EDUCATION POLICY INSTITUTE

Learning through Landscapes

Climate and education: strategies for adaptation, learning and play

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The Education Policy Institute is an independent, impartial, and evidence-based research institute that promotes high quality education outcomes, regardless of social background. We achieve this through data-led analysis, innovative research and high-profile events.

About Learning Through Landscapes

Learning through Landscapes (LtL) is the UK School Grounds charity focusing on play, outdoor learning, and climate education.

For children and young people, school and early years grounds are crucial daily venue for learning, play, and sport. They are a unifying feature of life for every child, regardless of their challenges or privileges, and in the UK school grounds cover an area twice the size of Birmingham. Improving our school grounds has the potential to significantly enhance children's learning, play opportunities, physical health, and mental wellbeing, adapting to our changing climate and providing habitats for nature.

For over 30 years, LtL has developed high-quality curriculum-linked resources, advice for breaktime, CPD and multiple projects for teachers and schools. As a grant-making organisation, they have invested over £35 million in UK schools. 2022 saw the publication of their Amazon number one best-selling book, 'Teaching the Primary Curriculum Outdoors'. LtL leads the global Outdoor Classroom Day movement, with over 12 million children participating worldwide, 3 million of these are in the UK. On two days of action each year, teachers take children outdoors to play and learn. In addition, LtL is the co-lead the education working group for Global Outdoor Learning, working with The Children and Nature Network, Salzburg Global and UNSECO Education, as a member of the UNESCO Greening Education Partnership. LtL are founding Members of the UK Children's Play Policy Forum & UK Play Safety Forum and as a grant-making organisation. LtL collaborates with the United Kingdom's devolved governments on work which has included the Scottish Government's Learning for Sustainability Strategy, and the Welsh Ministerial Play review. They are a delivery partner for the DfEs' National Education Nature Park.

For the next 3 years LtL is funded to undertake a School Grounds Infrastructure & Policy Review project across the 4 UK nations. This project will have significant impact on the Regulations, creation, use and visibility of school grounds as vital places for learning, play and sport, adapted to our changing climate and providing rich natural environments.

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Executive summary

This paper draws together reflections from a series of events looking at the theme of climate and education. The series included two roundtables, the first looking at how to embed climate education across the curriculum and throughout the phases of a child's education, and the second considering how school grounds can be utilised as a tool for learning and a site for climate resilience strategies. The series culminated in a webinar building on the two discussions.

The below outlines key points from the discussion alongside participant recommendations for future reform.

Climate, the outdoors and the curriculum: a cross-phase, cross subject approach

Benefits of climate education and education delivered outdoors

- Climate education grows children and young people's awareness of the natural world; builds essential knowledge and skills to pursue green careers and tackle the climate crisis; empowers individuals to make informed choices and offers opportunities for collective action.
- There are significant co-benefits too including greater cognitive development, positive effects on wellbeing and increased resilience.
- These benefits can help to tackle some of the challenges that schools are currently facing, such as rising rates of absence and pupil mental health problems.

Climate education in the curriculum

- Issues relevant to climate change are included in the current National Curriculum in primary and in KS3 and 4 Science and Geography.
- Climate education is embedded to a greater extent in primary than secondary. While climate education in primaries is taught across most subjects and most year groups, it is more fragmented in secondary and predominantly taught/siloed in geography and science.
- The National Education Nature Park plays a key role in current climate education practice. One in eight education settings in England are involved; it has had substantially more take up in comparison to other climate education schemes and notably in schools with disadvantaged intakes. The role of DfE commissioning in this is significant.
- There are significant barriers to embedding climate education including staff workload; a very full curriculum and reliance on passionate individuals. This results in unequal access to climate education across England's schools.
- Children's circumstances can impact their capacity to consider and engage with climate issues.
- Climate education has often been a white middle-class space, while those who feel the effects most deeply are often disadvantaged communities, communities of colour and their intersection, both within the UK and internationally.

Participant recommendations to embed climate education in the curriculum

- Climate education should be part of a core strategy with buy-in from staff, leaders, pupils, parents and wider school communities.
- Strong leadership and getting all staff onboard is very important; there is need for more continuous professional development (CPD) in teaching climate-related topics and taking children outdoors to support this.
- Schools should consider where opportunities lie in the current curriculum for climate education, for example through approaching lessons through an environmental lens, for example considering nature-related examples, course materials and outdoor pedagogies. Significant work has been done already to map these opportunities.
- Locally rooted approaches that have clear learning outcomes can lessen inequalities in access, awareness and engagement between groups of students.
- The ongoing Curriculum and Assessment Review and reforms to accountability measures should be leveraged to embed climate education.
- New statutory requirements are needed to deliver climate education and sustainability leads in every school.

Future-proofing the education estate: access, learning, adaptation and resilience

School grounds and access to nature

- All children should have access to nature and be encouraged to have a sense of ownership over their school grounds.
- Outdoor learning needs to be embedded in whole school policy and practice to ensure it is sustainable and has longevity, rather than being dependent on an engaged staff member.
- However, there are significant barriers:
    - There are currently no requirements for new schools to have outdoor or natural space and it is legal, when certain conditions are met, to sell off school grounds for other purposes, such as building houses.
    - Due to school and local authority funding pressures, alongside interest from external agencies, both are facing difficult choices on the future of their school grounds.
    - There are clear and widening inequalities in access to nature and the extent of green space available differs widely depending on where a school is located.
- On the design of schools, getting outside and seeing the outside as an extension of the inside should be inherent in the way we design schools.
- While new schools must be built to certain standards, there are no such standards for renovating or retrofitting existing schools.

- Similarly, there are significant demands on the capital funding pot and often planned renovation of outdoor spaces are abandoned due to lack of funds and the need to prioritise indoor refurbishment.

Community access to school grounds

- Managed open access to school grounds is where local communities can use school estates outside of school hours.
- This can bring many benefits and there are international examples where it is being implemented but there are important concerns around the financial implications for schools in maintaining estates if user numbers increase and potential safeguarding risks.
- There were mixed views on solutions; one suggestion was to trial managed open access to school grounds in a percentage of schools across the country with funding available to cover staff resourcing and a rigorous evaluation process.
- It was felt that if policymakers and schools do not take action on climate change, this also poses a safeguarding risk at a macro level to children's current and future wellbeing so these risks need to be balanced.

Participant recommendations to protect school grounds, facilitate access to nature and build climate resilience

- The government should overturn Section 77 of the School Standards and Framework Act and implement statutory protections for school grounds to protect these spaces.
- Consider ring-fencing capital funding for outdoor renovation works.
- Set principles for biodiversity gain to ensure it is at the centre of school estates, rather than the peripheries, and maintain a diversity of habitats to avoid monocultures.
- Extend procurement time windows to allow for community engagement on what a school or area needs.

Introduction

The climate crisis is one of the biggest challenges facing this and future generations. As we look ahead to an increasingly uncertain future, it is critical to consider what education policy should look like and what the sector can do to support and build on the aspirations of pupils and teachers to tackle this challenge.

This paper draws together reflections from a series of events looking at the theme of climate and education. As part of this series, we held two roundtables, the first looking at how to embed climate education across the curriculum and throughout the phases of a child's education, and the second considering how school grounds can be used as a tool for learning and a site for climate resilience strategies. The series culminated in a webinar building on the two discussions, at which we welcomed Stephen Morgan MP, Minister for Early Education, who is responsible for overseeing maintenance and improvement of the education estate and environmental sustainability in the education sector.

The Minister laid out the Department for Education's (DfE) four key focus areas:

- Sustainable school estates: mitigation, adaptation and resilience
- Integration in the curriculum: through the Curriculum and Assessment Review and more immediate initiatives such as the National Education Nature Park
- International leadership: the education system is to be a world leader in sustainability and climate education by 2030
- Youth engagement: embedding the voices of young people in the DfE's sustainability strategy

These priorities are encouraging but there remain significant barriers including inequalities in access and engagement and funding and staffing constraints. The DfE's Climate and Sustainability Strategy[1] offers useful guidance for the sector but does not place statutory duties on schools. One of its aims is for all schools to have climate action plans in place by 2025 but as of 2024, only 9% of schools have a climate action plan.[2]

This paper explores the current place of climate education and outdoor learning in the curriculum; current challenges and potential strategies to overcome these barriers. The final section provides links to useful resources for schools and trusts. To note, while carbon reduction strategies are important, they do not fall within the scope of this report.

We are grateful to Learning through Landscapes for supporting this work and to all participants for their contributions.

[1] Department for Education, 'Sustainability and climate change: a strategy for the education and children's services systems', (2023). Available at: https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/9317e6ed-6c80-4eb9-be6d-3fcb1f232f3a#action-area-3-education-estate-and-digital-infrastructure

[2] Pearson, 'School Report 2024', (2024). Available at: https://www.pearson.com/content/dam/global-store/en-gb/schools/insights-and-events/topics/school-report/2024/School-Report-2024-WEB.pdf

Part 1: climate and the curriculum

Climate and the curriculum: a cross-phase, cross subject approach

The first event in our series considered how to embed climate education across the curriculum, across phases and facilitate sustained access to nature for all children.

Why is climate education important?

The climate crisis is one of the biggest challenges facing this and future generations and education is key to solving it.

Participants in our convening highlighted the benefits of climate education, including:

- Grows awareness of the natural world, locally and globally
- Builds essential knowledge and skills needed to pursue green careers and address the climate crisis
- Empowers individuals to make informed choices
- Offers opportunities for social action through supporting teachers, students and whole school communities to work together to become responsible stewards

Moreover, research has shown that access to natural spaces is associated with higher cognitive development and a lower risk of emotional and behavioural problems for young people.[3] Interaction with nature has also been shown to have positive effects on wellbeing, including reduced stress levels and increased resilience.[4]

These co-benefits can help to tackle some of the challenges that schools are currently facing, including rising absence rates[5] and mental health problems.[6] One participant, who runs a series of programmes including developing climate action plans and working with staff and pupils to re-wild school grounds, highlighted that the young people involved in these programmes demonstrate improved confidence, attitudes towards learning and self-efficacy. When discussing the value of climate education, considering these co-benefits is critical.

[3] Maes et al., 'Benefit of woodland and other natural environments for adolescents' cognition and mental health', *Nature Sustainability*', (2021). Available at: https://www.nature.com/articles/s41893-021-00751-1
[4] Roberts, Hinds and Camic, 'Nature activities and wellbeing in children and young people: a systematic literature review', *Journal of Adventure Education and Outdoor Learning*, (2019). Available at: https://www.tandfonline.com/doi/full/10.1080/14729679.2019.1660195
[5] Hunt, Hodge and Gavriloiu, 'Examining post-pandemic absences in England (3)', Education Policy Institute, (2024). Available at: https://epi.org.uk/publications-and-research/examining-post-pandemic-absences-in-england-3/
[6] NHS Digital, 'Mental Health of Children and Young People in England, 2023 - wave 4 follow up to the 2017 survey', (2023). Available at: https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-of-children-and-young-people-in-england/2023-wave-4-follow-up

Finally, there is a growing body of research highlighting that many children are deeply concerned about the climate crisis, experiencing eco-anxiety.[7][8][9] Climate education has the potential to reduce eco-anxiety and offer children and young people hope and agency to take positive action.

One participant highlighted the key notion of "thriving" in the Government's mission to break down barriers to opportunity for all children. They felt that the planet thriving and children thriving are interdependent, therefore climate education is key.

Principles of high-quality climate education

One participant offered the following principles for high-quality climate education, acknowledged by the group as helpful. Climate education should be:

- Integrated and inclusive
- High-quality, especially with regard to the need to include accurate and evidenced science
- Supported by effective pedagogy
- Omnipresent: not another thing to do but part of everything a setting does
- Global and local: demonstrating global interconnectedness while bringing in local examples to ensure it resonates for students.
- Action-orientated: giving students agency and helping them make informed career choices
- Focused on green careers and progression routes
- Featured, in a proportionate way, in GCSE content and therefore assessed and recognised accordingly

The current place of climate education in the curriculum

Issues relevant to climate change are included in the current National Curriculum. In primary, pupils are taught core concepts including what the climate is, how it changes, man-made and natural environments and where different types of animals live. In secondary, climate-related topics are included in the KS3 and 4 science and geography curriculums.[10]

It is important to note that it is not compulsory for academies and free schools to follow the National Curriculum and while less than half (42%) of primary schools are academies, almost 82%

[7] Royal College of Paediatrics and Child Health, 'Preserving the world for future generations: Children and young people's perspective on how to tackle climate change', (2023). Available at: https://www.rcpch.ac.uk/sites/default/files/2023-10/climate-change-cyp-voice-report-final.pdf

[8] Save The Children, 'Survey reveals scale of climate anxiety among British children on eve of COP27', (2022). Available at: https://www.savethechildren.org.uk/news/media-centre/press-releases/survey-reveals-scale-of-climate-anxiety-among-british-children

[9] YouGov and Woodland Trust. 'YouGov / Woodland Trust Survey Results', (2023). Available at: https://docs.cdn.yougov.com/f8u8jctgnu/WoodlandTrust_ClimateChange_230210_w.pdf

[10] Kulakiewicz, Long and Roberts. 'Inclusion of sustainability and climate change in the national curriculum', (2021): https://researchbriefings.files.parliament.uk/documents/CDP-2021-0166/CDP-2021-0166.pdf

of secondary schools are academies.[11] This means there is no statutory requirement for the vast majority of secondary schools to teach climate education. That said, following the completion of the Curriculum & Assessment Review, all state-funded schools, including academies will be required to teach the National Curriculum.

Participants in our convening were asked to consider this question of the current place of climate education in the curriculum. The Multi-Academy Trust (MAT) leaders[12] round the table agreed that climate education is embedded to a much greater extent in their primary schools than their secondaries. While climate education in primaries is taught across most subjects and most year groups, it is more fragmented in secondary and predominantly taught, or siloed, in geography and science, mirroring the national curriculum requirements above.

The MAT representatives detailed the nature of their climate education curriculum across the phases in their schools. In one MAT, their primaries dedicate one half-term each year to sustainability across most year groups and most subjects, centred on the UN's sustainable development goals.[13] They felt this 'thread' model feels well-integrated and flows well through the school.

On the other hand, in their secondaries, there is no MAT wide approach, rather it is fragmented and heavily dependent on individual passionate teachers. For example, one of their academies had an eco-week for several years for years 8 and 9 where climate education was embedded across arts, science and RE subjects, instigated by a particularly engaged staff member.

Another MAT representative reported that while they do not have a standardised curriculum across their schools, they do have knowledge specifications, or what a child should learn by a particular year in education. Sustainability is included within these specifications but, similar to the secondary example above, this is confined to certain subject areas in secondary, while there is a greater cross-curricular approach in primary. Their ambition is to set entitlements for climate education that thread across the curriculum and cover a wide range of experiences, such as an extended period in nature and a certain number of hours outdoors, but this aspiration is in its infancy and is not yet embedded.

A third MAT outlined a deep commitment to climate education, with it embedded across their schools. This trust has built climate action into sixteen different curriculum areas across primary and secondary and is heavily involved in the National Education Nature Park. They also hold two COPs (Conferences of the Parties) every October, one for KS3 and 4 and one for sixth-formers, which are modelled on the UN's annual COP.[14] Other elements of their work will be explored

[11] Department for Education, 'School Characteristics' [Data Set]', (accessed November 2024). Available at https://explore-education-statistics.service.gov.uk/data-tables/fast-track/619504bd-65e7-42bf-b0bd-08dc6f35f09f

[12] In future work, it would be useful to engage with maintained school leaders to understand how the national curriculum requirements shape climate education in their schools.

[13] United Nations, 'The 17 goals | sustainable development', (accessed November 2024). Available at: https://sdgs.un.org/goals

[14] United Nations Framework Convention on Climate Change (UNFCC), 'Conference of the Parties (COP)', (Accessed December 2024). Available at: https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop

further below. The trust leader outlined how sustainability is at the heart of their strategy and is planned for and reported on at every level.

The above examples demonstrate that climate education looks very different depending on which setting a child attends, and therefore access is unequal. OCR's 'Striking The Balance' report finds that climate education is "haphazard, depending largely on the policies and approaches adopted by individual schools and the efforts of individual teachers."[15]

The National Education Nature Park

The National Education Nature Park[16] plays a key role in current climate education practice. It was launched by the Department for Education in 2023 to help "children and young people around the country connect to the natural world, especially in urban and nature-deprived areas, by tracking their local environment through a virtual map across England".

To date, one in eight education settings in England have signed up, including nurseries, schools and colleges. The scheme is non-mandatory and participants round the table felt the level of uptake highlighted how much interest there is in climate education. They also agreed that the level of uptake is far beyond other climate education schemes that they had worked on. It was felt that the role of the DfE in commissioning the park is important as it means the scheme has authority, is trusted by teachers and has the evidence-based, rigorous approach needed to give education institutions the confidence to engage.

The DfE have also made £15 million pounds available through £10,000 grants to eligible settings. Eligibility is predominantly based on a combined measure of deprivation and access to green space. One participant involved in the scheme highlighted that the take up of the scheme has often been by schools with more disadvantaged intakes; they felt this was very important as it tends to be schools with more privileged intakes who get involved with such programmes. They also noted that a third of schools who are involved do not have any other environmental programmes so the park is crucial in facilitating access to nature.

[15] OCR, 'Striking the balance: A review of 11–16 curriculum and assessment in England', (2024). Available at: https://www.ocr.org.uk/Images/717919-striking-the-balance.pdf
[16] National Education Nature Park, 'Annual Report 2023/2024: Year 1', (2024). Available at: https://www.educationnaturepark.org.uk/sites/default/files/2024-10/Annual%20Report%202023-2024.pdf

Barriers to embedding climate education

It is well known that teachers and leaders have significant workloads; DfE data shows that in 2023, 72% of teachers and leaders reported that their workload was not acceptable.[17] Participants highlighted the challenge of how to support teachers and leaders to embed climate education when workload burdens are already considerable.[18] Related to this, participants suggested that the current curriculum is very full; Teacher Tapp surveys find that 68% of teachers agree with the statement that "they don't explore student interests due to curriculum content pressure."[19] Therefore, participants felt that there needs to be careful consideration of how to embed climate education in order to avoid further pressures on teacher capacity. Strategies to accomplish this are explored below.

Another staff barrier discussed was, due to a lack of training and support, teachers can lack confidence in teaching climate education or taking children outside to learn in general. Of teachers surveyed as part of the Rebooting Education Report, two thirds felt they do not get enough training on how to teach sustainability-related topics.[20] It was felt that, especially for young teachers who have not had climate education in their own curriculum or built connections with nature, there is a nervousness that they do not have the knowledge base needed when teaching their own students, and there is a real desire for more support so they can feel confident in delivering to their students.

Another significant barrier participants discussed was the current inequalities around climate education in terms of access and engagement. In the first instance, access often depends on the passion of individual teachers or leaders and schools may not have the capacity to support them, therefore coverage is patchy.

Alongside this, there are also inequalities in engagement. There is an assumption that all young people care about the climate crisis. In fact, participants felt that there is a binary where students are either deeply interested in the climate crisis or are not engaged: how can we create parity of interest and knowledge?

Participants discussed how climate education has often been a white middle-class space, while those who feel the effects most deeply are often disadvantaged communities, communities of colour and their intersection, both within the UK and internationally. It was noted that the climate crisis is often discussed in future terms in the UK whereas there are pupils in the education system

[17] Adams et al., 'Working Lives of Teachers and Leaders – Year 1', Department for Education, (2023). Available at: https://assets.publishing.service.gov.uk/media/66f673e03b919067bb482842/Working_Lives_of_Teachers_and_Leaders_-_Year_1_Core_Research_Report.pdf

[18] Education Support and Public First, '1970s working conditions in the 2020s: Modernising the professional lives of teachers for the 21st Century', (2023). Available at: https://www.educationsupport.org.uk/media/bn2bk5a3/1970s-working-conditions-in-the-2020s.pdf

[19] Teacher Tapp, 'Education for the future: principles for curriculum and assessment', (2024). Available at: https://teachertapp.com/app/uploads/2024/06/Curriculum-assessment-.pdf

[20] Reboot the Future and Cambridge University Press and Assessment, 'The Rebooting Education Report 2023', (2023). Available at: https://www.rebootthefuture.org/media/Rebooting-Education-Report-2023-9MB.pdf

right now that are personally affected or have family who are affected by climate disasters and forced migration. To discuss climate change in these distant terms risks alienating these pupils.

Moreover, it was felt that schools should not assume that students care about the climate. Participants mentioned that disadvantaged students in particular have many other concerns in their lives and that caring about the climate can seem a privilege. While student-led initiatives and involving pupils in strategy-building are critical, it is also important to recognise that not all students will be engaged and so the onus is on teachers, leaders and the wider school community to support and inspire their pupils to engage. It was suggested that locally rooted approaches that have clear learning outcomes would lessen inequalities in access, awareness and engagement between groups of students.

Finally, participants raised the point that many strategies to combat climate change rely on being in a healthy financial position, such as buying locally grown food, electric cars or 'slow travel'. Within schools, they felt the focus should be on collective action as opposed to solutions that rely on personal circumstances.

Strategies to embed climate education

To embed climate education across the curriculum and overcome the barriers outlined above, it is important to consider what levers and opportunities are currently available.

A major focus of the discussion was the ongoing Curriculum and Assessment Review (C&A Review)[21], led by Professor Becky Francis, of which one of its aims is to deliver:

"a curriculum that ensures children and young people leave compulsory education ready for life and ready for work, building the knowledge, skills and attributes young people need to thrive."

The Review's Terms of Reference mention digital, oracy and life skills but make no mention of climate education, an omission that many participants felt was significant. In order to leave compulsory education ready for life and work, participants felt that climate education for all children and young people was crucial.

Participants called for statutory requirements for all schools to deliver climate education and nominate sustainability leads, alongside additional guidance from the DfE on both the duties of a sustainability lead and to what extent leads should get extra support or ring-fenced time to deliver on these responsibilities.

The existing curriculum

It was recognised however that many requests will be made of the C&A Review to include certain subjects, therefore, to ensure climate education is included, participants considered how climate

[21] Department for Education, 'Curriculum and Assessment Review'. (2024). Available at: https://www.gov.uk/government/groups/curriculum-and-assessment-review

education could be embedded within the curriculum without the need for significant capacity and resource. It was also noted that while the C&A Review presents an important opportunity, it may be some years before their findings are implemented and there is much schools can do in the meantime to improve their climate education offer.

Firstly, climate education offers an opportunity to "stack skills", whereby pupils can develop leadership skills, a sense of citizenship and engage in social action through their climate education work for example. This approach means that teachers do not have to put together separate lessons for each skill.

Secondly, participants suggested that there are significant existing opportunities to embed climate awareness within the current curriculum. They posited that, given the overfullness of the curriculum, setting climate education up in opposition to another key area of the curriculum would not lead to improved availability and quality. Rather, there are possibilities to study many subjects through an environmental lens, for example, using a dataset linked to the environment to learn about statistics. This idea had much support round the table with other participants highlighting how small changes to the existing curriculum offer an efficient route to change. They suggested that it is not about increasing workload; rather it is a case of choosing relevant examples, case studies and stimulus materials across a broad range of subjects.

The trust referenced above with embedded climate education across sixteen subject areas across primary and secondary started with a review of their current curricula across the phases. When they began, they found that actually the opportunities are already there, such as through using nature as an impetus to inspire poetry, or as a subject for debates. They also worked strategically with their trust-wide subject experts to review where there were further opportunities to embed climate education in each year group from early years right through secondary.

It is worth noting that there has been a lot of mapping work already carried out in this space which schools and trusts can draw on, including SOS-UK's 'Tracked Changes' project[22] and National Climate Education Action Plan's synthesis of wider mapping work.[23]

To embed climate education across the phases, participants offered several suggestions. Firstly, they highlighted the value of project-based learning; this feels very natural in primary but the principles can also be extended to secondary schools. Secondly, it was noted that many subjects already have a cross-phase approach, including Maths, English and PSHE. There is a tension between making climate education its own subject and embedding it in existing subjects but participants agreed that schools should use what already exists and take an environmental lens. In

[22] SOS-UK, 'Teach the Future: A track changes review of the national curriculum for England', (accessed November 2024). Available at: https://www.sos-uk.org/resources/teach-the-future-report-a-track-changes-review-of-the-national-curriculum-for-england

[23] Knight and McQuaid, 'Climate Education in the Curriculum From Early Years to Further Education in England', (accessed November 2024). Available at: https://static.reading.ac.uk/content/PDFs/files/Planet/climate-education-in-curriculum.pdf

particular, they emphasised the importance of this being climate *action* education to inspire children and support their sense of agency, rather than frightening them.

While much of the discussion above has focussed on opportunities outside of the geography and science curriculum to embed climate education, participants also made the important point that both subjects also have a critical role to play. While the DfE's Climate and Sustainability Strategy notes that "Green jobs will not be niche. We anticipate that sustainability and climate change will touch every career," at the same time STEM skills are critical to fulfilling future green jobs. The odds of progressing to level 3 STEM after leaving secondary school are 44% lower for disadvantaged pupils compared to their more affluent peers.[24] Participants expressed fears over the demise of practical work across the curriculum, particularly in science and geography, linked to the discussion on supporting pupils to spend more time in nature. Research from The Royal Society shows that practical work is a key factor in students enjoying science and is also a driver in pupils choosing science as a career path.[25]

Accountability mechanisms

Outside the curriculum, another potential lever for change currently undergoing review is the accountability system. The new government have pledged to introduce report card style judgements, and the policy in this area is currently being developed. Participants highlighted the potential for reforms to the accountability system to encourage climate education in schools. They agreed that this should not be part of a publicised Ofsted report, which could add pressure and potentially lead to perverse incentives, but rather highlighted the example of the Independent Schools Inspectorate which records if schools have areas of excellence (AoEs), one of which is sustainability. The AoEs are not made public but recorded on a central system and mean that schools can be connected with each other privately to facilitate sharing of best practice.

In Scotland, while the Curriculum for Excellence has attracted significant criticism, one area where it has been very beneficial is the value it places on outdoor learning.[26] Hand in hand with this, Education Scotland's inspection framework references outdoor learning and play 34 times. This has been found to be a useful lever to encourage schools to embed it. In England, access to an outdoor environment or planned daily outdoor activities is a statutory requirement for the Early Years Foundation Stage but not for later phases. It is worth examining how the Ofsted inspection framework can encourage outdoor access in future iterations, though this must be accompanied by CPD for inspectors to ensure there is the right level of expertise to inspect against this.

[24] Hodge et al. 'Progression at age 16 of young people from underrepresented backgrounds towards careers in STEM', (2024). Available at: https://epi.org.uk/publications-and-research/progression-at-age-16-of-young-people-from-underrepresented-backgrounds-towards-careers-in-stem/

[25] Hamlyn et al. 'Science Education Tracker 2023', (2024). Available at: https://royalsociety.org/-/media/policy/projects/science-education-tracker/science-education-tracker-2023.pdf

[26] Education Scotland: Foghlam Alba, 'Outdoor Learning: Practical guidance, ideas and support for teachers and practitioners in Scotland', (Accessed November 2023). Available at: https://education.gov.scot/media/0fklf35p/hwb24-ol-support.pdf

Participants suggested looking to the example of the Independent Schools Inspectorate or other nations, such as Scotland, to consider how this might be implemented in the English state system.

That said, another MAT participant felt that it is not 'either' climate education 'or' doing well in Ofsted inspections; rather it is a question of 'and and'. In their opinion, climate and sustainability work is part of why their curriculum is so rich, why their pupils love coming to school and why they are so keen to volunteer and engage in their communities. They felt that rather than mandating climate education through accountability mechanisms, the Government's opportunity mission notion of "thriving" needs clearer definition and should encompass climate education.

Teachers and leaders

Thirdly, participants felt that engaging all staff and having strong leadership is key, outlining a "triangle of support" involving an eco-champion, an estate manager and the school leader. Without the support of the school leader, initiatives crumble quickly, whereas where eco-champions have the necessary freedom and support, there is more likely to be space and resource to expand on the existing curriculum and embed climate education. One trust mentioned that they have a sustainability champion on their board, at a trust level and on the senior leadership team in each of their schools. Engaging all members of the school community helps to build a culture of change so environmental initiatives are not dependent on a single staff member. This includes estate managers, parents, pupils and staff.

To engage staff, participants suggested it is important to have open conversations with senior leadership and all staff about not only how climate education is important for the environment but what impacts it can have on the "core business" of schools, including attendance, engagement and behaviour.

Related to this, it was felt the reasons behind leadership or governance decisions on capital changes to the school estate should be explained to children and young people so they can understand their motivations. For example, why a school has decided to build toilet flushes with two buttons, rather than one, or put solar panels on the roof. In leading by example and taking a whole school approach, institutions can demonstrate behaviours to their pupils and show that they are taking climate action seriously.

Finally on opportunities related to staff, participants agreed on the need for more continuous professional development (CPD) in teaching climate-related topics and taking children outdoor more generally, and the support and time from their school for teachers to complete it. Research suggests that outdoor learning can improve staff wellbeing.[27] One MAT representative noted that they often hear from teachers that they would value being told what the minimum requirement is, what best practice looks like and where to find resources and training to support their work. There

[27] Prisk, Cath, and Harry Cusworth, 'From Muddy Hands and Dirty Faces... To Higher Grades and Happy Places Outdoor Learning and Play at Schools around the World,' (2024). Available at: https://outdoorclassroomday.org.uk/wp-content/uploads/sites/2/2018/11/Muddy-Hands-FINAL.pdf.

were also suggestions to examine the role of Initial Teacher Training in embedding climate education. Please see links to some available free CPD in the 'Resources' section below.

Partnerships with external organisations

Fourthly, strong partnerships with local or regional organisations, external to the school, can also be beneficial, providing an existing structure within which the school can get involved. However, while useful, from their own experience, several participants felt these partnerships came about through luck, rather than design. One school leader mentioned that one of their schools has a polytunnel and this resource has spurred a lot of enthusiasm but this was paid for by a passionate parent. As with the dependence on willing staff, these drivers rely on a certain amount of luck and therefore do not offer equal opportunities for all children to engage.

Beginning the journey

Finally, participants felt that at the start of a school's sustainability journey, it is important that there is a strategy or package of measures in place to ensure that initiatives are sustainable and long-lasting. Participants noted that each school operates in a specific context and within differing cultural and socioeconomic circumstances. What a suitable strategy looks like will therefore differ from school to school and individual schools need to choose what is best for them. To support schools to start on this journey, participants also mentioned that there are grants available. Resources are listed at the end of this paper.

As the above highlights, there are many ways in which education settings can embed and be supported to embed climate education across the phases and across the curriculum.

Part 2: future-proofing the education estate

Future-proofing the education estate: access, learning, adaptation and resilience

The education estate in England covers an area over twice the size of Birmingham. Given its size, it is important to consider how to make use of school grounds for climate resilience and facilitate connections to nature. The Department for Education (DfE) has recognised both the risks for and opportunities of the future school estate, committing to ensuring all new school buildings delivered by DfE will be net zero and designed for a 2°C rise in average global temperatures and future-proofed for a 4°C rise, to adapt to the risks of climate change, including increased flooding and higher indoor temperatures.

However, it is important to consider what more can be done with the current school estate, building on the work of the National Education Nature Park, to promote children and young people's engagement with nature and future-proof our schools.

Alongside this, there are considerable iniquities in access to green space with 30% of all pupils in London attending schools with less than ten square metres per pupil of open space[28]—the minimum recommended area by DfE. Similarly, WWF research finds that only 24% of schools in England provide opportunities for students to experience nature on a daily basis. There are also socioeconomic disparities: while 52% of students in more advantaged state schools have daily opportunities to experience nature, only 18% of pupils attending state schools with a high percentage of free school meals have these opportunities.[29]

How can we ensure all schools have equitable access to nature?

What does good practice look like?

Principles for good practice were set out at the discussion:

- All children should have access to nature and be encouraged to have a sense of ownership over their school grounds.
- Education institutions should take a whole school approach to outdoor learning where getting outside is embedded in school policy and practice.
- Teachers and leaders should be supported to access CPD so they have the confidence and capacity to use their outdoor spaces.

[28] Shoari et al. 'Nowhere to Play: Available Open and Green Space in Greater London Schools', Journal of Urban Health, (2021). Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC8190412/

[29] McKinlay et al., 'Schools for Nature', *WWF-UK*, (2024): Available at: https://www.wwf.org.uk/sites/default/files/2024-09/Schools-for-Nature-Report-2024.pdf

Current barriers

During the discussion several barriers to outdoor learning and play were raised including funding, inequality of access, staffing and safeguarding concerns.

Firstly, there are currently no requirements for new schools to have outdoor or natural space and it is legal, when certain conditions are met, to sell off school grounds for other purposes, such as building houses. Participants noted that the Government is revising the National Planning Policy Framework to prioritise housing and felt this could pose a significant threat to school grounds, given pressures on both school and Local Authority finances.

Related to this point, the role of external agencies was raised. While a positive example was cited where one charity helped a school to build a pond to increase biodiversity on the school estate with no funding needed from the school, other examples were less encouraging. One participant mentioned that they come under significant pressure from external organisations who want to buy their outdoor space for other purposes, such as creating 3G pitches, with potential accompanying environmental harms. The trust is doing their best to protect their green space but this is a challenge given competing priorities and significant external pressure. Without national protections for schools' outdoor space, resisting the pressures of agencies who wish to buy up land is a significant issue.

Available funding for refurbishment projects also poses a challenge. One MAT representative shared their experience of refurbishing one of their schools. They highlighted that due to limited funding, the landscaping of outdoor spaces fell by the wayside as they needed to prioritise elements such as windows and boilers.

In terms of equality of access, MAT representatives round the table highlighted that the extent of the green space available in their schools differs widely depending on where the school is located. These trust representatives had a mix of urban and rural schools and while they felt they were fortunate in that their city centre schools also had access to green space, participants agreed that there are clear and widening inequalities in access to green space and enabling equality of access should be a priority for policymakers.

Another trust representative highlighted that their primary schools were in rural areas but their secondaries were based in larger towns and so the outdoor space was predominantly "a lot of tarmac, a sports field with some trees around it and not much else." Nationally, over 80% of school grounds are composed of built-up areas and improved (maintained) grassland, such as sports pitches. Nearly 9% is formal horticulture such as gardens for food, formal school entrances or planted formal gardens and just 7% is composed of a diversity of other habitats, including woodland or heath.[30] This poses challenges for increasing biodiversity and supporting children's nature connections.

[30] Learning Through Landscapes, 'School grounds in the UK: Area and land cover classification', (2019). Available at: https://ltl.org.uk/wp-content/uploads/2023/09/uk-school-grounds-land-cover-classification.pdf

Finally, as with the discussion above on embedding climate education in the curriculum, participants in this discussion highlighted that outdoor learning often relies on passionate individuals in a school. While really positive examples were shared including a school where the headteacher trained all their staff in outdoor learning pedagogies and how to conduct outdoor risk assessments; the creation of a forest school with a small patch of bramble covered land; and a head who went to all the schools in the area asking for nominees to join a climate action group, this reliance on individuals forestalls long-term and widespread initiatives.

Community access to school grounds

A significant portion of the discussion was focused on managed open access to school grounds and there was disagreement on its feasibility.

Managed open access to school grounds is where local communities can use school estates outside of school hours. There are examples of this internationally. Paris is in the process of scaling up their OASIS programme[31] whereby school grounds are transformed into 'green oases', accessible to both school pupils and local communities. By greening school grounds, the project aims to "reduce vulnerability to heatwaves during hot summers through the creation of cool green spaces that offer relief from the heat for school children and other groups granted access to the grounds." In Scotland too, one participant mentioned that around half of local authorities expect managed open access to school grounds outside of school hours.

Supporters of managed open access round the table highlighted the many benefits that such a policy could bring, including offering green spaces for local communities, particularly in more urban areas; involving families in learning about climate change and how affects can be mitigated through nature; and, as with the many co-benefits of engaging with nature for pupils outlined, this policy could have similar impacts on families and wider communities too.

However, other participants had reservations. There were significant concerns about the financial implications for schools in maintaining estates if user numbers increase and most importantly, there are potential safeguarding risks. School representatives highlighted concerns including the potential for violence and vandalism if such a policy were implemented.

Another participant countered this to say that anecdotal evidence in Fife suggests that the more school grounds are opened up, the lower the risk of vandalism; it is very challenging to get communities to care about a space if it does not feel like they belong there. By making school grounds managed open access, they felt school grounds are more likely to be protected.

Participants considered potential approaches if such a policy were to be implemented and agreed that making it mandatory would put significant pressure on school leaders. Rather, some felt that the decision should be given to individual school leaders who know their schools and communities best. That said, they acknowledged that it would be challenging to be the first school

[31] European Environmental Agency, 'Oasis school grounds programme in Paris, France', (2022). Available at: https://www.eea.europa.eu/publications/who-benefits-from-nature-in/oasis-school-grounds-programme-in

leaders to initiate it, given potential ramifications. Another suggestion was to trial managed open access to school grounds in a percentage of schools across the country with funding available to cover staff resourcing and a rigorous evaluation process.

It will be valuable to keep this under consideration as more evidence emerges from other countries' approaches. Participants noted the important point that if policymakers and schools do not take action on climate change, this also poses a safeguarding risk at a macro level to children's current and future wellbeing. These risks must be balanced.

Strategies to facilitate access to nature and build climate resilience

Policy and funding reforms

Participants recognised the difficult choices that many local authorities and school leaders are facing regarding their school grounds. Some participants called on the government to overturn Section 77 of the School Standards and Framework Act[32] and implement statutory protections for school grounds to protect these spaces and ensure children can access nature, learn and play outdoors and enjoy the co-benefits that accompany engagement with nature.

Moreover, the estate's overall condition is declining and around 700,000 pupils are now learning in a school that needs major rebuilding or refurbishment.[33] This means there are significant demands on the capital funding pot and as the above MAT example highlights, often planned renovation of outdoor spaces are abandoned due to lack of funds. It is worth considering what ring-fenced capital funding for schools' outdoor spaces might offer to counter this challenge.

For schools, it is also worth looking at other pots of money outside of education that can be used to fund climate resilience projects. One trust highlighted that they invested £4 million in their estates and digital infrastructure using monies from the public sector decarbonisation scheme.[34]

Optimal designs

Participants were asked to consider what opportunities are available in the design of school estates.

It is important to not consider the inside and the outside of a schools as two separate entities, rather as extensions of each other, that support children to enjoy being outside. Covered outdoor spaces can facilitate these transitions.

[32] Legislation.gov.uk, 'School Standards and Framework Act – Section 77', (Accessed November 2024). Available at: https://www.legislation.gov.uk/ukpga/1998/31/section/77
[33] National Audit Office, 'Condition of School Buildings', (2023). Available at: https://www.nao.org.uk/reports/condition-of-school-buildings/#:~:text=Overall%2C%20the%20condition%20of%20the,and%20ensure%20they%20are%20safe
[34] GOV.UK, 'Public Sector Decarbonisation Scheme', (Accessed November 2024). Available at: https://www.gov.uk/government/collections/public-sector-decarbonisation-scheme

It is also valuable to look at the microclimates within a school, for example how hot or wet a space feels. Considering these microclimates can then help to inform landscaping decisions, such as planting trees on the south side of the estate to reduce urban heat; putting trees next to wide planting beds so falling leaves can fertilise the bed and breaking up hard landscaping with natural spaces. Research from the US suggests that a 1°F hotter school year reduces that year's learning by 1%, so reducing the impacts of urban heat is critical.[35]

There is also an increasing amount of research[3637] available on the best species to plant for pollution control and which native species are best to plant to ensure longevity and easy management, though one participant made the important point that with England's climate changing, the best species to plant may also change and this should be taken into consideration.

Biodiversity

Biodiversity net gain is a requirement for all new and some retrofit schools, depending on whether the refurbishment project impacts their green spaces, meaning some projects must deliver a 10% increase in biodiversity and this must be sustained for 30 years from the completion of the project.[38] One participant felt that while this policy was helpful, a useful future step would be to set principles for biodiversity gain to ensure it is at the centre of school estates, rather than the peripheries, and to ensure there is a diversity of habitats to avoid monocultures.

Pupil voice

Participants agreed that is important to consider children's need and bring in student voices when designing a space. For example, quiet moments for children to sit and talk with their friends, alongside spaces which are medium and high energy – how can the design of a school facilitate these moments? To do so, one participant highlighted that the procurement process for building schools is a rapid process; extending the time window to allow for community engagement on what an area needs would go some way to improve the inclusion of pupil and community voices.

Moreover, participants mentioned that young children love to be outside and explore nature but this is lost as children get older; the likelihood of experiencing nature on a daily basis at school diminishes as pupils age, dropping from 30% in primary school to 12% in secondary. 56% of secondary schools said they don't offer any outdoor learning to any pupils.[39] It is thus critical to

[35] Park et al. 'Heat and Learning', *American Economic Journal: Economic Policy*, (2020). Available at: https://www.aeaweb.org/articles?id=10.1257/pol.20180612
[36] Mason Kerr and Reynolds, "Climate Change and Tree Species Matching Species to Site and Future Conditions," (2023). Available at: https://cdn.forestresearch.gov.uk/2023/07/Species-choice-factsheet.pdf.
[37] Forestry Commission, "Managing England's Woodlands in a Climate Emergency," (2019). Available at: https://www.gov.uk/government/publications/managing-englands-woodlands-in-a-climate-emergency.
[38] DEFRA, 'Biodiversity net gain', (Accessed November 2024). Available at: https://www.gov.uk/government/collections/biodiversity-net-gain
[39] McKinlay et al., 'Schools for Nature', *WWF-UK*, (2024): Available at: https://www.wwf.org.uk/sites/default/files/2024-09/Schools-for-Nature-Report-2024.pdf

consider how school designs can continue to encourage connections with nature as pupils move through the phases of education.

Conclusion

This report demonstrates that current access to and engagement with climate education and nature is a mixed picture. While there are brilliant examples of best practice, at the same time, many schools do not have the capacity or resource to embed climate education to the extent necessary to support all children and young people.

To do so, changes at a national policy may be needed. On the curriculum side this could be through the implementation of the new National Curriculum following the completion of the Curriculum and Assessment Review; through reforms to the Ofsted framework, or by making elements of the DfE's Climate and Sustainability strategy mandatory.

As for school grounds, protections to the school estate to ensure that school grounds cannot be sold off and that all school have access to nature would be useful.

Any mandated changes must be accompanied by clear guidance on implementation and the necessary resource to allow schools to meet these requirements.

Participants coalesced around two key calls to policymakers:

- There needs to be statutory requirements to deliver climate education and have sustainability leads in every school.
- The government must implement statutory protections for school grounds to protect these spaces and ensure they cannot be sold off.

Resources mentioned in the course of this work

Funding

- National Education Nature Park Grants
- Public Sector Decarbonisation Scheme
- Local Schools Nature Grant

Free CPD

- WWF Teacher Development resources
- STEM Learning climate change CPD and events
- University of Reading: Teaching Climate and Sustainability in Primary Schools: An Outdoor Learning Approach
- UCL Institute of Education: Teaching for sustainable futures
- Climate school 180

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