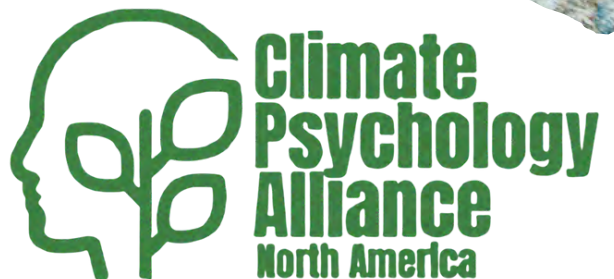


# An Educator's Guide to Climate Emotions



Climate Psychology Alliance of North America  
Educators and School Counselors Committee



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# Educator's Guide to Climate Emotions

*Working with the feelings evoked by the climate crisis in the classroom*

## Summary

*The climate crisis is profoundly impacting the emotional well-being of young people. While teaching about the causes, consequences, and responses to global warming, K-12 educators can create space for students to identify, understand, and express their feelings about living through a time of rapid environmental change.*

*This report offers suggestions for age-appropriate pedagogical approaches, cross-disciplinary teaching methods, as well as opportunities for collective action and collaboration. The guide highlights the transformative potential of incorporating emotions in climate education to foster a sense of agency, efficacy, and purpose among students.*

## Introduction

Melting glaciers, rising sea levels, deadly heat waves, wildfires, air pollution, hurricanes, flooding and more. The human-driven processes and impacts of climate change are disrupting young people's lives and are putting their homes, institutions, and physical and mental health at risk. A groundbreaking 2021 [global study of 10,000 youth](#) found that 75% find the future to be frightening, 56% believe that humanity is doomed, and more than 50% experience feeling "sad, anxious, angry, powerless, helpless, and guilty." Nearly half of respondents said their feelings of climate change negatively affect their day-to-day functioning, and higher levels of distress were associated with feelings of betrayal from government inaction. According to a [recent survey from the EdWeek Research Center](#), 37% of American teens feel anxious about

climate change, while many others report feeling helpless, afraid, and overwhelmed.

Young people may not always talk about these experiences in school or act outwardly distressed, but their feelings about climate change are still making their way into the classroom. So what can educators do to help young people navigate these difficult emotions? **As part of teaching the causes and impacts of global warming, educators can create space for students to identify, understand, and express their feelings about what it's like to live on a rapidly changing planet.** Educators can also work with students to explore local, regional, and global climate solutions, and to locate opportunities to channel emotions into constructive action, both individually and collectively.

## Understand Climate Change Causes, Impacts and Solutions

Before introducing climate change conversations into the classroom, teachers should have a solid understanding of the forces driving climate change, the nature and sites of climate impacts, and the most effective methods of addressing these causes and consequences. **Climate communicators stress 5 key facts: “It’s real. It’s us. It’s bad. Scientists agree. There’s hope.”** This simple framework provides a structure for further investigation which can include any of the many resources available online, in books, and through professional development opportunities. (See Appendix A, Learning more about climate science and teaching climate change.)

Being knowledgeable about the causes, consequences, and responses to climate change can give educators the confidence to handle challenging questions that may arise during class discussions. It can also help teachers dispel myths and fallacies that may be contributing to students’ emotions. (See Appendix B, Myths and how to respond.) At the same time, it’s important to remember that it’s okay not to have all the answers and to explore the answers together with students.





## Recognize Common Climate Emotions

Terms such as “eco-anxiety” and “climate anxiety” have entered the popular lexicon as shorthand for a range of emotions and experiences that climate change and other ecological crises evoke. The American Psychological Association and EcoAmerica define **eco-anxiety** as “**the chronic fear of environmental doom.**” **Eco-anxiety can also describe “mental distress or anxiety associated with worsening environmental conditions or anxiety experienced in response to the ecological crisis.”**

Other emotions include “eco-grief” or “climate grief,” which refer to “a wider loss and anxiety related to the overall effects of climate change.” Psychologists have also identified additional feelings such as anger, frustration, guilt, overwhelm, powerlessness, and loneliness. Newer words have emerged in English to describe the complex mix of emotions that can arise in response to a changing climate, such as “solastalgia,” meaning the homesickness that arises when climate change has drastically altered your home and “terrafurie” or “earth rage.” Some students may have words in other languages they speak that express their feelings on these topics. And some students may not use specific words referring to emotion, but may instead talk about their changing relationship with place, land, and/or weather patterns.

Proximity to the causes and impacts of climate change can influence students’ emotional responses. Some climate emotions can be more anticipatory, while others are the result of chronic exposure to pollution or other impacts. Still others are immediate or delayed responses to a specific climate event or events. Access to familial or social support and other socio-economic factors also influence how well people cope with and recover from climate disasters.

Regardless of the type of emotions a student experiences in response to climate change, all of these reactions are normal and valid. **Climate or eco-anxiety, dread, fear, rage, and despair are not signs of mental illness. Rather, these feelings are an “expected, adaptive response to a real and enormous threat.”** Additionally, not all climate emotions are necessarily negative. In studies, some respondents express feeling motivated or even optimistic when they think about climate change.

Teachers can anticipate a range of emotional expressions to climate change in their students. However, some young people may only communicate feelings of despair to the exclusion of all other emotions. Many students have already come to believe that humanity is doomed, even though the scientific research does not support this claim. While it’s important to not invalidate a young person’s experience, educators can still gently challenge students to question all-or-nothing thinking and the media they consume that supports these kinds of narratives. (See Appendix B, Myths and how to respond and Media literacy.)



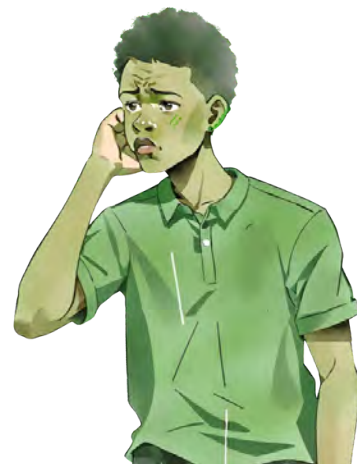


## Recognize Common Climate Emotions Continued

Environmental threats provoke strong feelings in many students, but some may deny being concerned, express disinterest, or even make jokes. These reactions can be provoked by a variety of factors, such as inadequate knowledge about climate change, a desire to avoid experiencing negative feelings, or conflicts with beliefs that have been learned at home. For example, students whose families or communities are supported by extractive or polluting industries (i.e. fossil fuels, mining, lumber), may find that conversations about climate change trigger denial, hostility, internal conflict, confusion, or apparent apathy. Young people from more advantaged backgrounds may believe that privilege protects them from climate impacts. Other students may lack emotional awareness or feel discomfort when it comes to exploring their feelings in an educational context and in front of their peers.



For some young people, especially those with racialized identities, expressing emotions in public spaces can be fraught with danger. Black and brown students may have been targeted by administrators for expressing anger; boys may have been taught that sadness equals weakness; some cultures and families discourage expressing emotion in public at all. Neurodivergent students may have ways of expressing emotions that don't map onto neurotypical educators' expectations or have been labeled as "disruptive." Educators should never presume what a student is feeling, or push them to express what they are feeling, and should be prepared to pause a discussion that is escalating or appears to be causing students to shut down. Methods for guiding discussions about other complex topics that provoke strong or conflicting reactions among students can also be useful here. (See Appendix A, Holding difficult classroom conversations.)





## Recognize Common Climate Emotions Continued

As with any emotional disturbance, including others caused by social and structural conditions, climate emotions may show up in students as difficulty focusing, a decline in grades, withdrawing or getting quieter, acting out, or complaints about physical symptoms with no obvious cause (headaches, stomachaches). This may be especially true for younger students who can not yet fully articulate what they are feeling.



The recognition of climate emotions by educators is not meant as a substitute for professional therapeutic interventions. Rather, its purpose is to make space within the context of the classroom for the range of feelings that climate change naturally brings up and to normalize their existence. For students who have difficulty managing strong emotions, counseling professionals can be called on to provide additional support. More information can be found on this later in the guide.





## Acknowledge Disproportionate Impacts

Children are especially vulnerable to climate change because their bodies are more vulnerable to pollutants, infections, and high temperatures, and because they may not be able to respond to emergency conditions that an adult would survive. Disaster, food insecurity, unstable housing and high levels of social and environmental disorder, all of which qualify as Adverse Childhood Experiences (ACEs), can put them at risk for chronic mental health problems later in life--and can all be caused by climate impacts.

While all young people will experience the effects of climate change during their lifetimes, not all will be exposed to those effects equally. Those living in frontline communities across the world are already experiencing the worst consequences. **Climate change has been called a “threat multiplier,” meaning that those who are impoverished, disenfranchised, and cut off from health care, transportation, and other means of living well are more significantly impacted and find it harder to recover from the consequences of climate-related disasters.** This includes racialized people; individuals with disabilities; those who live in low-income communities; LGBTQ+ individuals; and people who are vulnerable to gendered violence. Because of intersectional oppression, the impacts of climate change are magnified even further.

**Research indicates that in the U.S., people of color are most likely to experience the negative consequences of climate change and are also most likely to be concerned.** For some students, this may manifest through worries about immediate environmental issues, such as living near toxic facilities, difficulty accessing safe drinking water, food apartheid, and health issues such as asthma from air pollution. Especially in under-resourced, low-income, and/or urban settings, students and their families may struggle to stay cool during extreme heat or lack the resources to respond to natural disasters. Indigenous communities whose worldviews and ways of life are intertwined with the land in a range of ways may find that a cultural crisis is synonymous with a practical one, as the ecosystems they depend on and steward for food, shelter, and spiritual sustenance change or are destroyed.



## Acknowledge Disproportionate Impacts Continued

Since climate change affects every industry, students' guardians may face new economic and health hardships due to layoffs, interruptions in the supply chain, or working conditions worsened by extreme weather. **For many students, “the ecological crisis is a background factor that has a growing effect on the more acute distresses of their lives.”**

As with other inequalities, it is likely that educators will have students with different types of concerns and experiences together in one class. (See Appendix A, *Holding difficult classroom conversations*.)



## Engage in Self-Reflection

Teaching climate change is tough work, and studies show that educators also experience a range of climate emotions. For this reason, it's also important for educators to identify methods of collective and self-care. There are many resources for adults to talk together about the emotional experiences of climate change, including online and in-person discussion groups. (Table C lists these.) Professional organizations for climate education (see Table C as well) may provide an opportunity to connect with other educators going through similar experiences. It can also be helpful to form a supportive group of teachers at your school or district to discuss your challenges and successes in teaching climate change. Many of the suggested exercises for students (i.e. Make Space for Climate Feelings) in this guide can be helpful for teachers as well, as can some of the opportunities for collective action.



## Engage in Self-Reflection

Talking about the ecological crisis can bring up a lot of anxieties in everyone, so it's wise for educators to be mindful of whether their own fears are shaping the messages they share with students. For example, narratives that focus too much on "doom and gloom" can make students feel overwhelmed and helpless. On the other hand, some educators may feel pressure to communicate only positivity.

Yet, this too can be troublesome, as students recognize when their legitimate concerns are not taken seriously. A more balanced approach can communicate solidarity with young people for the challenges they face growing up in a changing climate. This also models for students how to tolerate the complex and difficult emotions that the climate crisis evokes. When teachers take the time to learn about climate feelings and explore their own internal responses to climate change, it can help them better guide students through this difficult emotional terrain.







## Listen

**Students have much to gain from learning about and discussing climate change in the classroom, and when educators also create space for all types of climate emotions, these experiences can be transformative.** Because children and adolescents have grown up with the constant threat of ecological disaster, their thoughts and emotions about climate change may differ from those of adults. Many students may also have survived disasters that their teachers or classmates have not endured. Teachers should be prepared to support students' experiences that may be unlike their own.

It is good practice to first learn what your students' concerns are, and how they are responding to those concerns, in order to choose an approach to both climate information and climate emotions that fits your students' needs. In some cases, observing students' reactions to climate information with an awareness of its possible emotional impact may be the way to learn what concerns them most. Climate-related prompts for "quiet" assignments such as journaling (read only by the teacher), or imaginative assignments that involve envisioning or designing the future, can help students bring forward their concerns and build up to in-class conversations. Educators can also use these conversations to assess and build upon students' understanding of their own current and future roles in slowing climate change and responding constructively to its effects.



## Make Space for Climate Feelings

Interweaving the following activities into your climate change lesson plans makes room for students with multiple styles of learning and expression, and signals to students that their emotional responses to climate change – and their emotional realities in general – are worth understanding, taking seriously, and handling responsibly.

- Teach your students about climate emotions – validate and normalize their feelings
- Watch/discuss video/s that show people experiencing climate emotions
- Make space/time for emotional processing in lessons that may evoke feelings
- Pace out lessons relating to climate change so it is less overwhelming
- “Toggle” between climate information with activities for grounding, releasing, and/or re-regulating emotion, including:
  - Embodiment/somatic activities (bodily awareness and movement)
  - Creative expression (visual art, writing, music)
  - Contemplative activities (guided meditation or envisioning, mindfulness)
  - Contact and connection with other living beings and relationships (outdoor learning, caring for and observing classroom plants and animals)
  - Opportunities to explore joy, gratitude, and self-care through any of the activities outlined above

A balance of informational and processing activities is especially important because students will have differing reactions to frightening or disturbing information. In some cases, these reactions may stem from trauma, instability, or exploitation that young people have experienced or witnessed in their lives. However, regardless of life experience, many students find that learning about climate change produces strong emotions. Activities that do not require head-on confrontation with facts or feelings can give students more autonomy and more time to choose what to express and how to express it. Since processing, learning, and integration can only happen within a student’s window of tolerance, alternating stressful discussions with tools for finding steadiness can help students expand this window and feel more agency.



## Consider Age-Appropriate Approaches

While some educators may worry about introducing climate change to younger-aged children, psychologists indicate this can be done in ways that honor the developmental and emotional needs of young learners. Teachers at all grade levels can make room for discussing climate emotions and developing social-emotional practices to help students meet climate change in age-appropriate ways:

### Early Childhood and Elementary

- *Exploration of and responsibility toward the natural world*
- *Care, stewardship, and interconnectedness among all living things*
- *Introduction of simple climate science, climate justice, and collective action through read-alouds and discussion (See Appendix D, Children’s Books.)*
- *Recognizing and naming emotions in self and others*
- *Emotional self- and co-regulation*
- *Learning while experiencing grief, loss, and change*
- *Disaster preparedness*
- *Additional resources for grades K-5*

### Older Elementary and Middle School

In addition to building upon and expanding earlier skills, students can explore:

- *Basic climate science and articulation of emotional reactions*
- *Impacts of global warming, including on mental/emotional health*
- *Connections between climate change and other systems (social, economic, political)*
- *Climate justice through diverse narratives, centering the voices of those most impacted*
- *Basic media literacy skills and analysis of emotional responses*
- *Age-appropriate pathways for collective climate action, and nurturing a sense of possibility*
- *Skills for managing anger and productive conflict (including, but not limited to, when students’ reactions to climate change differ). (See Appendix A, Holding difficult classroom conversations.)*

### High School

In addition to building upon and expanding earlier skills, students can explore:

- *More in-depth studies of climate change with opportunities for cross-disciplinary connections*
- *Advanced media literacy skills and analysis of emotional responses to news, social media, and misinformation (See Appendix B, Media Literacy.)*
- *Emotional self- and co-regulation in the face of challenges to climate facts and realities*
- *Local government and community power mapping*
- *Opportunities for intersectional, regional, and transnational allyship for climate justice*
- *Civic engagement at school, local, regional, national, and/or international levels*
- *Career exploration in climate-relevant fields, and further developing a sense of possibility*
- *Shared envisioning and exploration of livable futures, where we’ve resolved many of the problems we live with now*
- *Skills for peer listening and support when strong climate (or other) emotions surface*
- *Further pathways for collective action and leadership*



## Take a Cross-Disciplinary Approach

Climate change is a complex problem impacting all aspects of human experience that will require a holistic and cross-disciplinary approach to address. Climate change has connections with all curricular areas, and considering this can enrich your teaching practice as well as support your students' sense of agency. (See Appendix E.)

## Integrate Indigenous Perspectives

Indigenous peoples and nations protect a large percentage of the planet's biodiversity, and the lands they steward are among the healthiest on earth. Traditional ecological knowledge demonstrates the interconnections and relationships within living webs, showing how separations of humanity from the rest of the living world are false and harmful. Respectfully integrating diverse first-person Indigenous perspectives, readings, and stories can support restoring relations of reciprocity, respect, and care. Indigenous approaches to land-based learning, the actions and messages of land and water protector movements, and efforts toward decolonization can be incorporated into climate lessons for all ages. Educators should also find ways to connect with local Indigenous groups and identify meaningful opportunities for collaboration and place-based learning. (See Appendix F.)

## Let Students Know Others Care

Studies show that a majority of Americans acknowledge climate change is real and is a significant problem: over half of American residents describe themselves as 'alarmed' or 'concerned' about climate change, and two-thirds support policies that target causes of climate change and implement solutions. Sharing this information with students can provide reassurance that others care about the climate crisis. Breaking the "spiral of silence" by communicating concern about climate change can be a powerful act that goes against existing social norms and offers students relief and recognition: they are not alone.



## Teach Climate Action

While we cannot eliminate the changes to our climate that have already begun, there are many avenues for effective adaptive and mitigative action that students can learn about and even take part in. Large-scale climate interventions, such as those studied by [Project Drawdown](#), can help students understand the types of responses needed to address the issue on a global scale. These include a diverse range of approaches, such as empowering girls and women, supporting Indigenous land rights, and reducing food waste. Students can learn about these and many others, investigate their potential impacts, and discover how they are currently being implemented worldwide. **Exploring the ways that humans are already responding to the climate crisis can instill a sense of possibility and even excitement among young people. It can also spark conversations about ways to implement these types of solutions at a local level.** For example, students may want to petition their school to start a food waste reduction and composting program. They can begin a campaign to support climate-forward policies in their town, state, or country. Educators can guide students to seek the areas where their interests, skills and capabilities connect with climate and environmental needs. (See Appendix G.)

One strategy that is commonly used in schools to help students understand climate solutions is the carbon footprint calculator, a tool that measures the amount of emissions produced by an individual. While this method has some benefits, it also has drawbacks that are worth consideration. On the one hand, it can help students see the source of emissions produced in their own lives and compare that to per capita emissions in other parts of the country or the world. For a young person living in the United States, it can be eye-opening to recognize that their emissions are, on average, three times higher than the global average, and 160 times more than individuals in many Sub-Saharan African nations. When used in this way, the carbon footprint calculator may be used as part of a larger discussion around consumer culture, climate justice, and/or can motivate students towards collective action and allyship. It can also spur actions on a local level (such as in a school district) to improve greenhouse gas emissions or encourage students to choose actions that align with their values. However, the carbon footprint calculator, which was popularized by British Petroleum in the early 2000s, focuses attention on individual actions as solutions, avoids naming the industries responsible for climate change, and may lead students to feel shame and frustration for things outside their control. For students in the global north, a region whose historic contributions to climate change have been significant, this can provoke feelings of guilt for lifestyles they did not choose.



## Teach Climate Action Continued

A more useful concept may be the “climate shadow,” an idea that embraces the impact of all of our actions. It includes the choices we make individually and collectively, how we influence others, and the ways we work together towards large-scale solutions. Shifting the ways that educators frame climate change solutions, with a focus on the variety of available opportunities for climate action, can help students build both their sense of personal agency and their capacity to be part of large-scale positive change. Recent research also suggests engagement in activism can provide a buffer against eco-anxiety and other climate distress young people experience. (See Appendix H, Media resources, independent learning, and action opportunities for young people.)

## Collaborate and Call in Help

The work of educators helping students process their emotions around climate change is only one piece of a larger collaborative effort that must also include parents, guardians, other family members, school counselors, and administrators. Community environmental organizations, health and mental health providers are also valuable sources of support. While teachers have a very important role to play, they cannot go it alone, nor are they expected to offer the help that other people and professionals are better suited to provide.

### Parents, guardians, and caregivers can support students by:

- Asking what they already know about climate change
- Being open to questions and discussion about climate change and climate emotions
- Validating feelings that children and young people have about climate change
- Discussing climate actions that can be taken as a family
- Supporting students’ efforts in climate action
- Connecting young people to additional sources of support
- Learn more about ways to support children and teens. (See Appendix I, Resources for parents, guardians, and caregivers.)



# Collaborate and Call in Help Continued

## School counseling staff can support students by:

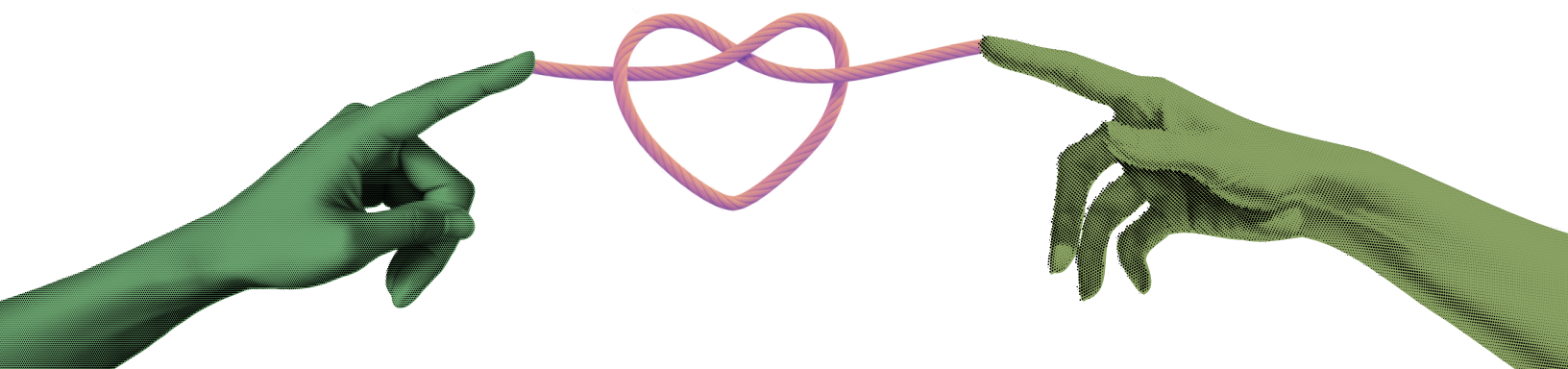
- Providing opportunities for emotional support
- Including climate emotions when evaluating potential sources of distress
- Helping to process intrusive thoughts about the climate crisis
- Facilitating the expression of difficult emotions through one-on-one counseling or in groups
- Permitting supervised breaks from difficult class discussions
- Encouraging them to imagine climate-responsive futures and career paths
- Providing referrals to one-on-one mental health care providers, including climate-aware therapists, and/or online support groups (See Appendix G, Climate Mental Health Resources for Youth.)
- Learning more about how school counselors can support students as they grapple with climate emotions.

## School nurses, athletic directors, and coaches can support students by:

- Connecting the dots between climate change, mental health impacts, physical health impacts such as heat exhaustion and asthma
- Communicating ways to alleviate climate-related medical implications to students, staff, and families
- Adjusting expectations and requirements for athletic practice and play to reflect adverse outdoor conditions, including heat, air quality, and extreme weather

## Administrators can support teachers and students by:

- Reevaluating standards and benchmarks for success in the context of our climate realities
- Encouraging educators to integrate climate emotions, climate justice, and climate solutions in all content areas
- Funding or providing climate-related professional development for school staff
- Providing time for interdisciplinary planning and collaboration between teachers, counselors, support professionals, and administrators
- Backing student leadership in school and community-based climate initiatives
- Encouraging student civic engagement on climate change at local, regional, and national levels
- Budgeting for student clubs, after-school programming, and community teach-ins or activities
- Prioritizing climate mitigation and adaptation through school and district policies
- Equipping schools as disaster and resilience-building hubs





## Collaborate and Call in Help Continued

### Community environmental organizations can support teachers and students by:

- Providing direct experiences with the local environment
- Creating opportunities for hands-on climate action
- Offering volunteer work and internships
- Partnering with schools to offer field experiences
- Bringing in speakers to talk about climate change, climate justice, and mental health
- Providing examples of environmental professionals who deeply care for the human and more-than-human world while also experiencing climate grief and other emotions
- Backing climate-forward legislation

### Community health and mental health providers can support students by:

- Responding to climate-related emergencies
- Providing healthcare for ongoing climate impacts
- Offering low- or no-cost and culturally appropriate mental health services, climate-aware therapy, and/or online support (See Appendix H, Climate mental health resources for youth.)
- Educating about the relationships between climate change, physical and mental health
- Advocating for government policy that protects physical and mental health
- Planning for mental, emotional, and physical recovery after disasters



## Conclusion

The ecological changes happening in the world around us evoke strong feelings, especially among young people whose lives are being and will continue to be altered by a changing climate. Educational institutions bear a responsibility, not only to teach students about the causes, consequences, and responses to climate change but also to help them navigate the emotional terrain of living on a rapidly warming planet.

For educators this means developing the knowledge and self-awareness to be able to guide students, making space for climate emotions within lessons, engaging in cross-disciplinary investigations, exploring opportunities with students for collective engagement and action, and collaborating with other sources of support in the school community. While these efforts will not entirely eliminate eco-anxiety and other related emotions for students, having the opportunity to express, work with, and through their feelings can help young people feel less alone, more connected with others, and valued. When students connect what they learn in school with opportunities to shape the world at large, this can ultimately foster a sense of agency, efficacy, and purpose in their lives.

Educators are already required to reckon with situations beyond their classrooms that harm their students under conditions that make both teaching and learning difficult. Climate change intensifies all of those factors, and a classroom where students and teachers could truly reckon with climate realities together would be different in many other ways as well. We hope this guide will both serve teachers and students under the current conditions and offer an opportunity to imagine how education itself can change to meet our current world.





## Appendices

### Appendix A

#### **Learning more about climate science and teaching climate change**

[Climate Education Resources](#)

[Climate Interactive: En-Roads Climate Solutions Simulator](#)

[Climate Solutions 101 - Project Drawdown](#)

[Engaging Gen Z in the Climate Crisis](#)

[Explore the CLEAN Collection of Educational Resources](#)

[For Educators – Climate Change - NASA](#)

[Guidance in Teaching Climate and Energy](#)

[Nature Lab](#)

[Resources for Teaching About Climate Change - New York Times](#)

[SubjectToClimate](#)

[Teaching Climate - NOAA](#)

[Teaching Climate Change for Grades 6-12](#)

[Teaching Climate Change to Adolescents](#)

[Teacher-Friendly Guide to Climate Change - SubjectToClimate](#)

[The Climate Reality Project](#)

[The Essential Principles of Climate Literacy](#)

[TILclimate Guides for Educators - MIT Climate Portal](#)

[What is climate change? A really simple guide - BBC News](#)

[Yale Climate Communication Tools for Educators](#)

[More resources](#)

#### **Holding difficult classroom conversations**

[Controversy in the Classroom: Strategies for managing climate change discourse \(CLEAN\)](#)

[Courageous Conversations with Students \(LAUSD\)](#)

[Difficult Dialogues \(UConn Center for Excellence in Teaching and Learning\)](#)

[Difficult Dialogues \(Vanderbilt University\)](#)

[Inclusive Moves \(Derek Bok Center for Teaching and Learning at Harvard\)](#)

[Preparing Students for Difficult Conversations \(Facing History\)](#)

### Appendix B

#### **Myths and how to respond**

Links on the “More Accurate Climate/Environmental Information” side lead to overviews of these concepts, often from government agencies, occasionally from nonprofits or journalistic coverage. Some of these overview pages link to teaching materials to help educators and students go more in-depth, and/or to scientific sources.

**For more, see [Arguments from global warming skeptics and what the science really says](#).**





## Appendices

Climate Change Myth or Misconception	More Accurate Climate/ Environmental Information
“The climate has changed before. It has nothing to do with humans.”	<u>Many factors can change the climate.</u> Right now <u>human activities</u> , especially burning fossil fuels and the destruction of ecosystem resilience, are the <u>major factors</u> .
“Scientists are still debating climate change.”	<u>97% of scientists agree</u> that climate change is happening and is human-driven, and <u>over 99.9% of studies confirm</u> those positions.
“There have always been natural disasters. What we’re seeing now is no different.”	Climate change is increasing the overall frequency, erratic occurrences, and intensity of dangerous weather events like <u>storms, droughts, and high temperatures</u> .
“It’s not going to affect me / my family / the place where we live.”	Climate change <u>already affects all of the places we live</u> and the systems we live by, including <u>the things we use and how we make and get them</u> . Scientists predict that those effects will become more frequent and more disruptive as global temperatures warm.
“There’s nothing we can do about climate change.”	Because humans are driving climate change, humans <u>can slow it down</u> by <u>doing fewer of the things that cause it</u> and finding different ways to get what we need and want.
“We’re all doomed, so what’s the point?”	Scientists <u>do not predict</u> that climate change will destroy all life on earth or even all human life. We can take better care of the living systems we’re part of to help more living things survive.
“I’m only one person / I’m just a kid. There’s nothing I can do.”	<u>Each person can be part of making a difference.</u> There are <u>many ways to act together</u> to slow down climate change and <u>alter the systems that cause it</u> .
“The best environmental action we can take as individuals is to recycle.”	Recycling ( <u>especially plastic recycling</u> ) doesn’t work as well as we thought it did. ( <u>Paper works better.</u> ) Reusing certain things and consuming fewer things <u>are both good!</u> Learning more about <u>how to reduce pollution of all kinds</u> can help us set up more environmentally friendly systems.
“Overpopulation is causing climate change – there are too many people for the earth’s resources.”	The <u>planet generates plenty of resources</u> to support all life on Earth, including human lives – we just need to use them efficiently, fairly, and responsibly. <u>Our current systems create systemic inequities</u> that prevent proper resource distribution, which is why <u>addressing climate change also involves increasing equality among people</u> .

# Appendices

## Media literacy

[Resource Library](#) | [Media Literacy Now](#)  
[Media Literacy Resources](#) |  
[NewseumED](#)  
[Media Literacy Resources for Classrooms](#) | [Common Sense Education](#)

## Appendix C

### Resources for adults to talk with adults

[Climate-Aware Therapist Directory](#)  
[Climate Cafes - Climate Psychology Alliance](#)  
[Climate Psychiatry Alliance](#)  
[Community Care & Repair Space](#) —  
[Climate Critical Earth](#)  
[Good Grief Network](#)  
[Resources for people of color](#) —  
[Boundless in Motion](#)  
[You're Invited to a Climate Emotions Conversation](#)

### Climate education organizations

[Action for the Climate Emergency](#)  
[CLEAN Network](#)  
[Climate Generation](#)  
[National Center for Science Education](#)  
[National Environmental Education Foundation](#)  
[North American Environmental Association for Environmental Education](#)  
[Office for Climate Education](#)  
[Ten Strands](#)

### Professional development opportunities

[Shelburne Farms Climate Resiliency Fellowship](#)  
[Summer Institute for Climate Change Education](#)  
[Teaching Climate - Presidio Programs for K-12 Educators](#)

## Appendix D

### Books for adults and older youth on climate change, climate justice, and climate emotions

[A Bigger Picture](#) – Vanessa Nakate  
[A Field Guide to Climate Anxiety](#) - Sarah Jaquette Ray  
[Active Hope](#) - Joanna Macy and Chris Johnstone  
[All the Feelings Under the Sun](#) - Leslie Davenport  
[All We Can Save](#) - Ayana Elizabeth Johnson and Katharine K. Wilkinson  
[As Long As Grass Grows](#) - Dina Gilio-Whitaker  
[Before the Streetlights Come On: Black America's Urgent Call for Climate Solutions](#) - Heather McTeer Toney  
[Braiding Sweetgrass](#) - Robin Wall Kimmerer  
[Braiding Sweetgrass for Young Adults](#) - Robin Wall Kimmerer  
[The Climate Book](#) - Greta Thunberg  
[Climate Change and Youth: Turning Grief and Anxiety into Activism](#) - Linda Goldman  
[Fresh Banana Leaves](#) - Jessica Hernandez  
[Generation Dread](#) - Britt Wray  
[How To Live in a Chaotic Climate](#) - LaUra Schmidt, Aimee Lewis Reau and Chelsie Rivera  
[It's Not Just You](#) - Tori Tsui  
[It's Not That Radical](#) - Michaela Loach  
[Lessons from the Climate Anxiety Counseling Booth](#) - Kate Schapira  
[No Planet B](#) - Teen Vogue  
[Not Too Late: Changing the Climate Story from Despair to Possibility](#) - Thelma Young Lutunatabua and Rebecca Solnit  
[One Earth, People of Color Protecting our Planet](#) - Anuradha Rao  
[Saving Us](#) - Katharine Hayhoe  
[Spinning Out](#) - Charlie Hertzog  
[Stone Soup for a Sustainable World: Life-Changing Stories of Young Heroes](#)

## Appendices

### Children's books

All Around Us - Xelena González and Adriana Garcia

A Kids Book About Climate Change - Zanagee Artis and Olivia Greenspan

Coco's Fire - Jeremy Wortzel and Lena Champlin

Everything is Connected - Jason Gruhl

Fatima's Great Outdoors - Ambreen Tariq

Listen to the Earth - Carme Lemniscates

Old Enough to Save the Planet - Loll Kirby and Adelina Lirus

Rebel Girls: Climate Warriors - Rebel Girls

Saving American Beach - Heidi Tyline King

Something Happened to Our Planet - Marianne Celano and Marietta Collins

Thank You Earth: A Love Letter to Our Planet - April Pulley Sayres

The Boy Who Harnessed the Wind - William Kamkwamba and Bryan Mealer

The Puddle Garden - Jared Rosenbaum

The Coquíes Still Sing - Karina Nicole González and Krystal Quiles

The Tantrum That Saved the World - Megan Herbert and Michael Mann

The World Is Ours to Cherish - Mary Annaïse Heglar

We Are Water Protectors - Carole Lindstrom

Why We Live Where We Live - Kira Vermond

Willodeen - Katherine Applegate

You Are Unstoppable - Meghan Kennedy-Woodard and Patrick Kennedy-Williams

More resources





# Appendices

## Appendix E

### Opportunities for climate education across curricula

Opportunities for climate education across curricula

For more ideas on interdisciplinary connections, see [Subject to Climate](#).

Many of these options can be enriched by collaboration or visits from local professionals.

<b>Language Arts</b>	Climate fiction	Persuasive essays (reading and writing) about climate change	Media studies and cultural narratives of climate change
<b>Mathematics</b>	Greenhouse gas inventory of school buildings	<u>Analysis of climate data</u>	<u>Economic consequences and solutions</u>
<b>Science</b>	Local impacts of climate change	<u>Experiments that explore site-specific interventions</u>	<u>Citizen science data collection</u>
<b>STEM</b>	Design challenge for climate adaptation	Current trends in clean energy technology	Net-zero/green building design
<b>Social Studies</b>	International negotiations and treaties	History of redlining and movements for environmental justice	Opportunities for civic engagement
<b>World Languages</b>	Global impacts on cultures and geographies	Climate change vocabulary and dialogue	Global climate movements
<b>Visual and Performing Arts</b>	Exploration of climate emotions through art or performance	Visual and performing artists making work about climate change	Persuasive visual or performing arts to inspire audiences to action
<b>Wellness</b>	Impacts of dietary choices on greenhouse gas emissions	Physical and psychological benefits of green space	Strategies for coping with eco-anxiety

## Appendices

### Appendix F

#### Integrating Indigenous perspectives

Integrating Indigenous perspectives

5 ways to Indigenize your Curricula

As Long as Grass Grows

Braiding Sweetgrass

Braiding Sweetgrass for Young Adults

Coming Full Circle: Indigenous Knowledge, Environment, and Our Future

Decolonizing Early Learning

In Their Own Words: The 'Water Protectors' Of Standing Rock

Indigenous Peoples and Climate Justice

Landback

Native Perspectives-Everyday Lessons

Great Lakes TEK

Teacher/Indigenous Partnerships: Building Engagement and Trust For History and Social Science Education

These Indigenous educators are bringing Western and Native science together in the classroom

Traditional Ecological Knowledge & Place-based Learning Communities

We Are Water Protectors

Weaving Traditional Ecological Knowledge into Biological Education: A Call to Action

What is the Indigenous landback movement — and can it help the climate?

### Appendix G

#### What a collective approach to climate action can teach students

<b>Individual framing</b>	<b>Collective framing</b>	<b>Subject areas</b>
<i>Students — and teachers, and staff — might do these on the levels of their households. Their impacts are real, but they are small, and they don't change the systems that drive climate change or build community connections to meet climate impacts.</i>	<i>These solutions have more impact because they address the forces that drive climate change, and/or because they build community relationships and power. Members of the school community might join together to do or demand these actions.</i>	<i>Teachers might use the actions at left as illustrations/examples of principles, or opportunities for real-world learning.</i>



## Appendices

<p><i>Ride your bike to school or work to burn less climate-warming gasoline and reduce traffic congestion.</i></p>	<ul style="list-style-type: none"> <li>• Lobby the town/city for <u>bike infrastructure</u></li> <li>• Start a monthly/weekly <u>Walk, Bike, and Roll to School</u> day</li> <li>• Hold bike repair workshops for the school community</li> <li>• Partner with a larger organization to provide free bikes for students</li> </ul>	<ul style="list-style-type: none"> <li>• civics/social studies</li> <li>• organization/planning</li> <li>• life and vocational skills</li> </ul>
<p><i>Weatherize your home and switch appliances from gas to electric to use less fossil fuel energy, meaning less fuel is mined and transported.</i></p>	<ul style="list-style-type: none"> <li>• Understand and demand Percentage of Income Payment Plans for utilities</li> <li>• Learn and share information about federal and state weatherization subsidies</li> <li>• Make connections between sustainable renovation, housing equality, and tenants' rights</li> <li>• Explore policy challenges that have slowed energy infrastructure transitioning</li> </ul>	<ul style="list-style-type: none"> <li>• math/budgeting, civics/ social studies, engineering</li> <li>• math/budgeting, civics/social studies</li> <li>• architecture/building, civics/social studies, history</li> </ul>
<p><i>Planting a tree removes carbon dioxide from the atmosphere and makes areas more climate-resilient.</i></p>	<ul style="list-style-type: none"> <li>• Partner with Indigenous and other ecology experts to restore and tend local ecosystems (See <i>Appendix F.</i>)</li> <li>• Understand and advocate for sustainable development that leaves forests, grasslands, etc. in place</li> </ul>	<ul style="list-style-type: none"> <li>• biology, ecology, history</li> <li>• biology, ecology, engineering, civics/social studies</li> </ul>
<p><i>Eating locally grown food means fewer greenhouse gas emissions, especially from shipping.</i></p>	<ul style="list-style-type: none"> <li>• Learn about food systems and <u>food sovereignty</u>, sustainable and regenerative agriculture, farm subsidies, farmworkers' rights, and how <u>healthy soil</u> stores carbon dioxide</li> <li>• Start a school vegetable garden to increase community access to fresh produce</li> </ul>	<ul style="list-style-type: none"> <li>• history, nutrition, economics, biology/ecology</li> </ul>

## Appendices

<i>(additional opportunities for collective framing)</i>	<ul style="list-style-type: none"> <li>Learn about fossil fuel infrastructure, the permitting process, environmental laws and regulations, and avenues for public comment and dissent</li> </ul>	<ul style="list-style-type: none"> <li>engineering, chemistry, civics/social studies</li> </ul>
<i>(additional opportunities for collective framing)</i>	<ul style="list-style-type: none"> <li>Learn about regenerative economies (circular, donut, etc.), sustainable industries, occupational health and safety, and a <u>just labor transition</u></li> </ul>	<ul style="list-style-type: none"> <li>career planning and development, engineering, economics, civics/social studies</li> </ul>

### Appendix H

#### Media resources, independent learning, and action opportunities for young people

[1.5 Degrees](#) - YouTube

[Action for the Climate Emergency](#)

[Black Girl Environmentalist](#)

[Break The Divide Foundation](#)

[Brown Girl Green](#)

[Earth Guardians](#)

[Force of Nature](#)

[Fridays for Future](#)

[Our Climate, Our Future](#)

[Intersectional Environmentalist](#)

[Kids Fight Climate Change](#)

[Multisolving Institute](#)

[Mycelium Youth Network](#)

[Our Climate](#)

[People's Hub](#)

[People's Utility Commons](#)

[Queer Brown Vegan](#)

[Schools for Climate Action](#)

[Sunrise Movement](#)

[SustyVibes](#)

[Take Two Media Initiative](#)

[Teen Vogue's climate and environmental coverage](#) (collected in [No Planet B](#))

[Alaina Wood](#)

[UN Climate Action Super Heroes](#)

[UNICEF Prepare to Act Toolkit](#)

[Voices of Youth Climate Toolkit](#)

[Youth vs Apocalypse](#)

[Zero Hour](#)

### Climate mental health resources for youth

[Climate-Aware Therapist Directory](#) - [Climate Psychology Alliance of North America](#)

[Climate Cafés](#) - [Force of Nature](#)

[Good Grief Network Teens Program](#)

[The Youth Climate Circle](#) - [One Resilient Earth](#)

### Appendix I

#### Resources for parents, guardians and caregivers

[Climate Action for Tired People - A Toolkit and Quiz for Parents and Others](#) - [Kate Schapira](#)

[Climate Mama](#)

[How to talk to kids about climate change with these 6 tips](#) : [Life Kit](#) - [NPR](#)

[How to Talk to Your Kids About Climate Change: Turning Angst into Action](#) - [Harriet Shugarman](#)

[Just For Parents - Climate Change Resources](#)  
[K12 Parent Climate Advocacy Toolkit](#) - [This Is Planet Ed](#)

[Moms Clean Air Force](#)

[Mothers Out Front](#)

[Parenting in a Changing Climate](#) - [Elizabeth Bechard](#)

[Parents Resources - Climate Mental Health Network](#)

[Our Kids' Climate](#)

[Resources for Parents and Families](#)

[The Golden Hour](#) - [Anya Kamenetz](#)

[Your Guide to Talking With Kids of All Ages About Climate Change](#)



# Appendices

## Appendix J

### Articles on cross-disciplinary climate education and climate emotions

[8 Ways To Teach Climate Change In Almost Any Classroom - NPR](#)

[Beyond Doom and Gloom: Teaching Climate Change to Foster Empowerment - NSTA](#)

[Climate Anxiety and High School: How Young People Are Coping - Teen Vogue](#)

[Climate Anxiety Is an Overwhelmingly White Phenomenon - Scientific American](#)

[Climate Education That Builds Hope and Agency, Not Fear - Eos](#)

[Embracing the emotions behind climate science - Stanford Center for Innovation in Global Health](#)

[Our House Is on Fire — Time to Teach Climate Justice - Zinn Education Project](#)

[Teaching Climate Change in Every Subject - Edutopia](#)

[Teaching Climate Change Through Social and Emotional Learning - Edutopia](#)

[Tips and Ideas for Integrating Climate Literacy Across the Core Subjects - Green Schools National Network](#)

### Books on climate education

[Climate Change Education - Cassie Xu and Radhika Iyengar](#)

[The Existential Toolkit for Climate Justice Educators - Jennifer Atkinson and Sarah Jaquette Ray, Eds.](#)

[Learning in the Age of Climate Disasters: Teacher and Student Empowerment Beyond Futurephobia - Maggie Favretti](#)

[Miseducation: How Climate Change Is Taught in America - Katie Worth](#)

[A People's Curriculum for the Earth: Teaching Climate Change and the Environmental Crisis - Bill Bigelow and Tim Swinehart](#)

[Teaching Climate Change - Mark Windschitl](#)

[Teaching Climate Change for Grades 6-12 - Kelly Le](#)

[Teaching Climate Change in Primary Schools - Anne Dolan](#)

[Teaching Climate Change in the Humanities - Stephen Siperstein, Shane Hall, Stephanie LeMenager](#)

[Teaching Climate Change in the United States - Joseph Henderson and Andrea Drewes](#)

[Teach for Climate Justice - Tom Roderick](#)

### Scholarly writing/research on climate education

[A case for climate justice education: American youth connecting to intragenerational climate injustice in Bangladesh - Sarah Riggs Stapleton](#)

[Climate change education: A new approach for a world of wicked problems - Anna Lehtonen, Arto Salonen & Hannele Cantell](#)

[Climate-change education and critical emotional awareness \(CEA\): Implications for teacher education - Maria Ojala](#)

[Climate change: imagining, negotiating, and co-creating future\(s\) with children and youth - Ellen Field](#)

[Learning to Live with Climate Change: From Anxiety to Transformation - Blance Verlie](#)

[“We’re fighting for our lives”: Centering affective, collective and systemic approaches to climate justice education as a youth mental health imperative - Maria Vamvalis](#)

[Youth Movements and Climate Change Education for Justice - Carrie Karsgaard and Lynette Shultz](#)

# Appendices

## Websites, reports, newsletters

[The All We Can Save Project](#)

[An Existential Toolkit for Climate Justice Educators](#)

[Beyond Gloom and Doom: How to Teach Climate Change Towards Empowerment](#)

[Climate Change and Youth Mental Health](#)

[Climate Doom to Messy Hope - UBC Climate Hub](#)

[Climate and Health Youth Education Toolkit](#)

[Climate & Mind](#)

[Climate Psychology Alliance](#)

[Climate Psychology Alliance North America](#)

[Climate Mental Health Network](#)

[Eco-Anxious Stories](#)

[Discussion Guide for Educators - Force of Nature](#)

[Gen Dread, a Substack about 'staying sane in the climate crisis'](#)

[Learning to Live with Climate Change](#)

[Mental Health and Our Changing Climate Children and Youth Report 2023](#)

[Project Inside Out](#)

[This Is Planet Ed](#)

[Talk Climate](#)

[Teach Climate Justice Campaign - Zinn Education Project](#)

[Work That Reconnects Network](#)

## Podcasts

[Climate Change and Happiness](#)

[Climate Crisis Conversations](#)

[The Climate Pod](#)

[Climate Psychology Conversations](#)

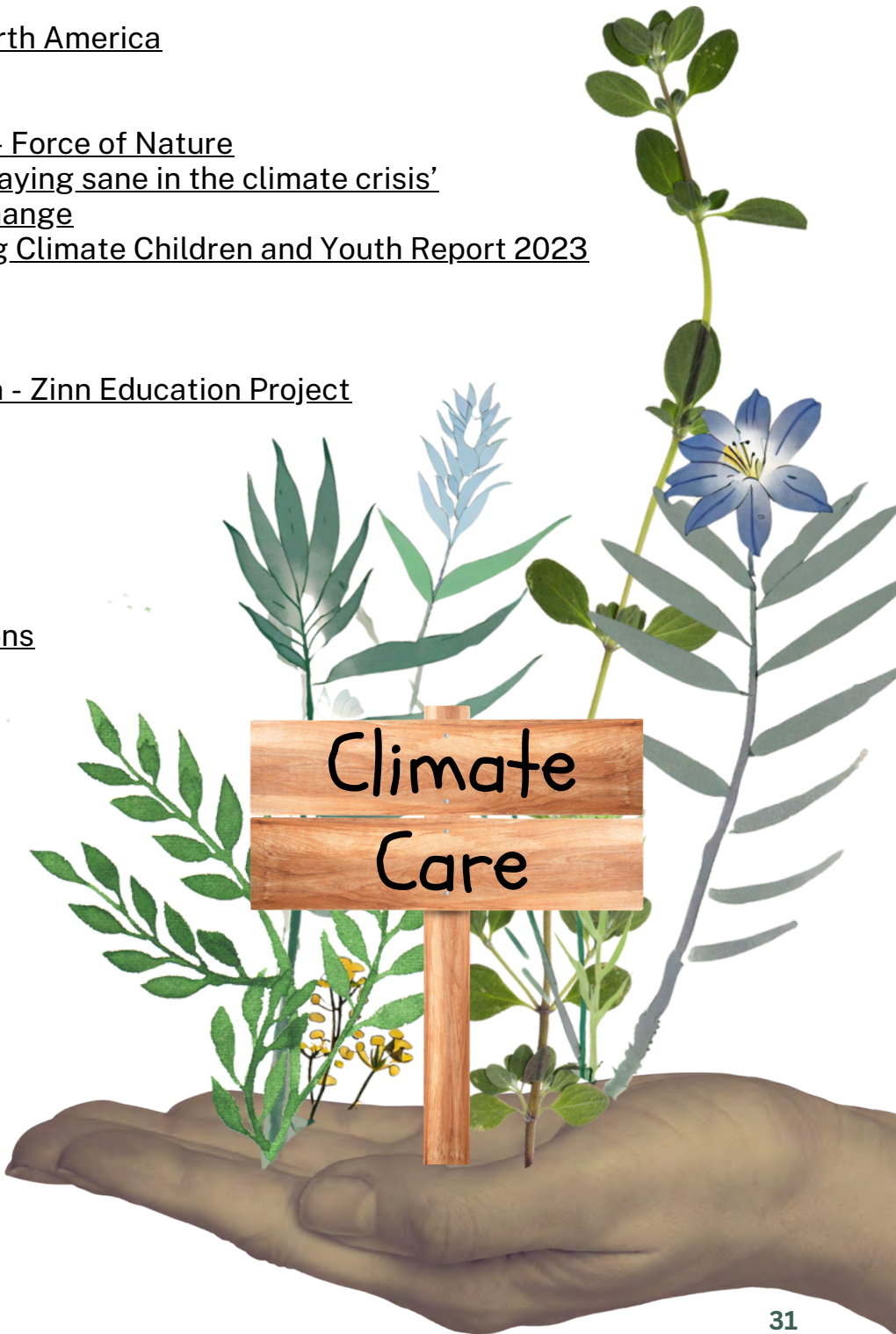
[The Climate Question](#)

[How to Save a Planet](#)

[Hot Take](#)

[A Matter of Degrees](#)

[Outrage + Optimism](#)



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