



# The future of practical science lessons

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Teacher training during the pandemic and the long-term impact on practical work in schools

# Introducing our new perspectives series

In a world where global challenges and advances in technology bring both uncertainty and new possibilities, the chemical sciences have a critical role to play. But what will that role be? How can we maximise the impact we make across academia, industry, government and education? And what actions should we take to create a stronger, more vibrant culture for research that helps enable new discoveries?

Our perspectives series addresses these questions through four lenses: talent, discovery, sustainability and research culture. Drawing together insights and sharp opinion, our goal is to increase understanding and inform debate – putting the chemical sciences at the heart of the big issues the world is facing.

## Talent

Talent is the lifeblood of the chemical sciences. But how do we inspire, nurture, promote and protect it? Where will we find the chemical scientists of the future? And what action is required to ensure we give everyone the greatest opportunity to make a positive difference?



## Sustainability

Our planet faces critical challenges – from plastics polluting the oceans, to the urgent need to find more sustainable resources. But where will new solutions come from? How can we achieve global collaboration to address the big issues? And where can the chemical sciences deliver the biggest impacts?



## Discovery

Chemistry is core to advances across every facet of human life. But where do the greatest opportunities lie? How will technology and the digital era shape the science we create? And what steps should we take to ensure that curiosity-driven research continues to unlock new opportunities in unexpected ways?



## Science Culture

Globally, scientific research in academia and industry fuels both progress and innovation. But how do we create more inclusive, diverse and vibrant environments for research, that lead to better, more open science? And how should we recognise the breadth and diversity of the people, contributions and achievements that enable new discoveries?



Find out more at [www.rsc.org/new-perspectives](http://www.rsc.org/new-perspectives)

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# Introduction

**The pandemic has put science and scientists front and centre in the race to tackle the global health crisis. And chemistry has been essential at every stage of the world's response to the virus.**

Chemical scientists of the future will be the ones we look to for tackling the world's health, societal and environmental problems. Which is why we must do everything we can to ensure that school students have access to the best possible chemistry education.

A great teacher will have the ability to nurture a young person's passion for science and chemistry. But, for those at the very beginning of their teaching career, the pandemic has had a profound impact on their learning and development. The lockdown restrictions, social distancing and other measures that were in place to slow the spread of the virus meant that teacher training between 2019 and 2021 was significantly disrupted – school placements in particular.

## Plug the skills gap or risk leaking future talent

No trainee or new teacher expects to spend months away from the classroom at such a critical time in their professional development. But that is what many of the 2019/20 and 2020/21 cohorts have experienced. The lack of opportunities to hone their skills, like teaching practical science lessons and managing student behaviour, has the potential to impact the chemical science pipeline for many years to come – if we don't take action now.

If teachers lack confidence in leading practical work, they may be less likely to do it. This could be even more prevalent for schools with a higher proportion of disadvantaged students as they are less likely to have specialist teachers.<sup>2,3</sup> There is also a risk that if teachers have low self-efficacy they are more likely to leave. Both of these scenarios could mean that the development of students' practical skills is reduced.

Practical work – whether it's in the classroom or via outreach activities – is pivotal in providing an inspirational chemistry education. It helps students to understand the world around them and provides the opportunity to learn skills that are useful for the further study of, and careers in, the sciences and beyond.

For disadvantaged students, the knock-on effect of the pandemic is even more profound. Inequalities within chemistry education already exist and hands-on chemistry is key to enabling students to build confidence, motivation and value in the subject, as shown in our recent five-year study *Is chemistry accessible for all?*

<sup>1</sup> Survey of 199 secondary school chemistry teachers in the UK and ROI, October 2020

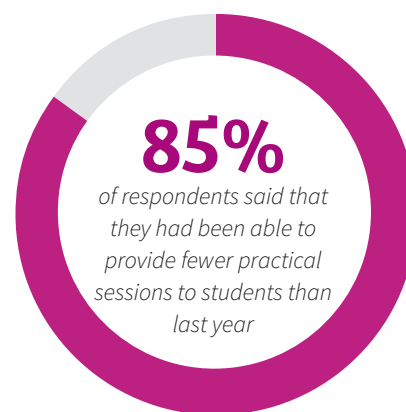
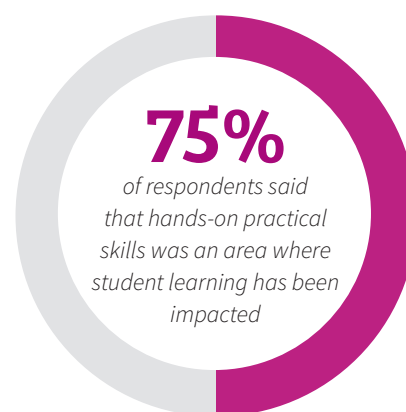
<sup>2</sup> Allen, R. and McInerney, L. (July 2019). The recruitment gap. The Sutton Trust <https://www.suttontrust.com/wp-content/uploads/2019/07/The-Recruitment-Gap.pdf>

<sup>3</sup> Kirby, P., & Cullinane, C. (2017). Sutton Trust Research Brief – Science Shortfall [http://www.suttontrust.com/wp-content/uploads/2017/01/Science-shortfall\\_FINAL.pdf](http://www.suttontrust.com/wp-content/uploads/2017/01/Science-shortfall_FINAL.pdf)

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**COVID restrictions has meant that practical work has been virtually impossible ... it's such a huge part of being a chemistry teacher!**

Trainee teacher



(Chemistry for All survey, Oct 2020<sup>1</sup>)

Ofsted's recent report<sup>4</sup> into the impact of COVID-19 on teacher training similarly noted the 'limited practical experience of teaching subjects with specialist equipment ... such as science' and that trainee teachers were prevented from developing subject knowledge and putting it into practice.

There is also research to show that science teachers, particularly early career science teachers, show higher rates of leaving the profession.<sup>5</sup>

**With this report, we are sounding the alarm on the potential long-term impact of the lack of learning and development opportunities for trainee and first year teachers, and the impact on school students.**

As the largest non-governmental supporter of chemistry education, we have three main concerns:

- the lack of practical teaching and experience could mean fewer school students gain the necessary skills and inspiration to pursue a career in the chemical sciences, either through university or following a more technical route
- this will have a knock-on effect on chemistry's contribution to the economy, and to solving future problems, as evidenced by our report *Chemistry's contribution: workforce trends and economic impact*
- without additional support, early career teachers will find the transition to teaching much more challenging than previous cohorts. This could potentially lead to an increase in teachers leaving the profession

## How we gathered the data

- We conducted a survey with UK chemistry teachers – October 2020
- We gathered insights from our members to understand some of the effects of the pandemic felt by university students – November 2020
- We launched a survey to trainee and first year teachers to understand how the pandemic had impacted their training and development between 2019 and 2021 – April 2021
- We also interviewed a range of training providers across England, Scotland and Wales, to understand the detail and nuances of teacher training over the course of the pandemic

This report highlights the key findings of our 2021 survey to trainee and first year teachers (see page 8) and draws upon insights from the wider science education community. It also sets out our action plan to provide extra support to equip the 2019/20 and 2020/21 cohorts of trainee teachers with the knowledge and skills they need to move forward in their career.

<sup>4</sup> Ofsted, May 2021 Teaching teachers during COVID-19 Ofsted, May 2021 [Teaching teachers during COVID-19](#)

<sup>5</sup> Worth, J. and De Lazzari, G. (2017). Teacher Retention and Turnover Research. Research Update 1: Teacher Retention by Subject. Slough: NFER <https://www.nfer.ac.uk/publications/nufs01/nufs01.pdf>

# Who should read this report?



Education policymakers and influencers

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Teacher training providers

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School leaders and early career teacher mentors

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Teachers and trainee teachers

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Other stakeholders and employers with a role in teacher training, and those who have an interest in the next generation of science talent

# Our action plan

The pandemic has resulted in trainee teachers having fewer opportunities to develop their skills in teaching science practicals. We believe that funding focused on practical skills development, either directly given to schools or to training providers, is essential to bridge this skills gap.

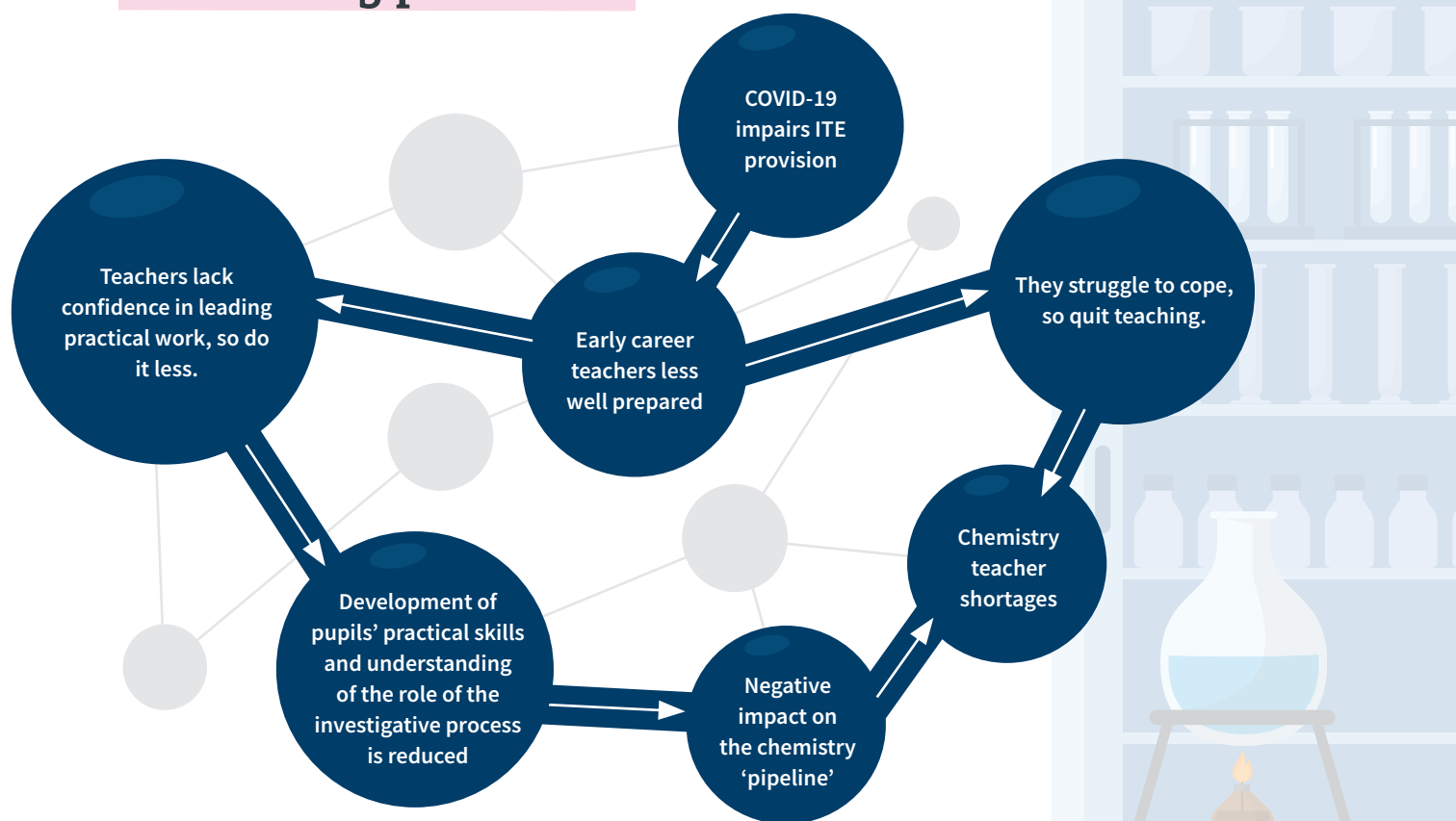
**We therefore call on the UK governments to provide up to £7 million<sup>6</sup> funding for continuing professional development (CPD) with a focus on practical work for teachers of the sciences who trained during the pandemic.**

We are also committing our own resources to develop a tailored package of support for early career teachers of science and trainees to improve their skills and confidence, available via our website <https://edu.rsc.org/early-career-or-student-teacher> including:

- a new microsite that includes relevant articles, videos and resources
- access to live sessions on teaching practical chemistry
- free access to relevant CPD opportunities

These will be important additions to our extensive bank of resources that are already available on our education website <https://edu.rsc.org>

**82% of trainee teachers and 67% of first year teachers would like additional support in training on teaching practicals.**



<sup>6</sup> Funding of up to £6 million for England and £1 million to cover Wales, Scotland and Northern Ireland. These figures have been calculated with the assumption that schools may need funds for external CPD courses and/or to provide experienced staff as well as early career sciences teachers further non-contact time in addition to that announced by the Department for Education in England on 21 June 2021.

# Teacher training during the pandemic

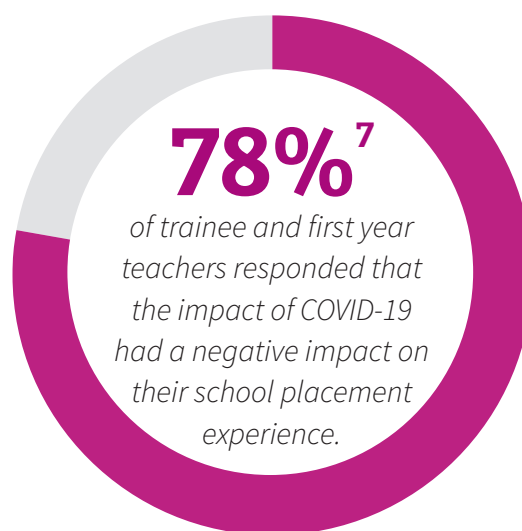
Teacher training during the 2019/20 and 2020/21 academic years was significantly disrupted by the COVID-19 pandemic. As a consequence of partial school closures, social distancing, and the rapid move to online teaching, trainee and first year teachers have had a very different learning experience to previous cohorts.

To understand the impact of the pandemic on teacher training, we gathered insights from trainee and first year teachers, and training providers, around four main themes: placement experience, practical skills, skills development and personal circumstances. The Royal Society of Chemistry survey was conducted in the UK in April 2021. 179 respondents were trainee science teachers and 80 respondents were first year science teachers.

## School placement experience

School placements are a standard part of the teacher training experience. For the cohorts in our survey, their placements were heavily disrupted, with partial school closures and moving to online teaching impacting their ability to:

- observe other teachers
- conduct practical sessions
- interact and build relationships with students
- move around the class to check in with individual students, target disengagement, chatter or other types of behaviour
- develop their ability to manage low level disruption



“ ”

**It hasn't allowed me to experience what teaching is normally like.**

**Trainee teacher**



<sup>7</sup> Trainee and first year science teachers combined who responded to our survey.



Such disruption at a crucial time in their learning and development has affected these cohorts' ability to develop core skills through observing colleagues, conducting practical sessions and interacting with students to build important learning relationships. We are concerned about the repercussions for the learning quality of practical-led subjects and what this will mean for students and their interest and engagement in science.

“ ”

**The major impact has been that teachers have a massive workload ... which in turn has meant that they are not so able to assist trainee teachers. For instance, my mentor is snowed under moderating assessments in an effort to provide fair grading for students. This obviously takes priority over mentoring. It is not that they are not trying, it is just that there is not the bandwidth.**

**Trainee teacher**

“ ”

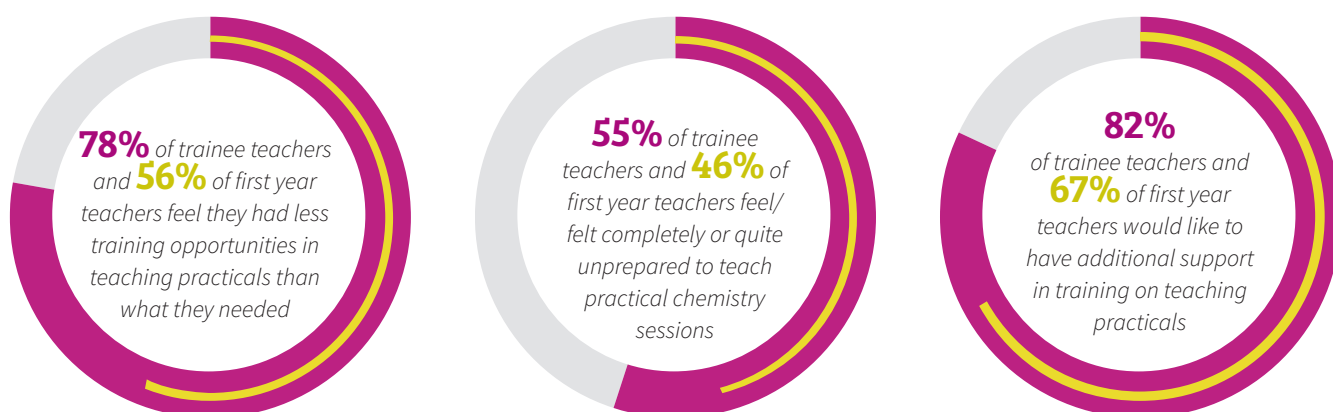
**At the start of the pandemic I had only taught around 20 GCSE lessons ... This lack of experience with older year groups made the start of my NQT year very difficult...**

**First year teacher**

## Skills for teaching practical lessons

Practical work is essential for providing an inspirational chemistry education. The life skills that students gain through practical chemistry – analytical thinking, problem-solving, challenging ideas – can open doors to numerous further study and career choices.

It is troubling to learn, therefore, that the trainee and first year science teachers we surveyed have missed vital opportunities to develop their chemistry practical skills. In fact, the comments in our survey revealed that many first year teachers felt unprepared as they went into their first year, having not physically been in a classroom for five or six months.



“ ”

Going into the final term of training, I am yet to lead a practical lesson. This will mean going into NQT year having not done the vast majority of required practicals, and with far less confidence on how to deliver them.

Trainee teacher

“ ”

I have not been able to perform any class practicals at all. This is a huge section of the science curriculum that is completely untested.

Trainee teacher

Respondents at some schools have had to prioritise their lab access to certain classes<sup>1</sup>, usually exam cohorts, raising questions about the impact on learners aged 11 to 14 and how this will influence their motivation and interest in the sciences.

Training providers highlighted their concerns, too. One provider received feedback from the school that their newly qualified teacher had a fear of doing chemistry practicals because of limited experience of how to deliver one. Another provider told us "we need them to be in a lab, to train them in a lab, to touch equipment, to talk about their misconceptions".

“ ”

**I do not feel confident leading a practical lesson where students carry out the practical themselves.**

**First year teacher**

Due to the restrictions in place, many training providers were unable to train their cohorts how to teach practical sessions. Another provider said that "We normally see confidence rise over time, however, the confidence for this year's cohort is less of a steady incline but a static line".

Providers were also concerned that while simulations and online practicals served a purpose during the pandemic they should not be used now to substitute in-person practicals.

The reduced opportunities to develop these skills has meant that 2019-2021 cohorts feel underprepared. We are concerned that if these cohorts of new teachers are not supported, they may lack confidence which could impact the quality of their teaching and lead some to withdraw from the profession altogether. This could lead to less student engagement with chemistry and therefore fewer young people will choose a career in chemistry.

“ ”

**Practicals help pupils with motivation and consolidate learning – losing this makes science a very different subject.**

**Chemistry teacher**

“ ”

**I missed almost half of my training. It was 6 months since I had stepped foot in the classroom or even taught when I started at a new school for my NQT year. I regularly feel out of my depth and worry that I'm not good enough as a teacher because I missed so much.**

**First year teacher**

<sup>1</sup> Survey of 199 secondary school chemistry teachers in the UK and ROI, October 2020

## Skills development

Experiencing months away from the classroom, trainees and new teachers have been unable to develop some essential teaching skills, such as behaviour management. This has resulted in many feeling less confident in these areas as they return to the classroom.

Some training providers noted that their trainees had been able to hone their planning and lesson preparation skills but missed opportunities to embed this learning in a live classroom setting. The remote teaching experience meant teachers and their students lost out on the face-to-face interactions that are so important for observing a student's understanding and building rapport.

The survey highlighted potential opportunities for additional support:

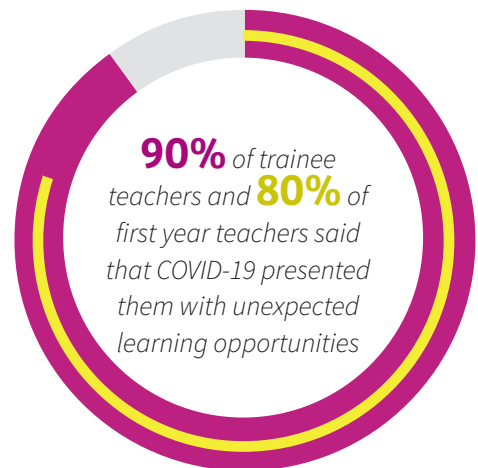


Trainee teachers (161 responses)	First year teachers (64 responses)
<ul style="list-style-type: none"> <li>• <b>82%</b> Training on teaching practicals (138)</li> <li>• <b>50%</b> Behaviour management training (84)</li> <li>• <b>46%</b> Further reduced timetable (77)</li> <li>• <b>40%</b> Subject specific training (68)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>67%</b> Training on teaching practicals (43)</li> <li>• <b>42%</b> Further reduced timetable (27)</li> <li>• <b>44%</b> Behaviour management (28)</li> <li>• <b>38%</b> Subject specific training (24)</li> </ul>

## Unexpected learning

### Positive experiences ...

The feedback from survey respondents highlighted some positives too. For example, the disruption they experienced presented some unexpected learning opportunities.



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**Though online learning is not ideal, there was a whole new skill set that I needed to learn which other trainees won't have done.**

Trainee teacher

“ ”

**I think it has made me resilient and adaptable. We have had to adapt our practice with new rules several time and now we have to assess our students, which is completely new.**

**Trainee teacher**

The survey revealed some positive experiences too:

- increased confidence in engaging with technology
- developing the resilience required to adapt to a fast-changing environment
- online learning enabled trainee teachers to focus on their lesson planning without the additional concern of behaviour management

While trainee and first year teachers will likely have developed the resilience required to adapt to a fast-changing environment – moving to online teaching for example – there is the risk that, without additional support, they will find the transition to teaching much more challenging than previous cohorts. We are concerned that this could impact teacher retention in the future.



“ ”

**The lack of behaviour management issues online has allowed me to focus on other skills including planning, assessment and questioning techniques.**

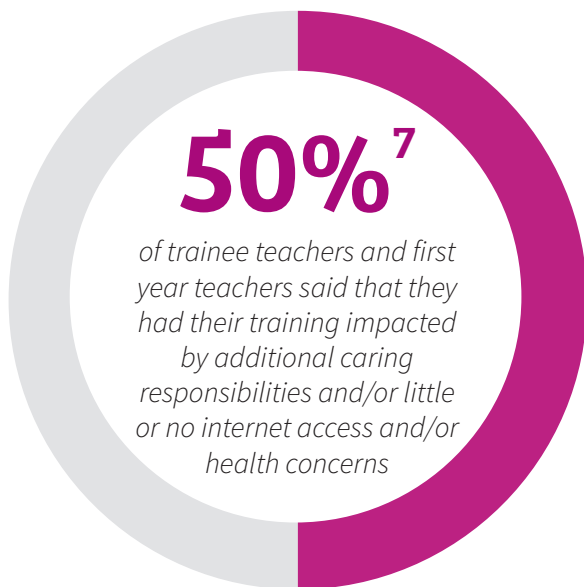
**Trainee teacher**

## Personal circumstances

Trainee teachers, in particular, commented on how they had been personally impacted by COVID-19, including bereavement, the need to homeschool, and caring for family members with mental health related issues related to COVID-19.

Training providers told us that, in a normal year, trainees with additional responsibilities, such as childcare, would have had a very different experience: uninterrupted and likely a seamless experience. However, those that had to train during a pandemic with additional responsibilities, or had a pre-existing medical condition, mental and physical health needs, will have had a completely different experience.

We are concerned about the risk of not retaining teachers whose training experience was particularly challenging.



<sup>7</sup> Trainee and first year science teachers combined who responded to our survey.

## Safeguarding talent, protecting our economy

Our ability to nurture, educate and develop future chemical scientists is crucial if we are to realise the UK government's *Ten Point Plan for a Green Industrial Revolution*, launched in November 2020. Whether it's developing new medicines, vaccines, diagnostics, carbon capture and storage technology, batteries for electric vehicles or synthetic fuels, chemical scientists will play a central role in combatting the most pressing societal challenges that we face. We must keep the UK chemistry talent pipeline flowing.

The pandemic's impact on teacher training goes beyond the classroom. Access to practical teaching is an essential component of a chemistry degree and vocational routes into a chemistry career, both in terms of a student's progression and future employment prospects. It is usually where a student will consolidate their knowledge or develop a passion for an aspect of the subject that will influence their career decisions. But lab closures, social distancing and other safety measures means that university departments have a tough juggling act: to ensure that both students starting out and those about to graduate achieve the practical skills and experience they need to enter the professional world. Sectors like pharma, biotech, energy and the environment rely on a steady pipeline of chemistry chemical scientists who can meet the required professional standards to safely carry out laboratory work in R&D and manufacturing.

### **There's a real risk that students without lab experience could be seriously disadvantaged in the jobs market.**

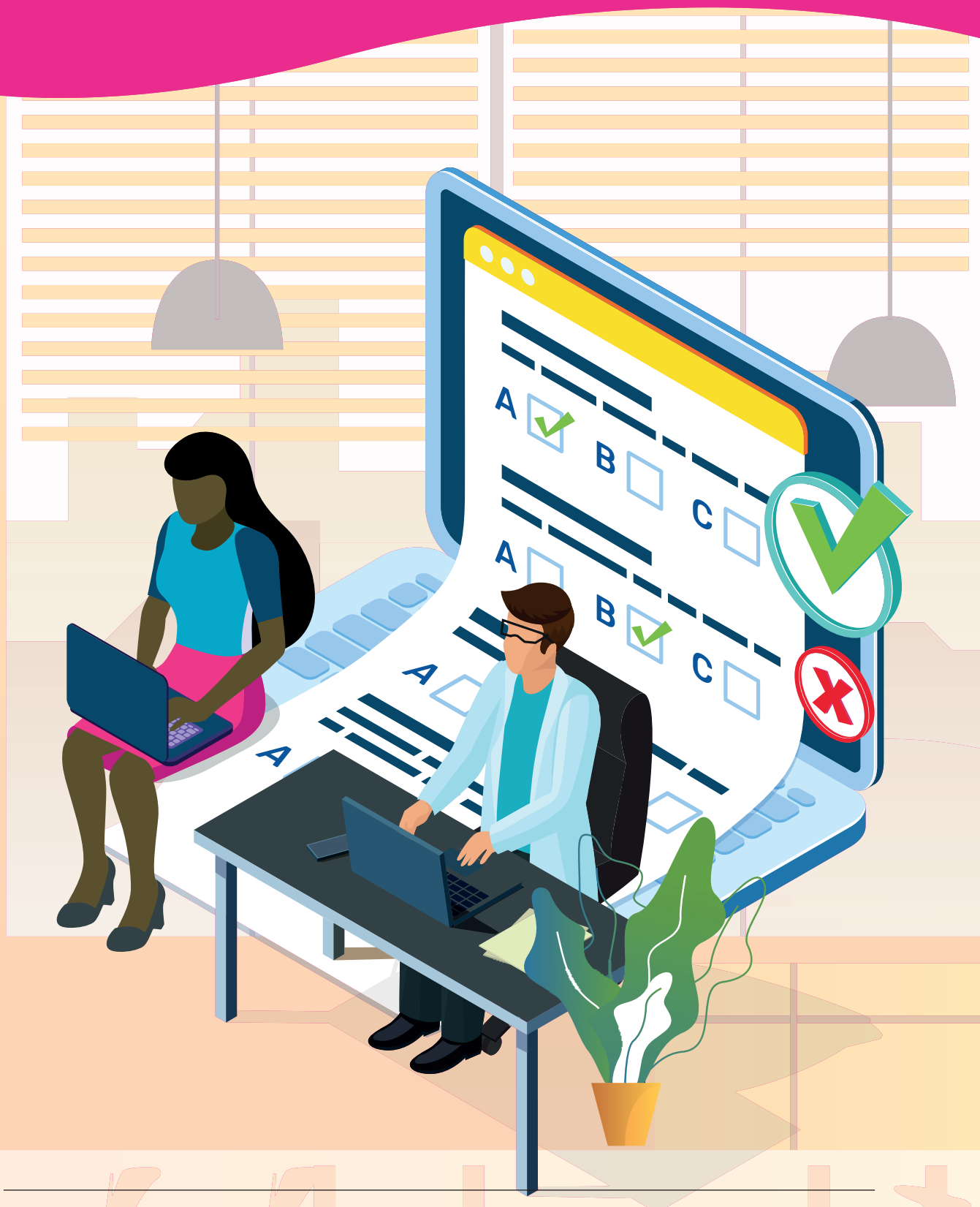
And what of the effect on our economy? The UK's chemistry workforce makes a significant contribution – £83 billion per year of GDP. Chemistry-using professionals tend to be highly qualified, with over two thirds holding a doctorate or Master's degree. We must act now to avoid losing talented teachers, students and undergraduates from the chemistry pipeline.

Trainee and first year teachers have had an incredibly challenging start to their teaching career. Like the cohorts that have gone before, and the ones to come, they have the potential to inspire and nurture inquisitive young minds. And while many of our survey respondents said that the pandemic has increased their technology skills and resilience – key skills for the future – there's little doubt that significantly reduced exposure to the classroom has impacted their experience of practical teaching.

We hope that the UK governments will join us in providing extra support for trainee and first year teachers – the people we rely on to educate our future scientists.

# Appendix

The Royal Society of Chemistry survey was conducted in the UK in April 2021. 179 respondents were trainee science teachers and 80 respondents were first year science teachers.





## First year teachers survey results

### Where are you based?

Country	Respondents	% Respondents
Non-respondents	1	-
England	58	73%
Northern Ireland	1	1%
Other	7	9%
Scotland	9	11%
Wales	5	6%
<b>Respondents</b>	<b>80</b>	<b>-</b>

### Which was the main science subject(s) you did your teacher training/education in?

Subject	Respondents	% Respondents
Biology	20	28%
Chemistry	42	58%
Physics	17	24%
Other	0	0%
<b>Total respondents</b>	<b>72</b>	<b>-</b>

## First year teachers survey results

### Did you have opportunities to train in school during your training year?

	School based training			Time in school		
	Autumn term	Spring term	Summer term	Autumn term	Spring term	Summer term
-	9	10	10	-	-	-
Other	0	0	4	0%	0%	6%
No school placement in any form	3	2	41	4%	3%	58%
Yes, in person	65	11	6	90%	15%	8%
Yes, in person but disrupted midway by the start of the pandemic	4	48	4	6%	68%	6%
Yes, mix of in person and virtual	0	8	2	0%	11%	3%
Yes, virtual only	0	2	14	0%	3%	20%
<b>Respondents</b>	<b>72</b>	<b>71</b>	<b>71</b>	<b>72</b>	<b>71</b>	<b>71</b>

### Please rate the impact COVID-19 had on your school placement experience(s), if any?

Impact	Respondents	% Respondents
Non-respondents	12	-
Large negative impact	13	19%
Negative impact	38	55%
Neither positive or negative	13	19%
Positive impact	3	4%
Large positive impact	0	0%
Not sure	2	3%
<b>Respondents</b>	<b>69</b>	<b>-</b>

## First year teachers survey results

**Did your placement timetable give you opportunities to experience working with the following age groups: (If you were not expecting to be trained in teaching a particular age range, please select N/A)**

Opportunity level	Age groups						
	Under 11	11-12	12-13	13-14	14-15	15-16	16+
Non-respondents	21	10	10	10	10	10	10
A lot of opportunities	4	54	53	51	38	14	9
No opportunities	5	1	2	1	7	35	22
Not applicable	37	5	1	1	0	1	9
Some opportunities	14	11	15	18	26	21	31
<b>Respondents</b>	<b>60</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>	<b>71</b>

Opportunity level	% Respondents						
	Under 11	11-12	12-13	13-14	14-15	15-16	16+
A lot of opportunities	7%	76%	75%	72%	54%	20%	13%
No opportunities	8%	1%	3%	1%	10%	49%	31%
Not applicable	62%	7%	1%	1%	0%	1%	13%
Some opportunities	23%	15%	21%	25%	37%	30%	44%

**How prepared did you feel to teach whole class practical chemistry sessions this year (your first year as a teacher)?**

Prepared level	Respondents	% Respondents
Non-respondents	9	-
Completely prepared	4	6%
Quite prepared	23	32%
Neither prepared or unprepared	10	14%
Quite unprepared	28	39%
Completely unprepared	5	7%
Not sure	2	3%
<b>Respondents</b>	<b>72</b>	<b>-</b>

## First year teachers survey results

Do you feel you received the quantity of training opportunities you needed in the below areas during your training/education year?

Amount	Training areas					
	Practicals	Subject-specific	Pedagogy	Behaviour management	Lesson planning	Assessment
Non-respondents	10	10	11	9	10	11
About the right amount	27	42	40	28	38	32
Less than needed	40	21	11	36	21	33
More than needed	4	7	19	7	11	5
Not sure	0	1	0	1	1	0
<b>Respondents</b>	<b>71</b>	<b>71</b>	<b>70</b>	<b>72</b>	<b>71</b>	<b>70</b>
Amount	Practicals	Subject-specific	Pedagogy	Behaviour management	Lesson planning	Assessment
About the right amount	38%	59%	57%	39%	54%	46%
Less than needed	56%	30%	16%	50%	30%	47%
More than needed	6%	10%	27%	10%	15%	7%
Not sure	0%	1%	0%	1%	1%	0%

As a result of COVID-19, was your training/education experience impacted by any of the following:

Impact	Respondents	% Respondents
Additional caring responsibilities	19	27%
Little or no access to the internet	2	3%
Health concerns	22	31%
None	33	46%
Other	3	4%
<b>Total respondents</b>	<b>71</b>	<b>-</b>

## First year teachers survey results

**Over the course of the pandemic, during your training/education, were you able to get the support needed from your course mentor (both in person and virtual)?**

Mentor support	Respondents	% Respondents
Non-respondents	10	–
No, not at all	5	7%
No, less than the amount I have needed	6	8%
Yes, with some difficulties	6	8%
Yes, the amount I have needed	29	41%
Yes, a lot of access	24	34%
Other	1	1%
<b>Respondents</b>	<b>71</b>	<b>–</b>

**Currently, in your first year of teaching, have you been able to get the support needed from your mentor (both in person and virtual)?**

Mentor access	Respondents	% Respondents
Non-respondents	10	–
No, not at all	1	1%
No, less than the amount I have needed	7	10%
Yes, with some difficulties	8	11%
Yes, the amount I have needed	15	21%
Yes, a lot of access	39	55%
Other	1	1%
<b>Respondents</b>	<b>71</b>	<b>–</b>

**How confident did you feel starting your first year as a qualified teacher?**

Confidence level	Respondents	% Respondents
Non-respondents	16	–
Very confident	6	9%
Confident to some extent	39	60%
Not confident at all	19	29%
Not sure	1	2%
<b>Respondents</b>	<b>65</b>	<b>–</b>

## First year teachers survey results

**Do you feel your experience as a first-year teacher during COVID-19 presented you with any unexpected learning opportunities or not?**

Unexpected learning	Respondents	% Respondents
Non-respondents	17	–
No	10	16%
Not sure	3	5%
Yes	51	80%
<b>Respondents</b>	<b>64</b>	–

**Have you been able to do any practical work with your classes when they have been in school this year?**

Amount of practicals	Respondents	% Respondents
Non-respondents	17	–
No, I've not done any class practicals or demonstrations	11	17%
No, but I've done plenty of demonstrations instead	9	14%
Yes, but only for exam classes	3	5%
Yes, but much less than normal	25	39%
Yes, for all classes, as normal when school the school has been full open	11	17%
Other please specify	5	8%
<b>Respondents</b>	<b>64</b>	–

## First year teachers survey results

**Do you feel that the pandemic has affected the development of your teaching skills as a first-year teacher?**

Impact on skills	Respondents	% Respondents
Non-respondents	17	-
Don't know	8	13%
Large positive impact	4	6%
Positive impact	10	16%
No impact	5	8%
Negative impact	34	53%
Large negative impact	3	5%
<b>Respondents</b>	<b>64</b>	<b>-</b>

**Going forward, would you like to have opportunities for any of the following areas of additional support? If so, please select up to three options.**

Additional support	Respondents	% Respondents
Practicals	43	67%
Subject specific training	24	38%
Pedagogy training	9	14%
Behaviour management training	28	44%
Other CPD	9	14%
Further reduced timetable	27	42%
Increased mentor support	1	17%
Increased support from teacher training provider	4	6%
None	2	3%
Other	4	6%

## First year teachers survey results

**Has the experience of COVID-19 and lockdown made it more or less likely that you will seek to leave the profession altogether in the next few years?**

Likelihood of leaving teaching	Respondents	% Respondents
Non-respondents	17	-
Much more likely	5	8%
Slightly more likely	14	22%
Neither more nor less likely	30	47%
Slightly less likely	3	5%
Much less likely	7	11%
Not sure	5	8%
<b>Respondents</b>	<b>64</b>	-



## Teacher trainee student survey results

### Where are you doing your training?

Region	Respondents	% Respondents
England	145	81%
Other	3	2%
Republic of Ireland	3	2%
Scotland	19	11%
Wales	9	5%
<b>Respondents</b>	<b>179</b>	<b>-</b>

### Which science subject(s) are you completing your initial teacher training/education in?

Subject	Respondents	% Respondents
Biology	61	35%
Chemistry	115	66%
Physics	59	34%
Other	5	3%
<b>Total respondents</b>	<b>175</b>	<b>-</b>

## Teacher trainee student survey results

**Have you had opportunities to train in a school? Please choose which best describes your experience for each term (if you have had more than one placement).**

	School based training – Place 1	School based training – Place 2	School based training – Place 3
Non-respondents	7	35	104
No school placement in any form	1	2	4
No, but plan to have placements later in the year (2020-2021)	2	2	1
Not started placement yet	0	5	13
Yes, in person	98	44	40
Yes, mix of in person and virtual	70	78	15
Yes, virtual only	1	13	1
Other	0	0	1
<b>Respondents</b>	<b>172</b>	<b>144</b>	<b>75</b>
	School based training – Place 1	School based training – Place 2	School based training – Place 3
No school placement in any form	1%	1%	5%
No, but plan to have placements later in the year (2020-2021)	1%	1%	1%
Not started placement yet	0%	3%	17%
Yes, in person	57%	31%	53%
Yes, mix of in person and virtual	41%	54%	20%
Yes, virtual only	1%	9%	1%
Other	0%	0%	1%

**Please rate the impact COVID-19 has had on your school placement experience(s) so far, if any?**

COVID-19 impact on placement	Respondents	% Respondents
Non-respondents	8	–
Large negative impact	27	16%
Negative impact	109	64%
No impact	8	5%
Not sure	13	8%
Positive impact	14	8%
<b>Respondents</b>	<b>171</b>	<b>–</b>

## Teacher trainee student survey results

**Has your placement timetable give you opportunities to experience working with the following age groups: (If you were not expecting to be trained in teaching a particular age range, please select N/A)**

Opportunities	Age groups						
	Under 11	11-12	12-13	13-14	14-15	15-16	16+
Non-respondents	35	10	7	7	8	10	13
A lot of opportunities	2	115	130	125	106	52	29
Some opportunities	8	36	36	45	59	62	63
No opportunities	33	13	4	1	4	50	45
Not applicable	101	5	2	1	2	5	27
Not sure	-	-	-	-	-	-	2
<b>Respondents</b>	<b>144</b>	<b>169</b>	<b>172</b>	<b>172</b>	<b>171</b>	<b>169</b>	<b>166</b>
Opportunities	% Respondents						
	Under 11	11-12	12-13	13-14	14-15	15-16	16+
A lot of opportunities	1%	68%	76%	73%	62%	31%	17%
Some opportunities	6%	21%	21%	26%	35%	37%	38%
No opportunities	23%	8%	2%	1%	2%	30%	27%
Not applicable	70%	3%	1%	1%	1%	3%	16%
Not sure	0%	0%	0%	0%	0%	0%	1%

## Teacher trainee student survey results

### On your placement(s), have you had enough access to your mentor(s) so far?

	Respondents		
Mentor access	Placement 1	Placement 2	Placement 3
-	9	43	111
No, not at all	3	1	0
No, less than the amount I have needed	12	12	1
Yes, with some difficulties	15	21	3
Yes, a lot of access	37	32	19
Yes, the amount I have needed	101	62	26
Don't know		4	10
Other	2	4	9
<b>Respondents</b>	<b>170</b>	<b>136</b>	<b>68</b>

	% Respondents		
Mentor access	Placement 1	Placement 2	Placement 3
No, not at all	2%	1%	0%
No, less than the amount I have needed	7%	9%	1%
Yes, with some difficulties	9%	15%	4%
Yes, a lot of access	22%	24%	28%
Yes, the amount I have needed	59%	46%	38%
Don't know	0%	3%	15%
Other	1%	3%	13%

### At this stage of your teacher training/education, how prepared do you feel to teach class practical chemistry sessions in school?

Preparedness level	Respondents	% Respondents
Non-respondents	9	-
Completely prepared	7	4%
Quite prepared	39	23%
Neither prepared or unprepared	29	17%
Quite unprepared	62	36%
Completely unprepared	31	18%
Not sure	2	1%
<b>Respondents</b>	<b>170</b>	<b>-</b>

## Teacher trainee student survey results

**At this stage of your teacher training/education, do you feel you have received the quantity of training opportunities you need in the below areas?**

Amount	Training areas					
	Practicals	Subject-specific	Pedagogy	Behaviour management	Lesson planning	Assessment
Non-respondents	12	12	12	13	12	12
Less than needed	130	44	19	57	47	77
About the right amount	32	114	121	103	103	81
More than needed	2	8	26	4	17	5
Not sure	3	1	1	2	0	4
<b>Respondents</b>	<b>167</b>	<b>167</b>	<b>167</b>	<b>166</b>	<b>167</b>	<b>167</b>
Amount	Practicals	Subject-specific	Pedagogy	Behaviour management	Lesson planning	Assessment
Less than needed	78%	26%	11%	34%	28%	46%
About the right amount	19%	68%	72%	62%	62%	49%
More than needed	1%	5%	16%	2%	10%	3%
Not sure	2%	1%	1%	1%	0%	2%

**As a result of COVID-19, has your training/education experience been impacted by any of the following:**

Impact	Respondents	% Respondents
Additional caring responsibilities	44	27%
Little or no access to the internet	18	11%
Health concerns	69	42%
None	59	36%
Other	23	14%
<b>Respondents</b>	<b>165</b>	<b>-</b>

## Teacher trainee student survey results

Would you like to have opportunities for any of the following areas of additional support once you start your first year of teaching? If so, please select up to 3 options.

Type of additional support	Respondents	% Respondents
Practicals	138	82%
Subject specific	68	40%
Pedagogy	39	23%
Behaviour management	84	50%
Other CPD	35	21%
Reduced timetable	77	46%
Mentor support	52	31%
Training provider	32	19%
Other	5	3
<b>Respondents</b>	<b>168</b>	<b>167</b>

Do you feel that the pandemic has affected your skill development as a trainee/ student teacher?

Impact on skills development	Respondents	% Respondents
Non-respondents	12	-
Large negative impact	20	12%
Negative impact	87	52%
No impact	26	16%
Positive impact	20	12%
Large positive impact	2	1%
Don't know	12	7%
<b>Respondents</b>	<b>167</b>	<b>-</b>

## Teacher trainee student survey results

**Do you feel your experience as a trainee/student teacher during COVID-19 presented you with any unexpected learning opportunities or not?**

Unexpected learning opportunities	Respondents	% Respondents
Non-respondents	12	-
No	7	4%
Not sure	10	6%
Yes	150	90%
<b>Respondents</b>	<b>167</b>	-

**For this year, have you at any point considered any of the following?**

Considered?	Respondents	% Respondents
Withdrawing	40	24%
Deferring	29	17%
Not sure	19	11%
None of the above considered	93	56%
<b>Respondents</b>	<b>167</b>	-

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