

Climate Literacy in Education

A pocket journal for teachers



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About CLE

Climate Literacy in Education (CLE) is an open-access, double-blind, peer reviewed journal sponsored by the [Center for Climate Literacy at the University of Minnesota](#) and published through University of Minnesota Libraries. *CLE* publishes practical, teacher-oriented content on all aspects of climate literacy education at all grade levels and across all subject areas (primarily K-16, but including teacher education and professional development). We are a pocket journal focused on classroom practice which is why the articles we publish are short: 2000 words or less. Our content is written in jargon-free prose accessible to the general audience. All submissions are peer-reviewed by two anonymous readers. Authors can expect to hear results within two weeks after submission. We publish on a rolling basis.

We welcome submissions in the following categories: Curriculum, Reflections, Critical Essays, and Creative & Multimedia. For detailed submission criteria pertaining to each category, [please visit our journal website](#).

We look forward to working with you!

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Taylor Goetsch, winner of the Center for Climate Literacy's inaugural Arts for the Planet Visual Media Award, provided the cover illustration.

Izzy Sheen created and generously donated rights to the logo to *Climate Literacy in Education*. This logo will soon be digitized.

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Introduction:

Climate Literacy as Resistance, Hope, and Activism

Editorial Collective: Marek Oziewicz, Nick Kleese, Lara Saguisag, Jana Lo Bello Miller, Justyna Deszcz-Tryhubczak, Lorraine Joanna Kerslake Young, Catherine Cavanaugh, Tanja Nathanael, Stephanie Rollag Yoon, Alexandra Panos, Jeff Henning-Smith, and Rebecca Young

Welcome to the first issue of *Climate Literacy in Education*! The journal is our collective effort to actively confront, in and with education, the climate breakdown and its drivers. Climate change is the key existential issue of our time. It is already eroding possibilities for human and nonhuman lives across the globe. If not addressed adequately, it will continue to erode these possibilities at an accelerating pace, leaving today's young people stranded in an unrecognizable wasteland that may become their future. But this is not the future we are willing to accept. At *CLE* we believe that the story of climate change is yet to be told. It will be told and shaped by today's youth and by all of us who stand up for young people's right to futures in which they can thrive without compromising the Earth's biospheric integrity. At *CLE* we believe that mobilizing all teachers on the ground to incorporate climate literacy in their everyday teaching can be a game changer for ushering in an ecological civilization.

CLE serves as an important tool in this transition. We are an open access journal published by the University of Minnesota Libraries and available for free to all teachers everywhere. Our double-blind, peer-review process ensures that our content is academically rigorous and constitutes scholarship in the emerging field of [climate literacy education](#). Our formula of a pocket journal, in turn, ensures that our content—up to 2000 words maximum—is accessible and practitioner-oriented. *CLE* is thus designed not as a competition to regular academic journals—in which articles are less concerned with direct classroom use and range anywhere between 4000 and 8000 words—but as an ally to their work. This is why, alongside original research, *CLE* also publishes teacher-usable content sourced by authors from their journal articles, book chapters, and longer publications that have appeared elsewhere. Our focus is always on applicability to classroom practice. Our primary audience is teachers and other educators who work with young people in formal and informal schooling settings. Our goal is to share resources that help teachers build young people's climate literacy. In every classroom, in every subject area, across all grade levels.

On this level, the work of *CLE* aligns with the mission of the Center for Climate Literacy at the University of Minnesota's College of Education and Human Development: to develop research, training, and design solutions for climate literacy education in K-12 classrooms. This work is framed by two premises and three commitments:

The premises include **a recognition of where we are and a vision of where we are going.** The recognition part is our acknowledgment that the main systems of the current global civilization—our politics, industries, law, finance, agriculture, education, media, market economy, and others—were created without concern for the biosphere or designed to exploit it indefinitely. But winning a war against the planet will get us nowhere. So, our second core premise is that a different future is not just possible but necessary and nonnegotiable. The vision of where we want to be is a sustainable, just, and ecological civilization.

How do we get to that future? The roadmap we envision is reflected in our three commitments:

Commitment to Climate Literacy. We believe that in order to transition to an ecological civilization, we need to achieve universal climate literacy. We need to become a climate literate society. Climate literacy is an understanding that includes numbers and facts (i.e., climate science) but centers on developing values, attitudes, and behavioral change aligned with how we should live to build sustainable futures. For more on climate literacy, see Oziewicz’s [“What Is Climate Literacy”](#) in this issue.

Commitment to Education. We believe that teaching about climate change should be at the heart of our educational practice. Climate literacy can be scaffolded and must be taught to all K-12 students and across all subject areas: not just in science. For examples, see articles by [Hartzell](#), [Braucht](#), [Kerslake](#), [Corliss, Vicens & Young](#), [Jennerjohn](#), and [Hunt](#) in this issue. Centering discussions about issues of climate change in all subject areas and at all grade levels is the most meaningful action we can take to empower young people to become agents of change.

Commitment to Stories. We believe that stories for young audiences are ground zero for building universal climate literacy. Literature, film, games, and art forms for young people are not additional but the most important avenues for raising climate awareness and mobilizing action. This commitment to stories rests on the fact that human cognitive architecture is evolved for narrative understanding. Stories are portals to understanding, remembering, and making connections between knowledge and emotion. They help us care and better navigate reality. See, for example, articles from [Kleese](#), [Nathanael](#), [Werthwine and Panos](#), [Midkiff and Austin](#), and [Werthwine](#) in this volume.

Beyond these premises (which we share with a number of other organizations and journals) and the three commitments (whose specific combination, we believe, is unique to our work), the *CLE* journal fills an important gap. Although the vast majority of teachers and parents [support the teaching of climate change in schools](#), teaching about climate change is almost absent in today’s curricula. Teachers are not sure if and where climate change fits in their subject areas. School boards have no state policies to guide action, and state education departments have no national policies to build on. Leading literacy and educational organizations have acted as if they [live on another planet](#); climate change has been [largely overlooked by scholars of children’s literature](#); and agencies have awarded a mere [.12 percent](#) of their funding to support climate-focused research in social sciences related to the change of attitudes, values, norms, and behaviors: a change that has long been recognized as central to any effective climate policy and action. Under these circumstances, it seems naïve to wait for requirements and incentives for a transition to an

ecological civilization to trickle down from school boards, education departments, state, or federal regulators. This change can only emerge from the actual practice of ordinary people, especially climate literacy conversations that teachers can initiate in their classrooms. From classrooms, this conversation can expand to families, communities, and nations.

This is the future we can create together, acting in our capacities as teachers, educators, and students. At *CLE* we aspire to publish materials that model, facilitate, and inspire the ecocentric transformation of existing education from within: in all schools, with all teachers, at all grade levels. This effort, of course, is not limited to k-12 education. Although our primary audience is classroom teachers, we believe that climate literacy work should also be happening at institutions of higher education, professional education, community education, and in all other spaces where Earthlings learn about how to live now. The tools we promote and the resources we share are scalable, adaptable, and applicable to audiences of every age. In all formal and informal educational settings.

Each issue of *CLE* will include articles in four content categories: curriculum, reflection, critical article, creative & multimodal. For a description of each category, see [this page](#). We start with two issues per year, but we are committed to publishing as many issues as it takes to get these resources out into teachers' hands. Because we want this work to accelerate and expand as soon as possible, we aspire to a one-month turnaround about the publication decision from the submission date. Articles will be published on a rolling basis and assigned to an issue open at that point. We will learn as we go, so some policies or strategies may get modified. One thing that will remain is our commitment to this work as a force to accelerate a transition to an [ecological civilization](#).

We know you care about Earth and all its life forms as much as we do. We know you are concerned about the climate emergency and ready to stand up for the planet. Climate literacy education is a practical, everyday effort we can do together in our classrooms. This journal is a space where we share ideas, tips, and inspiration. Please talk about *CLE* in your networks. Please tell teachers about this work. Please consider publishing with us, reviewing for us, and getting involved in any capacity you are able to. We encourage contributions from K-16 educators, K-16 students, scholars, artists, and informed participants in climate literacy learning. We especially welcome contributions from scholars from historically marginalized communities and geographies, in-service educators, and students. For author guidelines, see [the submission page](#). And always, always feel welcome to reach out with any questions or concerns. Our Managing Editor Nick Kleese can be reached at clejournal@umn.edu.

Thank you for being part of building universal climate literacy in all schools everywhere!

Climate Change and Critical Literacy

11th Grade Language and Literature Climate Mini-Unit

By Abby Hartzell, Secondary ELA Instructor, Hopkins, MN, USA

Abstract

This 11th Grade Language & Literature Climate Mini-Unit was created to develop 11th grade students' climate and critical literacy skills through analysis and discussion of multi-genre climate texts. The unit covers several state standards related to media literacy in reading and inquiry-based writing. After completing this unit, students will understand the widespread, inequitable impacts of climate change and are equipped to engage with climate-related media and literature through a critical lens.

Keywords

[critical media literacy](#), [multigenre texts](#), [multimodal texts](#), [Anthropocene](#), [Holocene](#), [ecosystem](#), [sustainability](#), [biodiversity](#), [mass extinction](#), [greenwashing](#)

Overview

In what follows, I share my experience of collaboratively designing and teaching a three-week climate change unit to four sections of standard-level 11th grade English at a Title 1 public high school in the suburbs of Minneapolis in spring 2023. My co-teacher and I were excited to develop our students' climate literacy after we took a graduate course at the University of Minnesota titled "Adolescent Literature, Youth Activism, and Climate Literacy" for our master's in education program. We decided to fill a three-week gap at the end of the trimester with a mini unit in which students would learn about the facts of climate change, critically analyze various climate related texts, and engage in discussions about activism and personal/collective responsibility.

The unit centered around a question: "What is climate change and how can I engage critically with this issue?" Each lesson built upon the previous lessons to help students engage with the question and eventually develop their own responses. While teaching the unit, I was delighted by the level of engagement we saw in students.

Even though the school year was coming to a close and the weather was warming up, most students expressed genuine curiosity about climate impacts and solutions. They asked nuanced questions ranging from the responsibility of the camera crew to help the dying walrus they were filming to the plausibility of converting the electrical grid to 100% renewable resources. During our all-class discussion, students drew connections between the racial justice unit we had completed previously and the climate justice social media posts they had just analyzed.

Overall, teaching this unit reminded me of two important truths about my own experience as a teacher. First, when I am personally passionate about a topic, students tend to reflect back the same level of energy. Second, making space for students to ask challenging questions and dive beneath the surface of the texts we read can take a lesson in exciting new directions. I cannot wait to see how these students apply their climate literacy in the future, and I hope they never lose their curiosity and critical lenses.

Narrative Framing

In the first part of the unit, students analyzed a series of climate narratives representing a range of genres. They first watched David Attenborough’s documentary [A Life on Our Planet](#) for an accessible framing of the problems and solutions associated with climate change. Students honed their critical literacy skills by analyzing the short story “Hermie” by Nathaniel Rich; the picturebook [We Are Water Protectors](#) by Carole Lindstrom and illustrated by Michaela Goade; climate justice tweets by Vanessa Nakate, Urban Air Quality, Mark Ruffalo, and Climate Justice Alliance; videos from the Climate Stories Project; and a slam poetry video by Solli Raphael and Greenpeace. The unit culminated with lessons dedicated to analyzing corporate sustainability statements from Target, Nike, and Starbucks; the song “Colors of the Wind” from Disney’s *Pocahontas*; and a podcast with Jane Goodall and Ayana Elizabeth Johnson.

At a Glance

Title	<i>11th Grade Language & Literature Climate Mini-Unit Critical Literacy and Climate Change</i>
Unit Time	3 weeks Block schedule: One 50 minute and two 70 minute classes per week
Grade Level(s)	11 th grade
Core Text	David Attenborough’s documentary A Life on Our Planet
Supporting Texts	“Hermie” by Nathaniel Rich We Are Water Protectors by Carole Lindstrom and Michaela Goade

	<p>Climate justice tweets by Vanessa Nakate, Urban Air Quality, Mark Ruffalo, and Climate Justice Alliance</p> <p>Videos from the Climate Stories Project</p> <p>Slam poetry video by Solli Raphael and GreenPeace.</p>
Climate Literacy Terms	<p>Anthropocene, Holocene, ecosystem, sustainability, biodiversity, mass extinction, greenwashing</p>
Objectives	<p>Each lesson builds upon the previous lesson to help students engage with the question: “What is climate change and how can I engage critically with this issue?”</p>
Materials and Resources	<p>Unit Calendar with links to resources and slides</p>

Going Forward

I thoroughly enjoyed designing and teaching this unit. One of my personal highlights was the last day of school when I led students in a discussion about the difference between individual and collective action. I asked students to come to a consensus at their table groups about which is more powerful: changing your personal behavior to combat climate change from the ground up or changing laws to combat climate change from the top down. It was exciting to listen to students debating the merits of each. Ultimately, most groups decided that collective action was far more powerful.

After discussion, I led students in an activity I call “Blue Marble,” for which I gave each student a physical blue marble that represents the Earth. I then explained the metaphor: the Earth is a tiny blue marble in space. We must do what we can to protect it and make it a better place, so what can you do for our only home? Students rolled their blue marbles in their palms as they considered this question. I started by sharing that my own blue marble action is teaching climate literacy. As each student then shared their own actions, I couldn’t help but feel disappointed. After such a rich conversation about individual versus collective action, I was hoping students would think beyond classic individual actions, but most students said they planned to “use a reusable straw” or “drive less just for fun.” This response left me feeling motivated to engage students in the debate about individual versus collective action sooner in the unit so it could help help them reflect on their own power to influence collective change.

I have since started working at a different high school. Recently, my former colleague told me that one of our students from last year, now a senior, dropped by her room to say hi. At the end of their conversation, he reached into his pocket and pulled out a blue marble. A full summer vacation later, he still remembered the activity and his own, albeit small, commitment to taking care of our planet.

The Science Behind the Stories: A Research-Based Transdisciplinary Approach to Climate Literacy

Mary-Alice Corliss, *Cognia*TM
Lisa Vicens, *Cognia*TM
Rebecca L. Young, *Cognia*TM

Abstract

In this article, we first outline an inquiry-based pedagogical model for studying scientific phenomena through the lens of a story. Then, we offer a middle school example that educators can pilot in their classrooms or use as a guide for constructing their own. The middle school pilot opportunity explores the science behind coastal erosion and the impacts of sea level rise in Julie Bertagna's [Exodus](#).

Keywords

[climate change](#), [sea level rise](#), [climate science](#), [pedagogical models](#), [science fiction](#), [fantasy](#), [Exodus](#)













A Pedagogical Model for Exploring the Science Behind the Stories

Storytelling is a practice that has a long history in helping humanity make sense of the world. Stories are powerful because they help bring data to life, allowing learners to connect meaningfully with information that may otherwise feel abstract. Stories, therefore, can be valuable [teaching tools](#) for promoting deeper learning of complex phenomena such as climate change and its impacts, direct and indirect, on each learner.

As a universal lens, narratives about the environment can facilitate conversations about the impacts of climate change by encouraging exploration into the patterns of human behavior that

contribute to them. Leveraging cognitive research on mirror neurons, narrative empathy, and theory of mind, a transdisciplinary approach to climate literacy positions storytelling as a framing lens for critical topics that engage K-12 students in climate literacy education.

Investigating the science behind stories that address the impacts of climate change can help teachers guide collaborative problem-solving, critical thinking, and communication. We offer here a visual (see Figures 1 and 2) and written outline of a 9-step inquiry-based pedagogical model designed to foster students' climate literacy, empathy, and collective agency. If you are a teacher interested in piloting this model to help your students examine [coastal erosion](#) and [sea level rise](#) through the lens of Julie Bertagna's young adult novel [Exodus](#), please contact Mary-Alice Corliss and Rebecca Young (maryalice.corliss@cognia.org; rebecca.young@cognia.org). We are seeking educator and student feedback as we continue to develop this model and to build task designs merging stories and scientific phenomena across grade levels.

Real-World Performance Task Design		
Read the Narrative		 Story as Lens
Explore the Science		NGSS Connections
Reflect on Perspectives		The Empathy Continuum & SEL 
Analyze Contexts		Characters, Conflicts, Settings
Examine Data		Science Stimuli
Evaluate Solutions		Mitigation/Adaptation
Collaborate to Problem-Solve		Synthesize & Share Information
Create & Communicate		What can we do with what we know?
Demonstrate Learning		Assess Skills & Understanding 

Real-World Performance Task Design

Read the Narrative

Read a story or narrative excerpt that addresses an aspect of climate change. This story (fiction or nonfiction) frames the instruction and must feel relevant to students because of its setting, conflict or characters. Choosing an emotionally engaging story or episode cannot be emphasized enough—

this investment is critical for learning, not only helping learners better retain new information but allowing them to process information empathetically to promote prosocial action.

Explore the Science

Explore the science behind the phenomenon that drives the conflict of the story (e.g., [sea level rise](#), [coastal erosion](#), [species extinction](#), [pollution](#), [weather](#)). A phenomenon is more than simply a topic related to climate change: it is an observation that requires explanation of a problem that requires a solution. When framed in a storyline, students can use that context to develop a deeper understanding of the phenomenon.

Reflect on Perspectives

Reflect on the phenomenon as it relates to the broader context of climate change, including, as appropriate, its local and global impacts. Reflections should take place before, during, and after studying the narrative and should address both understanding and perception of the phenomenon (scientific, social, and others). [The Empathy Continuum](#) supports discussions related to the perspectives of characters and readers with the goal of engaging differing points of view and experiences.

Analyze Contexts

Analyze climate-related contexts illuminated by the narrative: from setting descriptions that illustrate environmental impacts, through historical, social, or political backdrops that inform the story's central conflict, and on to the personal motivations that drive character actions and dialogue related to it. Targeted standards-based questions scaffold toward a culminating transdisciplinary performance task.

Examine Data

Examine the phenomenon as it is presented in the story and consider the science behind claims, challenges, and potential solutions the author or narrator is exploring. Real-world data stimuli are invaluable to support students' understanding of the problem's complexity, pervasiveness, and long-term impacts.

Evaluate Solutions

Evaluate existing and potential solutions based on real-world contexts related to the phenomenon, gathering information from a variety of sources that helps extend appreciation both for what is happening in the narrative and in reality (present and future). Investigate the effectiveness of solutions and make data-based predictions related to the story and any real-world parallels.

Collaborate to Problem-Solve

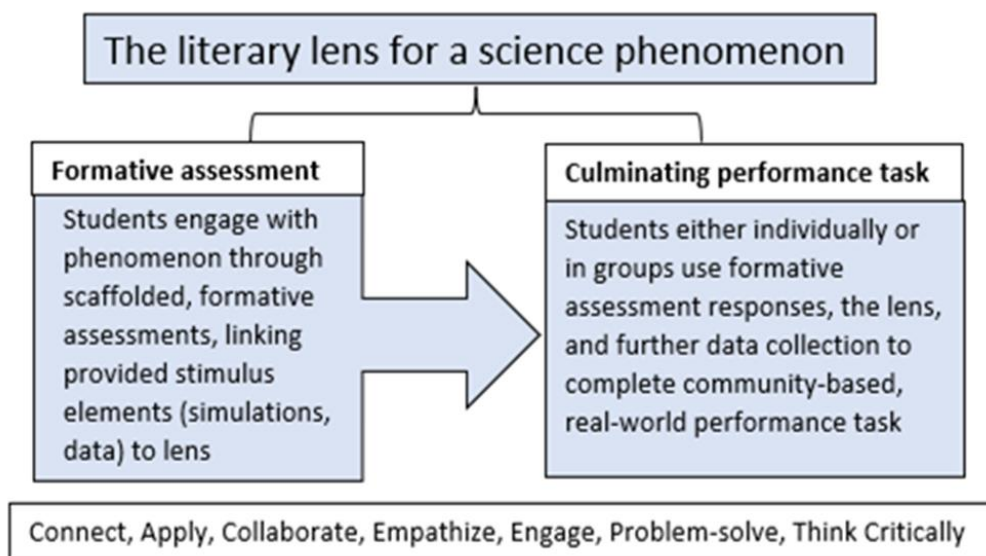
Collaborate to collect information and engage in problem-solving. Compare narrative-based and real-world evidence to focus decisions, seek additional information, and develop solutions. Synthesize findings across content areas and prepare recommendations for narrative-based and/or real-world audiences.

Create and Communicate

Create a product or presentation designed to *communicate* your findings with others (connected to the storyline and/or the school community). Final products and presentations incorporate a transdisciplinary approach to learning, pulling from multiple subject and skill areas to respond to a real-world problem. *Share* learning experience using final products and/or presentations with peers, school leaders, or community panels. Sharing is designed to promote awareness and inspire action.

Demonstrate Learning

This task can be adapted for use as an instructional plan, as a formative or summative assessment based on scaffolded instruction, or as a performance-based project. Assessments of learning can include self-reflection, peer reviews, and rubrics.



Interested in Piloting a Climate Literacy Task?

In this last section we share an example of an opening task for the 9-step model of teaching climate literacy we introduced above. In this task, students are asked to analyze the science underlying the main conflict in the opening of [Exodus](#) by Julie Bertagna.

Set in a dystopian future of 2099, the story opens on Wing, an island where the protagonist Mara lives with her family. The island is about to experience the same fate as most other land masses in the story’s world as global sea-level rise threatens to completely submerge it. The 6-page [“The Swallowing Sea”](#) chapter sets the conflict in motion as Mara tries to persuade her family and other residents that they must leave their home in search of higher ground, if any still exists.

“The Swallowing Sea” establishes the conflict between Mara’s expectations to continue to live on the island of Wing and the reality of global sea level rise, due to climate change, that will

soon swallow the island. The chapter also comments on the patterns of human behavior that contribute to inaction. As the book unfolds, denial, fear, and misunderstanding are represented in the opposition Mara faces, making it an effective lens through which to explore the complex contexts fueling today's real-world conflicts in attitudes about climate change.

The chapter, as an excerpt, could serve as an introduction to the science of [coastal erosion](#) or [sea level rise](#) or as part of a broader study on the impacts of a warming planet, specifically [climate-related migration](#) and the limitations of natural resources. The novel itself could be studied in full as part of a climate-focused literature unit too. It is highly engaging for the age group and offers rich opportunities for analyzing human behavior in response to climate change challenges.

Seeing Through Water: The Impact of Our Decisions

Sonja Braucht, Brandon Valley Public Schools, Brandon, SD, USA

Abstract

Seeing Through Water is a unit developed to bring awareness of climate change to eighth-grade middle school students in the English Language Arts classroom. The topic of water was selected because of the interdisciplinary connections and cross-curricular standards relevant for the middle school level. Students are asked to justify how the actions of others impact the decisions they make. Presented with accurate information, students make connections to their lives, become climate literate, and learn to take appropriate, thoughtful actions.

Keywords

[biodiversity](#), [climate literacy](#), [climate change](#), [collective action](#), [sustainability](#), [youth climate activism](#), [multimodal texts](#)

Overview

This unit came from a desire to engage students in understanding [climate change](#) in an accessible and meaningful way. Water became the focus of this planning when it became clear that water quality was impacting students, families, and community members in the school district. This topic also meant understanding the context of the community surrounding students and how that impacts students' perspectives coming into the conversation. In a district that is heavily influenced by the prominence of agriculture and political views that challenge the urgency of climate change, it was important to find ways to bring students into the conversation through personal connections and layering of texts.

The intention of this unit is that students understand the ways [water impacts everybody](#), starting with themselves. Beginning with a variety of multimodal texts, I provide space for students to understand how water impacts all people and how our decisions impact water quality. After discussing the background texts, students engage with the novel [Memory of Water](#) by Finnish author Emmi Itäranta. As students finish the course texts, they move into a [participatory action research project](#) where they consider the water quality in their own community and engage in ways to bring their new understanding to their classmates, families, and school.

Narrative Framing

Set in the postapocalyptic future Scandinavia, *Memory of Water* is a dystopian story of a tea master who holds the knowledge of where water exists. As the protagonist Noria learns more about this role, she decides how to do the right thing as it impacts her community. Used with a collection of other multimodal texts, the novel provides a framing for students to consider the impact we all have on our water and how we can make choices to move toward safer water for all.

At a Glance

Title	<i>Seeing Through Water: The Impact of Our Decisions</i>
Unit Time	3-4 weeks
Grade Level(s)	7-8 th grade
Core Text	<i>Memory of Water</i> , by Emmi Itäranta
Supporting Texts	<i>We Are Water Protectors</i> by Carole Lindstrom <i>The Fate of Fausto</i> by Oliver Jeffers Short Stories: “Skywoman”; “Lamentations” <i>Frozen 2</i> : “When I Am Older (Earth, Wind, Fire, Water)” <i>Moana</i> <i>Dream</i> <i>LN3: Seven Teachings of Anishinaabe in Resistance</i>
Climate Literacy Terms	Biodiversity Climate literacy Climate change Collective action Indigenous environmental practices Planetarianism Sustainability Youth Climate Activism
Objectives	Students will evaluate and justify how the actions of others impact the decisions we make (right or wrong).
Materials and Resources	Unit guide

Going Forward

Several questions will occur as students move forward with this unit. The first one is how we can build on this unit going forward. Although I do not have answers yet, I envision this unit growing to include several STEM opportunities, connect to the art and music classes, get out into nature in our community, and function as a community outreach occasion from the youth perspective.

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Playing in a Patch of Dirt: Eleven Picturebooks and a Plug for Nearby Nature

Anna Jennerjohn, University of Minnesota-Twin Cities, Minneapolis, MN, USA

Abstract

Children bring natural curiosity to outdoor exploration that allows them to notice the small details of natural spaces around them. Often, adults must relearn this skill. A nearby nature mindset can help. In this Reflection I share a personal story of children teaching me about nearby nature. I name eleven picturebooks that can help adults and children alike to notice the nature that they encounter on a daily basis in their own neighborhoods.

Keywords

[nearby nature](#), [nature play](#), [nature](#), [picturebooks](#), [early childhood climate literacy](#)

Acknowledgements

This blog was originally posted on the [Free Forest School](#) website as [Playing in a Patch of Dirt](#).

My kids keep trying to teach me about the concept of [nearby nature](#): that nature sites can be found in unexpected places close to home. Back in the days of pre-Covid life, one especially long weekday comes to mind. Our family members had been at our respective places of work/school/childcare all day and then gone directly to a PTO meeting in the evening, appreciatively shoveling pizza onto plates before the kids went to play in the gym. Attending the PTO meeting meant we missed our usual after school outdoor time.

As we left the school that evening, our kids were in various levels of meltdown. Despite my desire to get everyone in the car and buckled up, the kids were compelled to explore a small dirt patch by the bike rack. Almost immediately, they settled into a calm – active - alert state. One child scratched at the dirt with a little rock while the other two swung upside-down on the bike rack. I stepped back to observe. Nobody was fighting. Bodies were moving. The patch of dirt was just

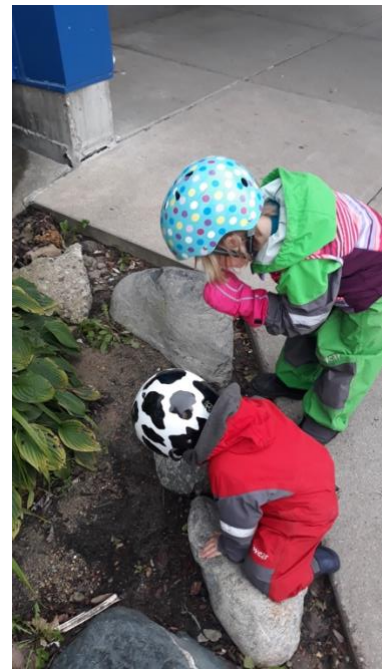
right for them to get some sensory stimulation, even among little pieces of litter and possibly a bit of broken glass. Everyone was calm again as we hopped in the car to head home.

Did hanging on a bike rack and playing in a patch of dirt count as time in nature? Well, it certainly wasn't [forest bathing](#) on the North Shore of Lake Superior, but I would argue yes. [Nature](#), and its positive effects for humans, exists along a continuum. In one research synthesis, the author found that [everyday nature](#), including views of nature out of windows and being in urban green spaces, has a positive effect on human health (Kuo, 2015). Another study cites a local urban park as a powerful tool for students with ADHD: after a twenty-minute park walk, the students' concentration improved significantly, in a similar way that the dirt patch helped my kids calm down that evening (Faber Taylor & Kuo, 2009).

For those of us who live in more urban areas and are looking for nature near home, this realization has important implications. We don't need to wait to get out to "big nature" to reap the benefits that nature offers. We can take in smaller bits of nature near our homes. Learning to appreciate [nearby nature](#), as suggested by [Emma Marris in her Ted Talk](#) "Nature is Everywhere," helps us expand our definition of nature to encompass all its aspects. The goal is not to stop protecting wild places, but to start noticing the natural places in our own neighborhoods where children can fully engage, touch, and go off path.

The unglamorous dirt patch was enough to give my kids a sense of freedom and calm. They intuitively know the value of nearby nature and easily seek it out. As adults, we sometimes need reminders and reframings to slow down and learn to appreciate what we otherwise take for granted.

With that in mind, I offer a collection of great picturebooks to help us all maintain a "nearby nature" mindset. The [#ownvoices](#) books in this selection feature a child from a nondominant group *and* the author or illustrator who identifies as a member of that group. I hope these books will help you enjoy nearby nature with your kids. [Free Forest School](#) has been instrumental in helping me slow down and let my kids lead, whether we are in the woods or exploring a storm drain. I am working to tune in to what my kids notice and to be in the moment for each patch of dirt that they find.

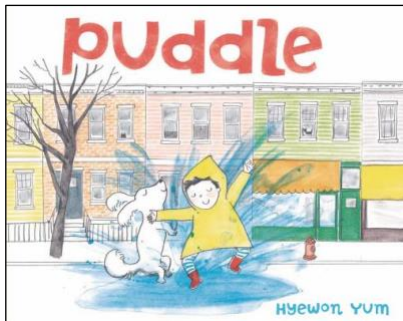




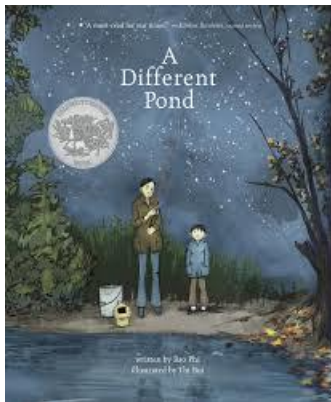
[Here and Now](#) by Julia Denos, illustrated by E.B. Goodale. This book helps young children and their caregivers to focus on mindfulness in the moment. Notice what is happening, in the here and now, in the exact place where you are rooted.



[Finding Wild](#) by Megan Wagner Lloyd, illustrated by Abigail Halpin. Two kids go on an urban hike in search of “wild.” What will they find? Where will they find it? This book shows that urban places offer wild spots, too.



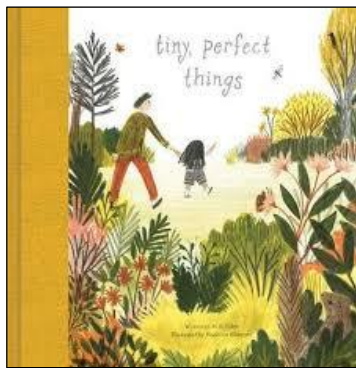
[Puddle](#) by Hyewon Yum. A child doesn't want to go outside because it's soggy and gray. His mom entices him by drawing pictures of him and his dog splashing in puddles. This does the trick to get the boy outside in real life. An ode to neighborhood puddles told in #ownvoices.



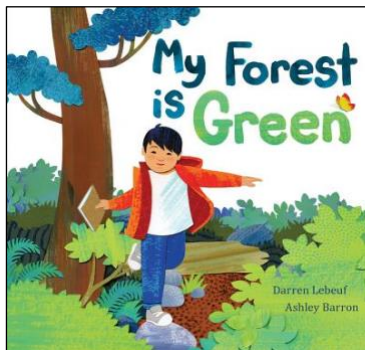
[A Different Pond](#) by Bao Phi, illustrated by Thi Bui. In this #ownvoices story, a child and his father go fishing at a neighborhood pond early in the mornings. During this time together, the parent shares stories of his life in Vietnam before emigrating to the United States while the boy proudly contributes to putting a fish dinner on the family table.



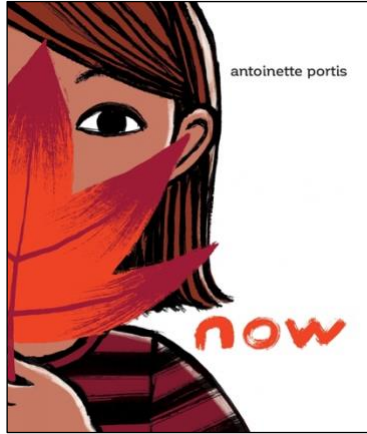
[On a Magical Do-Nothing Day](#) by Beatrice Alemagna. A child wants to stay on her device battling Martians but her parent sends her outside to play. She's determined to be bored until the magic of her play takes over.



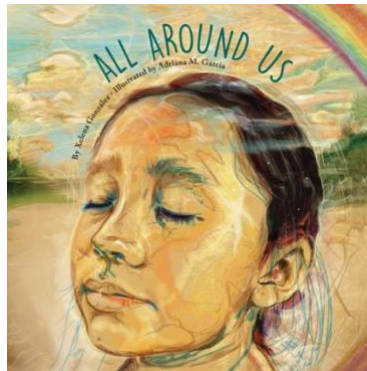
[Tiny Perfect Things](#) by M.H. Clark. One joy of caring for young children is the fresh eyes they bring to simple acts like a neighborhood walk. In this story a child and their caregiver notice all the tiny perfect things on their daily jaunt down the sidewalk.



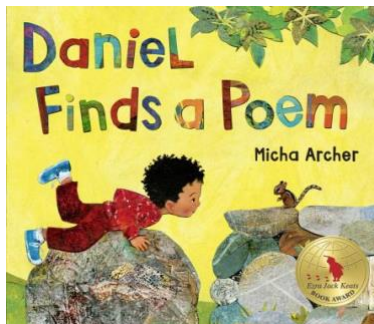
[My Forest is Green](#) by Darren LeBeuf, illustrated by Ashley Barron. The child in this book lives in a city and visits the urban forest throughout the seasons, afterwards creating nature art back at his apartment.



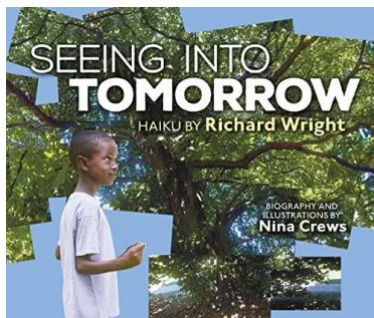
[Now](#) by Antoinette Portis. A book about being in the present. This child notices each leaf, puddle, and cloud that she encounters because she appreciates the nearby nature in front of her, right now.



[Por Todo Nuestro Alrededor / All Around Us](#) by Xelena González, illustrated by Adriana M. Garcia. In this #ownvoices story, Grandpa teaches his grandchild about the circles all around us: in the rainbow (the other half is underground), around his big belly, in the seeds they plant in the garden, in the round moon.



[Daniel Finds a Poem](#) by Micha Archer. Daniel notices the specifics of the world around him. This book is great to read aloud due to the repetitive text—see the author's ideas for actions to match the story [here](#).



[Seeing into Tomorrow](#) by Richard Wright and Nina Crews. Another #ownvoices story, it presents a collection of haiku poems about the spring hills and shade trees of the author's childhood. Nina Crews' collage illustrations bring us back to those places.

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Reconnecting with Nature through Haiku

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Abstract

This reflection outlines how haiku can be used as a creative form of writing to help students reconnect with nature, raise climate and environmental awareness, and promote change. It is based on a teaching experience described in more detail in the chapter “Raising Environmental Awareness and Rewriting Education through Haikus,” written by Lorraine Kerlake and M^a Encarnación Carillo and published in [Literature as a Lens for Climate Change: Using Narratives to Prepare the Next Generation](#) (Rowman & Littlefield 2022, pp. 171-193).

Keywords

[poetry](#), [haiku](#), [nature](#), [environmental awareness](#)

Acknowledgements

I acknowledge that the seeds of this teaching experience come from a collaborative project called “The Poetry Reading Project” developed during the 2019-2020 academic year by Dr. María Encarnación Carrillo-García and Dr. Lorraine Kerlake.

We live in a culture that is profoundly and systemically [anthropocentric](#). This dominant culture considers humankind as superior to nature and other animals. It is guided by the assumption that it is only in relation to humans that anything else has value.

Now, more than ever, imagination is key in envisioning change and rethinking the way we interact with the world around us. The climate and ecological emergencies expressed in the multiplicity of interconnected phenomena—[global warming](#), [water pollution](#), [deforestation](#), [biodiversity loss](#), and others—are part of a broader problem, one deeply connected to our dysfunctional, anthropocentric relationship with nature.

Language is a human construct. It is largely aligned with culture and often positioned against nature, affirming humanity as an entity separate from the rest of nature. If so, how can we use language to rewrite the world? Or to reimagine the relation between the human and non-human world? Specifically, as educators, how can we promote forms of critical thinking that raise

[environmental and climate awareness](#)? How do we encourage students to relate and identify with the world around them? Using the classroom as a place for climate literacy conversations is one way to start.

The integration of climate issues in the classroom can contribute to developing a more humanistic way of understanding and interacting with the world. From primary to tertiary education, literature is listed in the curriculum as one of the tools for the successful implementation of sociolinguistic, sociocultural, and emotional aspects of teaching. As educators, we face the challenge of creating spaces for helping our students learn to use language as a tool to recognize the embeddedness of humans in nature. In this context poetry can be a particularly useful tool to foster environmental and climate awareness.

Poetry is a unique and complex form of language. In most education contexts since the 1990s, teaching poetry has often been stigmatized as unnecessary, lacking practical purpose or value that matters in real life. Unsurprisingly, at least in our experience, poetry is the genre that students seem least comfortable with. One way to introduce students to the power of poetry and connect it to climate literacy is to show them that they can become poets for a day. Because poetry, especially its format called haiku, has unique affordances to reconnect students to the wonder of nature.

A haiku is a traditional form of Japanese poetry inspired by nature. A haiku poem includes three lines with a set syllable pattern, in which the first and last lines have five syllables, and the middle line has seven. The simplicity of its seventeen syllables, condensed in haiku's 5-7-5 pattern, works as a structure around which a thought is written in an inspired moment. Rather than communicate what to think and feel, haiku poems stress particular importance of the here and now. Take Basho's "frog" poem:

An old pond;
a frog jumps in –
the sound of the water.

What makes this haiku interesting is not the fact that Basho was the first to describe a frog but how the poem appreciates the sound of the frog jumping into the water, making the episode come alive before the eyes of the poet and the reader.

The appreciation of the ordinary and the emphasis on the present moment allows haiku poems to capture and imagine events from a participatory point of view. This being with, the act of empathy and the ability to identify with the other, is also key to creating a more caring relationship with nature. The visual image that is conceived when reading and writing haiku can help develop environmental awareness and climate literacy while learning a language that brings one closer to [nature](#).

Among teachers who use haiku, one practical challenge is whether to insist on the use of traditional conventions, including a strict syllable count of seventeen syllables: 5-7-5. Although this convention should not be deemed rigid, students can be encouraged to respect the traditional haiku format together with three other “golden rules” as guidelines about what a haiku should do:

- capture the essence of a moment in time: a sort of poetic photo snapshot.
- find the extraordinary in the ordinary: imagine you are looking at nature for the first time.
- reconnect our world to nature.

A simple way to do this is to invite students to choose a topic related to a particular element of nature. It could be a season, a particular ecosystem, or larger environment: the sea, the mountains, whatever comes to mind. Close your eyes, feel what surrounds you. Sense it. Smell it. Breathe it. Feel it. *Become* it. Then brainstorm words related to the theme. Try to write down the number of syllables next to each word. This is the basis of your haiku. Now you are ready to draft it.

Given its brevity and evocative imagery, writing haiku can be a successful way to encourage students’ creativity. Being only three lines long, a haiku is an easy and effective way to show the power of poetry even in a short class activity. It can be a particularly useful tool for students to express their thoughts and emotions freely and creatively, regardless of their age and level.

In our experience, haiku poems often serve as an emotional outlet for students to reflect on their own feelings whilst connecting them to nature. Given the inherent anthropocentrism of Western culture, these connections can also nurture deeper ones that, in turn, foster a critical awareness of the myriad systems that shape all forms of life on Earth.

The main purpose of reading and writing haiku is sharing moments of our lives and experiences that have moved us. On the deepest level, this is surely one of the greatest purposes of all art, not just poetry. Haiku can be implemented in the classroom at all grade levels as an approach to creative writing and an effective way to encourage students to use language as a form of connection between their inner selves and the natural world. Writing haiku poems can contribute toward a more thoughtful appraisal of the role humans play in the world. It can help change our attitudes and move us beyond the present crisis toward a more sustainable way of being with Earth.



Finding a Way Through: Teaching with Naomi Klein's *How to Change Everything: The Young Human's Guide to Protecting the Planet and Each Other*

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Abstract

In this reflection I share insights from reading Naomi Klein's *How to Change Everything* with undergraduate elementary education majors. I discuss how Klein's book offered pre-service teachers clear pathways for alleviating their own eco-anxiety and how it equipped them to help their future students navigate climate emotions.

Keywords

[climate change](#), [eco-anxiety](#), [nonfiction](#), [hope](#), [youth activism](#), [Green New Deal](#), [system change](#), [How to Change Everything](#)

In fall 2022, I taught an undergraduate course on children's literature that included a unit on building climate change awareness and the pivotal role of literature as a resource for this purpose. The course primarily serves elementary education majors, therefore discussions centered around pedagogical and curricular considerations for the classroom. Despite the magnitude of information available about the [climate emergency](#), it soon became clear that many of my students had little content knowledge about its geophysical and sociocultural impacts. This lack of content knowledge was coupled with a palpable anxiety about the future of our planet, referred to, variously, as [solastalgia](#), [climate grief](#), [climate anxiety](#), or [eco-anxiety](#) (Clayton, 2020). Certainly, varying levels of anxiety emerge when one considers the link between geophysical climate change and mental health of students and educators. Situated in a uniquely tenuous position of assuming responsibility for teaching students about what climate change *is*—and, importantly, what they *can do about it*—educators carry a large burden. Many students of mine expressed this sentiment of simultaneously managing their own anxiety and also learning to hold the anxieties of their future students. "Climate anxiety is something that worries me as a future educator," one student wrote, "but it is not something to withhold from a young person, rather, it is something that should be done delicately" (undergraduate student, 2022).

In response to this and other [climate emotions](#), I chose to teach a nonfiction text that offers an in-road to building knowledge and initiating action. [How to Change Everything: The Young Human's Guide to Protecting the Planet and Each Other](#) (2021) by Naomi Klein exemplifies what I consider to be a key developmental process in understanding climate change and teaching climate literacy: knowledge, action, and hopeful futures. Klein advocates for [system change](#) and provides a clear pathway through an otherwise overcomplicated amount of information. The book is an invaluable resource and I found it empowers the young reader with content knowledge, actionable tools, and—importantly—a sense of hope for the future. The hopeful thread weaved throughout each chapter is not encased in naivete. Nor does Klein leave the reader with shopworn recommendations such as the classic R's of reduce, reuse, recycle. Instead, she focuses on examples of [activism](#) that have been successful to counter climate change inaction on a sociopolitical level, along with constructing a base of knowledge for the reader. Each chapter breaks down information into bite-sized chunks that provide space to open discussions. Each includes photographs and breakout boxes that showcase activist-inspired vignettes. This formula not only creates a more digestible read for young/all readers; it creates a balance between information and story. And it is the story that threads a line of hope throughout what might otherwise be another work of nonfiction to further incite anxiety about the fate of our planet.

Take Chapter 8, titled “The Green New Deal”. Klein starts by showing how the United States has dealt with crises in the past: the New Deal in the 1930s in response to the Great Depression and the Marshall Plan in 1948 to aid in post-war rebuilding of the world. This helps her lay the historical foundation for the ways that a Green New Deal is possible and achievable. Klein’s writing is persuasive, speaking directly to the adolescent reader. “Your generation is spreading the vision of a Green New Deal,” she says. “Young people are telling us that politicians can no longer avoid it, and they are right” (Klein, 2021, p. 251). My undergraduate students were equally inspired by Klein’s insistence on what is possible. As one commented: “teachers can support [student activism](#) and educate [students] make the changes they want to the world. [*How to Change Everything*] was a great example of how text can give knowledge and a call to action for students to fight what they believe in” (undergraduate student, 2022). What evolved from the text-centered discussions has curricular considerations for classroom practice. The voices in the room echoed Klein’s hopeful assertions that we can do better to support young people. And who better understands the radical nature of the youth than teachers?

One good example of how Klein’s book supports the bridging of information into pedagogical considerations for future classrooms came late in the unit. Nearing the end of the book, students had participated in many discussions and activities to build a robust conceptual framework for grasping the complexities of climate change and the power of children’s literature for climate literacy pedagogy. There was a noticeable shift during the last week of the unit when students started to think through curricular options for teaching climate literacy in their future classrooms. There was also a growing excitement about how to incorporate activities and community-based activism for their future students. As one teacher-candidate wrote: “I have always been interested in climate change and finding new ways that we as humans can preserve the planet. This book was

an amazing read for young adults and even younger ages that maybe do not understand climate change or ways that we can help” (undergraduate student, 2022).

Cognitive science supports my students’ experience about the power of stories: [Ojala](#) (2012) characterizes “meaning-focused coping” as a strategy for children to hopefully and actively engage with climate change. [Clayton](#) (2020) further supports meaning-focused coping as an adaptive response to the psychological impacts of eco-anxiety. She describes how the children in Ojala’s study were able to “gain perspective on environmental problems by putting the problems into historical perspective, and/or [attempting] to find hope by trusting societal actors such as scientists to find solutions” (Clayton, 2020, pp. 4-5). This, in turn, leads to high levels of engagement and efficacy, when students are able to draw upon their own beliefs and goals to mitigate the negative maladaptive response to climate change, namely anxiety (p. 5). Having watched students engage with Klein’s meaning-focused writing, I believe they experienced fewer moments of eco-anxiety and more moments of hope. In teaching [climate literacy](#), we should be aware of our students’ eco-anxiety. We must develop the skills to teach and motivate them to not only thoughtfully respond to our world, but to be active solution-seekers. *How to Change Everything* helped my students understand their role as Earthlings, humans, and future teachers who can inspire others to build a hopeful future.

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Andri Magnason's *The Story of the Blue Planet:* Toward Ecotopia

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Abstract

The reflection describes my experience of using Andri Magnason's *The Story of the Blue Planet* as a hopeful guide toward classroom discussions about sustainable futures. Magnason's novel helps students appreciate the environmental choices we are currently facing and provides an outline for what needs to be done. Just like the children of the Blue Planet, we face similar challenges to overcome resistance to climate literacy and action. Magnason's message is hopeful and gestures at an ecotopian future. The book suggests that the choice to live sustainably is not as hard as it may seem.

Keywords

[Anthropocene](#), [climate action](#), [consumer culture](#), [utopia](#), [dystopia](#), [ecotopia](#), [development](#), [greenwashing](#), [ecological overshoot](#), [ecological destruction](#), [system change](#), [degrowth](#), [ecotopia](#), [Story of the Blue Planet](#)

In August 2019, Icelandic author Andri Magnason and a group of his researcher friends placed a plaque at the top of Ok mountain commemorating the loss of the Ok glacier in Iceland. Titled "A letter to the future," the plaque acknowledges the loss of the glacier to human-driven climate change. It states boldly, "This monument is to acknowledge that we know what is happening and what needs to be done. Only you know if we did it" (Magnason, 2019). This challenge to actively protect the environment is at the heart of Magnason's work, especially his ecotopian fable [The Story of the Blue Planet](#). Since its Icelandic debut in 1999, *Blue Planet* has been published or performed in 40 countries. It was also the first children's book to receive the Icelandic Literary Prize (Magnason, n.d). I teach *Blue Planet* in my children's literature course to facilitate discussions about climate change and our responsibility to the planet. I believe Magnason's novel helps students appreciate the choice we are currently facing and outlines what needs to be done.

Magnason's *Blue Planet* is the home of eternally youthful wild children who live carefree lives on their idyllic island. With no adults around to tell them anything, the children are free to do as they please. One day, however, Gleesome Goodday crash lands his rocket onto the island,

bringing with him all the trappings of civilization. Goodday manipulates the children into selling him a fraction of their youth in exchange for the ability to fly. But best friends Brimir and Hulda soon discover that the price of their fun may be far more than they are willing to pay—perhaps the death of the planet itself. Ultimately, the wild children must choose to give up their newfound powers in order to save their world. What I find personally interesting about the narrative arc of this text is the emphasis on the children’s awakening to their negative impact on their environment (i.e. [ecological overshoot](#)) and what they need to do next (i.e. [system change](#)). This growth in the characters’ climate awareness illustrates a move from the increasingly dystopian [utopia](#) toward [ecotopia](#).

The beginning of the story shows the wild children living in relative harmony with the natural world but fully unconscious of their impact on it. The children live in bliss, but it is a bliss of ecological and [climate ignorance](#) resulting from their [human-supremacist](#) worldview: “The wild children ate when they were hungry, slept when they got tired, and in between they played without anyone interfering” (Magnason, 2012, p. 10). Indeed, the world exists only for their pleasure. When Brimir is first introduced, he is contemplating stealing penguin eggs for supper. Shortly after that, Hulda arrives with a dead seal and offers to share a meal with him. “It was no big deal,” she says, “I knocked it out with a club” (p. 14). They proceed to skin, grill, and eat the seal. This cultural marker points to the northern origins of the text, where seal is a common staple, especially among Indigenous tribes. However, including this episode at the beginning also serves to illustrate the characters’ ignorance about their [ecological footprint](#). Beauty is all around them, and they exclaim rapturously about it, but nothing requires the children to reflect on their surroundings or on their role in sustaining the planet.

With the arrival of Gleesome Goodday, a strangely garbed adult who represents [consumer culture](#), the ignorance of the wild children is exploited. Goodday is attired in a Hawaiian shirt and carries a briefcase—arguably symbols for two significant exploiters of the environment: tourism and corporate business. Proclaiming the children “horribly underdeveloped,” Goodday declares that he will show them “real fun” by making their wildest dreams come true (p. 27). One such dream is the ability to fly. Having arrived in a rocket ship, Goodday is equipped with all manner of tools and gadgets, such as the “AP XU 456r 2000 Super Vacuum Cleaner” (p. 30), which he uses to vacuum up the butterfly powder that enables the children to fly. At first, the children express their concern for the butterflies. But once they are assured that the butterflies have not been harmed—other than having their ability to fly stolen—the children reason: “There are no laws on this island so it must be okay to vacuum-clean butterflies” (p. 30). Previous to Goodday’s arrival, watching the annual flight of the butterflies was the wild children’s greatest joy (p. 27). Now they are willing to trade that joy for the ability to fly themselves: a thought-provoking illustration of [human expansionism](#). Significantly, they emphasize their own lawless state to defend the theft of the butterfly powder.

But the “fun” doesn’t stop there. Although Goodday seems to give the children only what *they* desire, the wild children enthusiastically embrace *anything* he offers, sadly at the expense of other children and beings on the Blue Planet. When the children discover that the butterfly powder

only allows them to fly in sunlight, the children complain to Goodday that they are bored at night. So Goodday nails the sun to the sky to keep it shining all the time (p. 39). When clouds obscure the sun, the children ask Goodday to fix the weather once again. This time, Goodday creates a giant wolf from the smoke of his cigar to chase the clouds from the sky (p. 43). None of the children give a thought to what may be happening on the other side of their world due to the imbalance they have created by hoarding natural resources for themselves.

Before they can become [climate literate](#), Brimir and Hulda must recognize the damage their fun has generated: the [dystopia](#) created from the wild children's greed. When Brimir and Hulda are blown off course to the other side of the Blue Planet during a flying race, they discover a land in darkness. Here, cut off from the sun, children and animals are starving and plants are dying. Significantly, Brimir and Hulda discover that they no longer smell like real children due to the "Teflon wonder stuff" (p. 48) that Goodday coated them with. A bear refuses to eat them, believing they are either "plastic children or zombies" (p. 61). Because Brimir and Hulda smell faintly of butterfly powder, the wild animals call them the "butterfly monsters" (p. 69). Brimir and Hulda take advantage of that fear to demand that the animals serve them food. Their fun is cut short when the animals deliver to them a weak and pale child. Befriending the boy Darrow, they follow him back to his camp where they are introduced to other ghost children (p. 78). Not actual ghosts, the ghost children are in a desperate condition due to the [slow violence](#) of being deprived of sunlight on their side of the planet. They relay their plight to Brimir and Hulda and proclaim what I argue is the core message of the text: "If the forest dies, we die too" (p. 81). Embarrassed at their role in creating the dark side of the planet (i.e. [environmental degradation](#)), Brimir and Hulda mislead the ghost children into believing that their side of the world is suffering as well. The sympathetic ghost children gift Brimir and Hulda with precious food and supplies and most especially with a balloon that will get them home. Brimir and Hulda return from their journey with the knowledge that a choice must be made and the daunting task of convincing the wild children to make it.

Key to the resolution of the narrative is [collective climate action](#) and democratic process. Brimir and Hulda's revelations meet with resistance from both Goodday and the wild children. The wild children prevaricate, saying "Somebody must do something sometime" (p. 95). They also put their decision to democratic vote, which is heavily influenced by Goodday's [greenwashing](#). He argues that they can have their fun and save the ghost children, too: "If we all pull together and send the children in the darkness food and blankets and shoes, then we'll save their lives and we can still keep the nail in the sun" (p. 103). But Brimir and Hulda know that the imbalance of resources will not alleviate the suffering of the ghost children. In due course, it is the generosity of the ghost children themselves that finally turns the tide, when they send crates of supplies across the sea. Goodday initially plays off the fears of the wild children and tries to convince them the crates are full of bombs. Instead, the crates are full of food, clothing, and stories. Ultimately, the wild children agree to what is the book's version of [degrowth](#) and respect for [ecosystems balance](#): they return the butterfly powder to the butterflies and to unpin the sun.

What is refreshingly absent from this text is active violence in resolving the problems of the Blue Planet. The wild children make conscious choices to change their world by changing themselves

and the way they interact with their environment (i.e. system change). Goodday is not killed, banished, or punished, but instead given a more limited role. This may suggest that [regenerative economy](#) and consumer culture built on respecting planetary limits may be possible. Hulda provides the breakthrough when she asks Goodday what he dreams of. When it turns out that he wants “to be a king” (p. 121), Hulda and other children grant Goodday’s wish, observing that a king in a castle is “like a monkey in a cage” (p. 124). By granting Goodday his wish, the wild children will be able to keep an eye on him. The events that follow demonstrate that the wild children have learned from Goodday, although perhaps not in the way he imagined. In exchange for his castle and title, Goodday is persuaded to return the children’s lost youth and to unpin the sun. In the end, he even learns to appreciate fairy tales, starry skies, and the flight of the butterflies.

The impact of the [human enterprise](#) on the environment cannot be denied, as the fate of Ok illustrates. We can no longer pretend that what happens in one corner of the world has no effect on another. Magnason maintains, “The melting of the glaciers is an issue all future generations will have to deal with and adapt to. As the glaciers are not vanishing and becoming nothing, they are becoming a rising ocean that will come splashing at the city gates of the world” (2019). Magnason’s novel provides a hopeful, [planetarianist](#) narrative about people learning, coming together, and making informed choices for humanity and for the planet. The same choice is placed before us, just as it was for the children of the Blue Planet: Can we undo what we have done? Can we unpin the sun? And what ecotopian future are we brave enough to dream into being?

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Critical Dialogue: Climate Literacy in Context

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Abstract

In this conversation Kate Werthwine, a high school English teacher in Pasco County, Florida, and Alexandra Panos, a former middle grades ELA teacher who is currently Assistant Professor of Literacy Studies at the University of South Florida and Editor of *Climate Literacy in Education*, talk about Kate's artwork published in this volume. Kate and Alex discuss how the current laws and policy practices in Florida have impacted the stories that get shared in classrooms, including those that support learners in their own journeys to understand who they are and where they are from.

Keywords

[Florida](#), [zines](#), [place-based education](#), [book banning](#)

Alex

When I think about this piece, the first thing I wonder about is how that bookshelf came to be empty.

Kate

So, last year, the bookshelf was full. It was a classroom library. I had all sorts of books that I had collected in both English and Spanish. At the start of this year, with some of the changes in legislation and different decisions being made at the local level here in Florida [and across the United States, see for example: [Friedman & Tager, 2021](#); [Russel-Brown, 2022](#); [Sachs et. al, 2022](#)], the decision at my school and other schools around me—out of an abundance of caution—was to store the classroom library until we got more definitive guidance. So on the first day of school, I had an empty bookcase, which was very different from last year.

Alex

Where are your books?

Kate

My books right now are stored in the reading department. I did get a couple of boxes of books pulled from the book room that the school already okayed. So I now have two bins with some books that students can read in their free time. But the other books that I had collected are still in the reading room which students do not have access to.

Alex

I just have to say this censorship is so deeply heartbreaking, maddening. I'm so sorry this is happening to you and your students. I guess I'm very struck that you are explicitly, or at least to me it feels very explicit, in this piece saying this empty bookshelf is part of climate literacy. Why do you see those things as so interconnected, or juxtaposed?

Kate

I think there's two things that really stand out to me. One is that some of the books I'm waiting to find out if I can put out are stories that touch on [ecojustice](#). But, right now I don't know... can we even talk about those stories? Can we read those stories in our classroom? The other thing is, for me, I know some of those books were stories that helped me as a kid connect with where I live and the environment around me. I see these books as a way for my students to also learn about where we live and connect to the environment around them. Right now, they don't have access to these stories in their place of learning. I think that telling stories and learning the stories about the place where you are is important for not only understanding where you live, but who you are. I think of different books that I read growing up in Florida that were meaningful to me, like [Strawberry Girl](#) (Lenski, 1945/2011) or [Hoot](#) (2002/2019). They helped me understand who was here before me and how this place that I live in came to be. We take these stories, these guides, that teach us about ourselves and the natural world we are a part of with us wherever we go. Right now, it's hard to figure out what stories we are allowed to tell in schools.

Alex

We get stories in so many ways. Books are not the only ways we get stories; certainly they're an important one. I guess it also makes me think about the hidden consequences your empty bookshelf brings up. This legislation is not only about books. It's also about the web pages and news stories and other ways of thinking that the policies and laws in your district and others across the state of Florida (and the US) are navigating and that you're navigating. There is a chilling effect on all of the stories that we get to tell about who and where we are, and where we live. When I think about responding to environmental crises, we need as many stories at our disposal as we can find: to be present, to be with our past, and to imagine new futures together. When laws like these deprive teachers and children of autonomy in the stories they get to tell and share with one another—limiting children's

autonomy to forge new ways of being with one another—this allows climate crisis and climate injustice to perpetuate. The story of your experience is a story that deserves to be told, so thank you for sharing this beautiful piece.

Kate

I think stories are survival guides. I really do. Because that's how we learn from other people. And so right now, just having that sense of not even knowing what stories we can tell is disturbing. What's going to be okay in the classroom to actually use? It's hard trying to navigate all this stuff when we don't have specific guidance. As a teacher, I want to make sure that my students have access to the best things possible and access to the best education possible. Right now, I am on uneven ground. What *can* I do? What *can* I give my students access to? What do we all need, right now? We need survival guides, we need stories.

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What is Climate Literacy?

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Abstract

This article offers a work-in-progress description of the concept of climate literacy as used in *CLE*. The first part includes a working definition. This is followed by a brief historical outline and a two-fold approach to understanding climate literacy: as a narrow, disciplinary-specific competence versus a wider, interdisciplinary one.

Keywords

[climate literacy](#), [climate science literacy](#), [NOAA](#), [climate change education \(CCE\)](#), [ecocentrism](#), [care](#), [CLICK framework](#), [CCESD framework](#), [ecological design intelligence](#), [sustainable development](#)

First, a working definition of [climate literacy](#). I offer it with humility, aware of my limited subjective experience as a white, male Earthling, and as a springboard to your own thinking. Climate literacy is an understanding of the climate emergency—its facts, drivers, impacts, and urgency—that centers on developing values, attitudes, and behavioral change aligned with how we should live to safeguard the Earth’s integrity in the present and for future generations. Climate literacy requires harmonizing multiple ways of knowing—explicit/objective and tacit/subjective—into a lived, emotionally charged, and personally felt understanding of the planetary predicament in the [Anthropocene](#). It demands embracing our responsibility, both [individual](#) and [collective](#), to stand up for everyone’s biospheric inheritance: for all of Earth’s systems that sustain life and are currently reeling under multi-pronged assault from anthropogenic climate change. (For other definitions of climate literacy see [NOAA](#), 2007; [Milěř & Sládek](#), 2009; [Milfont](#), 2012; [Hiser & Lynch](#), 2021).

There are many ways to unpack this definition and its guiding assumptions, so I want to add three additional points. First, I take inspiration from Indigenous thinkers like Robin Kimmerer, Tyson Yunkaporta, Kyle Whyte, Vandana Shiva, Winona La Duke, Wahinkpe Topa, Grace Dillon, and others who champion the notion of knowledge as care. Accordingly, the conceptualization of climate literacy offered here is care-centric. I believe that climate literacy includes a broad range of competencies which—for pedagogical purposes—may be described as falling into four core domains: Earth Care, People Care, Kinship Care, and Systems Care (see “The CLICK Framework,” forthcoming in issue 2).

Second, developing climate literacy requires looking past the upbeat, progressivist self-image projected by the global [neoliberal](#) civilization into its darkest and most oppressive design features: [racism](#), [colonialism](#), [extractivism](#), [ecocide](#), [greed](#), [materialist reductionism](#), [short-termism](#), [anthropocentrism](#), [speciesism](#), and others. Climate literacy is the knowledge of the implicated, involving and connecting the worst perpetrators and the most innocent victims. In all its forms, it is difficult, uncomfortable knowledge. It demands that we choose truth over convenience, that we acknowledge the ecocidal nature of the neoliberal global system in which we live (Klein, 2014; 2019; 2021; Mann, 2021). No matter who you are, how privileged or underprivileged, becoming climate literate is challenging on a personal level. Teaching climate literacy is also challenging on the interpersonal and institutional levels, not least because today's education is a subsystem of an unsustainable civilization and was designed to support the needs of the ecocidal market economy. It can be transformed from within, but it comes at a cost too.

Third, climate literacy is a narrative capacity. It involves creating [ecocentric](#) ways of thinking, being, and acting, all of which require developing the language and conceptual framing to articulate our goals, identify models, and build coalitions. It is well established that human cognitive architecture evolved for narrative understanding. Given that the primary means by which we navigate reality is culturally-dominant narratives—sometimes referred to as “stories-we-live-by” (Stibbe, 2015, p. 6) or “intersubjective imagined orders” (Harari, 2015, p. 117)—the shape of our future will be determined by the stories we choose to tell and by our courage to imagine what it takes to transition to an ecological civilization (Oziewicz, 2022). Accordingly, a climate literate person is not merely able to grasp the urgency of the climate emergency. They are also able to articulate this understanding as stories that engage anticipatory imagination and mobilize action. This is why stories are the primary tool for building universal climate literacy.

I now want to offer a brief history of climate literacy as a concept and of two alternative terms: [ecological design intelligence](#) and [climate change education](#).

The term “climate literacy” was originally coined at a workshop organized by NOAA and AAAS in 2007. The purpose was to establish a common set of curriculum guidelines for climate education—guidelines that became “7 Essential Principles” and were published in a brochure [Climate Literacy: The Essential Principles of Climate Science](#) (2007, revised 2009). Given the organizational profiles of NOAA and AAAS, climate literacy was from the start framed as a synonym for “[climate science literacy](#)”: learning about the science behind climate research and the science behind how the Earth system works. Or, in NOAA-AAAS wording, “an understanding of your influence on climate and climate’s influence on you and society” ([NOAA](#)). A large body of research continues to view climate literacy as a science competence. This line of thought is also reflected in the Next Generation Science Standards, or NGSS (since 2013).

Of course, we need to learn about climate science. But is this the only role education can play? The answer is no. A deeper challenge here is the technocratic framing, with its information-deficit model, that narrows the scope of climate literacy to a mere knowledge of scientific facts (Taylor, 2013; Siegner & Stapert, 2020). This framing promotes detached ways of knowing that leave no space for learning about, let alone learning to critique, the dominant paradigm of carbon-

intense perpetual growth that is known to be the key driver of climate change. The NGSS framework works, but it works for a narrow band of learning. It is not designed to consider the entanglements of climate change with our food systems, legal systems, consumption habits, market practices, dominant ideologies, and other non-science spaces of human activity that drive climate change far more than the lack of familiarity with climate science.

The realization that learning about the climate emergency should go beyond science has been around at least since the 1990s. One good example is David W. Orr's [Earth in Mind](#) (1994). Orr opens up by saying that the crisis we face is not one of science or technology but “a crisis within the minds,” originating with our “inability to think about ecological patterns, systems of causation, and the long-term effects of human actions.” To counter this “disorder in thought,” Orr believes we need education in what he calls *ecological design intelligence*: “the capacity to understand the ecological context in which humans live, to recognize limits, and to get the scale of things right.” Such education, he says, is the only way to “calibrate human purposes and natural constraints” to shape both the technologies we use and “our ideas and philosophies relative to the earth” (p. 2).

Orr's education in ecological design intelligence is probably the earliest version of today's holistic notion of climate literacy as a wider, multidisciplinary, socio-cultural competence. Although the technocratic tilt continues—with 99.88% of all funding available for climate-related research between 1990 and 2018 going to the natural and technical sciences (Overland & Sovacool, 2020)—the vast majority of scholars today lean toward a position that “climate change is about *more than science*”; it “must be understood as a socioscientific topic cutting across academic disciplines and their political, civic, geographic, economic, social, cultural, psychological, and historical dimensions ..., as well as across traditions in environmentalism, activism, economics, politics, religion, and art” (Panos & Damico, 2021, p. 3). Put otherwise, climate change is not a STEM issue. It's a worldview issue, entangled with our values, perceptions, beliefs, and lifestyles.

This integrative thinking gave rise to another term that emerged as an alternative to climate (science) literacy: climate change education (CCE). CCE was first proposed in the [Climate Change Education for Sustainable Development](#) Program launched by UNESCO in 2010. Based on the premise that “addressing global climate change takes more than science alone” (p. 1), the [CCESD framework](#) consists of four core areas, in which climate science education is just one. Unlike the NGSS, which limit learning about climate change only to science and only to grades 6-12, CCESD posits that climate change education should be accessible to all ages. Moreover, it should be culturally-relevant—“oriented according to the local context and prioritize passing traditional knowledge and practices to learners”(p. 5)—and should aim “to bring a holistic understanding of climate change, its underlying causes, driving forces and impacts, as well as options to mitigate and adapt to them” (p. 4).

This broader thinking about climate literacy also informs a number of ground-breaking books that appeared in the 2010s, say, Rebecca A. Martusewicz, John Lupinacci, and Jeff Edmundson's [EcoJustice Education](#) (2011), Bill Bigelow and Tim Swinehart's [A People's Curriculum for the Earth](#) (2014), and Richard Beach, Jeff Share, and Allen Webb's [Teaching Climate Change to Adolescents](#) (2017). One result of these and other publications in the U.S. is that in 2019 both the

National Council for Social Studies (NCSS) and the National Council of Teachers of English (NCTE) passed resolutions calling for climate change to be included in social sciences and English language arts classrooms. I wish I knew about the developments in other countries too.

Where does it all leave us today? As of 2023, we live in a world where the need for climate literacy education—or climate change education—is urgent and widely recognized. The vast majority of parents, teachers, and students want schools to offer comprehensive climate literacy instruction, not just in science, but across all subject areas. The vast majority of schools do not meet this demand. This gap can be breached. As stated in 2021 UNESCO report, [*Reimagining Our Futures Together: A New Social Contract for Education*](#): “Research on the effectiveness of climate change education finds that much of it focuses exclusively on scientific teaching, without cultivating the full breadth of competencies necessary to engage students in effective action” (p. 34). Our opportunity today is to design climate literacy curricula that engage all these competencies: intellectual, emotional, and creative. Our challenge is to make climate literacy education available to all students in all schools everywhere.

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Beyond the Barnyard: Boardbooks and Other Big Lies We Tell about Industrial Farming

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Abstract

Boardbooks featuring farmed animals are a staple of literature for very young children. Yet their depictions of happy, colorful, and cute barnyard animals obscure the grim realities of farming today, including the fact that industrial animal operations are one of the key drivers of the climate emergency. This article explores this tension and suggests alternative ways to help youngest readers connect to the realities of farming through children's texts.

Keywords

[boardbooks](#), [farmed animals](#), [industrial agriculture](#), [barnyard friends](#), [CAFOs](#), [slow violence](#), [convenient self-delusions](#)

In 1850, the United States Federal Census counted 11,516 pigs and 5,000 humans living inside 571 square miles of Mesquawki land that would soon be named Washington County, Iowa (U.S. Census Bureau, 1850). These pigs lived alongside other animals: chickens, sheep, draft horses, milk cows, wild turkeys, foxes, domestic cats, mice, and more. As that century became the next, this agricultural diversity remained largely the same for the 2,500 farms raising over 120,000 total pigs and other livestock (U.S. Census Bureau, 1910). The growth continued. With the advent of veterinary vaccines, improved concrete formulas, more efficient manure removal, automated watering and feeding infrastructure, and a growing urban public, [confined animal feeding operations \(CAFOs\)](#) came into prominence as an unprecedentedly efficient technology. CAFOs segregated pigs into distinct buildings that corresponded with discrete stages of swine growth: farrowing houses, nurseries, and other buildings were designed and built for each phase. Farms specialized and consolidated. The markets shifted. Overhead plummeted. Today, Washington County is home to 22,000 humans and 1.5 million pigs: the third greatest concentration of pigs in the U.S. (USDA, 2017). The confinement buildings housing these pigs are ubiquitous, lined up along the highways and gravel roads cutting perpendicular across the flatness. You can drive through the entire county and never see an actual pig.

Just as ubiquitous, though less immediately obvious from a passing car, is the havoc of [slow violence](#) (Nixon, 2011) this industry wrecks: [worsening water and air quality](#), myriad physical and mental health risks, and economic stratification ([Gurian-Sherman](#), 2008; [Castillo & Simnitt](#), 2020). In 2004, a study of rural wells in Iowa found elevated nitrate levels in half of those sampled and detectable levels of coliform bacteria in nearly a third. In 2018, 700 Iowa waterways were found to be polluted, largely owing to nitrates from manure runoff (Iowa Department of Natural Resources, 2020). Research has also directly linked the intensification of the livestock industry to increased reports of cyanobacteria content in drinking water near livestock operations and to destructive algae blooms across the nation, particularly in the lower Mississippi River delta (Burkholder et al., 2007). Humans who live near CAFOs are more likely to experience a range of adverse health effects, too, including respiratory disease, hypertension, bacterial infection, and cognitive impairments ([Casey et al.](#), 2005).

In face of this reality, here's a fiction: the dozens and dozens of [boardbook titles](#) that comprise a fictitious genre called [barnyard friends](#): a motley crew containing pigs, sheep, cows, ducks, horses, geese, dogs, and one lazy farm-cat lounging in the haymow (Lawrence, 1989). These invite readers young and old to “imagine blissful barnyard friends who eat grass all day in the sunshine and go to warm snug stalls at night” (p. 73). Some barnyard friends boardbooks are narratively driven, such as [Good Morning, Farm Friends](#) (Bach, 2018), in which the multispecies cast enjoys life on the same farm over the course of a plot—in Bach's book, it's a morning routine. Other boardbooks, like [My Friends](#) (Tufari, 1987), constitute what Bettina Kümmerling-Meibauer and Jörg Meibauer call [concept books](#) (2005). In these barnyard friends boardbooks, each page includes only one image of a farmed animal set above their common name in text. Taken in totality, without plot, the images collectively coalesce into a concept: a diversified, small, sustainable farm.

Sure, farms like the one depicted in *Good Morning, Farm Friends* do indeed exist. But they are not nearly as common as is suggested by their abundant misrepresentation in boardbooks, nor do they supply a fraction of the total animal product that Americans consume annually. Moreover, there are zero boardbooks that depict CAFOs. So, what is at play in the disjuncture between contemporary American agriculture and the prominence of barnyard friends books? Are they merely one of our convenient self-delusions? Barnyard friends boardbooks are, for many infants, among the first encounters they will have with depictions of farmed animals. Yet, the books' lexical simplicity belies their massive ideological weight. So, in the face of an increasingly [industrializing animal livestock industry](#) and an increasing distance between the majority of Americans and the animals they consume, I wonder: why should boardbooks be so instrumental in maintaining a lie?

Here's another truth: boardbooks are important. They help infants and toddlers develop preliteracy skills that support lifelong literacy. Boardbooks orient our youngest readers to the materiality of books themselves. They are made to withstand slobber, mud, paint, rips, bites, and all sorts of destruction wrought by the little hands capable of manipulating their easy-to-turn pages. Likewise, the stark visual contrast between boardbooks' plain backgrounds and simplified focal objects helps young eyes learn to distinguish images; clean fonts, consistently positioned on every page, aids in differentiating text from image. In short, as very young readers learn the sensorimotor

skills needed to manipulate a book, they are also learning that a book conveys meaning beyond itself.

Boardbooks also do important cultural work. Like all literature, boardbooks suggest something about the way the world is—and, by extension, what their young readers should expect from it. As with any ideological production, barnyard friends came from *somewhere* and some *time*. The condensed history goes like this: ABC books featuring animals aboard Noah’s Ark become pastoral odes to an increasingly distant rural life. Serendipitously, they proved just right for the simplified content needed for modern boardbooks. Cows say *moo*. This is a *pig*. Can you see the *duck*?

Despite its fictionality, the diverse barnyard remains pervasive, even celebrated. This celebration of a pastoral fantasy masks a truth about American agriculture that adults do not wish to admit to themselves, let alone share with the young people in their lives. And yet this reality must be faced if we are to understand the underlying socioeconomic structures upholding the climate emergency.

If barnyard friends mask the ecological harm of the livestock industry, what can boardbooks do to help alleviate it? A knee-jerk reaction would be to publish boardbooks that depict CAFOs. As a thought experiment, this is provocative. But in reality, CAFO boardbooks would neither be the most practical nor ethical response. Here are three alternatives:

1. Instead of purchasing one of the hundreds of barnyard friends boardbooks, adults could choose boardbooks that depict local agriculture that infants could experience firsthand. Sara Andersen’s [Vegetables](#) (2008) or [A Day at the Market](#) (2009) could invite talk about the produce seen at farmer’s markets or community gardens while also offering opportunity to develop inside-out pre-literacy skills that center vegetable-related vocabulary.
2. Boardbook creators and publishers can produce and promote more books akin to the above: concept books featuring farmer’s markets, regenerative [agriculture](#), [permaculture](#), or [community gardens](#). They should also do so equitably, signing BIPOC creators and highlighting BIPOC producers and communities that have historically been made invisible in environmental literature, ecofiction, Cli-Fi, and other genres.
3. Collectively, as educators and adults, we must develop the language needed to nuance the distinction between the farms depicted in barnyard friends books and the industrial farms that supply the vast majority of food in the United States. So, too, should we get smarter about what exactly is meant by the terms family farm, organic, industrial, diverse, and more.

By clarifying the differences between livestock agriculture as it is practiced, livestock agriculture as we might wish it to be (if we even wish it to be at all), and the ways that it is misrepresented on the page, adults and young people alike can better understand the differences between fiction on the page and truth in reality. We need to learn to confront [convenient self-delusions](#). It will be a necessary skill for continuing the work of facilitating discussions about the [Anthropocene](#) writ large.

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“The Next Right Thing”: *Frozen 2* and Youth-Led Activism

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Abstract

In “The Disneyfication of Climate Crisis: Negotiating Responsibility and Climate Action in *Frozen*, *Moana*, and *Frozen 2*,” we argue that *Frozen*, *Frozen 2*, and *Moana* encourage young people to identify with princesses who take action against metaphorical climate change. Although the films are hampered by Disney’s own capitalist framework, extratextual discussion and activities can push young viewers past these limitations. This article demonstrates how to use *Frozen 2* as a springboard for effective ecopedagogy in elementary-school settings.

Keywords

[ecopedagogy](#), Disney, [youth participatory action research \(YPAR\)](#), [activism](#), [Frozen](#), [Frozen 2](#), [Moana](#)

In “[The Disneyfication of Climate Crisis: Negotiating Responsibility and Climate Action in *Frozen*, *Moana*, and *Frozen 2*](#),” we argue that [Frozen](#), [Frozen 2](#), and [Moana](#) encourage young people to identify with princesses who take action against metaphorical climate change, even if the films do not achieve fully effective [ecopedagogy](#) as defined by scholars such as Moacir Gadotti, Angela Atunes, Richard Kahn, and Greta Gaard. The films themselves are hampered by Disney’s own capitalist framework, but extratextual discussion and activities can push young viewers past the limitations of the films toward a more fully realized and active ecopedagogy. This article focuses on using *Frozen 2* as a springboard for effective ecopedagogy in elementary-school contexts.

Our original “Disneyfication” article is guided by Gaard’s analysis of ecopedagogy, which can be condensed into three questions to ask of children’s environmental media: 1) does it challenge the binary and power imbalance of human/nature?; 2) does a community or solitary child solve the environmental issues?; and 3) does it describe nature as having subjectivity and agency, or is nature passively rescued? (pp. 327–30). As we conclude, *Frozen 2* does particularly well at giving nature its own agency, satisfying the third of Gaard’s criteria. However, *Frozen 2* does not quite meet the

other two criteria. In order to mobilize the film as an effective ecopedagogical tool, the work started in the film must be finished outside of it through discussion, research, and projects.

From the start, expanding on the ecopedagogical potential of *Frozen 2* must be grounded in a willingness to let go of the traditional power associated with adults and teaching. Gaard argues that effective ecopedagogy challenges the binary and power imbalance of humans versus nature as well as the parallel relationship of children versus adults. Therefore, research and activism extending from this film should be youth-led. This means going beyond constructivist principles of education and farther into surrendering adult control over the learning situation. The [Youth Participatory Action Research \(YPAR\)](#) approach offers guidance for adults who want to learn how to put power in the hands of young people to develop more equitable adult-child community partnerships. YPAR is designed with middle and high-school-aged young people in mind, but children in elementary school can achieve similar levels of leadership through an intentionally designed sequence of lessons that utilize P. David Pearson & Margaret C. Gallagher's [model of gradually releasing responsibility](#). Children who are accustomed to top-down structures in their classrooms, especially, will benefit from a slow introduction to having the power to direct research and produce solutions alongside adult collaborators.

The process of gradually helping children recognize their own potential as activists can begin with the modeling present in *Frozen 2* itself. The characters Anna, Elsa, and Kristoff may be much older than elementary school students, but we describe in our “Disneyfication” article how these protagonists are designed to encourage children to identify with them. In order to prompt children to think more about how these characters are problem-solvers, students can be asked to describe how each of these characters recognizes a problem and takes action to resolve it or help another character resolve it.

This conversation can lead into discussion of individual heroism versus community solutions. In our “Disneyfication” article, we show how *Frozen 2* relies too heavily on individual action rather than community activism, which is another of Gaard's criteria for effective ecopedagogy. Pairing the film with nonfiction books about community activism could produce more helpful comparisons about how real people take action and how this looks similar to and different from the action the characters take in the film. Ideally, these books would demonstrate adults and children working side by side rather than “heroic” but isolated celebrity child activists. Examples might include Christina Soontornvat and Rahele Jomepour Bell's [To Change a Planet](#), books about Indigenous community relationships to the natural world such as Traci Sorell and Frane Lessac's [We Are Grateful: Otsaliheliga](#), or books about communities in nature such as Tara Kelley and Marie Hermansson's [Listen to the Language of the Trees](#). Teachers might also be tempted by project books such as Penny Arlon, Susuan Hayes, and Pintachan's [The Extraordinary Book That Eats Itself](#), and while having a few such books on hand for students to see as models might be helpful, one of the foundational principles of ecopedagogy is that children develop projects for themselves rather than rely on adults to provide the ideas and materials.

In addition to encouraging activism in young people, *Frozen 2* offers natural opportunities to explore the topics of damage to water and [forest ecosystems](#), [colonial violence](#) against nature

and Indigenous people, and intergenerational responsibility in the real world. However, learning more about the real versions of environmental damage or colonial violence may elicit big emotions. Here, again, the potency of using *Frozen 2* characters as models comes into play. Anna’s song “The Next Right Thing” would be a powerful way to model dealing with the unpleasant emotions that come along with damage, violence, and accepting responsibility. [Environmental destruction](#) and failed attempts at fixing it may produce strong [climate emotions](#) in children, including sadness or hopelessness, especially if the destruction in question has led to sickness or death for people or animals. Children may have heard adults complaining that environmental problems are too big or someone else’s responsibility. Discussing the lyrics of this song and encouraging students to apply Anna’s situation to their own potential feelings—say [climate grief](#) or [climate anxiety](#)—would pair well with social-emotional learning goals and give them additional language for when they may encounter these emotions.

Having discussed their own potential as activists through the lens of *Frozen 2*, students can explore local environmental issues and consider how they can be resolved. Expanding this outside the film means taking the fictional agency depicted in the film, where nature spirits have the power to trap a whole forest and demand help from Elsa, and transferring that fantasy-based concept into conversations about what nature can do in real life and where it needs human help. Just as this framework establishes adults and children as collaborators, the final task is to frame research projects and activism as a collaboration with [nature](#). Some possible resources to begin thinking about this collaboration might include [The White House’s Nature Base Solutions Resource Guide](#), a 43-page document that includes a list of federal priorities for climate change reduction, the [National Environmental Educational Foundation’s Citizen Science initiatives](#) which includes a list of ongoing federal projects that require local volunteers such as tracking butterflies or frogs, or mapping bird habitats, and the [National Science Teaching Association](#) study on climate education in Alaska. While not directly accessible to elementary-aged students, these resources, along with the [Youth Participatory Action Research \(YPAR\)](#), might help guide educators in thinking about student-led collaborative activism.

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You Are Here

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Artist Statement


“You are Here” is an excerpt from a zine exploring how literacy, embodiment, and climate literacy intersect in the classroom. The zine reflects on the role that [place-based learning](#) has in my teaching practices and on some of the challenges I face trying to incorporate [place-based pedagogy](#) into my teaching. I initially created the zine during a writing retreat with other Florida-based educators. Over the course of the retreat, a major theme that kept coming up was *shared vulnerability*—that is, being willing to share our stories and hear the stories of others. Perceptive and proficient readers need more than “skill and drill.” Students need to engage with the stories of the people and places around them to develop their literacy skills and their understanding of the environments they live in.

Some invitations for reflection:

- Think about the environment where you live and teach. Where is your “Here”?
- What stories can you tell about this place? Whose stories are they?
- Whose story is missing?

Keywords

[vulnerability](#), [embodiment](#), [zine](#), [place-based learning](#), [place-based pedagogy](#)



Stories are
our survival guides.

We find safety in shared vulnerability,
and stories lead us there.

How do I teach stories,
how do I teach survival, now
that they've taken my books away?

We are being
dislocated from this place.

I cannot be dislocated
from my body and
my body cannot be
dislocated from Here.



Arts for the Planet

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Artist Statement

In 2022, the Center for Climate Literacy launched the first iteration of its [Arts for the Planet Visual Media Contest](#). Young artists currently enrolled at the Minneapolis College of Art and Design were invited to submit visual media that explored some tenant of climate literacy: values, attitudes, and behavioral change necessary to safeguard the Earth's integrity in the present and for future generations. Taylor, the contest's overall winner, illustrated *E is for Ecocentrism*, which depicts in both text and image what it might mean to decenter our human selves in our greater "web of weaving." Honorable mentions included Olivia, who reimagines classic film tropes for the Anthropocene in *ZOOM OUT*; Breanna, whose work *They Will Fade* is a call to consider how human activity threatens the Minnesota state bird, the loon; and Juliana, in *RRR*, reveals fast fashion's impact on one of the planet's most incredible biomes, the Atacama Desert.

We invite educators in all contexts to consider how facilitating similar programs can inspire students to actualize their climate literacy through insightful, meaningful, and engaging art.

Keywords

[visual art](#), [student activism](#), [ecocentrism](#), [Anthropocene](#), [loons](#), [fast fashion](#)



E

IS FOR
ECOCENTRISM
WE ARE ALL
CONNECTED IN
THIS WEB
WEAVING

ZOOM OUT



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oooooooooooooooooooo

THIS IS THE REAL STORY.

They will Fade



UNLESS WE CHANGE



ATACAMA DESERT, CHILE



WHERE IS OUR HOME?

PROTECT OUR HOME!

