ImpactEd Evaluation

# The State of Primary Science Education in the UK

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Primary Science Teaching Trust

The Ogden Trust | making physics matter

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# Foreword

Primary science education is a vital entitlement for every child. Learning should inspire wonder, provide purposeful hands-on investigations, and enable children to understand important scientific concepts and principles. Research and experience show that children need to identify positively with science from an early age, so that they engage fully with the world around them, develop skills and knowledge that unlock their potential, and are ready to enter secondary school eager to develop their learning further.

This report gives teachers, school leaders, governments and other stakeholders key insights into the current landscape of primary science teaching and leadership across the four nations of the UK. It builds on the Wellcome Trust's 2017 *State of the Nation report* on UK primary science education.

This new research finds positive developments since 2017 in the prevalence of science leaders in primary schools, the ability of those leaders to access relevant Continuing Professional Development (CPD), and the weekly provision of science teaching. However, there have been notable decreases in the confidence of both primary science leaders and other classroom teachers to teach science, and their access to mentoring and support, with significant variations between the four nations.

The report is a call to action to address such issues with a view to improving the quality of primary science education for all, and specific recommendations are given to stimulate sector discussion and decision making.

The research was commissioned and funded by the Primary Science Teaching Trust, The Ogden Trust and Science & Engineering Education Research and Innovation Hub (The University of Manchester) with the Comino Foundation.

We are grateful for the support of other stakeholders in the UK Primary Science Education Group, who have shared their insight and experience throughout the process. Our particular thanks go to the Association for Science Education, British Science Association, Centre for Industry Education Collaboration at the University of York, Primary Science Quality Mark, SSERC, and STEM Learning, as well as Professor Louise Archer from University College London, Professor Sarah Earle from Bath Spa University, Haf Hayes from Cardiff Metropolitan University, and Beverley McCormick from Ulster University.

Their collective expertise has been invaluable in informing this research.

We are pleased to present this report, and look forward to working with all interested stakeholders to address its challenges over the coming years.

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# Executive Summary

This report presents findings from a study examining science teaching and leadership across UK primary schools. It has been commissioned by the Primary Science Teaching Trust, The Ogden Trust, and SEERIH (Science & Engineering Education Research and Innovation Hub) at The University of Manchester with the Comino Foundation. It was conducted by ImpactEd Group and builds on the Wellcome Trust's *State of the Nation* report in 2017[1].

The research reveals insights about the state of primary science across the four UK nations, with evidence of changes in science leadership appointments since 2017, and persistent challenges in science teaching time allocation, science teacher confidence, and science resource access. The presence of designated science leaders emerges as a crucial factor influencing teachers' perception of teaching quality and teacher support.

## Sample

Survey data was collected from 1,277 teachers. Of these teachers, 78% were from England, 5% were from Northern Ireland, 8% were from Scotland, and 8% were from Wales. 96% of teachers had a science leader whilst 4% did not. Throughout this report, references to 'disadvantage' specifically relate to socio-economic disadvantage unless otherwise stated. 25% of teachers came from schools with low disadvantage, 39% from schools with medium disadvantage, and 36% from schools with high disadvantage. Additionally, 23 teachers participated in focus groups.

[1] Wellcome Trust, *'State of the nation' report of UK primary science education* (London: Wellcome Trust, 2017), https://wellcome.org/reports/state-nation-report-uk-primary-science-education

## Key Statistical Findings

# Changes Between 2017 and 2025

Over the eight years between 2017 and 2025 there has been progress in some areas of science education in primary schools and decline in other areas.

### Improvements across the UK

- The number of schools with a designated science leader increased from 91% to 96%.
- The number of teachers reporting science being taught weekly increased from 75% to 96%.
- Science leaders' participation in Continuing Professional Development (CPD) increased from 52% to 66%.

### Declines across the UK

- The percentage of science leaders agreeing they feel confident to teach science decreased from 96% to 79%.
- The percentage of non-science leaders agreeing they feel confident to teach science decreased from 79% to 72%.
- Non-science leaders' access to science mentoring[2] decreased from 75% to 53%.
- Non-science leaders reporting feeling supported by their school[3] to teach science decreased from 65% to 53%.
- Non-science leaders reporting that someone in their school was organising regular science meetings[4] decreased from 48% to 35%.
- Non-science leaders' participation in CPD decreased, with the percentage of those receiving no CPD rising from 30% to 42%.

[2] Teachers were asked to what extent they agreed with the following statement: "Someone responsible for science is available to coach/mentor me in teaching science if needed".

[3] Teachers were asked to what extent they agree with the following statement: "I feel supported to teach science by my school".

[4] Teachers were asked to what extent they agree with the following statement: "Someone responsible for science organises regular staff meetings about science".

# Science Leadership in Primary Schools in the UK

Teachers with a designated science leader (*n* = 1,231, 96%) reported a stronger approach to science across multiple measures, compared with those in schools without a designated science leader (*n* = 46, 4%). The data below compares outcomes between schools with designated science leaders versus those without.

## Teaching of science in schools:

| | Proportion of all teachers **with** a science leader | Proportion of all teachers **without** a science leader |
|---|---|---|
| teach science for over 2 hours weekly | 25% | 13% |
| provide weekly science instruction | 96% | 91% |

## Support and development of non-science leaders:

| | Proportion of non-science leaders **with** a science leader | Proportion of non-science leaders **without** a science leader |
|---|---|---|
| feel supported by their school to teach science | 55% | 24% |
| have access to science mentoring | 56% | 17% |
| have someone in their school who organises regular science meetings | 57% | 9% |
| received science specific CPD in the past 12 months | 59% | 39% |

## School culture and resources:

| | Proportion of all teachers **with** a science leader | Proportion of all teachers **without** a science leader |
|---|---|---|
| agree that science is valued in their school | 68% | 42% |
| rate science teaching quality positively | 60% | 31% |
| have access to support and resources to provide science trips to pupils | 43% | 31% |
| report that science enrichment activities are offered to all pupils in their school | 95% | 85% |

## National Variations

Teachers from England reported most positively across most measures, with marked differences between the four nations.

### Leadership and teaching:

- Schools in England are most likely to have science leaders (99%).
- Teachers in England reported the most weekly science provision (97%).
- Of the four nations, teachers from England reported the highest confidence in teaching science (78%).

### Support systems:

- More teachers in England report feeling supported than in other nations, with 58% of teachers feeling supported.
- Teachers in Wales were most likely to teach over 2 hours of science a week (32%), although this was not statistically significant.
- CPD participation varied markedly between UK nations; Scotland showed the highest rate (73%).
- More non-science leaders in England reported having access to mentoring (58%) than in other nations.
- Non-science leaders in England were most likely to report having regular science meetings (38%) compared to other nations.

### Resources and enrichment:

- Access to outdoor learning areas varied markedly between UK nations; teachers in Northern Ireland reported the highest levels of access (66%).
- From the sample, a higher proportion of teachers in English schools (43%) reported they provide science trips compared to the other three nations (30 – 36%).

## School Socio-economic Disadvantage Impact

Throughout this report, 'disadvantage' refers specifically to the socio-economic disadvantage of pupils in the schools where teacher respondents are based. When comparing schools by disadvantage - low (*n* = 261, 25%), medium (*n* = 388, 39%), and high (*n* = 358, 36%)[5] - the differences between school groups showed no clear pattern and were often not statistically significant.

### Significant differences found:

- CPD participation varies by school disadvantage level, with medium disadvantage schools showing the highest participation (69%) versus low disadvantage (58%).
- Science trip access decreases with disadvantage: 45% in schools with low levels of disadvantage versus 39% in high disadvantage schools.

### No significant differences:

- Science leadership presence shows no variation by the school's level of disadvantage.
- Teacher confidence levels are consistent across disadvantage categories.
- Weekly science provision is unaffected by the school's disadvantage.
- Teachers' release time allocation shows no disadvantage impact.
- School support for science levels are consistent across disadvantage groups.

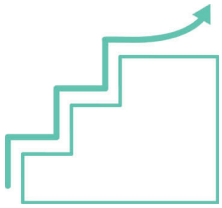
This pattern suggests that whilst disadvantage impacts some resource-dependent aspects of science education, provision to children and support structures remain relatively equitable across different contexts.

[5] Low/medium/high disadvantage categories are defined on p. 12

## Role Variations

Among respondents who were not science leaders, senior leaders (headteachers and deputies) consistently reported more positive experiences than classroom teachers across most measures:

- 60% felt supported in science teaching, compared to 50% of classroom teachers.
- 77% believed science is valued in their school, versus 62% of classroom teachers.
- 66% rated the quality of science teaching positively, compared to 56%.
- 61% reported having access to mentorship, against 50% of classroom teachers.
- 68% had accessed science-specific CPD in the past 12 months, compared with 53%.
- 43% said someone in their school organises regular science meetings, compared to 31% of classroom teachers.



# Recommendations

This report is a call to action. We encourage stakeholders across all four UK nations to review the evidence presented and identify key areas for development and support in primary science education. The following recommendations are framed in general terms to apply UK-wide, though stakeholders should pay particular attention to areas where national disparities exist.

**Recommendations affecting all primary science teachers:**

1. **Non-science leader CPD:** proportion of teachers receiving no CPD has increased since 2017.
   - **Recommendation:** national governments should ensure sufficient provision of CPD for all teachers of primary science.
   - **Recommendation:** school leaders should ensure increased access for all teachers of primary science to CPD using a range of approaches.
2. **School support for science teachers:** the number of teachers feeling supported by senior leadership to teach science has decreased.
   - **Recommendation:** national governments and inspectorates should emphasise the priority status of primary science.
   - **Recommendation:** school leaders should actively support teachers by advocating for science, recognising and raising its profile and relevance within the school and curriculum.

**Recommendations affecting science leaders:**

1. **Subject leader release time:** primary science leaders are less likely to get weekly time release than maths and literacy counterparts.
   - **Recommendation:** each nation should provide an equitable entitlement for protected time across mathematics, literacy and science subject leadership.
   - **Recommendation:** senior leaders should adjust policies within schools, trusts and other structures to align science leader release time with that of other priority subjects.
2. **Subject leader qualification levels:** 22% of science leaders have a science qualification beyond A level/Advanced Higher.
   - **Recommendation:** senior leaders should ensure increased access to professional development pathways, including accredited CPD or partnerships with STEM charities and universities, to enable all science leaders to access subject-specific support.
   - **Recommendation:** senior leaders should adjust policies within schools, trusts and other structures to allocate science leader CPD time and dedicated follow up support to upskill other teachers in school.
3. **Science leadership roles:** schools without science leaders (4%) face reduced provision across all measures.
   - **Recommendation:** national governments should recommend all primary schools to identify a science leader.
   - **Recommendation:** local authorities, school trusts and other structures should identify schools without science leaders and offer support to introduce the role.