

CAPE

Climate
Adapted
Pathways for
Education



Leeds Trinity
University

Professor Leigh Hoath and Heena Dave

Implementing Climate Change Education in Schools: Constructive Hope in Action



We are truly honoured that CAPE recognises the deep connection between our music and the natural world. It brings us great joy to know that the heartfelt lyrics, inspired by the stunning beauty of the Scottish Highlands, will introduce each chapter of this report.

As we grew up, the magnificent oceans, islands, mountains, and rivers that surrounded us had a profound impact on who we became. We are genuinely excited about this opportunity to inspire readers of this report to appreciate and protect our precious planet for future generations.

Tide Lines

Alasdair Turner, Fergus Munro, Robert Robertson and Ross Wilson



Kintsugi
[kint'su:gi] Japanese

Inspired by Kintsugi, the ancient art of mending broken pottery with gold lacquer, this report draws parallels with the idea that brokenness can be transformed into resilience. Breathing life into the narratives of school leaders, CAPE showcases evidence-informed practices in implementation, professional development, and curriculum making.

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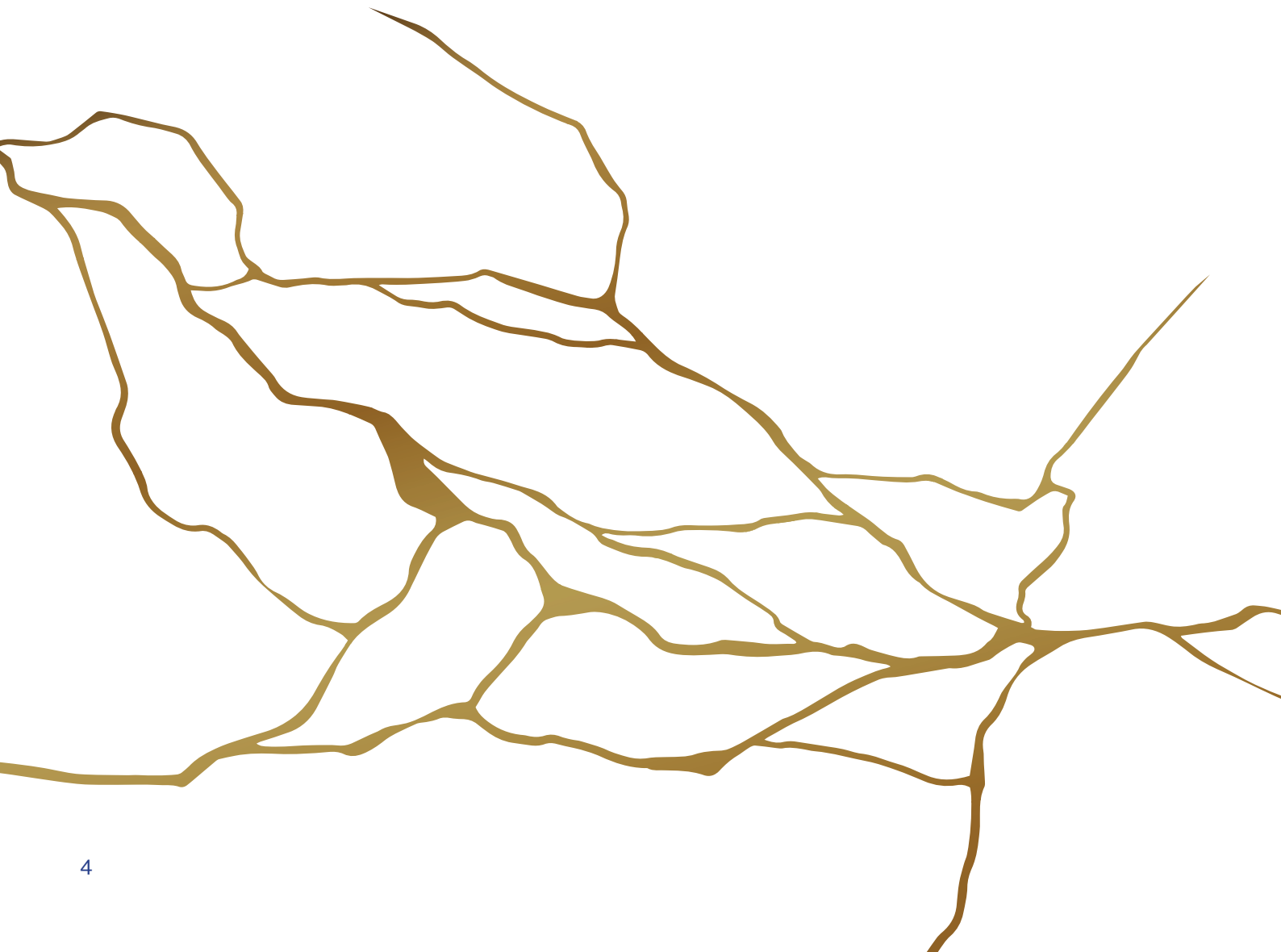
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On the edge of my mind
Is a fragment of time
That we promised we'd never let go
When we drove to the hills
Where the air was so still
Far away from the city below

The Last Song, Tide Lines



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Foreword

There's important work to be done. The content of what is taught in schools is either driven or informed by the national curriculum and the nuances and elements that are emphasised have the capacity to respond to world events in general, and local concerns in particular. This is the case with climate change education (CCE).

If we consider climate change concerns through the Eisenhower matrix, we can see that they fit into both the urgent and important segments, as well as the non-urgent and important segments. This is a helpful lens through which to think about the implications for the curriculum. The impact of climate change is urgent and important in that it needs to be on the agenda for all schools. At the same time, it is non-urgent and important because we need time and space to do the curriculum thinking, professional development and build systems in a way that keeps the momentum going and builds capacity over time. This work matters too much to be put into the quick fixes box.

In *The Process of Education*, Jerome Bruner¹ said, 'A curriculum is more for teachers than it is for students. If a curriculum cannot change, move, perturb, inform teachers, it will have no effect on those whom they teach. It must be first and foremost a curriculum for teachers. If it has any effect on pupils, it will have it by virtue of having had an effect on teachers.'

This is why systems for deep professional learning matter. Children and young people are already engaged and willing. The role of the teacher is to help them build climate literacy, develop expert mental models about climate change throughout their education. It follows from this that if the education sector delivers a well-executed curriculum, bolstered by professional development, that engenders positive attitudes and behaviours, underpinned by CCE, children and young people are likely to believe they have agency and will be motivated to protect the planet for future generations.

In the rapidly-changing natural world around us, it is likely that the memories we cherish about the biodiversity and ecology of our planet are destined to be very different from those experienced by the children and young people of the future.

Our collective goal must be to spare future generations from having faded memories of our once flourishing planet, as a fragment of time trapped in natural history books. Instead, they should be able to experience and know how to care for a thriving, natural world.

While there is energy in the urgency with which we need to deliver CCE, we need to be mindful that the work itself needs to be sustainable. It needs to be built in, not bolted on. This is why the path forged by CAPE, led by Professor Leigh Hoath and Heena Dave, developing deep structures for professional learning, and piloting programmes in schools already aligned with thoughtful CCE processes, is essential.

This work is too important to leave to chance.

Mary Myatt

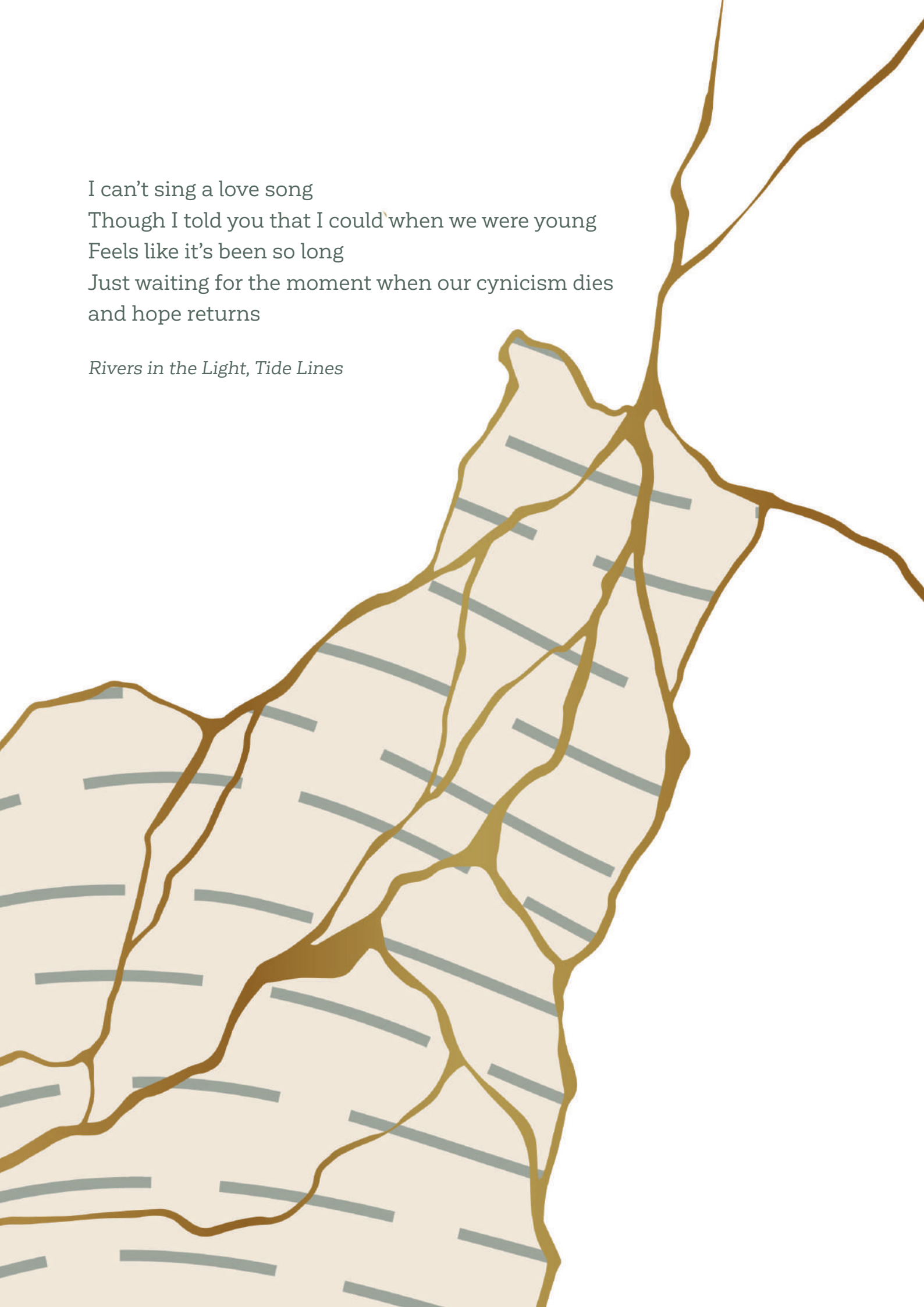
Education advisor, writer and speaker

CAPE Patron

¹ Bruner, J.S. (1960). *The Process of Education*. Cambridge: Harvard University.

I can't sing a love song
Though I told you that I could when we were young
Feels like it's been so long
Just waiting for the moment when our cynicism dies
and hope returns

Rivers in the Light, Tide Lines



CHAPTER 1

Cultivating constructive hope: CAPE's collaborative strategy for climate change education

Climate change education (CCE) often wavers between hope and cynicism.

Educators hope that by effectively addressing CCE, they can make a positive impact on the planet and equip the next generation with the knowledge and skills to become environmental caretakers. However, this optimism is often met with the accumulated cynicism stemming from decades of slow progress in the quality of CCE within schools.

Despite limited advancements, educators now stand at a crucial crossroads – a point where cynicism must yield to hope. We must take the path where the urgent issue of climate change is effectively addressed and where constructive hope² empowers all children and young people to navigate environmental threats, find positive meaning, and create a brighter future for all.

There are some facts which are now undeniable; climate change has already negatively impacted humans and nature³. Children and young people are increasingly concerned about the state of our planet. They desire a deeper understanding of the environmental problems their generation will face and reject the notion of leaving it to chance or solely relying on an enthusiastic teacher or joining an eco-group as an extracurricular activity⁴. Mirroring these concerns, teachers and school leaders feel ill-equipped to teach climate change effectively⁵, with existing approaches that often fail to deliver compelling change or even resonate with the school's overarching educational purpose.

These combined factors create a complex landscape for school leaders and teachers to navigate and has created a fractured understanding of what constitutes evidence-informed, impactful, and high-quality CCE.

It is in response to these challenges that Climate Adapted Pathways for Education (CAPE) emerges with a powerful vision and mission. Our aim is to equip teachers and school leaders with the knowledge and skills necessary to empower all children and young people to take informed and effective action to protect the environment for future generations. We bring together researchers, educators, schools, and organisations across the UK, united in our commitment to adapting education to tackle the challenges posed by tomorrow's climate.

Since the release of our inaugural report⁶ in July 2022, CAPE has collaborated with a range of schools, academy trusts and federations across England to bridge the gap between cynicism and hope through three clear priorities:

- implementation
- curriculum
- professional development.

This report emphasises the importance of developing collective expertise within schools, with insight and real-world learnings from our work with REAch2 Academy Trust, Avanti Schools Trust, Northern Star Academies Trust, HEART Academies Trust and Caister Primary Federation. It showcases a collection of compelling case studies that exemplify promising approaches being developed in a range of contexts. By sharing these case studies, CAPE aims to support educators across different schools, encouraging the implementation of effective strategies in CCE.

Education, like any field, presents various tensions that school leaders must navigate. They face the challenge of balancing immediate action with long-term implementation and curriculum development. This demands expert decision-making, as leaders respond to urgent commitments while recognising that sustained improvement requires time. The pressure intensifies as school leaders juggle competing priorities, make challenging decisions, and manage finite resources.

In parallel, children and young people perceive a responsibility to hold the solutions to climate change, highlighting a gap between the expertise of teachers and school leaders and the rising expectations for high-quality CCE. We must move beyond activities like litter-picking and bug hotels and instead consider how we teach the deep and complex knowledge associated with climate change.

This report marks a turning point in the CCE narrative, addressing feelings of powerlessness with constructive hope. Emphasising promising case studies, we aim to support educators across diverse settings, encouraging effective strategies and instilling confidence in tackling CCE.

Inspired by Kintsugi, the ancient art of mending broken pottery with gold lacquer, this report draws parallels with the idea that brokenness can be transformed into resilience. Breathing life into the narratives of school leaders, CAPE showcases evidence-informed practices in implementation, professional development, and curriculum making. Amid complex challenges, school leaders navigate uncharted territories, striving to ignite hope for children, young people, and their school communities. Together, we work towards a better planet, where imperfections are made visible and seen as opportunities for growth, creating a better world for future generations.

The deliberate inclusion of the song lyrics by Tide Lines, a band from the Highlands of Scotland, at the start of each chapter aims to inspire an appreciation for Earth's beauty and a commitment to its preservation. Just as the art of Kintsugi guides us in understanding the "how" of CCE, the lyrics from Tide Lines offer us the poignant "why". They remind us of the unique beauty of the world we want to preserve. As you read this report, take a moment to pause and reflect on the poetic verses offered by Tide Lines, contemplating the compelling reasons why our children and young people deserve to inhabit a thriving, natural planet. Through evidence, artistry and storytelling, we bring to life our collective commitment on how we can protect the Earth, ensuring that the beauty and diversity of the natural world endures in our memory for generations.

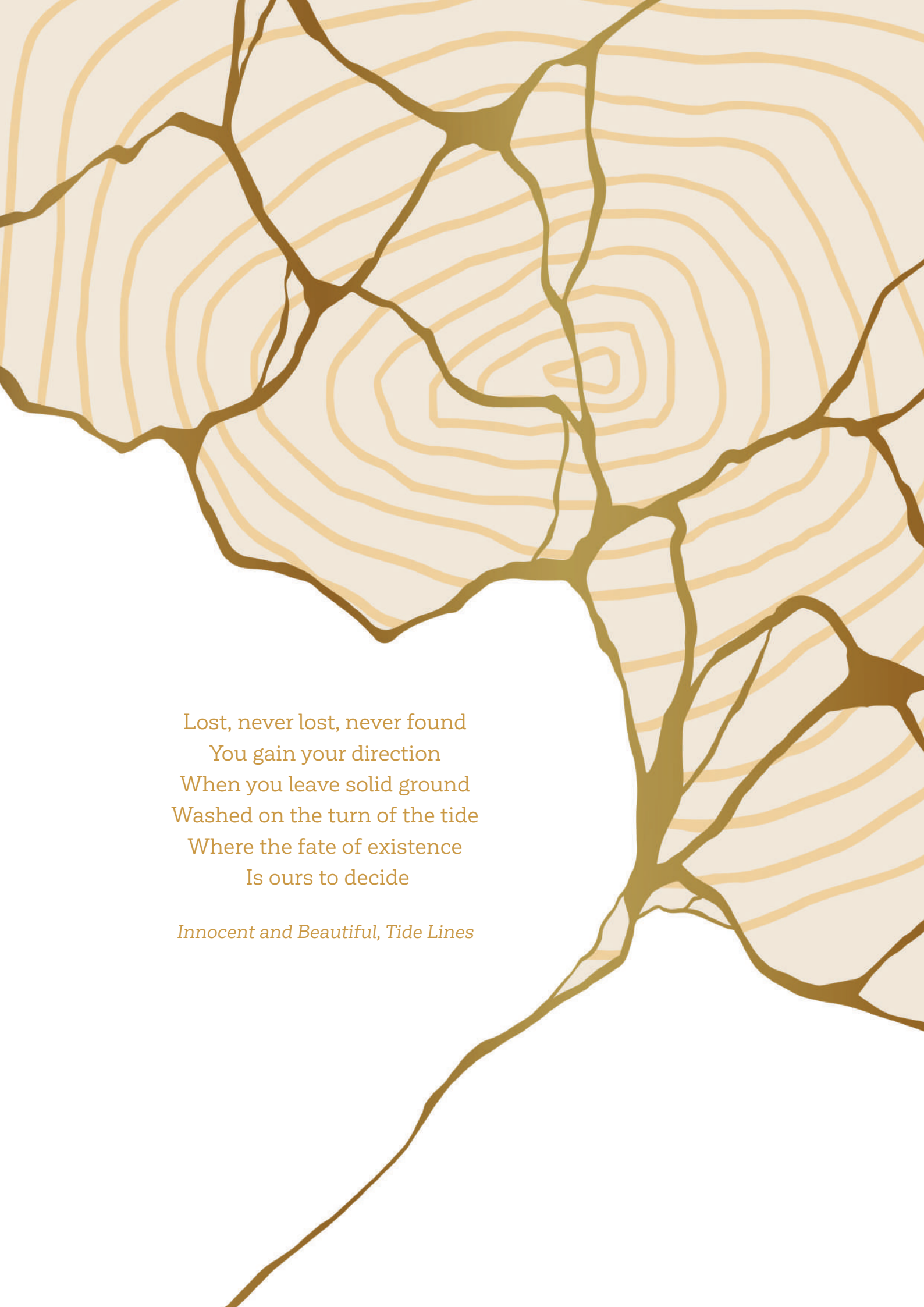
² Chawla, L. (2020). Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. *People and Nature*, 2(3). doi:<https://doi.org/10.1002/pan.3.10128>.

³ IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegria, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:<https://doi.org/10.1017/9781009325844>.

⁴ British Science Association and the University of Plymouth. (2023). *Climate Change in Secondary Schools: Young People's Views of Climate Change Education*. Future Forum. Available at: <https://www.britishsociety.org/Handlers/Download.ashx?IDMF=68f84964-bf1e-4bfb-8205-444705d9678a>. [Accessed: 1 August 2023].

⁵ Dunlop, L. and Rushton, E. (2022). Putting climate change at the heart of education: Is England's strategy a placebo for policy? *British Educational Research Journal*. doi: <https://doi.org/10.1002/berj.3816>.

⁶ Hoath, L. and Dave, H. (2022) *Sustainability and Climate Change Education: Creating the Foundations for Effective Implementation*. (online) Leeds Trinity University and the Teacher Development Trust. Available: [Resources — Climate Adapted Pathways for Education \(capealliance.org.uk\)](https://resources.capealliance.org.uk). [Accessed: 22 November 2023].



Lost, never lost, never found
You gain your direction
When you leave solid ground
Washed on the turn of the tide
Where the fate of existence
Is ours to decide

Innocent and Beautiful, Tide Lines

CHAPTER 2

Climate change education: Examining the urgency

The urgency of implementing high-quality climate change education (CCE) is increasingly recognised as vital for children and young people to navigate the complexities of our rapidly changing world⁷.

CAPE's definition of CCE encompasses three essential components:

- **Knowledge and skills:** Equipping children and young people to address climate change effectively.
- **Equity and access:** Ensuring that every child and young person is prepared to tackle climate change.
- **Coherence:** Enabling future generations to navigate the intricate connections between scientific, environmental, societal, and economic factors associated with climate change.

Parents strongly emphasise the pressing nature of climate change and the importance of their children learning about climate change, arguing that schools represent the most suitable setting for CCE. Despite this confidence, there is a growing concern among parents about the adequacy of current CCE in schools. Additionally, children and young people perceive a lack of teacher enthusiasm for teaching about climate change, highlighting areas for improvement in the delivery of CCE⁸.

There is also a substantial gap in teachers' climate change knowledge⁹ and a resistance to adapting the curriculum to reflect our rapidly changing understanding of climate change and its impacts¹⁰.

Collectively, evidence demonstrates a lack of alignment between a school's readiness to provide high-quality CCE, parental expectations, and the needs of children and young people. In this context, the issue of climate change is of central importance and there is a clear case for school leadership teams to give it a greater priority¹¹. However, in the absence of what constitutes solid ground for the prioritisation of CCE, clarity and strategic direction from school leaders is critical.

In response to this challenge, trust leaders like Cathie Paine and Jenn Plews OBE showcase how, despite uncertainty, they have ensured that CCE is an integral component of their trust-wide ethos and culture. Their strategic leadership, shared in the following case studies, serve as tangible examples for school leadership teams to proactively shape the provision of CCE within their context. In doing so, they support other schools to find direction amid environmental uncertainty and purposefully navigate CCE to equip a generation prepared to address the challenges of a changing climate.

⁷ Department for Education (2022a). *Sustainability and Climate change: a Strategy for the Education and Children's Services Systems*. [online] [gov.uk](https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems). Available at: <https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems>. [Accessed: 1 August 2023].

⁸ Gillow, E., Schwitzer, R. and Dorrell, E. (2022). *Teaching about climate change A report into climate change and sustainability education in schools*. [online] Available at: <https://www.publicfirst.co.uk/wp-content/uploads/2022/06/FULL-UCL-Institute-for-Education-Centre-for-Climate-Change-and-Sustainability-Education-1-1.pdf>. [Accessed: 18 November 2022].

⁹ TeacherTapp. (2019). *Teacher Stress & Saving The World From Climate Disaster*. [online] Teacher Tapp. Available at: <https://teachertapp.co.uk/articles/teacher-stress-saving-the-world-from-climate-disaster/>. [Accessed: 18 November 2023].

¹⁰ TeacherTapp, (2023) *Science: We Want More Space!* [online] Teacher Tapp. Available at: <https://teachertapp.co.uk/articles/science-we-want-more-space/>. [Accessed: 18 November 2023].

CASE STUDY:

A strategic vision for CCE at REAch2 Academy Trust

When I became the new CEO of REAch2 Academy Trust I asked myself, “of all the different things that I could do as CEO, what should I do – what must I do?” In a volatile and unpredictable world, the choices are more complex than ever. It is a time for ambitious and considered strategic goals – goals which stretch us, demand that we move the needle and inspire each and every adult and child.

Building on the first ten years, as CEO, I have become the ambassador of this radically different future and alongside the trustees, seek to shape and imbue our schools with a breakthrough vision of what it is possible for us to achieve. After much consideration, extensive discussion with all stakeholder groups and reviewing the latest research (on what is possible and what would have the most impact), four priorities for the next five years, and beyond, were agreed for REAch2.

Along with environmental sustainability, REAch2 Academy Trust's focus is on digital transformation, social justice and ensuring all our schools become great schools. Once these priorities had been agreed, a great deal of time and effort was spent communicating them to all stakeholders within REAch2 Academy Trust and beyond. The priorities were met with overwhelming enthusiasm. However, each of these priorities is a major piece of work for our trust and we know that effective implementation will take many years, but if we are going to make sure that all of our children are prepared for the world we live in today then they have to be achieved.

When I started on the journey of focusing on environmental sustainability, I had a really good idea of what I wanted us to do, but, although I have read a lot and am very interested in playing my part in reducing the use of carbon and protecting nature, I knew that we had to ensure that everything we did was rooted in evidence and effective practice. I wanted to make sure that the time, resource and energy we put into this priority would have the most impact on our children.

To achieve this there are several fundamental principles we follow:

- **Evidence informed actions:** There are lots of examples where educators have introduced something without being sure if it will have the desired impact. We will only do something if we have the evidence that it is likely to have an impact.
- **Embedded into the culture:** We do not want this to rely solely on well-meaning or interested teachers or a particular high-profile special day, or week. Pursuing environmental sustainability should be an entitlement for all children in REAch2 Academy Trust and therefore it has to be part of the curriculum and the way we work.
- **Staff are experts:** Unless all staff, not just teachers, have a good understanding of what will make a difference then we are risking an inconsistent, inaccurate, and ineffective approach. All staff need to have the opportunity to develop their own knowledge and subject specific pedagogy.
- **Measuring the impact:** As the strategy is implemented, we need to make sure we measure the difference our focus on environmental sustainability is making. We are developing a dashboard of core measures which will help us to understand the collective impact of this priority on our teachers, children, wider school community and our local environment.

We know there is a great deal to achieve, and we want to get this right. We also know we have to act quickly. Every year, around 3,000 children transition from primary to secondary at REAch2 Academy Trust. Our goal is to ensure that the subsequent 3,000 children departing for secondary school and the next phases of their lives emerge as environmental sustainability ambassadors.

There are many reasons why schools may choose not to play their part in dealing with the climate crisis. It is easy to put together a long list of barriers. These might include (and I am sure there are many others):

- The erosion of buying power of school budgets.
- Chronic recruitment crisis in some areas of the country.
- Ever-higher expectations on schools leading to an increase in workload.
- Mitigating the effects of the pandemic with large numbers of young people still out of school and needing to catch up.
- An already overcrowded curriculum.

However, I argue that we all have a role in tackling the single most important issue facing humanity¹². It has been accepted that we are facing a climate crisis created by human activity and we need to take urgent action. Education is essential in our response to this crisis. As educators, we understand first hand how education significantly contributes to enhancing all aspects of our lives, prompting the question: why shouldn't it play an equally vital role in addressing the climate crisis?

However, this cannot be left to a few staff or children and young people who are enthusiastic about this topic. Climate change and sustainability education has to be systematically taught and embedded within the school curriculum if it is to equip all children and young people with the tools needed to create a more positive future. At REAch2 Academy Trust, we argue that there are many good reasons to adapt the curriculum so that children and young people have the knowledge they need, know what actions they need to take and to reduce their eco-anxiety. These include:

- **Moral imperative:** Recognising the pressing need for action, the current state is deemed unsustainable. Urgent and decisive measures are needed to empower future generations in addressing the challenges posed by a changing planet.
- **Addressing the needs of children and young people:** By recognising their interest in climate change and sustainability, this engagement serves as a motivating factor and it is our role to help our school community to envision and contribute to a more positive future for the planet.
- **Role models:** If schools develop sustainable practices, policies and a high-quality educational entitlement, our children and staff will become role models for the next generation. We know that schools are hubs of a community, and can have a real impact on what happens in a local area.
- **Creating culture change:** Our commitment to high-quality climate change and sustainability education stands out as a distinctive feature of REAch2 Academy Trust. We want to spearhead a shift in the landscape, envisioning environmental sustainability as a standard for all schools rather than a unique selling point.

Cathie Paine, Chief Executive Officer
REAch2 Academy Trust

CASE STUDY:

A five-year journey of CCE at Northern Star Academies Trust

Over the past five years, CCE has become central to our educational philosophy at Northern Star Academies Trust, and in some schools, this commitment spans an even longer duration. It influences every aspect of our decision-making and prioritised actions, ranging from curriculum entitlement for all children and young people to the day-to-day operations of our partnership schools.

The drive for our focus on CCE emerged during a trustee away day, nearly four years ago, in 2019. Trustees, who were deeply committed to environmental sustainability, expressed concern about the lack of attention given to climate change. This pivotal moment highlighted a collective frustration among trustees and school leaders regarding the insufficient educational focus on this critical issue. Yet, despite our frustration, we remained committed to taking a carefully considered, strategic direction. We took our time to evaluate what effective implementation would look like for us, and nearly four years later, it is something we continually focus on. Our commitment to the environment is a long-term, meticulously planned process, not a one-off event.

Our commitment to prioritising CCE at the highest level of trust leadership is indispensable and forms a core part of our culture and ethos. Without this wholehearted support and strategic direction, creating a culture that embeds CCE into the core of each school's DNA would be challenging. This leadership approach has provided the direction that partnership schools need to integrate CCE into the complex landscape of teaching and learning, granting permission to position it as a fundamental element of every child's learning experience.

We have set ourselves ambitious and collaborative aims within our environmental sustainability strategy which:

- Focus on issues most relevant to children and education.
- Strengthen children's understanding by providing a greater appreciation of nature, and practical opportunities to participate in learning to increase climate resilience and enhance biodiversity.
- Encourage evidence-informed, new and ground-breaking educational initiatives addressing climate change.
- Reduce our school's carbon consumption.
- Use our experience, influence, and relationships with the education sector as an active force for good.
- Consistently exemplify and model best practice in our organisation for all communities about the benefits of environmental sustainability to demonstrate how schools can tackle the climate crisis.

At Northern Star Academies Trust, environmental sustainability takes precedence as a core priority, setting a distinct tone for the entire partnership. We enact our culture and strategic priority in many ways including through annual thematic focuses, such as the 'year of waste' and the 'year of energy'. These provide a framework for galvanising efforts and creating a collective approach across our trust. Conferences and a dedicated 'green futures board' further contribute to building climate literacy.

The 'green futures board', made up of leaders and teachers, is the forum where colleagues have the space to implement innovative environmentally sustainable practices to reshape school operations alongside external partners and experts within the wider environmental and education sector. Our commitment extends to creating a psychological space for open dialogue, fostering collaboration, and ensuring the inclusion of CCE in every school's policy and practice.

Our Green Curriculum promise states:

Our mission is to make sure that all children live and learn in a sustainable way; we are highly committed to giving our children and young people an 'equitable childhood' and full access to fulfilling life experiences that help them understand, explore and respect our living planet. Our Green Curriculum makes explicit connections between the places where our pupils live and their learning, including the built environment and the resources that underpin and flow through the school.

Reflecting on our impact, the need for continuous evaluation and refinement of our strategy is based on regular check-ins, mid-term reviews, and a focused set of behaviours with non-negotiables that help us stay on course. The commitment to making CCE integral to the trust's educational philosophy, rather than viewing it as an add-on, distinguishes our approach. We continuously engage stakeholders, including children and young people, through various channels like blogs, case studies, and social media, ensuring that the narrative of CCE permeates the trust.

Our journey towards prioritising CCE involves a thoughtful integration of our core philosophy and purpose, a clear strategic direction, leadership at all levels, effective implementation and continuous evaluation.

**Jenn Plews OBE, Chief Executive Officer,
Northern Star Academies Trust**

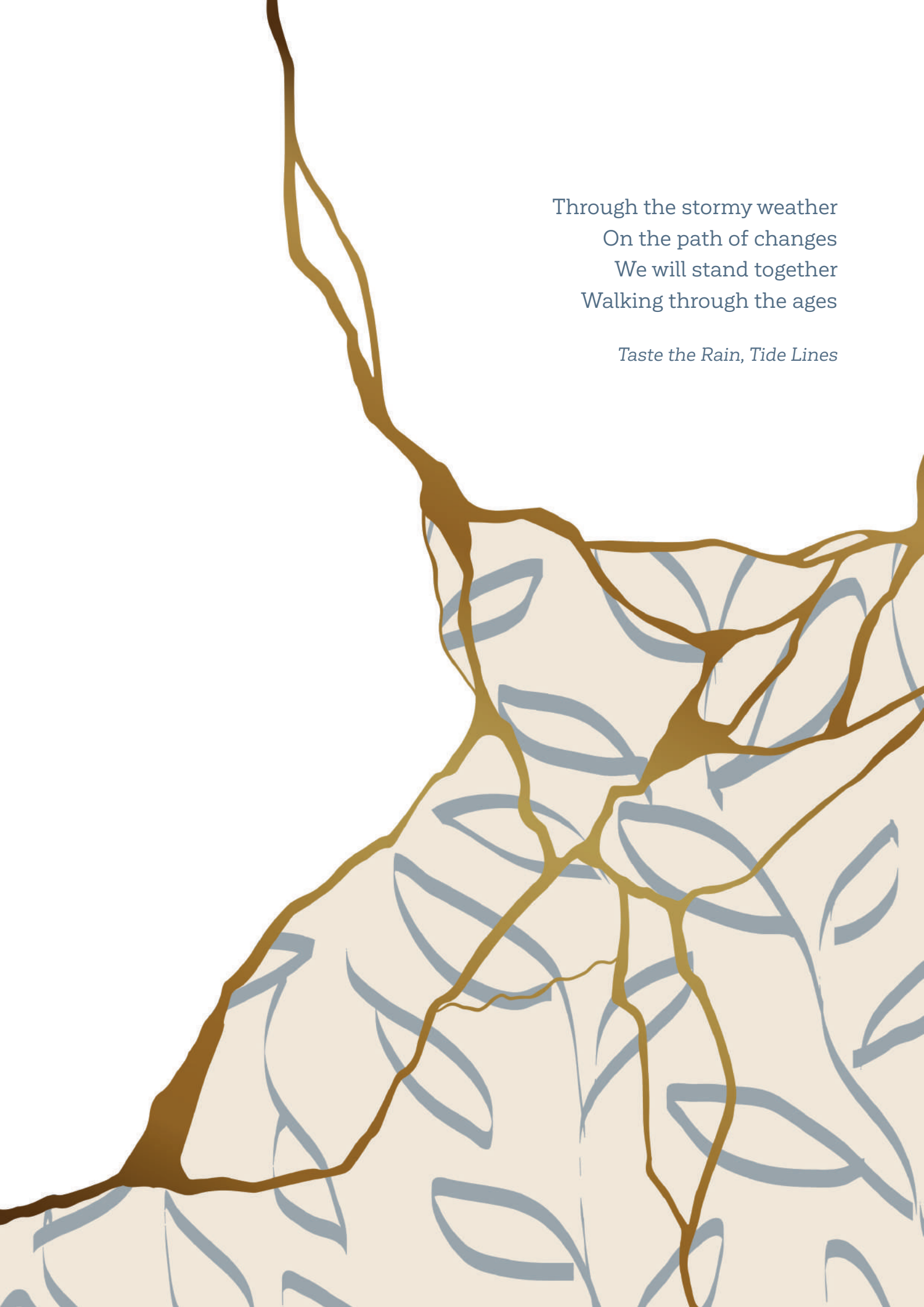
The leadership exhibited by REAch2 Academy Trust and Northern Star Academies Trust emphasises that providing a commitment and clear strategic direction is the first step in enabling the delivery of effective CCE.

The role that school leadership plays in laying the foundations for high-quality CCE, evident in decision-making processes, prioritised implementation plans, and day-to-day operations, is a fundamental part of each trust's culture. Confronted with the urgency of climate change, the response to this existential crisis is to thoughtfully connect context-sensitive leadership decisions with knowledge about climate change, ensuring that high-quality CCE provision is integral to the education of their children and young people.

¹¹ Gillow, E., Schwitzer, R. and Dorrell, E. (2022). *Teaching about climate change A report into climate change and sustainability education in schools*. [online] Available at: <https://www.publicfirst.co.uk/wp-content/uploads/2022/06/FULL-UCL-Institute-for-Education-Centre-for-Climate-Change-and-Sustainability-Education-1-1.pdf>. [Accessed: 18 November 2023].

¹² United Nations. (2022). *Climate Change*. [online] Available at: <https://www.un.org/en/global-issues/climate-change>. [Accessed: 18 November 2023].

¹³ Forssten Seiser, A., Mogren, A., Gericke, N., Berglund, T. and Olsson, D. (2022). Developing school leading guidelines facilitating a whole school approach to education for sustainable development. *Environmental Education Research*, 29(5), pp.783–805. doi:<https://doi.org/10.1080/13504622.2022.2151980>.



Through the stormy weather
On the path of changes
We will stand together
Walking through the ages

Taste the Rain, Tide Lines

CHAPTER 3

Forging pathways: Creating the foundations for implementation

The philosophy of Kintsugi, deeply rooted in Japanese culture, provides a unique perspective to scrutinise the challenges linked to the implementation of climate change education (CCE). The purpose of effective implementation is not to conceal imperfections but to shine light on the contours of each crack or flaw, enabling a deeper appreciation of the problems to solve.

The conditions for implementation within any organisation are nearly always imperfect, characterised by constraints such as limited resources, time, and funding. In adopting the ethos of Kintsugi, school leaders are encouraged to perceive the process of implementation not as a quest for a flawless solution but as an opportunity to forge a more robust educational response to the urgency of climate change.

The challenges encountered, like dealing with the fragments of a broken ceramic bowl, offer us an opportunity to create a stronger, more resilient outcome. Repurposing existing resources and processes for CCE through a precise and purposeful approach to implementation is key. Although this measured strategy may seem counterintuitive in the urgency of addressing climate change, it is more likely to lead to sustained improvement and make optimal use of the limited resources within the school system.

A structured approach to implementation

CAPE emphasises the need for school leaders to invest upfront time in a high-quality implementation process. Implementing a whole-school approach to CCE is a complex and lengthy commitment that demands persistent efforts over many years but may yield greater benefits. A longitudinal study in Sweden¹³ revealed that it took between 5–8 years for education for sustainable development to become integrated into a school's daily routines and norms, a timeframe often underestimated by educators.

School leaders must plan for the sustained implementation of CCE from the outset, providing ongoing support to staff and maintaining a dedicated focus on leadership to strengthen practices over time. To encourage high standards of implementation, we have worked with schools to integrate the Education Endowment Foundation's (EEF), *A School's Guide to Implementation*¹⁴ into the way we support schools. Our emphasis is placed on sustaining progress, ensuring that outcomes for children and young people are at the forefront of CCE, with continuous monitoring of impact.

Prioritising coherence

In making sense of how school leaders can be supported to focus on the deep structures of implementation, it is critical to consider two potential but common scenarios that emerge when implementing CCE¹⁵:

- In the first scenario, schools ask external organisations for help. These organisations mandate a different approach to education that is misaligned to the school's purpose for education or curriculum.
- In the second scenario, a small yet engaged group of teachers in a school enthusiastically implement individual practices that, unfortunately, fail to have a lasting impact on the school's culture for CCE.

In both cases, educators fail to consider that new initiatives are difficult to sustain¹⁶ and that even when the implementation of a new initiative is deemed successful, teachers often revert back to their old practices¹⁷. These insights highlight the importance of cultivating high levels of implementation coherence¹⁸ across school leadership teams, classrooms, and teachers which include¹⁹:

At the school level:

- Developing distributed leadership focused on implementation goals to build capacity, shared responsibility, and buy-in.
- Ensuring sustainable funding and resourcing of the new implementation.
- Providing ongoing, high-quality professional development aligned with the new initiative to build staff capacity and commitment.
- Conducting regular data collection and analysis to track progress and outcomes, allowing data-driven refinement of strategies.
- Engaging stakeholders like teachers, children and young people and parents throughout the process to obtain feedback and maintain support.
- Retaining staff knowledge and expertise by minimising turnover.

At the classroom level:

- Providing clear guidance on the new initiative in practice, as lack of specifics hinders classroom change.
- Offering support to build self-efficacy with the new practice.
- Allocating protected time for planning, collaborating and observing peers - recognising that lack of time is a major constraint.
- Supporting professional conversations around the potential need for flexibility and innovation to adapt reforms to the specific context of each classroom.
- Ensuring ongoing support from external advisors/partners to further facilitate the sustainability of the new initiative.

Building on these insights, the following case study focuses on an executive leader examining the barriers to the implementation of CCE within his context. This school leader demonstrates how he has carefully addressed the issue of creating the right foundations for CCE and a sense of coherence amongst the whole-school community.

¹⁴ Education Endowment Foundation (2019). *Guidance Report Putting Evidence to Work: A School's Guide To Implementation*. [online] Available at: https://d2tic4wvo1iusb.cloudfront.net/production/eef-guidance-reports/implementation/EEF_Implementation_Guidance_Report_2019.pdf?v=1691121326. [Accessed: 1 August 2023].

¹⁵ Dave, H. (2023). *Professionalism, School Leadership and Implementation of Climate Change Education in England*. Master's Dissertation. University of Stirling.

¹⁶ Robinson, V. (2018). *Reduce change to increase improvement*. Thousand Oaks, California: Corwin, A Sage Publishing Company.

¹⁷ McLure, F.I. and Aldridge, J.M. (2023). Sustaining reform implementation: a systematic literature review. *School Leadership & Management*, pp.1–29. doi:<https://doi.org/10.1080/13632434.2023.2171012>.

¹⁸ Robinson, V., Bendikson, L., Mcnaughton, S., Wilson, A. and Zhu, T. (2017). Joining the Dots: The Challenge of Creating Coherent School Improvement. *Teachers College Record: The Voice of Scholarship in Education*, 119(8), pp.1–44. doi:<https://doi.org/10.1177/016146811711900803>.

CASE STUDY:

Establishing a coherent approach to implementation

At Caister Primary Federation, we believe that if we are going to educate our children on the importance of taking climate action, we need to model those behaviours first as a leadership team so that we can support our colleagues, children and school community. Our approach to CCE has been to focus on where we are as a federation – determining what we have as a starting point in order to carefully plan what we need to do.

This exploration phase was absolutely essential for being able to determine next steps, which we knew were going to take time and thought to get right. In order to make progress in key areas quickly, we have adopted a phased approach, which is aligned to the resources we have available. That allowed us to prioritise some of the more straightforward actions we could take, such as revising our waste management contract for sustainable disposal, changing our menu to reduce meat consumption, and reducing energy consumption in our school buildings.

A guiding principle in this phased approach was to actively involve the voices of children in these decisions. As a leadership team, prioritising the needs of our children is critical, given our awareness of the increasing eco-anxiety and disempowerment experienced within our community around climate change. This coherent and strategic approach ultimately facilitated greater buy-in when we transitioned to addressing more complex areas, such as curriculum change and encouraging families to consider transportation choices to minimise carbon emissions.

There are still challenges that we are considering as a leadership team, for example, few of our children walk or cycle to school. Families and carers often drive their children short distances to school and wait for them at the end of the day with car engines running. I am also aware that staff are not always positive role models, driving to school, almost all of them in cars on their own and with a reluctance to consider alternative options like car sharing. Reflecting on these challenges, seemingly simple initiatives have proven to be more difficult and time-consuming to implement than we had initially anticipated, requiring a longer implementation timeline for the improvements we want to make.

Thinking about the type of curriculum we aim to develop within our setting has also been a long process. The emphasis on a coherent curriculum aligned with our context has been pivotal for teachers and school leaders. Our aim is to inspire and motivate children to become guardians of the planet. Collaborating with CAPE has empowered us to start to adapt and tailor our curriculum to meet the specific needs and context of our children and community, especially noteworthy as two of our schools are situated at sea level, a mere 350 metres from the beach, presenting significant opportunities for place-based learning.

Precisely because we acknowledge that decarbonisation is financially prohibitive, we recognise the need to adopt a slower implementation pace, thoroughly exploring all available options and being supported by models such as the EEF's guidance on implementation. Decisions like investing in an electric minibus or solar panels, are currently financially challenging to introduce or sustain, so we prioritise what we can change with the limited resources at our disposal. The EEF guidance²⁰ serves as an evidence-informed framework for our implementation of CCE.

As a leadership team, we have chosen to prioritise investment in professional development before undertaking any further substantial changes. Over time we've narrowed our focus to three objectives as a federation:

- Annually audit the carbon emissions for each school.
- Establish effective measures for decarbonisation.
- Ensure the delivery of the best possible CCE to our children through curricula adaptation.

**Jonathan Rice, Executive Headteacher,
Caister Primary Federation**

Implementation as a process and not an event

Approaching the implementation of CCE should mirror the same strategic and long-term approach for the introduction of any other intervention or initiative within a school setting. CAPE recommends aligning with an evidence-informed approach, such as the EEF's *A School's Guide to Implementation*²¹. This involves:

- Allowing enough time for effective implementation, especially in the initial preparation stage.
- Creating a leadership environment and school climate that is conducive to good implementation.
- Defining the problem to be solved, using a robust diagnostic process and making evidence-informed decisions on what to implement.
- Creating a clear implementation plan, judging the readiness of the school to deliver that plan and preparing staff and resources.
- Support staff, monitor progress, solve problems, and adapt strategies as the approach is used for the first time.
- Plan for sustaining and scaling CCE from the outset and continually acknowledge and nurture its implementation.

To examine the implementation of CCE in action, the following case study exemplifies the principles of viewing implementation as a process, not an event. Here, an executive leader highlights how he navigated the creation of an implementation plan.

¹⁹ McLure, F.I. and Aldridge, J.M. (2023). Sustaining reform implementation: a systematic literature review. *School Leadership & Management*, pp.1–29. doi:<https://doi.org/10.1080/13632434.2023.2171012>.

²⁰ Education Endowment Foundation (2019). *Guidance Report Putting Evidence to Work: A School's Guide To Implementation*. [online] Available at: https://d2tic4wvo1iusb.cloudfront.net/production/eeef-guidance-reports/implementation/EEF_Implementation_Guidance_Report_2019.pdf?v=1691121326. [Accessed: 1 August 2023].

²¹ Education Endowment Foundation (2019). *Guidance Report Putting Evidence to Work: A School's Guide To Implementation*. [online] Available at: https://d2tic4wvo1iusb.cloudfront.net/production/eeef-guidance-reports/implementation/EEF_Implementation_Guidance_Report_2019.pdf?v=1691121326. [Accessed: 1 August 2023].

²² Education Endowment Foundation (2019). *Guidance Report Putting Evidence to Work: A School's Guide To Implementation*. [online] Available at: https://d2tic4wvo1iusb.cloudfront.net/production/eeef-guidance-reports/implementation/EEF_Implementation_Guidance_Report_2019.pdf?v=1691121326. [Accessed: 1 August 2023].

CASE STUDY:

Developing an implementation plan

After our CEO established a clear direction for our five-year strategic plan, each of the four priorities was assigned to an executive team member to implement. It was crucial that each priority had a leader with decision-making authority, access to resources, and the commitment to drive each priority forward.

Personally invested in climate change, I took the lead on our climate change and sustainability priority. However, it soon became apparent that the topic was more complex than I had expected. I actively sought the necessary knowledge and connected with experts in the field to provide high-quality support to our schools.

Having worked with the Education Endowment Foundation (EEF) previously and experienced how their work was grounded in effective practice, I used their School's Guide to Implementation²² to help me navigate this complicated process of moving from an idea to action.

After spending months on the exploration stage, often feeling I should be making more progress and not faffing about, I was determined to continue working through the EEF's guidance to decide on the next steps for REAch2 Academy Trust's climate change and sustainability strategy. The problem was relatively easy to identify - our trust's awareness of climate change and sustainability was relatively low, but I wanted to make sure I had linked any new initiative to the needs of the children at REAch2 Academy Trust rather than trying to solve a global crisis, which was outwith my control. In the planning stage, the intervention description (the what) made me consider a small number of priorities which we could implement and which would have an impact.

The implementation plan took longer to develop than I had anticipated. Once I was satisfied with the draft, I initiated the process of sharing and gathering feedback. I believed it was crucial to listen to as many perspectives as possible. Therefore, I presented at the trust's Headteacher's Conference, engaged with smaller school groups, collaborated with REAch2 Academy Trust central team members, including the executive group, consulted with various experts from different organisations, and, of course, listened to as many pupils as I could. Although the feedback was generally positive, I made changes based on the insights I received. One significant adjustment was incorporating the Department for Education's proposals for sustainability leads and climate action plans within the trust's implementation plan, ensuring alignment with education policy.

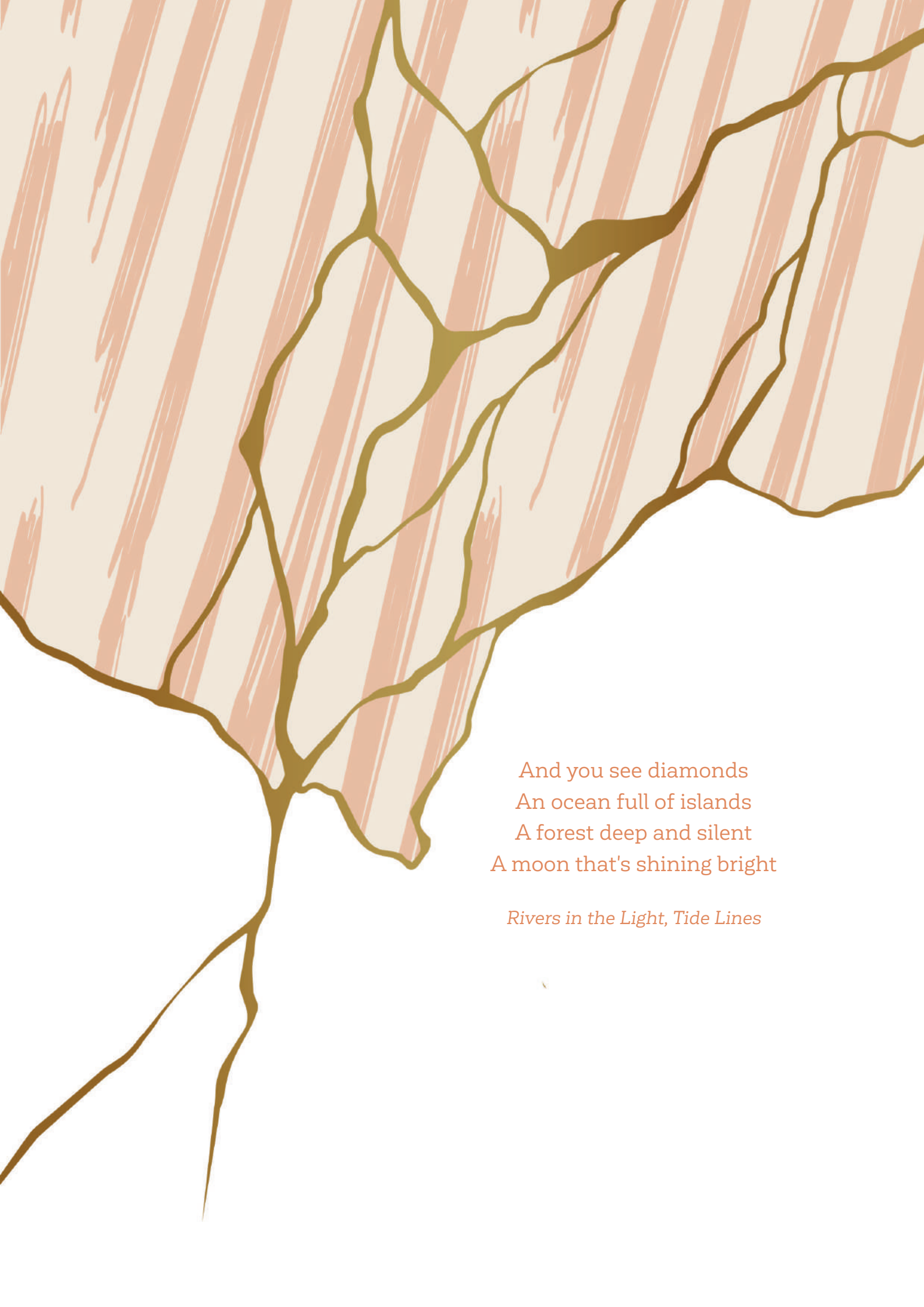
Since writing the implementation plan, the strategy has continued to develop and change as the EEF guidance suggested it would. We are in the process of working with a range of external partners and ten pilot schools on the details for each of the areas within the implementation plan. After nearly 18 months, we are still in the preparation and planning stage of implementation, but given the constraints on our resources and considering the readiness of our trust, schools and leaders appreciate that we are making sure that whatever is introduced into all 60 of our schools will have an impact on the lives of children.

**Tim Culpin, Head of Sustainability,
REAch2 Academy Trust**

In both of these case studies, the school leaders share their approach to implementation as an ongoing process, unfolding over time rather than a one-off event. They carefully examine the problems within their context, prioritise a high-quality culture for implementation through ongoing stakeholder engagement and communication, and consider phased implementation in line with staff readiness and available resources.

After nearly 18 months, both settings are still in the planning stages of implementation, continuously exploring why CCE is a priority and what positive impact this should have on children within their school community. This measured journey of change, like the philosophy of Kintsugi, acknowledges that effective implementation involves the skillful art of piecing together fragments to create something more resilient and meaningful for their school community over time.





And you see diamonds
An ocean full of islands
A forest deep and silent
A moon that's shining bright

Rivers in the Light, Tide Lines

CHAPTER 4

Unlocking knowledge: CAPE's approach to curriculum

Aligning climate change education (CCE) with the core purpose of education within a school urges educators to prioritise the why of CCE over the what²³.

If we want children and young people to know how the story of carbon is intricately woven through “diamonds, an ocean full of islands, a forest deep and silent, and a moon that’s shining bright” then it is critical that educators have a deep understanding of the key climate change concepts across their curriculum. This also requires teachers and school leaders to confront the dual nature of carbon – essential to all life on Earth and yet extremely harmful when human activities disrupt its fragile balance. In navigating the complex landscape of climate change as a temporal and spatial phenomenon, expert school leaders emerge as key facilitators in enabling an ambitious narrative of climate change to emerge more prominently within their curriculum.

CAPE's principles of curriculum for CCE

Responsibility for developing a high-quality curriculum for CCE rests with subject leaders and teachers, supported by school leaders, so building teacher expertise through effective professional development is critical. However, practical challenges like limited time, heavy teacher workload, and restricted access to quality professional development, often drives educators to resort to ‘off-the-shelf’ curricula or online resources. As such, the curriculum is analogous to a collection of identical bowls.

However, just as Kintsugi demands the careful examination of each fragment, curriculum making requires a nuanced understanding of individual pieces of knowledge. This approach involves the precise and deliberate curation of a carefully selected sequence of knowledge, using artistry and expertise to craft a curriculum that is both cohesive and meaningful.

Our mission at CAPE is to empower school leaders and teachers with the knowledge and skills required to establish a CCE provision that profoundly resonates with the needs of the children and young people in their specific context. Instinctively, educators may want to focus on a quick-fix knowledge delivery solution, however it is critical that teachers and school leaders carefully navigate the evidence about what makes high-quality CCE. This involves considering not only a robust curriculum framework but also the underpinning principles of the curriculum and the needs of children and young people. By doing so, educators can ensure a thoughtful and comprehensive approach to integrating CCE into the curriculum.

A curriculum framework for CCE acts as a structural guide, providing a solid foundation to develop a curriculum incorporating three interconnected mechanisms: knowledge²⁵, collective action²⁶ and self-regulation²⁷. To translate this framework into practice, school leaders and teachers should consider curriculum making through the lens of four key principles:

- A **coherent** curriculum is well-sequenced and interconnected.
- Being **authentic** prompts educators to actively consider the needs of children and young people, emphasising context and relevance.
- A **principled** curriculum encourages an ambitious stance, setting high standards for CCE that can be assessed.
- An **enriched** approach should be equitable, providing all children and young people the opportunity to see themselves within the curriculum.

From this perspective, the curriculum framework serves as a system of parts working together as a structural backbone, while the principles act as signposts, ensuring that the curriculum is not only comprehensive but also responsive to the needs of the school community.

CAPE's curriculum framework for CCE

Whilst knowledge²⁸ is a critical foundation in CCE, alone it is insufficient and with increasing levels of eco-anxiety being reported globally²⁹, children and young people should be supported through collective action. Evidence suggests that most impactful CCE includes a focus on localised issues, collaboration with community organisations and integrated action elements³⁰. Avoiding superficial action is important and school leaders should demonstrate a move away from solely focussing on activities such as recycling. Meaningful action should be explicitly linked to knowledge within the devised curriculum and could include:

1. Calculating the school's carbon footprint and collaborate with the school estates team to adapt the buildings and school grounds.
2. Implementing nature-based solutions for mitigating climate change.
3. Engaging in curriculum-linked enrichment activities with partners, such as an educational partnership with a wind farm.

Self-regulation is an important aspect of CCE that needs to be taught and planned. This mechanism arises from the need to address the escalating concerns related to eco-anxiety³¹ and a resurgence of a new type of climate denial. This denial often revolves around messaging that discredits climate solutions, questions the reliability of scientific approaches, and asserts that global warming poses no harm to society or the natural world³².

Structured metacognitive practice can help to support the resilience of children and young people in response to CCE. Explicitly taught coping strategies are a critical factor, encouraging pro-environmental behaviour and helping to mitigate eco-anxiety. This is closely linked with collective action and knowledge and can support children and young people to work through potential eco-anxiety³³ through a number of opportunities³⁴, including:

1. Giving space and time for children and young people to discuss their worries.
2. Discussing the range of emotions related to CCE.
3. Evoking constructive hope³⁵ and encouraging children and young people to do something outside the classroom that breaks with an environmentally unsustainable habit or norm.
4. Allowing children and young people time and space to consider probable, preferable, and possible futures.
5. Examining and enacting concrete pathways to a possible future and promoting agency.

Coherent curricula

Achieving curriculum coherence³⁶ involves thoughtful coordination and strategic organisation of climate change knowledge. This ensures that subject content is age-appropriate and suited to the developmental stage of children and young people. Designing logical and well-structured progression is crucial, aligning with elements like textbook content, assessments, teaching methods, and professional development opportunities for staff. Coherence, a multifaceted concept, encompasses clarity of learning goals, sequenced content for progression, and opportunities for developing in-depth knowledge and flexible application of that knowledge to real-world problems³⁷.

Importantly, a curriculum for CCE should be seamlessly integrated within the discipline of each subject, because every subject has its own substantive and disciplinary knowledge that contributes to a comprehensive understanding of a complex topic like climate change. This creates a climate-adapted curriculum through building on the existing curricula knowledge of subjects that have a direct relevance to climate change, such as Science, Geography, History, or Art.

A climate-adapted curriculum will:

- Tell a compelling story, captivating children and young people's attention and interest.
- Bring the knowledge and skills relevant to climate change to life, making them applicable in children and young people's own contexts.
- Serve as a navigational tool, guiding teachers, as well as children and young people, through the subject's knowledge and skills.
- Consider and address the potential barriers and misconceptions that children and young people may face along their learning journey.
- Align with and champion the school's educational purpose.

The intended and received curricula in school settings should be both ambitious and responsive, with CCE being no exception. In this case study, an executive leader provides insights into navigating the development of a coherent curriculum for climate change within their specific context.

²³ Biesta, G. (2009). Good education in an age of measurement: on the need to reconnect with the question of purpose in education. *Educational Assessment, Evaluation and Accountability*, 21(1).

²⁴ Greer, K., Sheldrake, R., Rushton, E., Kitson, A., Hargreaves, E., Walshe, N. (2023). *Teaching climate change and sustainability: A survey of teachers in England*. University College London. London, UK. Available at: www.ucl.ac.uk/ioe/departments-and-centres/centres/ucl-centre-climate-change-and-sustainability-education [Accessed: 1 August 2023].

²⁵ Arold, B. (2022). Evolution vs. Creationism in the Classroom: The Lasting Effects of Science Education. *SSRN Electronic Journal*. doi:<https://doi.org/10.2139/ssrn.4276838>.

²⁶ Ardoin, N.M., Bowers, A.W., Roth, N.W. and Holthuis, N. (2017). Environmental education and K-12 student outcomes: A review and analysis of research. *The Journal of Environmental Education*, 49(1), pp.1-17. doi:<https://doi.org/10.1080/00958964.2017.1366155>.

²⁷ Léger-Goodes, T., Malboeuf-Hurtubise, C., Mastine, T., Gagnéux, M., Paradis, P.-O. and Camden, C. (2022). Eco-anxiety in children: A scoping review of the mental health impacts of the awareness of climate change. *Frontiers in Psychology*, 13. doi:<https://doi.org/10.3389/fpsyg.2022.872544>.

²⁸ Arold, B. (2022). Evolution vs. Creationism in the Classroom: The Lasting Effects of Science Education. *SSRN Electronic Journal*. doi:<https://doi.org/10.2139/ssrn.4276838>.

²⁹ Léger-Goodes, T., Malboeuf-Hurtubise, C., Mastine, T., Gagnéux, M., Paradis, P.-O. and Camden, C. (2022). Eco-anxiety in children: A scoping review of the mental health impacts of the awareness of climate change. *Frontiers in Psychology*, 13. doi:<https://doi.org/10.3389/fpsyg.2022.872544>.

CASE STUDY:

Considering curriculum coherence

CCE at Avanti Schools Trust is in alignment with one of our core principles:

'We care for and respect all life – human, animal and plant – and live in a way that causes the least possible harm.'

This principle is one of six that wrap around our mission as a trust to help our school-wide community become well-rounded human beings through intellectual, moral, and spiritual growth, and so make the world a better place. This purpose lent itself perfectly to the development of a CCE curriculum, which we have started to integrate into our existing curricular offer in our primary phase, in the first instance. In order to begin this exciting body of work, there were two key foci:

- Finding a way to meaningfully integrate the curriculum into our existing offer so that it wasn't an additional 'thing to do' but rather an important and consistent feature of learning.
- Ensuring that the curriculum itself was designed in a way that prioritised key knowledge, was coherent, cumulative and was rooted in a reliable evidence base.

The first focus involved crafting curriculum principles with senior leaders across our schools and deciding on the key 'golden threads' of our curriculum. This process allowed us to co-construct principles that would help shape our developing and evolving curriculum, by prioritising key areas. One of the seven principles was to be 'purposeful' – that pupils' learning allowed them to serve a purpose, to give back to society and to become an assured global citizen. This then paved the way for the introduction of the climate and environmental education curriculum and offered it a place in the wider context of the offer.

The second focus involved designing a year 5 and year 6 curriculum, which we did through the support and expertise of CAPE. By working closely with CAPE, we were signposted to relevant research, encouraged to consider the key implications for curriculum design and were provided with valuable feedback that shaped the different iterations of the curriculum we designed.

Meaningful and rich ongoing dialogue with CAPE led to important and deep thinking about the structure and the key concepts of our curriculum. For example, when do we introduce the idea of 'carbon' into the curriculum? Through this process, it became clear that one of the things we needed to ensure investment in was professional learning and support for teachers and leaders delivering the programme.

**Lekha Sharma, School Improvement Lead (Curriculum and Assessment),
Avanti Schools Trust**

This case study showcases the practical application of this coherence principle within Avanti Schools Trust, where integration into the wider curriculum involves careful consideration of key knowledge, alignment with the trust's core principles and professional dialogue across the trust to build expertise.

³⁰ Ardoin, N.M., Bowers, A.W., Roth, N.W. and Holthuis, N. (2017). Environmental education and K-12 student outcomes: A review and analysis of research. *The Journal of Environmental Education*, 49(1), pp.1–17. [doi:https://doi.org/10.1080/00958964.2017.1366155](https://doi.org/10.1080/00958964.2017.1366155).

³¹ Léger-Goodes, T., Malboeuf-Hurtubise, C., Mastine, T., Gagnéux, M., Paradis, P.-O. and Camden, C. (2022). Eco-anxiety in children: A scoping review of the mental health impacts of the awareness of climate change. *Frontiers in Psychology*, 13. [doi:https://doi.org/10.3389/fpsyg.2022.872544](https://doi.org/10.3389/fpsyg.2022.872544).

Authentic curricula

An authentic curriculum must acknowledge the diverse backgrounds and contexts of children and young people, explicitly considering local opportunities, climate change threats, adaptations, mitigations, and eco-anxiety. Inclusion³⁸ should be at the heart of this work. Involving children and young people in curriculum making and understanding their voice and active participation in the creation of formal and extended curriculum is critical³⁹. Through this approach, educators can develop a curriculum that truly reflects the needs of children and young people and empowers them to engage with the complexities and challenges presented by climate change.

Authenticity in the curriculum enables educators to consider whether they have forced climate change content into their curriculum or adopted an off-the-shelf curriculum resource that is misaligned with the coherence principle. It involves understanding the unique context of a school setting and the starting points and needs of the school community. By laying the curricula lens over the context of the school, educators can ensure that it resonates with the lived experiences of children and young people, making it relevant and engaging.

The curriculum content should be determined first, and then appropriate resources can be sought to support it, rather than being a resource-driven approach which can dilute the ambitious intent a teacher or school leader may have of their curriculum in relation to CCE.

Principled curricula

The development of curricula for CCE should ensure high expectations for all children and young people to cultivate their knowledge, skills, and understanding to the greatest possible level. By setting ambitious standards, which align to the school's own academic aspirations and policies, children and young people should be encouraged to develop a comprehensive understanding of climate change that is deeply rooted within a subject discipline.

Aligning assessment with the curriculum ensures that it accurately reflects the learning goals and provides meaningful insights into children and young people's achievements which can be used to inform teaching and learning effectively. It's crucial to recognise that the curriculum should not be developed as a platform for activism.

The primary focus within a school should be on promoting a deeper understanding of climate change. This entails providing children and young people with a comprehensive and knowledge-rich understanding that includes the causes, impacts, and potential solutions of climate change. This inclusive approach ensures that all children and young people within a setting gain a meaningful and thorough grasp of climate change from within a subject's discipline. In contemplating what a principled curriculum looks like, a headteacher reflects on developing the focus of CCE within their school.

³² Center for Countering Digital Hate. (2024). *The New Climate Denial. How Social Media Platforms and Content Producers Profit By Spreading New Forms of Climate Denial*. Available at: https://counterhate.com/wp-content/uploads/2024/01/CCDH-The-New-Climate-Denial_FINAL.pdf. [Accessed 21 January 2024].

³³ Ojala, M. and Bengtsson, H. (2018). Young People's Coping Strategies Concerning Climate Change: Relations to Perceived Communication With Parents and Friends and Pro-environmental Behaviour. *Environment and Behaviour*, 51(8), p.001391651876389. doi:<https://doi.org/10.1177/0013916518763894>.

³⁴ Ojala, Maria. (2017). Facing Anxiety in Climate Change Education: From Therapeutic Practice to Hopeful Transgressive Learning. *Canadian Journal of Environmental Education*. 21. 41-56.

CASE STUDY:

A principled curriculum

It is a given that a great curriculum promotes social justice and helps grow informed and curious citizens who have the resilience and moral character to be successful and to make a meaningful contribution to society. As educators we have the responsibility to teach a high-quality academic curriculum which focuses on subject-specific and interconnected skills, knowledge and vocabulary within the framework of the national curriculum. We also have the responsibility to teach a moral curriculum which explores with children their rights and responsibilities both as individuals and collectively (a curriculum must be principled).

Curriculum change does not and should not happen overnight, nor is a curriculum ever finished. Curriculum adaptation must be carefully considered. We have spent a great deal of time crafting our curriculum at our school to ensure that it is right for our children, to ensure that it is robust and well-sequenced, with clear progression (coherent and authentic) and that, just as importantly, personal development is at its heart. It is a bespoke and ambitious curriculum, and while we take the 'best bits' of some trust and commercially available schemes, it is also heavily adapted with our children and their context in mind.

Applying CAPE's principles of curriculum design alongside the learning from the Climate Wise Schools programme, we will take the same considered approach when embedding meaningful CCE. Participating in Climate Wise Schools has given me the knowledge, time and thinking space to really consider how we establish a whole school climate and culture of robust CCE. This will be done in two ways:

1. By adapting specific units, looking at subject-specific skills and curriculum connectivity within and across subjects.
2. By applying the lens of CCE across broader curriculum approaches which champion pupil voice, such as Votes for Schools and Philosophy 4 Children. This will then give us opportunities to encourage children as educators in their own homes, with their immediate and extended families, and in their wider community.

For us it is not about radical change and reinventing the curriculum, but about finding opportunities to enhance our curriculum through a meaningful focus on CCE. The question is not if we should integrate high-quality CCE across our curriculum but why we haven't done it sooner? For us, it is a curriculum entitlement not a tokenistic or optional extra.

Once we have embedded CCE, we then need to ensure that we keep our curriculum under review and take deliberate action to build in regular opportunities to ask ourselves and the school community some key questions:

- Is our curriculum right for our children?
- Does it give them what they need?
- Does it give them what they deserve?
- Is it a curriculum of hope?

It is widely accepted that education has intrinsic value as part of a civilised society so we must ask ourselves, how can we claim to be part of a civilised society if we are not taking responsibility for it and protecting it? If our ultimate goal is to help grow moral citizens who can continue to appreciate the many 'diamonds' our world has to offer, we need to give them the knowledge, skills and power to look after their world, to be able to make a difference, to be part of the solution. We owe it to them.

**Cathy Leicester, Headteacher,
Dorothy Barley Junior Academy**

Enriched curricula

CCE must not simply be developed as a sequence of 'add on' enrichment activities for children and young people and research identifies that these approaches can disadvantage children from poorer backgrounds⁴⁰. Where CCE is only covered through additional enrichment, this further exacerbates inequality and denies disadvantaged children access to this essential entitlement.

The "cafeteria of experience"⁴¹ refers to the variety of learning opportunities available to children and young people and studies show disadvantaged students often lack access to a diversity of rich learning experiences and resources. An enriched curriculum should offer children windows and mirrors⁴² as ways of seeing themselves within this curriculum, supported by inclusive behaviours and actions, which enable them to recognise the part they have to play in creating the solutions for climate change.

We know from multiple studies that barriers such as lack of parental involvement, limited educational resources, poor school quality, health/nutrition issues, and home instability hinder disadvantaged children and young children from high attainment⁴³. Enrichment strategies, as demonstrated by the case study from the City of London Corporation, should aim to support those who are more disadvantaged to overcome barriers to access and provide equitable opportunities to nurture their learning and growth⁴⁴.

³⁵ Ratinen, I. (2021). Students' Knowledge of Climate Change, Mitigation and Adaptation in the Context of Constructive Hope. *Education Sciences*, 11(3), p.103. doi:<https://doi.org/10.3390/educsci11030103>.

³⁶ Cambridge University Press & Assessment. (2021). *Is curriculum coherence a fundamental characteristic of high-performing education systems?* [online] Available at: <https://www.cambridge.org/news-and-insights/insights/curriculum-coherence#:~:text=Curriculum%20coherence%20refers%20to%20aligning> [Accessed 18 Jun. 2023].

³⁷ American Federation of Teachers. (2023). *Ask the Cognitive Scientist: Inflexible Knowledge: The First Step to Expertise*. [online] Available at: <https://aft.org/ae/winter2002/willingham>. [Accessed 22 Nov. 2023].

³⁸ Ainscow, M. (2020) Promoting inclusion and equity in education: lessons from international experience. *Nordic Journal of Studies In Educational Policy*, Vol. 6 (1), 7–16 <https://doi.org/10.1080/20020317.2020.1729587>.

³⁹ Fiorella, L. (2020). The science of habit and its implications for student learning and well-being. *Educational Psychology Review*, 32, pp.603–625. doi:<https://doi.org/10.1007/s10648-020-09525-1>.

⁴⁰ Pert, K. (2017). *Enhancing resilience among disadvantaged children through universal social and emotional learning*. [online] Available at: https://pure.manchester.ac.uk/ws/portalfiles/portal/84031525/FULL_TEXT.PDF. [Accessed 20 November 2023].

⁴¹ Wal, J. (2018) How the "Cafeteria of Experience" Impacts Our Development. (online). *Psychology Today*. [Accessed: 18 November 2022].

⁴² Style, E. (1996) Curriculum As Window and Mirror. *Social Science Record*, Fall, 1996. In: *Listening for All Voices*, Oak Knoll School monograph, Summit, NJ, 1988.

⁴³ John-Akinola, Y.O., Nic-Gabhainn, S. Children's participation in school: a cross-sectional study of the relationship between school environments, participation and health and well-being outcomes. *BMC Public Health* 14, 964 (2014). <https://doi.org/10.1186/1471-2458-14-964>.

⁴⁴ Kim, M. (2016). A Meta-Analysis of the Effects of Enrichment Programs on Gifted Students. *Gifted Child Quarterly*, 60(2), 102–116. <https://doi.org/10.1177/0016986216630607>.

CASE STUDY:

How an outdoor learning programme contributes to an enriched curriculum

At a time of increasing concern over the climate crisis, outdoor learning has a vital role to play in building nature connection, setting the foundations for pro-environmental attitudes and behaviours and motivating children and young people to protect the planet. There is a great body of research that highlights that developing a connection with nature correlates with pro-environmental attitudes and behaviours⁴⁵. Within the City of London Corporation Environment Learning Team, we have been working to develop this connection with school, play and youth participants in our learning programmes at Hampstead Heath, Epping Forest and West Ham Park.

Drawing on research and associated resources⁴⁶ and programme evaluation⁴⁷, we have introduced approaches to help build nature connection. Taking time to explore in nature, engage the emotions and use the senses to deepen and enrich the experience of nature are woven through activities such as using the senses to explore natural materials, finding joy and surprise in exploring habitats, and finding beauty in nature when creating art from natural materials or listening to bird song. This work sits alongside other benefits, including opportunities to apply knowledge from the classroom in a different context, develop a sense of purpose or make a difference within the local environment.

We have monitored our impact by tracking increasing feelings of nature connection. With many children and young people, this can be from a difficult starting point. Recent studies have exposed the inequality⁴⁸ across society of access to natural spaces⁴⁹. Research has also highlighted the barriers and constraints prohibiting children and young people from enjoying these natural spaces⁵⁰. Fear, culture, accessibility, discomfort and perceptions all play a part. "Every time a jogger comes up behind me, I think I'm gonna get jumped," said a tall 16-year-old boy from one Pupil Referral Unit, when we'd noticed him flinching nervously on Hampstead Heath. Many others have expressed the view that natural spaces are full of vicious beasts and dangerous weirdos.

This makes it all the more important for them to visit and revisit these places, and for us to provide adequate time and space for them to enjoy it. This is a central aim in our youth programme sessions. Most youth sessions at Hampstead Heath, for example, involve a walk to the top of Parliament Hill, where young people can sit and gaze at a panoramic view of London and maybe fly kites or throw boomerangs – activities that require focus and an awareness of environmental conditions, but which can also promote a certain mindfulness and peace.

Food and fire are also tried and trusted activities to help nurture the roots of nature connection; very few don't enjoy sitting round a campfire, perhaps making hot drinks or roasting marshmallows. These moments are more about being than doing, but for young people whose lives may be chaotic, noisy and unimaginably challenging, they provide a sanctuary, a place for peace, contemplation and learning.

**Nick White, Learning Officer for Youth and Abigail Tinkler, Head of Learning,
City of London Corporation**

This case study highlights the complexity of barriers faced by disadvantaged children and young people. In developing an enriched curriculum, it's crucial for education settings not to work in isolation. Establishing long-term relationships with external partners enhances experiences and enriches CCE. Collaborating with external partners allows schools to forge meaningful connections and access valuable resources, knowledge, and expertise that align with the curriculum's focus. These partnerships offer real-world connections, enhancing the authenticity and practicality of the CCE curriculum, emphasising that while knowledge is critical, it's not the sole consideration.

A high-quality curriculum for CCE should be anchored in a well-structured framework and guided by a set of principles. Ultimately, a curriculum founded on these pillars should empower all children and young people to understand and value the intricate beauty and essential functionality of our forests, oceans, and rivers. It extends beyond the classroom, equipping individuals with the knowledge and resilience to contribute meaningfully to society and protect the environment for future generations.

⁴⁵ Mackay, C. M. L., & Schmitt, M. T. (2019). Do people who feel connected to nature do more to protect it? A meta-analysis. *Journal of Environmental Psychology*, 65, Article 101323. <https://doi.org/10.1016/j.jenvp.2019.101323>.

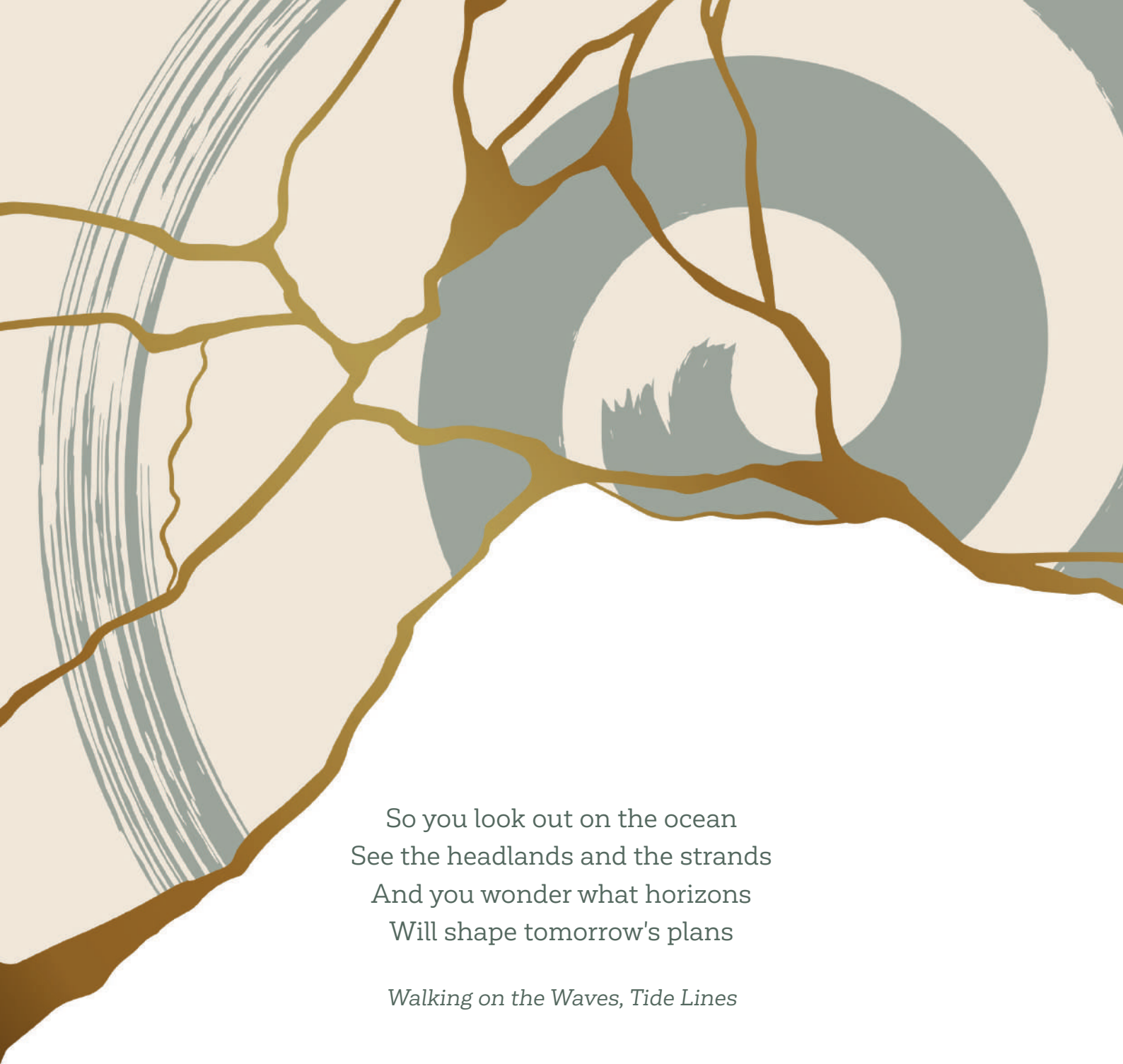
⁴⁶ *The Nature Connection Handbook A guide for increasing people's connection with nature*. (2022). Available at: <https://findingnatureblog.files.wordpress.com/2022/04/the-nature-connection-handbook.pdf>. [Accessed 17 November 2023].

⁴⁷ Garip, G., Richardson, M., Tinkler, A., Glover, S. & Rees, A. (2021) Development and implementation of evaluation resources for a green outdoor educational program, *The Journal of Environmental Education*, 52:1, 25-39, [DOI: 10.1080/00958964.2020.1845588](https://doi.org/10.1080/00958964.2020.1845588).

⁴⁸ GOV.UK. (2020). *Survey reveals inequality in children spending time outside during pandemic*. [online] Available at: <https://www.gov.uk/government/news/survey-reveals-inequality-in-children-spending-time-outside-during-pandemic>. [Accessed 06 November 2023].

⁴⁹ Garip, G., Richardson, M., Tinkler, A., Glover, S. & Rees, A. (2021) Development and implementation of evaluation resources for a green outdoor educational program, *The Journal of Environmental Education*, 52:1, 25-39, [DOI: 10.1080/00958964.2020.1845588](https://doi.org/10.1080/00958964.2020.1845588).

⁵⁰ Holland, F. (2021). *Out of Bounds Equity in Access to Urban Nature*. [online] Available at: <https://www.groundwork.org.uk/wp-content/uploads/2021/05/Out-of-Bounds-equity-in-access-to-urban-nature.pdf>. [Accessed 17 November 2023].



So you look out on the ocean
See the headlands and the strands
And you wonder what horizons
Will shape tomorrow's plans

Walking on the Waves, Tide Lines

CHAPTER 5

Empowering educators: The urgency of high-quality professional development

In response to the climate crisis, there is a clear need for effective and high-quality professional development for climate change education (CCE) in schools, as reports from teachers and school leaders highlight capacity struggles and the need for high-quality support⁵¹. Simultaneously, young people are vocal about their demand for both relevant and impactful CCE⁵².

Despite this, there is a notable absence of an evidence base for effective professional development in CCE to support schools. The implementation of CCE requires educators to consider the delicate balance between delivering a high-quality curriculum and ensuring the wellbeing of children and young people. Mitigating eco-anxiety is critical⁵³, given a UK-wide survey indicating that the environment is one of the issues most concerning to them⁵⁴. In navigating these challenges, professional development is not solely about addressing current needs but also about equipping school leaders and teachers with the knowledge and expertise to adapt and plan for the rapidly evolving nature of climate change.

CAPE's evidence-informed approach to professional development

We prioritise an evidence-informed approach to professional development for CCE. Professional development, as defined by the Education Endowment Foundation (EEF)⁵⁵, is a structured and facilitated activity aimed at enhancing teaching or leadership ability. We advocate for a focus on developing both teaching and leadership abilities through CCE professional development programmes, distinguishing them from brief, tokenistic training sessions in schools that have little long-term impact on teachers or children and young people.

Given the significant workload challenges faced by educators, we assert that there is an ethical imperative for organisations offering CCE professional development to design programmes centred on the mechanisms of effective professional development⁵⁶. These mechanisms, categorised into building knowledge, motivating staff, developing teaching techniques, and embedding practice, should form the core of professional development initiatives for CCE.

It is also crucial that we consider the research indicating that programmes exclusively centred on climate change content may not result in improved outcomes for children and young people in CCE. Evidence highlights⁵⁷ that the limited duration of most subject development sessions poses a challenge, as teachers may not gain enough subject matter knowledge to make a significant impact on their teaching. Additionally, a sole focus on building knowledge may not adequately support teachers in their day-to-day practices. Challenges also emerge in translating professional development content into existing curriculum materials, particularly when teachers and school leaders encounter conflicting representations of the new practice.

To effectively navigate these challenges, it is important to understand the needs of educators in schools. Evidence suggests⁵⁸ that effective professional development for CCE should centre on subject-rich instructional practices as well as providing direct support to teachers and school leaders through activities such as coaching, ongoing sensemaking, and deliberate practice. Responding to these insights, our approach involves close collaboration with schools, school trusts, and federations, aligning professional development delivery with the needs of teachers and school leaders.

To illustrate our commitment, the following case study from an expert school leader serves as a practical lens, sharing the real-world challenges and priorities faced by educators in schools. By recognising and incorporating this feedback, we are able to better tailor our professional development programmes to address the nuanced requirements of educational leaders, ensuring a responsive and impactful approach.

CASE STUDY:

Co-constructing professional development with educators

Professional development is crucial for the successful implementation of CCE – it doesn't happen by chance. Thoughtful and informed consideration is required, assessing the readiness of individuals, the presence of conducive conditions, effective leadership, and motivation. Resource assessment is also vital – ensuring sufficient information is gathered upfront for informed decision-making. Constantly addressing barriers is essential for positive progress in relation to implementing CCE.

Within our trust, we've established a platform for meaningful professional dialogue, including a Green Futures Board, representing associate staff, teachers, and leaders, supported by external environmental education organisations. Several school leaders and subject staff from our schools also participate in CAPE's professional development programme, elevating us from a strong starting point to a more secure position. The guiding principle for me is the recognition that continuous professional development is essential, regardless of your starting point. This necessity becomes more apparent as our understanding of climate change and biodiversity loss deepens, emphasising the importance of reflecting deeply about how we effectively engage children and young people in this complex topic.

**Liz Woolley, Physics teacher,
Northern Star Academies Trust**

The Climate Wise Schools Professional Development Programme

CAPE's professional development programme, Climate Wise Schools, was designed as a response to the demand by school leaders and teachers. This evidence-informed, six-month programme is strategically aligned with the Department for Education's National Professional Qualification (NPQ) leadership frameworks⁵⁹ and the EEF's guidance on professional development⁶⁰.

It features two distinct pathways for school leaders (executive leaders, headteachers, and senior leaders) and subject leaders. For the first time, this groundbreaking programme also enables collaboration between operational and educational leaders within school settings, emphasising the integral connection between curriculum alignment and efforts to decarbonise the school estate.

The purpose of the Climate Wise Schools programme is to build collective operational climate literacy⁶¹ among school and subject leaders, so that they can create a culture where whole-school communities routinely assess the impact of CCE, synthesise information on climate change, and implement environmentally sustainable practices. This case study from a participant on the Climate Wise Schools programme examines a school leader's experiences, demonstrating the tangible benefits of an evidence-informed approach.

CASE STUDY:

The impact of high-quality and evidence-informed CCE

CCE addresses a gap that I wasn't even aware we were missing. What other priorities do we have as school leaders that could be more important than understanding the danger our planet is in? I came to CAPE as an experienced senior leader, with over a decade of leadership experience, but I was a novice when it came to climate change and I have been transformed by the foundational knowledge and expertise that CAPE has provided me with.

The crucial element for me is that knowledge is only half of the story. CAPE is clear in its mission that this is about using knowledge and taking action to make a difference. That means something different for each of us and I have felt challenged, both intellectually and emotionally, to find the right pathway for my context. The ongoing conversation about application and implementation has been supported through regular sensemaking clinics and critical friendships in a psychologically safe forum. I have not been afraid to talk about my experiences of eco-anxiety or the fear that I might make the wrong step when so much is at stake. In fact, in each session, experts share their reasons for constructive hope which have been both powerful and humbling.

The Climate Wise Schools professional development programme has been expertly curated to provide a range of evidence and resources to engage with through the lens of critical thinking. Perspectives are discussed and viewpoints evaluated; nuances are explored and contradictions appreciated. The process of sensemaking is privileged. The subject matter is complex and our discussions are honest and sometimes emotional. We have been given permission to be vulnerable and human in our responses.

Alignment to the NPQ framework has been helpful because it demonstrates how we can implement this work alongside other school priorities in our day-to-day work. By looking at curriculum, professional development and implementation, we have been able to imagine how this work can figure in our strategic plans, making them robust and sustainable. In particular, the range of stories and case studies, which offer a window into the exemplary practice already in place in other contexts, have been highly influential. I feel empowered to see school leaders like me doing extraordinary things in their schools. I also feel a connection to their work and a sense that we can move forward together as climate change educators.

**Esther Gray, Vice Principal,
The Ferrers School**

⁵¹ Greer, K., Sheldrake, R., Rushton, E., Kitson, A., Hargreaves, E., Walshe, N. (2023). *Teaching climate change and sustainability: A survey of teachers in England*. University College London, London, UK. Available at: www.ucl.ac.uk/ioe/departments-and-centres/centres/ucl-centre-climate-change-and-sustainability-education. [Accessed: 1 August 2023].

⁵² British Science Association and the University of Plymouth. (2023). *Climate Change in Secondary Schools: Young People's Views of Climate Change Education*. *Future Forum*. Available at: <https://www.britishsociety.org/Handlers/Download.ashx?IDMF=68f84964-bf1e-4bfb-8205-444705d9678a>. [Accessed 1 August 2023].

⁵³ Léger-Goodes, T., Malboeuf-Hurtubise, C., Mastine, T., Gagnéux, M., Paradis, P.-O. and Camden, C. (2022). Eco-anxiety in children: A scoping review of the mental health impacts of the awareness of climate change. *Frontiers in Psychology*, 13. doi:<https://doi.org/10.3389/fpsyg.2022.872544>.

Effective professional development for CCE demands an evidence-informed approach to planning. Insights from our Climate Wise Schools programme offer three key recommendations for school leaders and teachers when considering their own professional learning:

- Professional development should be informed by high-quality research, steering away from content influenced by the media or high-profile personalities. By adopting this evidence-informed approach, educators can align their instructional content with the latest and most reliable findings, mitigating the impact of personal or media bias and ensuring a more impartial educational framework for children and young people.
- It is critical that school leaders monitor the impact of professional development on improvements to the school estate, local environment, and the quality of CCE for children and young people.
- School leaders are encouraged to be critical consumers, reflecting on the relevance and impact of CCE professional development in their setting. This evaluation is essential for aligning the specific context and priorities of the school setting with the implemented programme.

⁵⁴ The Children's Society. (2023). *The Good Childhood Report 2023*. Available at <https://www.childrenssociety.org.uk/sites/default/files/2023-09/The%20Good%20Childhood%20Report%202023.pdf>. [Accessed: 1 November 2023].

⁵⁵ Education Endowment Foundation. (2021). *Guidance Report Effective Professional Development*. Available at: <https://d2tic4wvo1iusb.cloudfront.net/production/eef-guidance-reports/effective-professional-development/EEF-Effective-Professional-Development-Guidance-Report.pdf?v=1696585366>. [Accessed: 1 October 2023].

⁵⁶ Education Endowment Foundation. (2021). *Guidance Report Effective Professional Development*. Available at: <https://d2tic4wvo1iusb.cloudfront.net/production/eef-guidance-reports/effective-professional-development/EEF-Effective-Professional-Development-Guidance-Report.pdf?v=1696585366>. [Accessed: 1 October 2023].

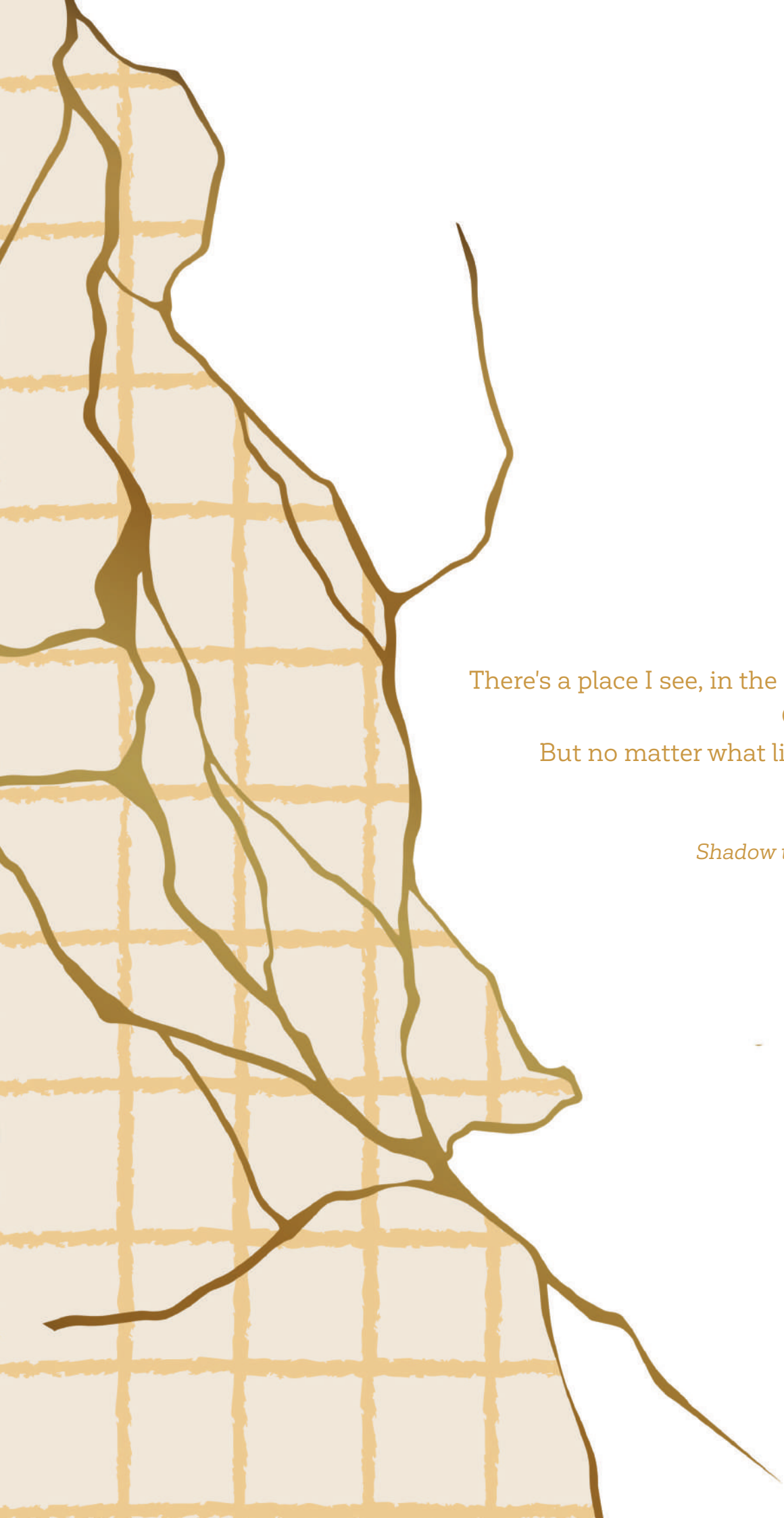
⁵⁷ Hill, H. and Papay, J. (2022). *Building Better Professional Learning: How to Strengthen Teacher Learning Determining What Works In Teacher Professional Learning*. [online] Available at: <https://annenberg.brown.edu/sites/default/files/rppl-building-better-pl.pdf>. [Accessed: 1 October 2023].

⁵⁸ Hill, H. and Papay, J. (2022). *Building Better Professional Learning: How to Strengthen Teacher Learning Determining What Works In Teacher Professional Learning*. [online] Available at: <https://annenberg.brown.edu/sites/default/files/rppl-building-better-pl.pdf>. [Accessed: 1 October 2023].

⁵⁹ GOV.UK. (2020.). *National professional qualifications frameworks: from September 2021*. [online] Available at: <https://www.gov.uk/government/publications/national-professional-qualifications-frameworks-from-september-2021>. [Accessed: 10 November 2023].

⁶⁰ Education Endowment Foundation. (2021). *Guidance Report Effective Professional Development*. Available at: <https://d2tic4wvo1iusb.cloudfront.net/production/eef-guidance-reports/effective-professional-development/EEF-Effective-Professional-Development-Guidance-Report.pdf?v=1696585366>. [Accessed: 1 October 2023].

⁶¹ Bey, G., McDougall C. and Schoedinger, S. (2020). *Report on the NOAA Office of Education Environmental Literacy Program Community Resilience Education Theory of Change. National Oceanic and Atmospheric Administration*. [online] Available at: https://www.noaa.gov/sites/default/files/legacy/document/2021/Feb/ELP_ToC_Report.pdf. [Accessed: 10 November 2023].

A stylized illustration of a tree branch, rendered in dark brown outlines, extends from the left edge of the page towards the center. The branch has several smaller, thinner branches extending from it. To the left of the branch, there is a vertical rectangular area filled with a light beige plaid pattern, consisting of thin, hand-drawn lines in a slightly darker beige color. The rest of the page is plain white.

There's a place I see, in the all-too-distant light
Of the sun and rain
But no matter what lies ahead of us now
We will be okay

Shadow to the Light, Tide Lines

CHAPTER 6

Charting the way forward: The future of climate change education

There is no denying the importance of educating our children and young people about climate change, understanding its root causes, exploring possible mitigation options, considering necessary adaptation measures, and encouraging much-needed innovation. This is crucial to meet the government's targets for Net Zero by 2050 and to safeguard our home and resources for future generations to thrive.

While developing expertise within schools is crucial for sustaining CCE, it is also imperative to share perspectives from sectors outside of education to gain a comprehensive understanding of the rapidly evolving world of work. In this chapter, CAPE patron Adam Read outlines his hopes for the future of education, business, and industry working collaboratively to address the challenges of mitigating climate change in this swiftly evolving landscape.

Understanding the urgency of CCE

While 2050 might seem distant, failing to implement and embed high-quality CCE into all schools within the next five years could result in the loss of a generation of decision makers, consumers, change agents, regulators, policymakers, and entrepreneurs from the industries that need them most. This loss would be particularly critical in the decisive 2030 to 2040 decade when our efforts are most needed. The damage to society from this failure could be irrecoverable.

This is why it is imperative for everyone involved in schools, colleges, and universities to embrace the rapid transition we face. This includes adopting high-quality curricula, hosting expert speakers, decarbonising the school estate, arranging site visits, and exploring technological innovation through participation in 'real-world' projects. The ultimate shared goal of our collective efforts is to inspire, equip, and prepare children and young people to enter the world of work across a range of industry sectors to effectively address the impending risks posed by climate change.

The art of Kintsugi, particularly in mending what we might consider broken, echoes loudly throughout this report. This perspective resonates with my role in leading the resource management sector and its significant evolution. Initially focused on waste collection and landfill disposal for two decades, we evolved into a sector that embraced diverse material collection, recycling, composting, and energy recovery to mitigate reliance on landfill and address global warming. This transformation not only generated new employment opportunities but also sparked a substantial demand for new skills.

Developing an educated, resilient workforce

Some 20 years later, we find ourselves in transition once again, this time towards a low-carbon, more resource-efficient, and circular economy. This shift demands a doubling of the workforce in our sector, a focus on localising opportunities within communities to minimise transportation impacts, and the acquisition of a myriad of new knowledge, skills, competences, and capabilities. These include expertise in repair, refill, reuse, upholstery, material substitution, eco-design, chemical processing, anaerobic digestion, behaviour change, regulation, policy development, and the exploration of new collection and harvesting models.

The vast opportunities ahead means that we need a strategic approach between industry, education and training needs in the short and medium term. This is precisely why I am collaborating closely with CAPE, the Chartered Institution of Wastes Management, the UK Government's Green Jobs Delivery Group, and partners such as the Green Alliance, Business In The Community, the Institute of Environmental Management and Assessment, and Aldersgate Group. Together, we are mapping out industry demands and ensuring the necessary support is in place to meet these needs effectively.

The resource management sector, among several others undergoing comparable transitions, faces an unprecedented demand for education, engagement and training. This need is unparalleled in recent history, not since the end of the Second World War have we had to mobilise a workforce in such a manner. However, the challenges of today are complex, complicated and interconnected. Spanning transportation, power generation, agriculture, manufacturing, and more, the needs of business and industry are vast. Coordinated leadership is vital, aligning opportunities, development and a progressive approach with the needs of children and young people through evidence-informed strategies for 2030 and beyond is a mission I am committed to.

Collaborating with industry to enrich education

The significant workload in schools is a major concern. It's crucial for educators to recognise that the solutions to climate change are complex and a collective problem requiring collaboration. Industry has valuable contributions to make, offering real data, case studies, expert speakers, work placements, internships, and apprenticeships.

We must collaborate to enhance the appeal of key sectors to today's children and young people and cultivating their interest early is crucial for them to make informed decisions about the array of high-quality options, qualifications and opportunities that exist in sectors such as mine.

Through dialogue among industry, academia, and education, we can create new curricula and learning opportunities to equip future professionals to be climate change advocates. Whether as chemical recyclers, green designers, or environmental regulators, these subtle superheroes can meet society's demands for Net Zero, biodiversity gain, and resource efficiency.

Our planet continues to undergo rapid transformation due to human-induced climate change, presenting challenges that demand an intensified, collective response. As we confront what lies ahead, hesitation becomes a luxury we cannot afford. With unwavering hope, swift and decisive action is imperative – the clock is ticking to secure a future for our next generation.

**Adam Read, Chief Sustainability and External Affairs Officer,
SUEZ recycling and recovery UK**

And we'll raise a toast tonight
To the dreams we never lost tonight
In your eyes I see the morning
As it burns across the sky, burns across the sky

The Dreams We Never Lost, Tide Lines



CHAPTER 7

Collective action: Catalysing change through collaborative next steps in climate change education

The implementation of climate change education (CCE) within school settings will never be a straightforward or an easy process. There will be missteps and lessons learned along the way, but as with Kintsugi, our shared insights will ultimately make the final outcome stronger. The clear message that our children and young people need to hear is one of constructive hope, which must emerge through the stories we tell within our curriculum and through our teaching practice for CCE. Our dreams for a healthy planet must not be lost and, in the face of a global challenge, we must remain committed to being ambitious for the quality of CCE if we are to effectively equip children and young people for the future.

In alignment with our shared mission to lead a culture of constructive hope, CAPE provides a set of clear recommendations for school leaders, policymakers, and organisations at the forefront of CCE. These actionable steps prioritise the delivery of high-quality and evidence-informed CCE in schools and include:

Prioritising a systematic approach: Effective CCE demands prioritising a systematic approach across implementation, curriculum, and professional development. School leadership teams should focus on long-term implementation planning, provide high-quality professional development for staff, and adapt the curriculum through engagement with high-quality research.

Leading a high-quality school culture: CCE must align seamlessly with the school's purpose and values, weaving it into the fabric of a school's overall educational aims and ethos. This integration should permeate school policies, wider operations, and teaching practices, creating a culture where protecting the planet becomes an intrinsic component of school life.

Integrating ambitious curriculum content across subjects: The integration of ambitious content knowledge about climate change into distinct subject disciplines demands curricular expertise among all teachers across multiple subjects. This approach ensures a cohesive and comprehensive CCE provision, where each subject contributes meaningfully to the understanding of climate change.

Ensuring universal access to high-quality CCE: Every child and young person, regardless of background, should have equitable access to high-quality CCE. Learning about climate change must not be exclusive to advantaged children. The implementation of CCE should explicitly consider equity and inclusion, ensuring that all children and young people are equipped with this essential educational entitlement.

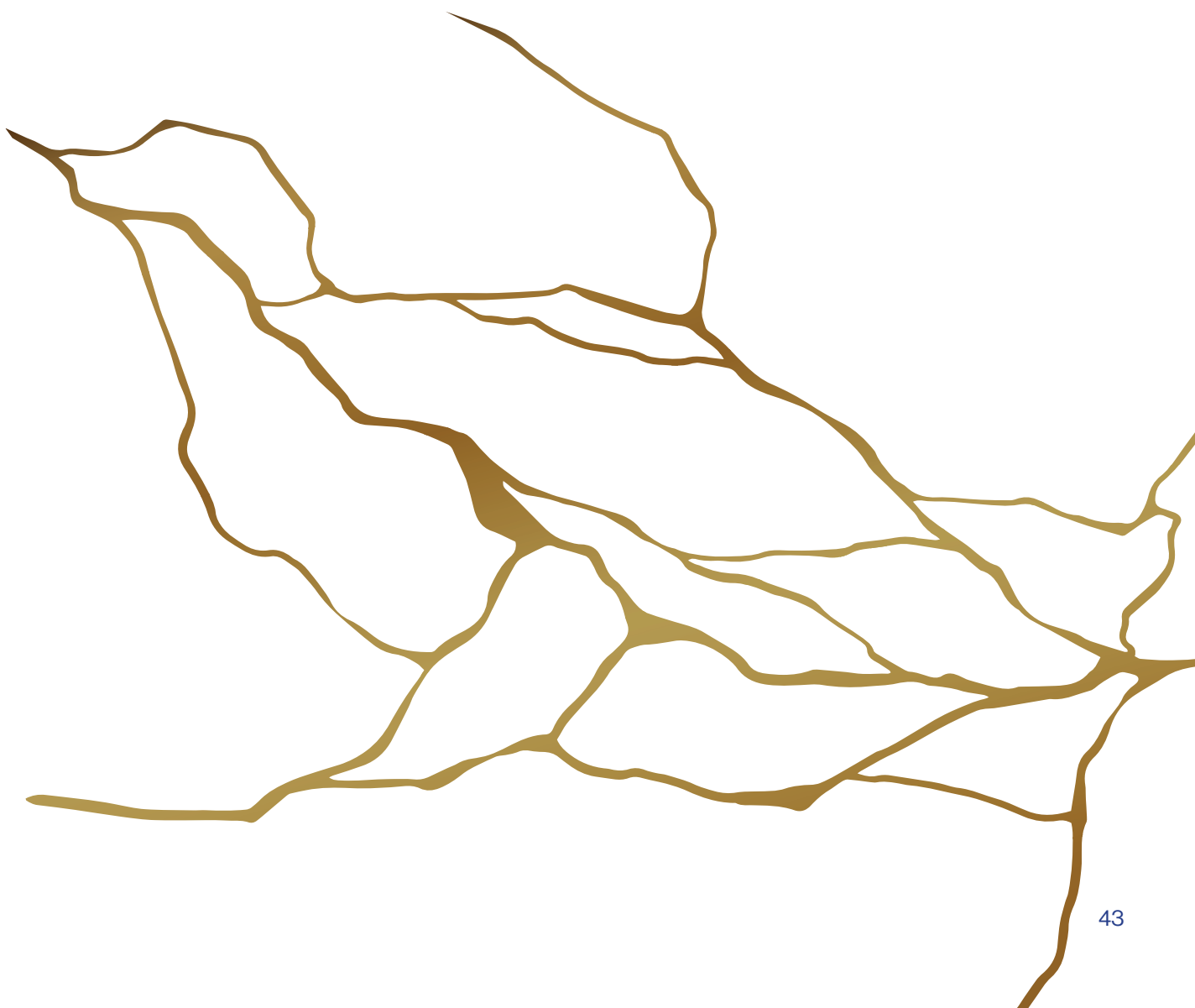
Evaluating impact over time and responding to high-quality research: An evidence-informed approach to CCE is imperative given the rapidly changing nature of climate change. It is crucial that we understand what practices or interventions lead to positive outcomes for children and young people and adapt accordingly. We must be agile in our approach, avoiding unsubstantiated claims about efficacy, and prioritising deep, robust qualitative and quantitative

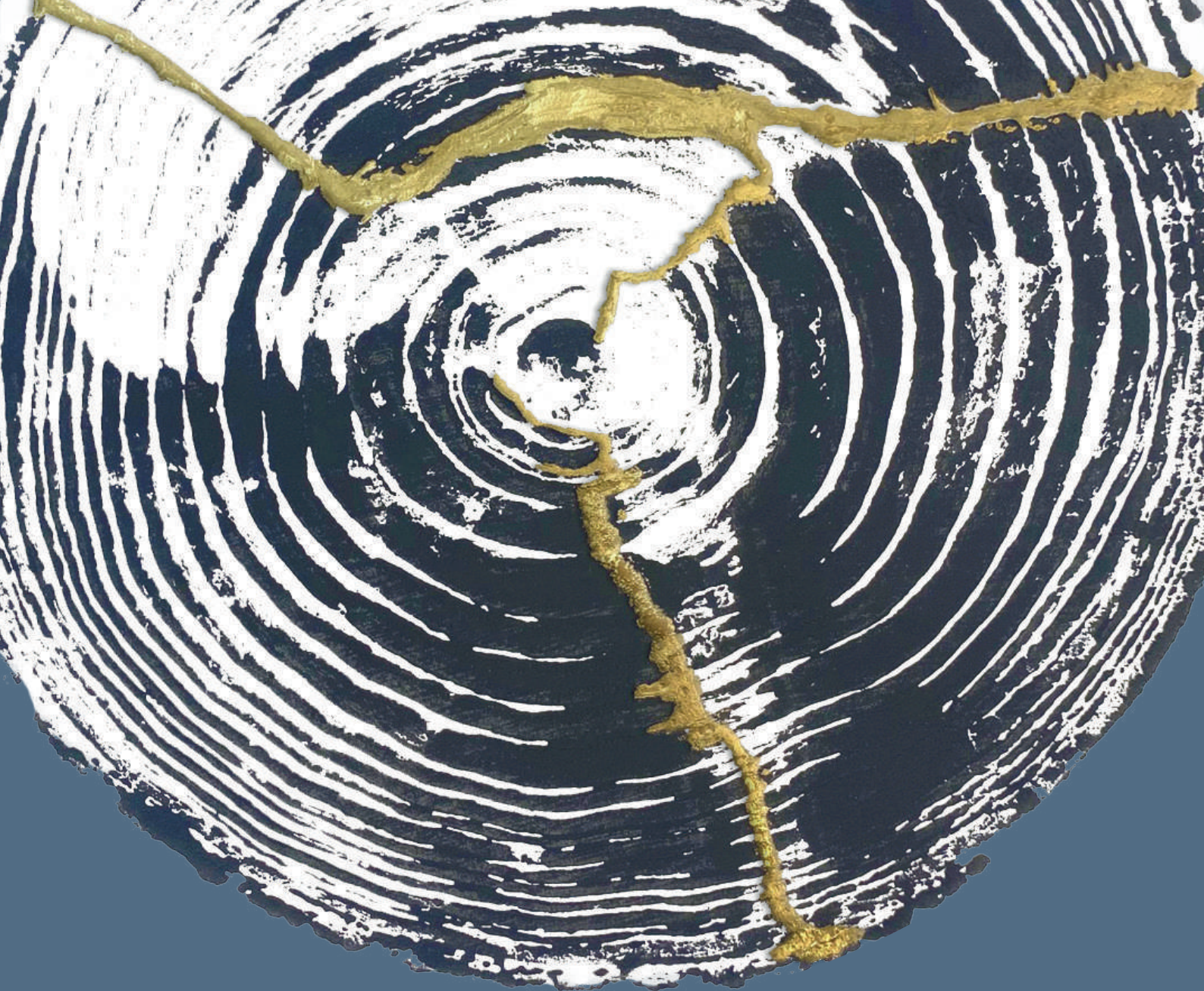
research. This commitment ensures that assertions about the impact of CCE are grounded in a comprehensive understanding of the complex relationship between education and the evolving challenges of climate change.

Building a network of context-sensitive expertise: Collaboration with expert partners should be sought to build context-sensitive expertise, to enable an understanding of the real-time impacts and solutions to climate change. This acknowledges the spatial, temporal and accelerating dimensions of climate change. Aligned partnerships with external groups, including environmental charities, universities, businesses, and community organisations, should be developed to support educators and provide enriching experiences for all children and young people.

Addressing eco-anxiety and climate denial proactively: Children and young people should be equipped with proactive strategies to address eco-anxiety and explore climate denial. Opportunities for establishing emotionally safe spaces should be created, encouraging open discussions to address and alleviate eco-anxiety.

Embedding rigour for impact in climate change education: Moving beyond isolated and tactical actions, the urgency of CCE demands a comprehensive, evidence-informed and well-funded strategic framework that acknowledges the challenges of sustaining change within the school system. Diverse and robust professional discourse is urgently needed to scrutinise evidence, ensure data quality, and transparently share high-quality insights with school leaders. This approach must be responsive to the vulnerabilities of diverse communities, ensuring CCE has precision and efficacy.





We move fast
Through the universe now
Maybe there's a chance
We'll see this through somehow

Written in the Scars, Tide Lines

**CA
PE**

Climate
Adapted
Pathways for
Education