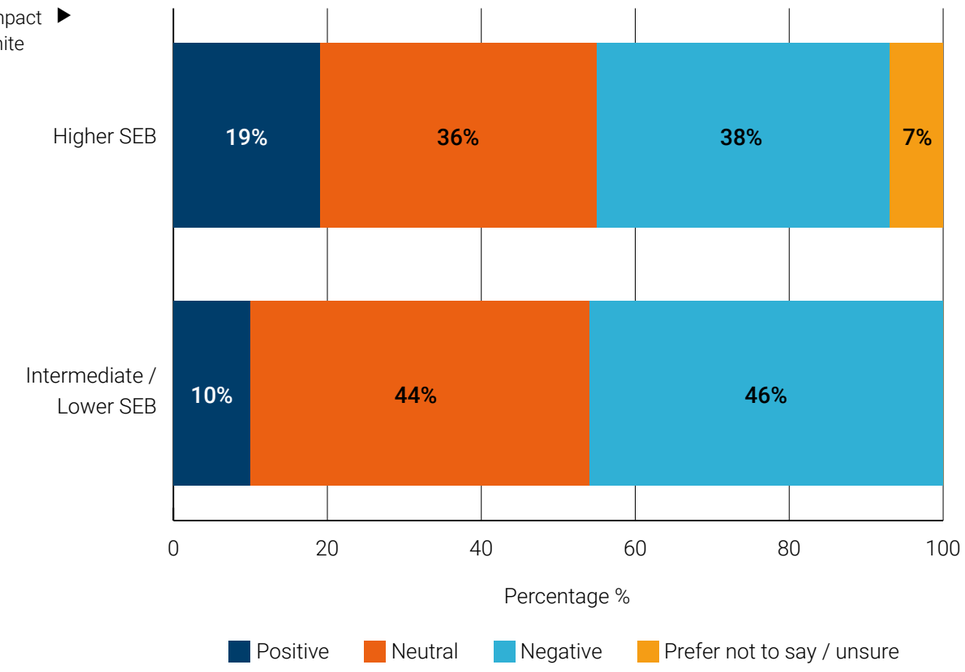


Figure A6 – Impact of SEB Western Europe

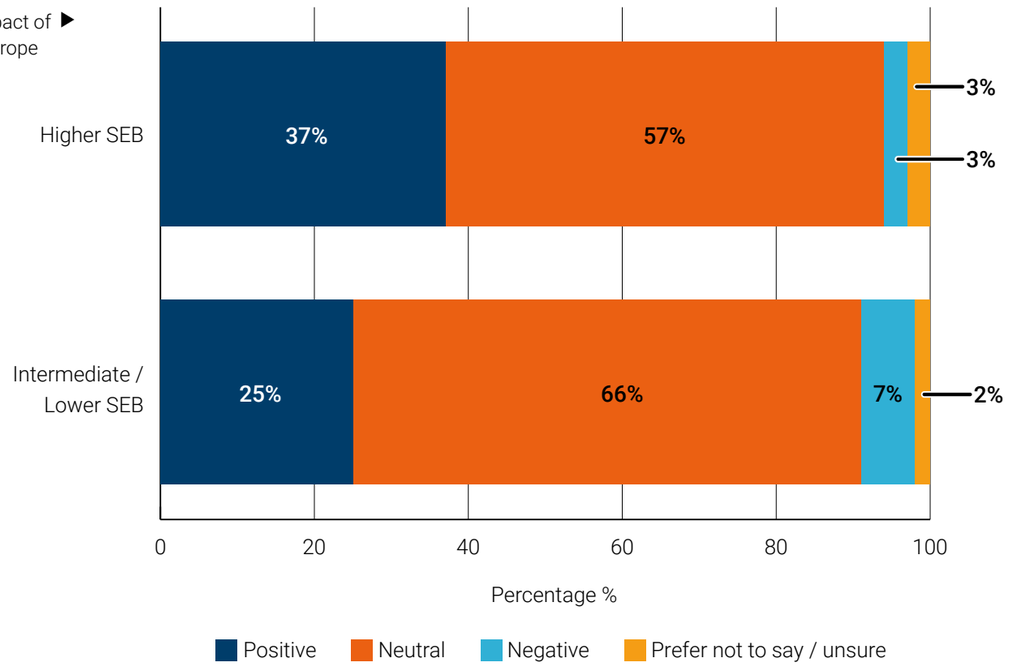


Figure A7 – Impact of SEB Other ▶

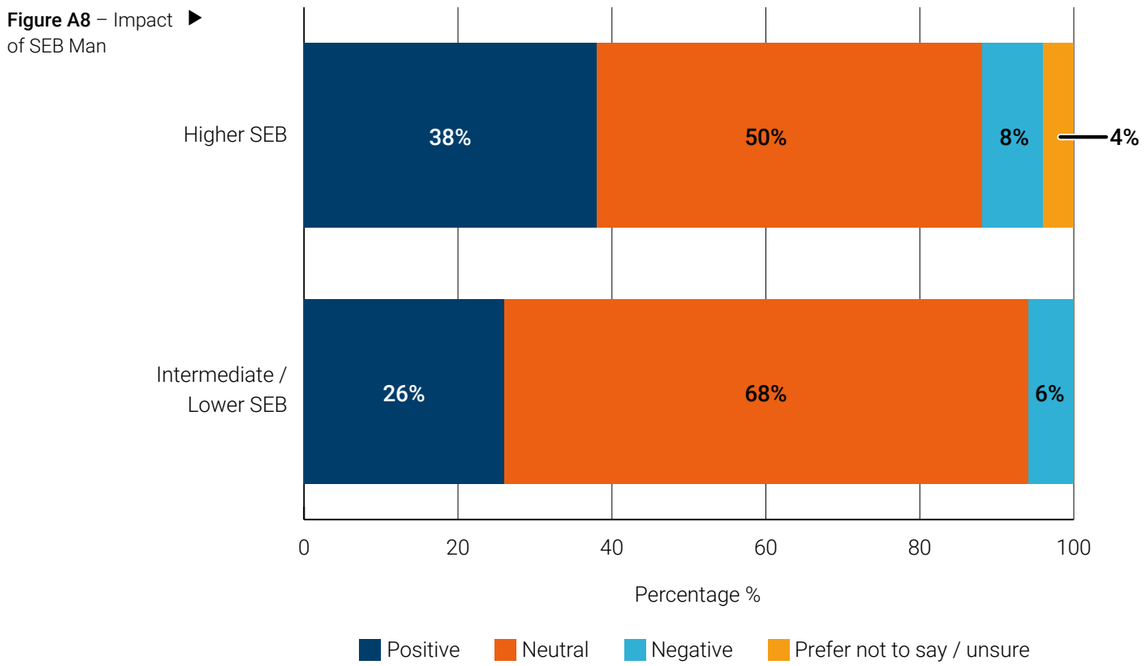


Figure A8 – Impact of SEB Man ▶

Figure A9 – Impact of SEB Woman ▶

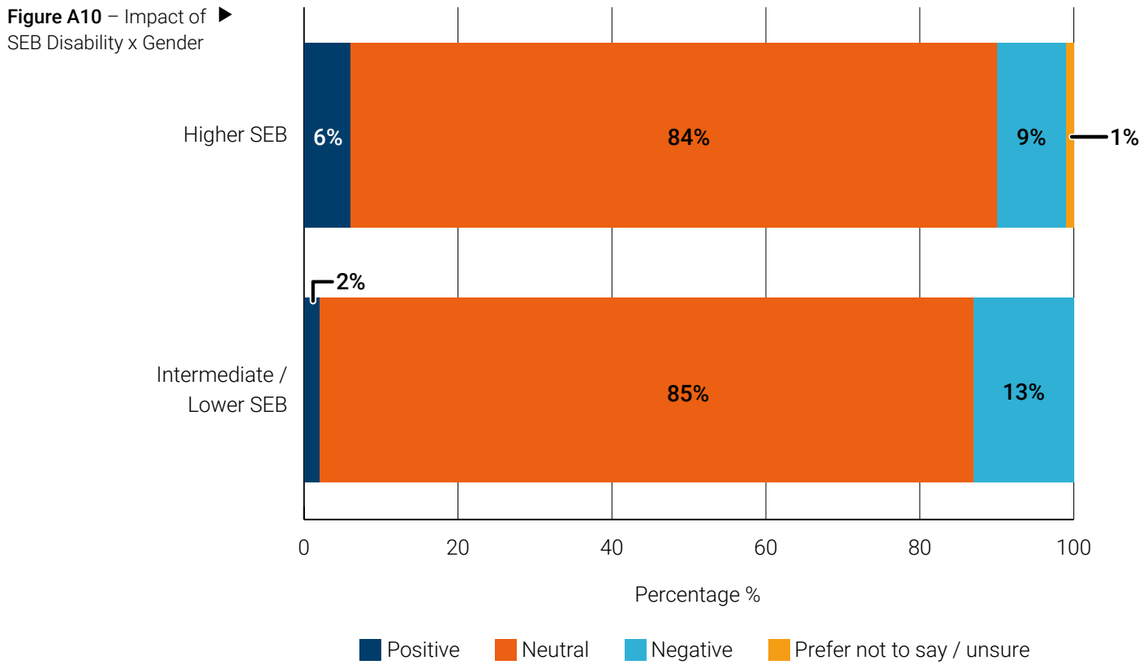


Figure A10 – Impact of SEB Disability x Gender ▶

Figure A11 – Impact of SEB Disability

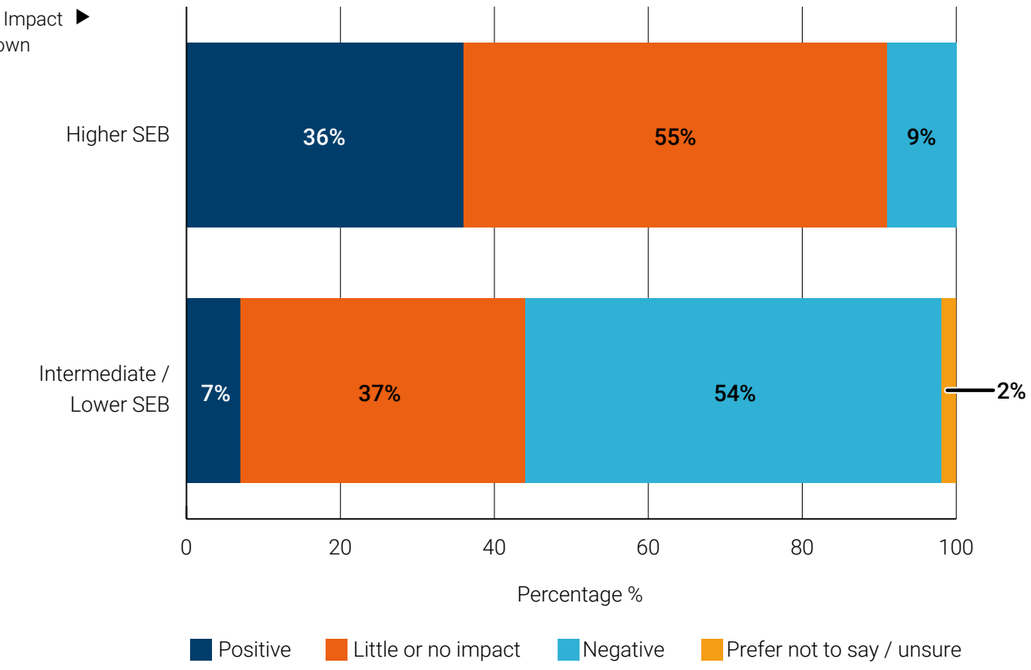


Figure A12 – Impact of SEB no known Disability

Figure A13 – Impact of SEB Heterosexual

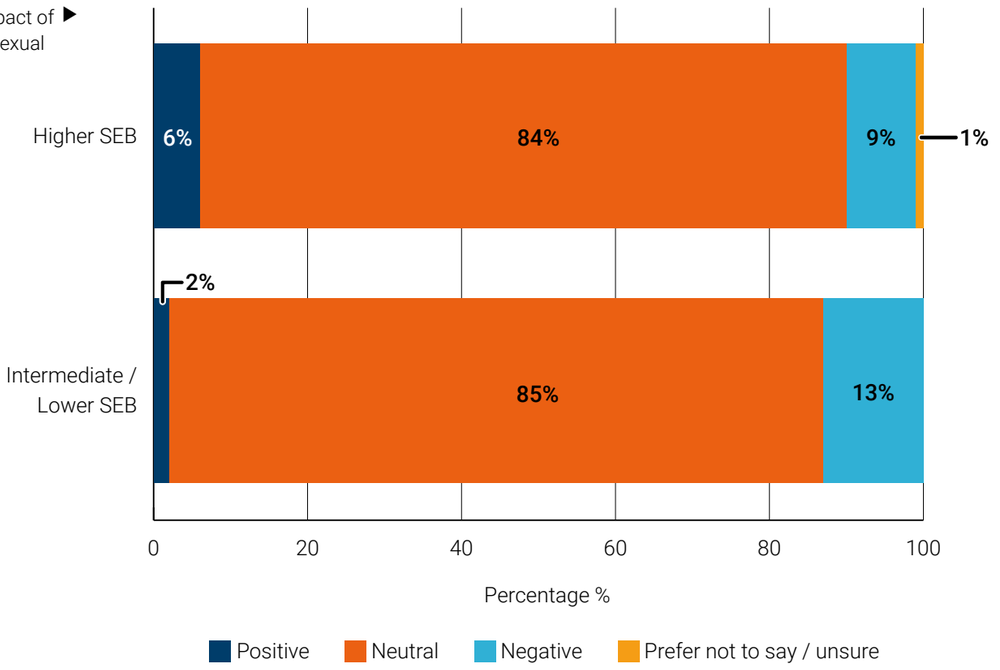


Figure A14 – Impact of SEB non-Heterosexual

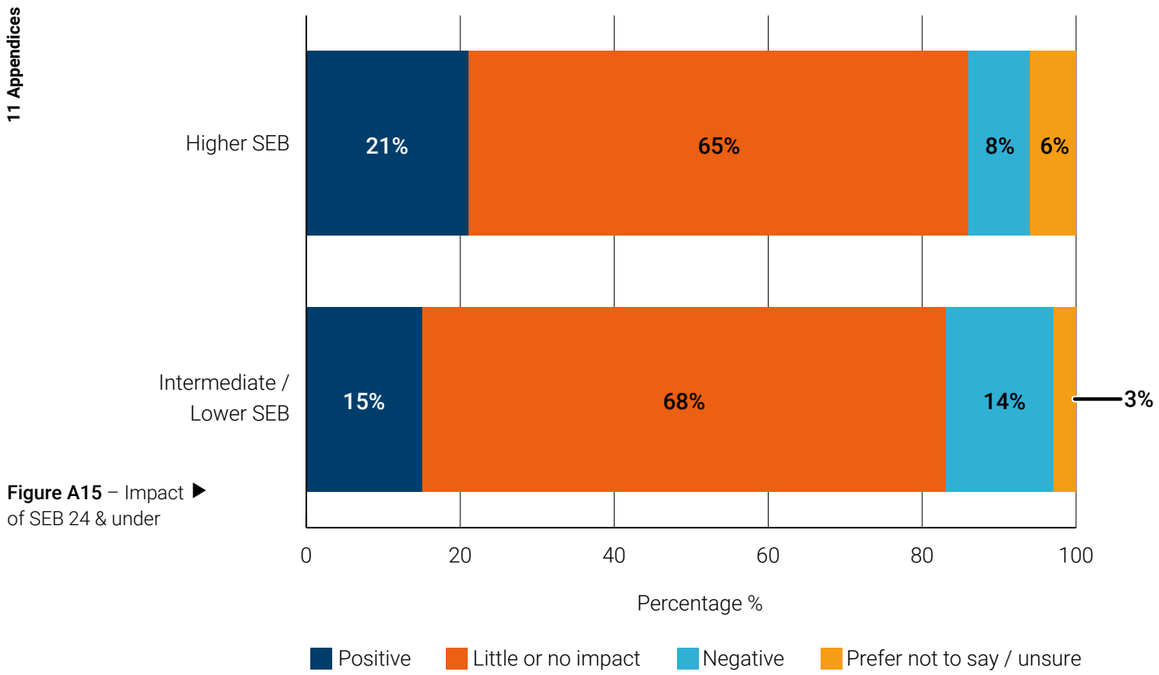


Figure A15 – Impact ▶ of SEB 24 & under

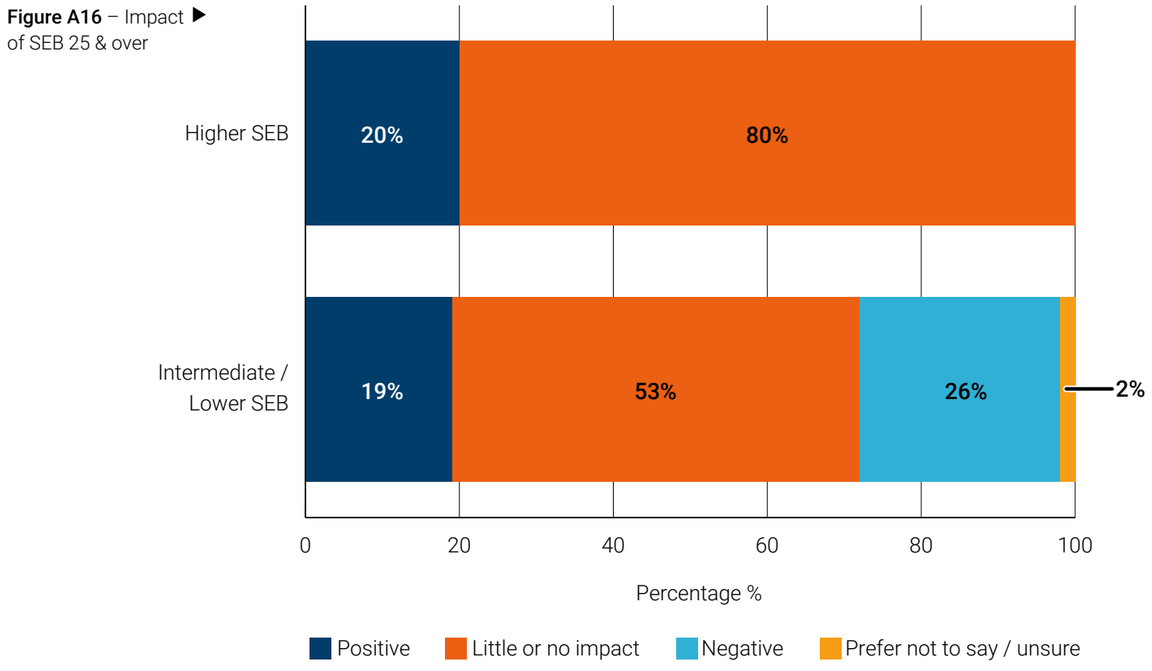


Figure A16 – Impact ▶ of SEB 25 & over

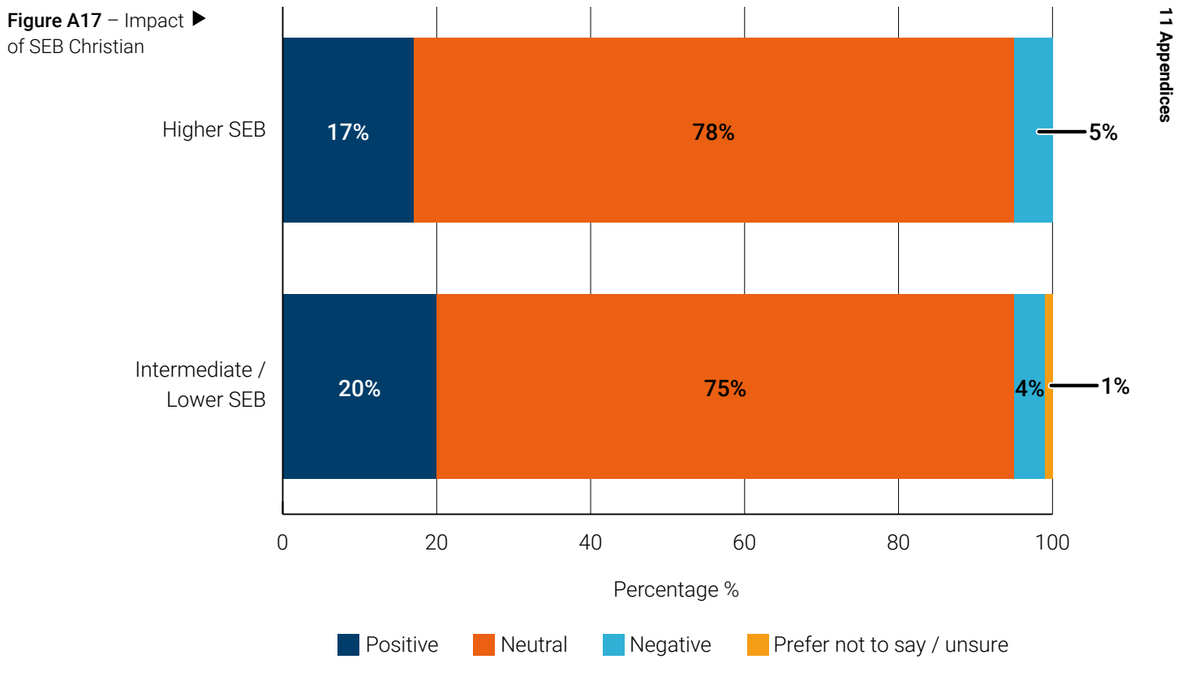


Figure A17 – Impact ▶ of SEB Christian

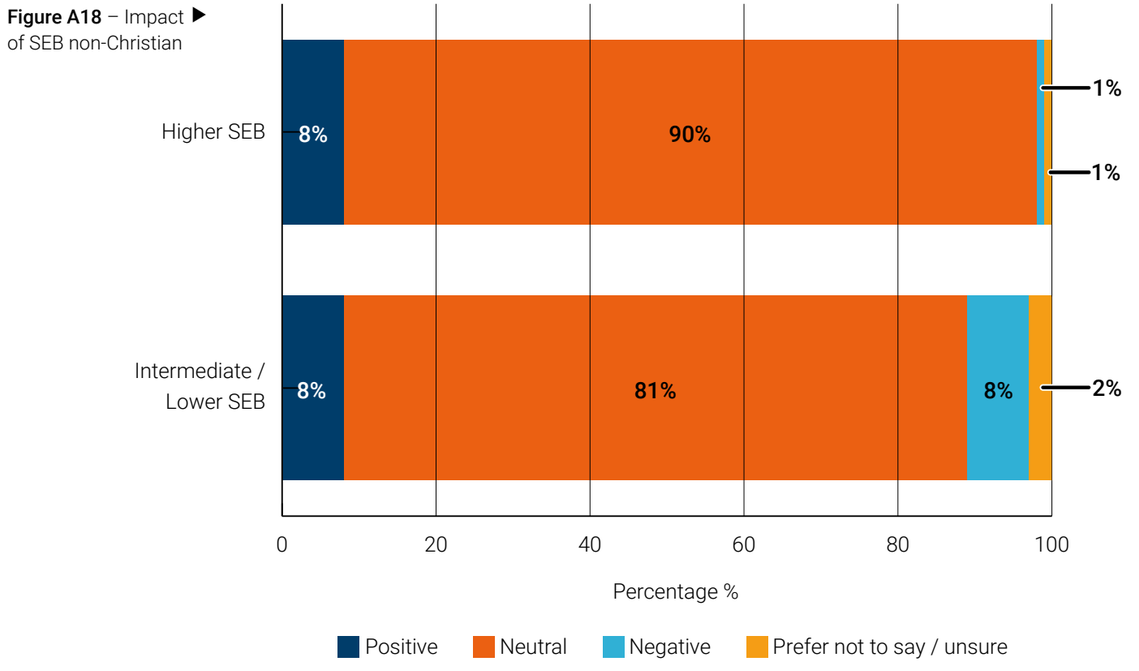


Figure A18 – Impact ▶ of SEB non-Christian

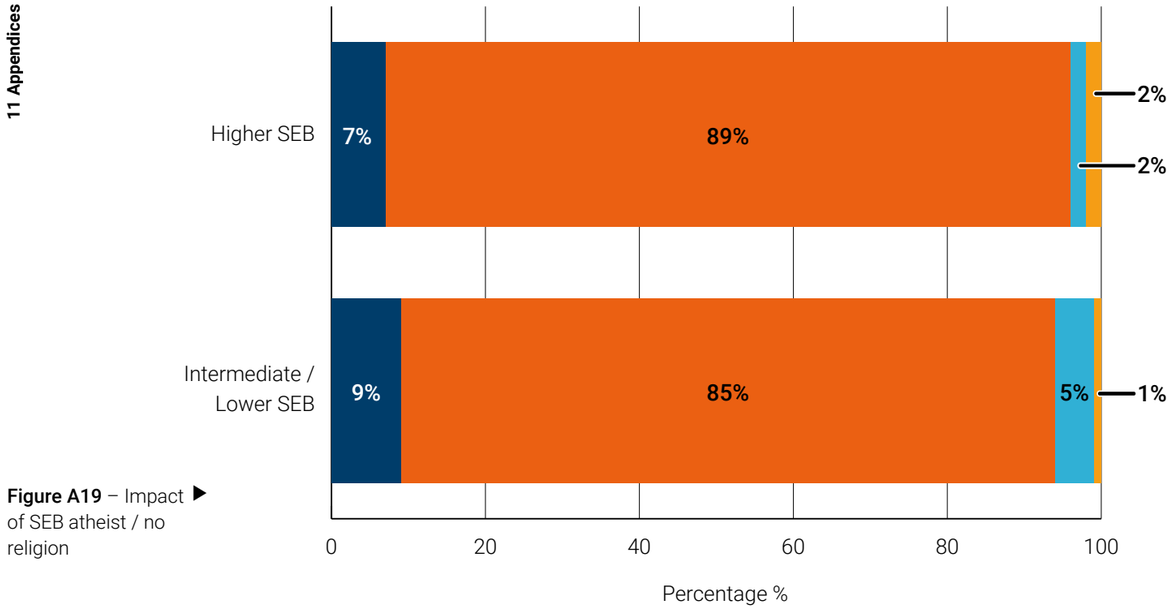


Figure A19 – Impact of SEB atheist / no religion ▶

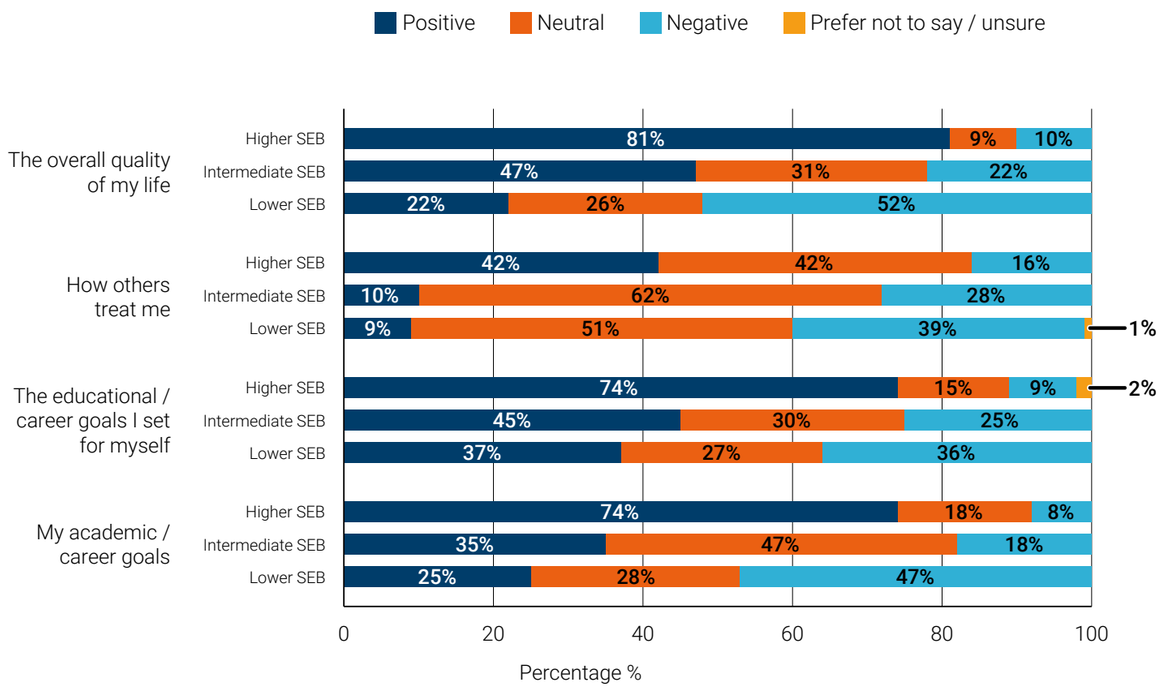


Figure A20 – SEB based on parental occupation against wellbeing, confidence and career aspirations ▲

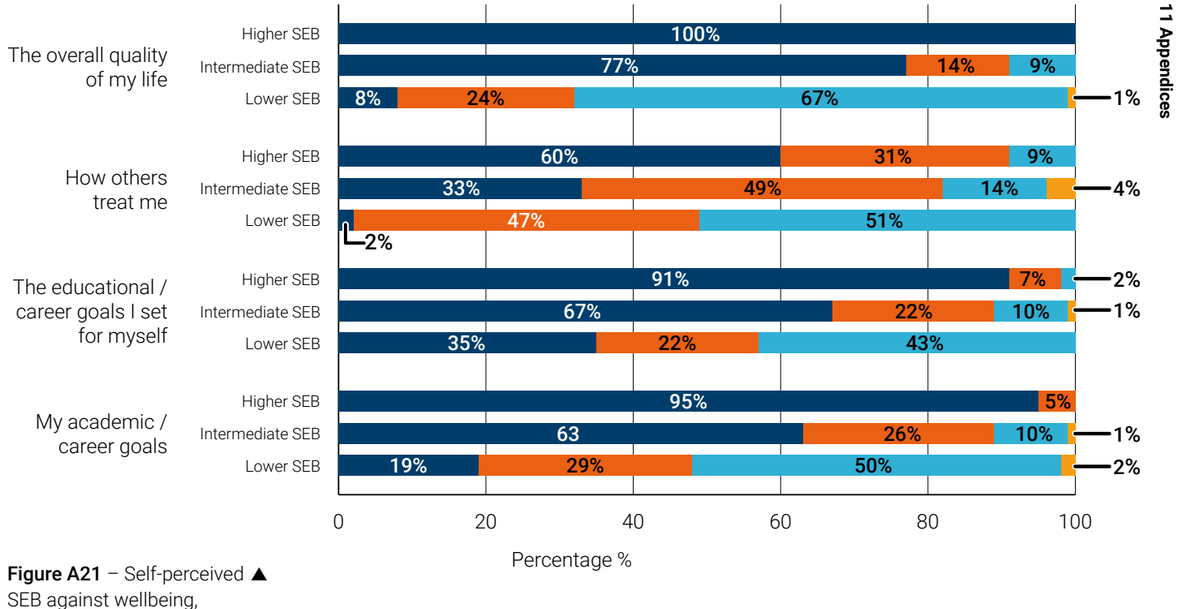


Figure A21 – Self-perceived SEB against wellbeing, confidence and career aspirations ▲

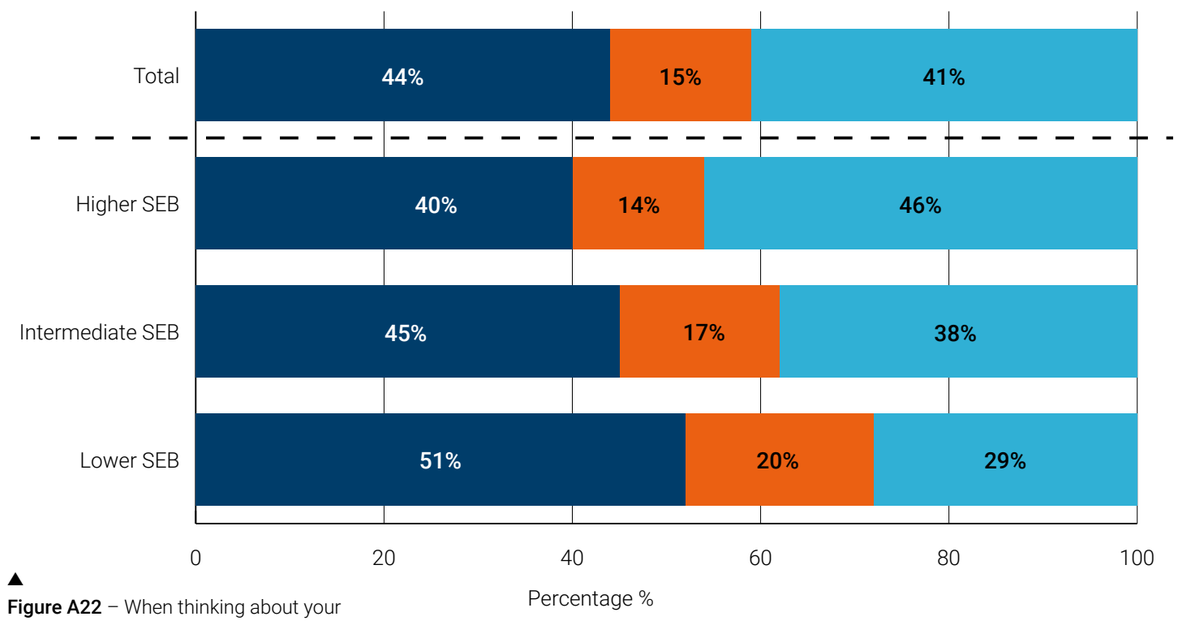


Figure A22 – When thinking about your choice of university, to what extend do you agree or disagree that you were limited in your decision making by factors outside your control? (Results shown by SEB) ▲

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Figure A23 – When thinking about your choice of university, to what extent do you agree or disagree that you were limited in your decision making by factors outside your control? (Results shown by region)

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
Bengaluru, India
Tokyo, Japan
Philadelphia, USA
Washington, USA

@RoyalSocietyofChemistry
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