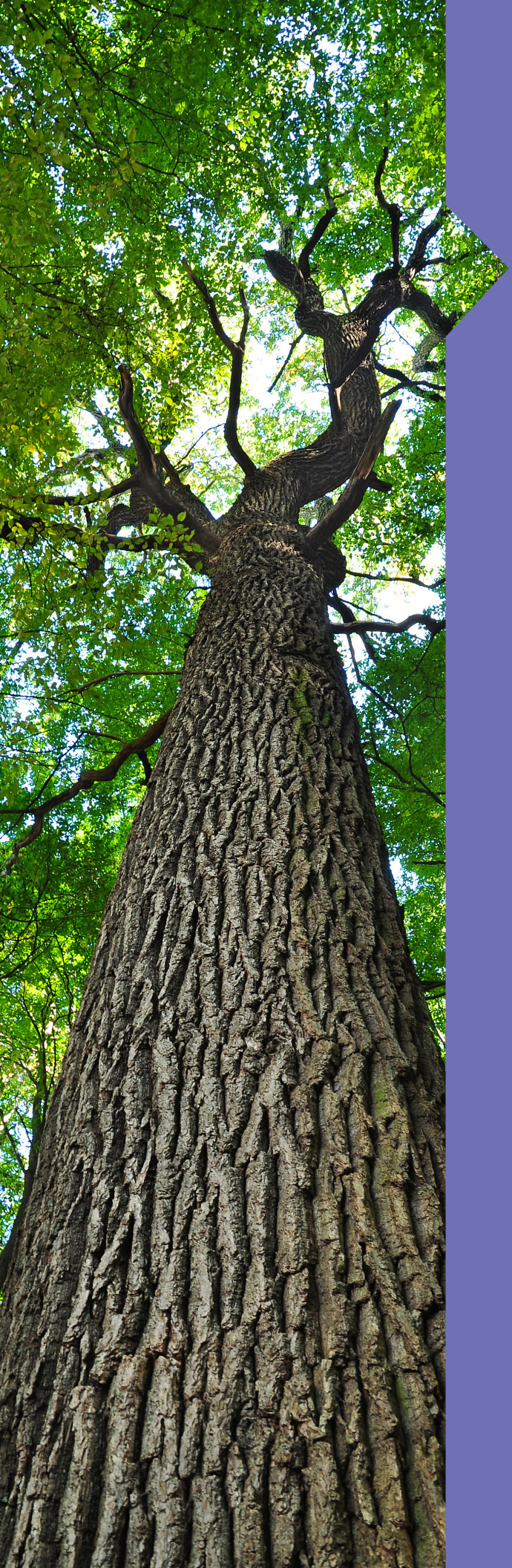
Climate Emotions Toolkit for Educators

Information and guidance to help teachers support students through the emotional challenges of climate change

Climate Mental Health Network

NEEF National Environmental Education Foundation



Acknowledgments

The 2024 version of the Climate Emotions Toolkit for Educators was created with support from the Robert H.N. Ho Family Foundation Global. Additional support was provided by Leidos.

Special thanks to the following individuals who were partners in the development and review of the Climate Emotions Toolkit for Educators:

Jada Lewis, MA, NEEF
Robert Sendrey, NEEF
Megan Willig, MA, NEEF
Sarah Blount, NEEF
Amy Skalmusky, MBA, NEEF
Larissa Dooley, PhD, Climate Mental Health Network
Sarah Newman, MPH, Climate Mental Health Network
Elissa Teles Muñoz, Climate Mental Health Network, Earthminds Consulting LLC
Meghan Slade, LMHC, Meghan Slade Counseling PLLC
Jylana L. Sheats, PhD, MPH, Tulane University School of Public Health and Tropical Medicine and The Aspen Institute
Ken Wilson, WTW Design

These resources are not a substitute for professional services when needed. In the US, text or call 988 for a 24/7 crisis hotline. For emergency mental health telephone numbers in other countries, go to: findahelpline.com.

Index

What is the Goal of this Resource?

This toolkit is designed to help middle school teachers support students through the emotional challenges of climate change. As climate issues like biodiversity loss and climate injustice become more prominent, students and teachers may experience feelings of anxiety, sadness, or anger.

Our aim is to equip teachers with tools and resources to help guide students through these emotions and build resilience. We cover the basics of climate change education, offer tips on teaching it sensitively, and provide practical advice on Social-Emotional Learning (SEL). Additionally, we offer a variety of classroom materials to enrich climate change lessons and support students' emotional well-being. Although the guide is directed at middle school educators, many of the explanations and resources can be used by other levels.

Developing this Resource

In 2022, the National Environmental Education Foundation (NEEF) and the Climate Mental Health Network (CMHN) began a multi-year program of work to learn more about student emotions related to climate change and what resources would help educators respond to and support those reactions in their classrooms. This work included several key components that engaged middle school teachers across the United States:

- Survey responses from 63 middle school teachers
- Focus groups with 32 middle school teachers from various regions
- Detailed rubric responses on a prototype toolkit from seven middle school teachers
- A pilot program with 40 middle school teachers to test the revised resources

Teacher input was central to the development of the Climate Emotions Toolkit for Educators. Insights gathered from the nationwide survey and focus groups led NEEF and CMHN to create a toolkit that provides actionable context, background information, and 10 ready-to-use activities for the classroom. Following the prototype and pilot phases, the toolkit was revised based on feedback to ensure it effectively supports educators and students nationwide.

We are deeply grateful to the educators who participated in the focus groups, surveys, prototype process, and pilot, whose invaluable contributions and feedback were crucial to shaping this resource.

The Climate Emotions Toolkit for Educators is designed to help teachers and students cope with the emotional impacts of climate change, fostering emotional resilience and well-being in the context of climate change education.

Understanding Climate Change

Teaching climate change can be an overwhelming proposition for both science and non-science educators. Becoming climate literate doesn't require a college degree. It's about comprehending fundamental climate science and recognizing how human actions, like industrialization, influence it. As part of its Climate Superstars Challenge, NEEF developed a series of learning activities to aid students in grasping the core elements of climate change science. The first four activities (1-Learn About Global Climate Change, 2-Observing Signs of Climate Change, 3-Take a Climate Change Tour, and 4-Learn How Humans Contribute to Climate Change) cover the basics. All ten learning activities can be used with middle school students.

Other sources for authoritative climate science information include federal agencies and certain nonprofits such as:

- **NOAA Climate.gov**–science and information for a climate-smart nation including guides for teaching climate and energy and a Climate Literacy and Energy Awareness Network (CLEAN) collection of over 700 free ready-to-use resources aimed at students, and rigorously reviewed by educators and scientists.
- **US Environmental Protection Agency**–learn about some of the key concepts of climate change science (e.g. the greenhouse effect, causes of climate change, and impacts of climate change).
- **EPA Climate Change Adaptation Resource Center** provides overviews of climate adaptation strategies.
- **Subject To Climate** is a nonprofit online connector for K-12 educators of all subjects to find credible and engaging materials on climate change at no cost.
- **PBS Nova**–The Extreme Weather and Climate Change YouTube channel includes videos that educators can use to supplement their climate change curriculum with multimedia content.

Climate Newsletters Worth Reading

There are numerous sources of information these days but also many sources of misinformation, too. Science often moves at a glacial pace, so science reporting will always be behind in communicating the full effects of climate change. So how can an educator stay up to date with climate-related news? Consider subscribing to a few high-quality newsletters to ensure actionable information comes to your inbox.

Anthropocene Magazine – Weekly science dispatch on sustainability and innovation. See sample weekly science dispatch here.

Climate Mental Health Network – Newsletter focused on how to support mental health and well-being in the context of climate change. Provides links to tools and resources for educators and others for supporting climate mental health.

Talking Climate with Katherine Hayhoe – Weekly newsletter by a respected climate scientist offering climate science and solutions, news, event information, ideas on things to do, and ways to join the conversation.

NEEF Connect – Monthly newsletter filled with positive stories, information, and resources on the environment using US government and science-based sources.

Yale Climate Change Communication – Weekly roundup of Yale Climate Connections stories.

Physical and Mental Health Impacts of Climate Change

Background

Climate change is causing a wide range of disasters and environmental changes across the globe. In the United States, the percentage of Americans who have been directly affected by climate change-related disasters—such as wildfires, heatwaves, floods, and hurricanes—has increased drastically in just the past few years. Disaster survivors often suffer significant losses, including the loss of loved ones, pets, their home, their hometown, and/or their livelihood. Additionally, more gradual effects, such as temperature shifts and sea level rise, can lead to impacts such as disrupted livelihoods, forced migration, and weakened food systems (Clayton et al., 2017).

Climate changes, whether gradual or sudden, can profoundly affect physical, mental, and community health in various ways and can exacerbate pre-existing inequities and vulnerabilities (see figure on the next page). Social determinants of health contribute to health disparities that make certain people, groups, and/or communities more vulnerable to climate health impacts.

While governments, academics, advocacy groups, and medical associations have declared climate change a health emergency, the emphasis has mainly been on its adverse effects on mortality and physical health (American Lung Association, 2021). However, there's growing acknowledgment among psychologists, physicians, educators, and the media that climate change also has significant implications for mental health.

Infographic Source
Clayton, S., Manning, C. M., Speiser, M., & Hill, A. N. (2021). Mental Health and Our Changing Climate: Impacts, Inequities, Responses. Washington, D.C.: American Psychological Association, and ecoAmerica.

Mental Health Impacts of Climate Change

Climate change is negatively impacting the mental health of young people, both nationally and worldwide. Numerous studies, such as those by Hickman et al. (2021) and van Nieuwenhuizen et al. (2021), have highlighted the significant distress experienced by youth due to climate change. They often report feelings of anxiety, grief, anger, fear, and powerlessness (Dooley et al.,2021).

Lewandowski et al. (2024) surveyed over 16,000 young people across the country and found that 85% of all respondents are at least moderately worried about climate change and its impact on people and the planet.

Since young people's nervous systems are still developing, they are particularly vulnerable to the mental health repercussions of climate change (Vergunst & Berry, 2021). This vulnerability puts them at risk for conditions like depression, anxiety, and substance abuse, which can further impact their emotional regulation, learning abilities, and academic performance (Burke et al., 2018).

The 2023 BlueSky report by Blue Shield of California found that 68% of Gen Z youth in the US reported the climate crisis impacts their mental wellbeing. A global survey of 10,000 youth ages 16–24 found that 59% were "very" or "extremely" worried about climate change, and 45% said this concern negatively impacts their daily functioning (Hickman et al., 2021).

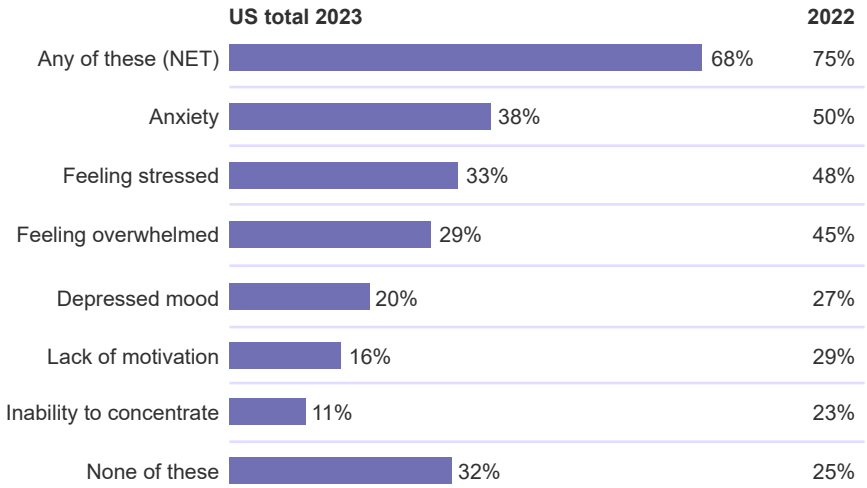
Climate change has been shown to impact mental health through both direct and indirect pathways. More and more young people have been directly impacted by climate change-influenced disasters, like wildfires, floods, and hurricanes. In 2021, over 32% of Americans lived in areas declared disaster zones by FEMA. Living through these events can be traumatic, leading to major losses such as loved ones, homes, and schools. This can result in significant stress and mental health problems like post-traumatic stress, depression, and anxiety. For example, a study that looked at over 3,000 middle and high school students (grades 7–12) exposed to the Fort McMurray wildfire in Canada found that 37% met criteria for Post Traumatic Stress Disorder (PTSD), 31% for depression, 27% for anxiety, and 15% for alcohol or substance use disorder (Brown et al. 2019).

A person's mental health can also be indirectly impacted by climate change. Just knowing that climate change is already causing suffering and loss all over the world can take a serious psychological toll. Seeing climate disasters on the news, learning about environmental problems, or noticing negative changes in one's surroundings can all lead to feelings of grief and distress. The emotional distress that comes from an awareness of climate change is what is commonly referred to as "climate anxiety," "eco-grief," or "eco-anxiety."

Mental health challenges due to climate change (US)

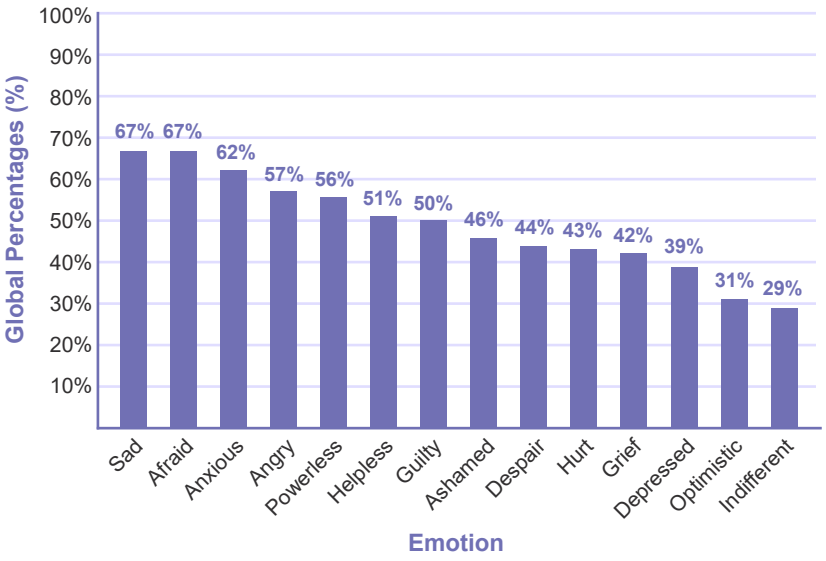
Have you felt any of the following in response to experiencing or hearing about climate change or the state of the environment? Please select all that apply.

A 2023 nationwide Blue Shield of California/ Harris Poll survey of over 1,300 youth, aged 14–25, found that 44% of youth were "very concerned" about climate change, with 68% experiencing negative mental health impacts in response to experiencing or hearing about the issue.



For example, a study by Charles Ogunbode and colleagues surveyed over 12,000 individuals across 32 countries, revealing that 28% reported feeling very or extremely anxious about climate change, while 24% expressed feeling very or extremely terrified by it.

While "climate anxiety" is commonly used to describe distress related to climate change, the emotional impact extends beyond anxiety or grief. For instance, in the previously mentioned global survey of young people's thoughts and feelings about climate change, participants reported a wide range of emotions including sadness, fear, anger, powerlessness, guilt, shame, despair, hurt, grief, optimism, and depression.



Recreated from Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., ... & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. *The Lancet Planetary Health*, 5(12), e863–e873.

Climate Change Health Disparities in the US

The health impacts of climate change are not experienced equally. People living in areas prone to extreme weather are at greater risk of suffering stress reactions, such as post-traumatic stress disorder. Researchers found strong evidence for racial/ethnic disparities in adverse mental health outcomes associated with hurricane and flooding events in studies from Louisiana, Texas, New York, and New Jersey (Berberian et al. 2022). Surveys show that Black, Indigenous, and People of Color are the most concerned about climate and most likely to want to be part of solutions, but inequality is a major barrier to access services.

When discussing these disparities with middle school students, educators should approach the topic by highlighting real-life examples and stories that illustrate the impact of climate change on different communities. Providing opportunities for students to engage in discussions and activities that promote empathy and understanding of these disparities can help them recognize the importance of addressing inequality in climate change impacts.

Defining Climate Justice

Climate justice is a term that recognizes that the burden of climate change disproportionately affects marginalized communities worldwide, despite their minimal contribution to the issue. Additionally, it recognizes that climate change amplifies existing inequalities, potentially pushing already disadvantaged communities deeper into poverty. Per António Guterres, secretary general of the United Nations, "Climate change is happening now and to all of us. No country or community is immune. And, as is always the case, the poor and vulnerable are the first to suffer and the worst hit."

"Here's your problem—it looks like you're paying attention to what's going on."

"Paying attention" by Pia Guerra, *The New Yorker,* 2018

Climate Anxiety is Normal

It's important to know that for most people, climate anxiety is not a pathological condition, but rather a rational response to a real existential threat (Dooley et al., 2021). As scholar Joanna Macy has written, "If parts of our world that we loved were dying, we would expect to grieve. These feelings are normal, healthy responses," (Mulholland, 2021). She adds, "They help us notice what's going on; they are also what rouses our response," underlining that these feelings can be useful, because they can help motivate individuals to engage in action to help mitigate climate change. Indeed, a growing number of studies have shown that climate distress is associated with pro-environmental behaviors (e.g., Ogunbode et al., 2022).

This resource doesn't seek to dismiss students' concerns regarding climate change. As previously mentioned, feelings of anxiety, grief, and other negative emotions are natural and can inspire action. So, why provide support for handling these emotions? To help normalize these feelings and equip both students and adults with tools to build resilience.

What to Do When Climate Emotions are Significant

While climate anxiety is a natural response to the threat of climate change, it can have more severe mental health impacts on certain individuals, especially those directly affected by climate events or with pre-existing sensitivities or conditions. These impacts may include post-traumatic stress, generalized anxiety, major depression, or substance use disorders.

This guide is designed to help students and teachers apply social-emotional learning strategies specific to climate emotions in a general education setting. While it includes evidence-based tools for emotional well-being, **it's important to note that this guide is not intended as a mental health intervention for addressing clinically significant mental health impacts related to climate change.** If necessary, students can be directed to the school's mental health team or provided with information on resources like the Teen Line so students can follow up on their own.

Additional support for educators is available through Employee Assistance Programs, the Climate Aware Therapist directory, or district-provided mental health services. If you believe you or a student is dealing with more significant mental health impacts related to climate change, in the US, text or call 988 for a 24/7 crisis hotline. For emergency mental health telephone numbers in other countries, go to: https://findahelpline.com/.

Connecting Social Emotional Learning (SEL) to Climate Change Education

Background

Social and emotional learning (SEL) is about learning how to understand and manage emotions, build positive relationships, and make responsible decisions. It helps both young people and adults develop healthy identities, empathy, and achieve personal goals. SEL promotes fairness and excellence in education by bringing together schools, families, and communities to create supportive learning environments with meaningful curriculums and ongoing assessment. By teaching SEL, we can tackle inequalities and empower individuals to create better schools and communities.

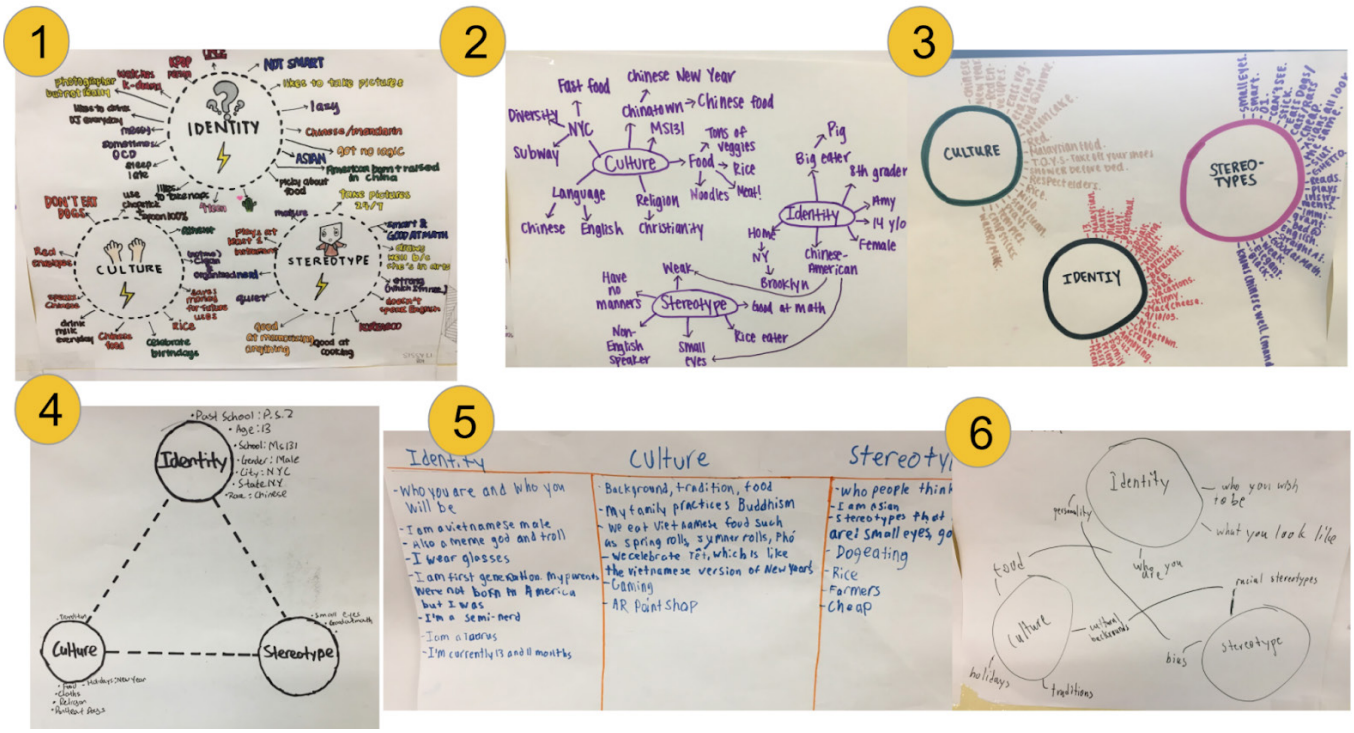
Integrating an SEL approach, such as the CASEL framework, into addressing student concerns regarding climate change can offer teachers a way to support their students as they attempt to make sense of how the world they are inheriting is changing.

Educators who already integrate SEL into instruction can use familiar SEL methods to address students' climate-related emotions. For instance, by discussing how others feel about climate issues, students can develop social awareness and empathy, which are key SEL skills.

Brain scans have shown that the brain is physiologically altered by traumatic natural events, resulting in significant differences in brain activity and cognitive function (Grennan et al., 2023). Understanding how individuals respond uniquely to trauma is crucial, especially considering the impact of adverse childhood experiences on human development. Using trauma-informed teaching strategies creates a safe classroom environment and helps students affected by traumatic stress to engage more effectively in learning (Source: ASDC).

Examples of trauma-informed learning environments include physical arrangements that allow students to feel comfortable, predictable schedules and classroom routines, emphasis on community and relationship-building, skill building around managing stress, and more.

Tools for Understanding Climate Emotions



Identity Maps

A helpful tool for educators and students is using identity maps to learn about each person's viewpoints on a topic. For instance, students in the northern parts of the United States might include activities like ice skating, hockey, or ice fishing on their maps because these are common winter pastimes in their communities and families. This activity helps them express what matters to them.

Once a teacher understands this, they could design a unit of study focusing on long-term patterns in the local annual snowpack or sea ice extent. Students may feel a sense of loss as they realize the potential impact of climate change on their cherished activities. The teacher can support students in processing their feelings by providing a safe space for discussion and offering coping strategies. By connecting what's meaningful to them with climate changes that could affect them personally, students are more likely to feel engaged and empowered. This personal connection makes the issue relevant, accessible, and motivates action. They might ask themselves, "What can I do to help ensure that the things I love exist in the future?"

Examples of identity maps from Harvard University pictured above. Click through for templates for the starburst identity charts, social identity wheel, and personal identity wheel.

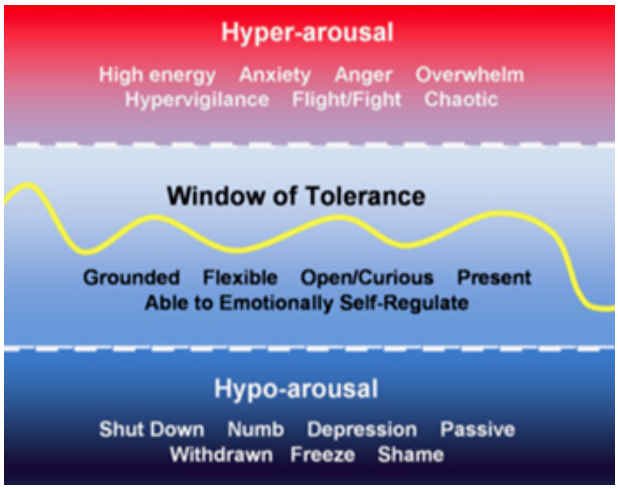
Download the Climate Emotions Wheel in more that 30 languages as well as an emoji version. Also download the companion Guide to Climate Emotions.

Climate Emotions Wheel

The Climate Emotions Wheel, available in more than 30 languages, categorizes the various emotions students may feel when learning about climate change into four main types. But how do we accurately determine which emotion(s) a student is going through? In addition to observing their behaviors and emotional expressions, we can directly ask them to identify what they're feeling about climate change, particularly if it affects them personally. See Activity 6 of this toolkit for a lesson plan that incorporates the Climate Emotions Wheel.

Somatic check-ins can also help students and teachers become more mindful of their emotions by focusing on the connection between mind and body, and by releasing built-up emotional tension, often linked to conditions like PTSD.

Student Reactions to Climate Change Instruction: The Window of Tolerance



The graphic to the left shows different ways students might react to climate change and related topics. The ideal response falls in the middle, called the "Window of Tolerance." Widening this window gives more emotional flexibility. Teachers see this middle ground as openness to learning. If a student is overwhelmed, they might lean towards one extreme or the other. Teachers can help by providing emotionally supportive learning environments and relationships, and by teaching helpful strategies such as those introduced in the activities that are part of this toolkit.

Image source: Jade Emery.

Channeling Anxiety into Action

To understand students' emotions better, teachers can ask them how they prefer to express what they've learned about climate change (for example, through art, media, music, etc.) and how they feel about it. They can also ask what climate actions they're willing to take themselves.

Students will learn about climate change from various sources such as teachers, friends, family, and media. Therefore, it's crucial for them to verify (trust), interpret (understand), and respond (process their emotions) to what they hear. Is climate change a crisis needing immediate action? Yes! Is it both a challenge and an opportunity? Yes!

Educators can help by framing the issues and signaling they are not insurmountable. Humans have successfully tackled significant challenges in the past (see "Environmental Success Stories" in the following section).

One way to address the challenges of climate change is by using a framework, such as the United Nations Sustainable Development Goals, to assess and prioritize climate actions, both individually and collectively, as we strive to build the world we want to live in. Achieving this vision will require taking actions at both local and global levels. See this short video explainer for more information.

Integrating Interventions into Instruction

Opportunities and Tactics

Finding the right time to integrate climate change lessons and address climate emotions can be a challenge. Here are some ideas for how to do so.

Responding to Current or Recent Events (news/social media)

Different types of events (e.g. extreme weather, broken climate records, United Nations Climate Change Conference (COP) meetings) may require different responses. Building a collection of curated resources that are event-type specific can be used to turn a student comment into a teachable moment.

Identifying and addressing preconceived ideas/opinions (e.g. culture, family, religion) influencing student understanding and attitudes

An activity could be built around this interactive map www.csmonitor.com/Environment/Topics/The-Climate-Generation to prompt student reflection and discussion.

(Re)Framing a New Activity/Topic/Unit (balancing bad news with solutions)

These opportunities can range from anniversaries of major events (e.g. Hurricane Katrina, Hurricane Sandy) or onset of extreme weather season (e.g. wildfire, hurricane) to biodiversity loss and extinction threats can be used to open discussions on climate change topics and emotions.

Triaging (the damage is done, how to rebound)

Use small group discussions to identify and address emotional/behavioral triggers and contextual factors (e.g. past individual and family experiences). Do students need to be heard, helped, or just hugged? Start with being heard. Practice facilitation skills like active listening, careful to avoid judgment. Reflect back and validate what you hear. (e.g. “I heard Maria say her father works outdoors and sometimes gets sick on very hot days. So, she is worried about his health.”) Redirect and ask open-ended questions (e.g. “What do others think/feel?”).

Positive Strategies

Ben Franklin’s famous saying, “an ounce of prevention is worth a pound of cure,” fits well here. Below are straightforward, evidence-based methods from an EdWeek article titled “How to Teach Students About Climate Change Without Giving Them Eco-Anxiety” (Grifka & Williams, 2023). Educators can use these methods in the classroom to create positive experiences with climate education:

1

Help students develop a direct relationship with nature.

Research from environmental educators has found that direct contact with nature is a key component in developing care for the environment. Take your students on hikes, visit parks, and encourage them to spend time outside. Experiences of awe and mindfulness may further promote positive relating and care for nature.

2

Be truthful, don’t exaggerate the facts.

Teach students how to identify climate misinformation and seek out accurate information. In a 2021 survey of young people, 75% of respondents reported feeling that the “future is frightening,” and very few reported feeling optimistic. With the world currently failing to meet climate targets to limit warming to 1.5°Celsius, fear is understandable. Nevertheless, exaggerating the science to instill worry is irresponsible and counterproductive. Instead, emphasize that, while climate change is real, actionable solutions do exist; our fate is far from settled.

3

Highlight local, national, international, and indigenous solutions.

Emphasize solutions that communities and countries are currently implementing. Share how Indigenous people are stewards protecting 80% of the world’s biodiversity and live in sustainable ways.

4

Encourage students to take actions that align with their values.
Yale researchers have found that collective climate action can reduce climate-anxiety and buffer against depression. Encourage students to focus on what they can do with others, such as joining clubs (e.g. environmental/sustainability) or connecting with communities (e.g. Green Ribbon Schools program) to create and implement climate solutions. Emphasize that having climate emotions is normal and these feelings can be transformed into meaningful, purposeful action. A great resource for tangible actions is the Drawdown Ecochallenge. By completing simple, specific tasks, individuals and teams earn points. Those points can be used to calculate the actual, real-world impact you and your team have on ecological issues. Teachers create class teams to encourage community building and collaboration while working towards sustainability goals.

By incorporating these ideas in the classroom, we can shift the narrative around climate change from a doomsday prophecy to a problem to be solved. This approach can contribute to the mental and emotional well-being of the increasing number of climate-conscious students, empowering them to drive sustainable positive change for the future. Additionally, schools can reinforce this positive outlook by supporting climate actions, aligning what students learn and value with the school's choices.

Educator Support Videos and Books

How your climate emotions can save the world
Katharina Van Bronswijk, TEDxHSG
(youtube.com; video, length 0:09:28)

Eco-anxiety to Climate Optimism
Lyn Stoler, TEDxManhattanBeach
(youtube.com; video, length 0:10:18)

The Psychology of Climate Change
Shanlea Tabofunda, TEDxYouth@TorreAve
(youtube.com; video, length 0:09:27)

Let's Change The Way We Talk About Climate Change
Jes Thompson, TEDxNMU
(youtube.com; video, length 0:13:20) *Four tips at the end.*

Books related to climate mental health curated by Climate Mental Health Network (webpage)

Empowering Students to Build Resilience in the Face of Climate Change

Educators can help students harness their climate emotions towards positive actions and emotional resilience by helping shift the tone in the classroom in the following ways.

Countering the Negativity Bias

Research has shown that humans base their decisions and actions on information, values, and biases. Educators should pay particular attention to the negativity bias, where humans "attend to, learn from, and use negative information far more than positive information," (Vaish et al., 2008). Both traditional and modern media often capitalize on this human tendency to grab our attention, shape our values, and prompt specific behaviors. For instance, adopting a "doomerism" approach towards climate change might seem like an effective strategy to motivate action. However, it often backfires. Excessive exposure to negative portrayals of climate change can leave both students and adults feeling overwhelmed with emotions, such as anger or depression, making it difficult for them to absorb more information or take productive action.

Negativity Bias

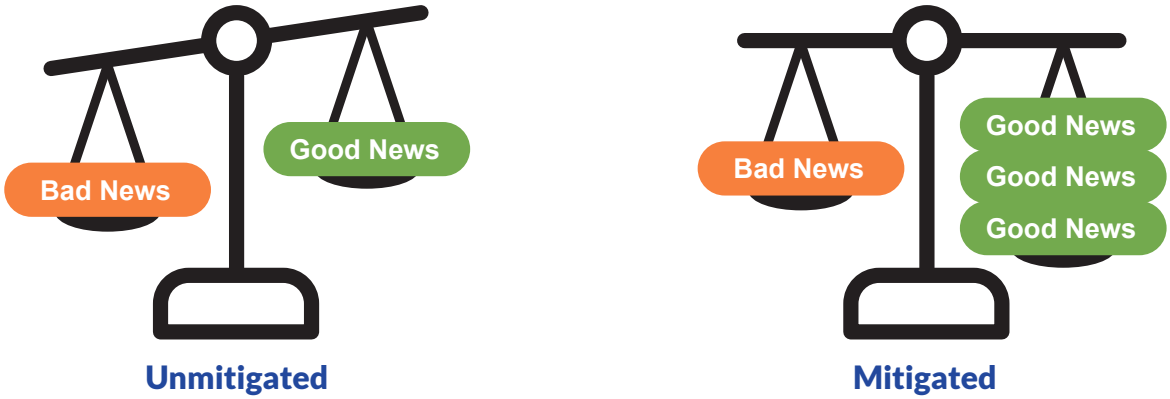


Image courtesy of Climate Mental Health Network

To prevent students from feeling overwhelmed, it's important to **maintain a ratio of Bad News to Good News of 1:3 or higher**. For instance, when discussing greenhouse gas emissions and climate change, a negative report like an increase in plastic pollution in oceans can be balanced by positive news such as communities organizing beach clean-up events, successful reforestation projects, and innovative solutions for recycling plastics. Carefully chosen good news reports can help counteract the Negativity Bias. In the following section, you'll find examples of positive news related to climate, the environment, and biodiversity.

Environmental Success Stories

Ozone Layer is slowly, but surely, healing, the UN says (PBS webpage article)

What's Going on with the Hole in the Ozone Layer? We Asked a NASA Expert (video, length 0:01:42)

Ozone layer recovery is on track, helping avoid global warming by 0.5°C (UN Environment Programme article)

Bald Eagle, the Ultimate Endangered Species Act Success Story (video, length 0:00:53) Jeff Corwin/Defenders.org

Bringing Bald Eagles Back: The Museum's Story (video, length 0:05:54) Cleveland Museum of Natural History

Eagle Management at USFWS (webpage)

American Eagle Foundation: Decline and Recovery (webpage)

California Condor Recovery Program (webpage)

The Daily Climate Good News (webpage roundup)

The Blame Game

Research has validated that negative emotions such as those in the Anger section of the Climate Emotions Wheel are potent motivators for many individuals. It is a part of human nature to assign blame and seek accountability.

However, just because people embrace stories with villains and heroes doesn't help mitigate negative intergenerational dynamics and ensure positive collective actions will be taken. In short, an adversarial narrative or framing of a climate issue that pits one generation against another can get in the way of positive change.

One way to counter the negative narrative that older generations don't care about climate change is to share the stories of climate grannies like Hazel Chandler, a volunteer with Elders Climate Action and field coordinator for Moms Clean Air Force. Ms. Chandler, at 78 years old, like many of today's senior citizens, is old enough to have lived through key watershed moments that comprise a timeline of important social and environmental justice events such as civil rights legislation (e.g. voter rights), creation of the Environmental Protection Agency, and environmental legislation (e.g. Clean Air and Clean Water acts) that were enacted after the first Earth Day celebration in 1970. Her motivation: her grandchildren and great-grandchildren.

Putting It All Together

As you continue your journey to support your students' mental health around climate change, keep in mind your own mental health and be sure to engage in appropriate self-care.

Incorporating climate emotions into the classroom might seem daunting at first if it's a new topic and approach for you, but keep at it. Your practice will grow and improve the more you incorporate these approaches and activities. We applaud your efforts to join us in addressing student and educator climate emotions and leading positive change in your community.

Please send us your suggestions and any testimonials to info@NEEFusa.org.

Glossary

Adverse childhood experiences (ACEs)
ACEs are potentially traumatic events that occur in childhood. ACEs can include violence, abuse, and growing up in a family with mental health or substance use problems. Toxic stress from ACEs can change brain development and affect how the body responds to stress. ACEs are linked to chronic health problems, mental illness, and substance misuse in adulthood. However, ACEs can be prevented.

Anthropocene
An unofficial unit of geologic time characterized as the time in which the collective activities of human beings began to substantially alter earth's surface, atmosphere, oceans, and systems of nutrient cycling.

Climate anxiety; eco-grief; eco-anxiety
The emotional distress that comes from an awareness of climate change.

Climate change
Climate change refers to long-term shifts in temperatures and weather patterns.

Climate justice
A term (and a movement) that recognizes that the impacts of climate change fall disproportionately on underprivileged and underserved communities around the world—the people least responsible for creating the problem. (UC Center for Climate Justice, 2022)

Environmental justice
The environmental justice movement is concerned with the ways pollution, land degradation, and other environmental problems harm already vulnerable people and communities who have contributed the least to, but suffer the most from, environmental problems.

Negativity bias
A bias by which humans "attend to, learn from, and use negative information far more than positive information" (Vaish et al., 2008).

Social justice
The objective of creating a fair and equal society in which each individual matters, their rights are recognized and protected, and decisions are made in ways that are fair and honest.

Somatic check-in
The term "somatic" means relating to the body. A somatic check-in essentially refers to checking in with one's body through a variety of techniques.

Social emotional learning (SEL)
The process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions.

Trauma-informed practices
A set of practices that address the impact of trauma by creating a safe and caring environment. Trauma-informed practices focus on creating a safe school culture, building relationships, and supporting students' self-efficacy.

Window of Tolerance
A term coined by Dr. Dan Siegel, MD, to describe the optimal zone of responsiveness or excitement in which a person is able to function most effectively.

References

American Lung Association. 2021. "A Declaration on Climate Change and Health." Accessed June 10, 2024. www.lung.org/policy-advocacy/healthy-air-campaign/healthy-air-resources/a-declaration-on-climate-change-and-health

Berberian, Alique G., Gonzalez, D.J.X. and Cushing, L.J. 2022. "Racial Disparities in Climate Change-Related Health Effects in the United States." *Current Environmental Health Reports* 9: 451–464. doi.org/10.1007/s40572-022-00360-w.

Brown MRG, Agyapong V, Greenshaw AJ, Cribben I, Brett-MacLean P, Drolet J, McDonald-Harker C, Omeje J, Mankowsi M, Noble S, Kitching DT, Silverstone PH. 2019. "Significant PTSD and other mental health effects present 18 months after the Fort McMurray wildfire: findings from 3,070 grades 7–12 students." *Frontiers in Psychiatry* 10. doi: 10.3389/fpsyt.2019.00623

Burke, S.E.L., Sanson, A.V. & Van Hoorn, J. 2018. "The Psychological Effects of Climate Change on Children." *Current Psychiatry Reports* 20. doi.org/10.1007/s11920-018-0896-9.

CASEL (Collaborative for Academic, Social, and Emotional Learning). 2020. "Casel's SEL Framework." CASEL. Accessed June 10, 2024. casel.org/casel-sel-framework-11-2020/

Clayton, S., Manning, C. M., Krygsman, K., & Speiser, M. 2017. Mental Health and Our Changing Climate: Impacts, Implications, and Guidance. Washington, DC: American Psychological Association and ecoAmerica. www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf

Clayton, S., Manning, C. M., Speiser, M., & Hill, A. N. 2021. Mental Health and Our Changing Climate: Impacts, Inequities, Responses. Washington, DC: American Psychological Association and ecoAmerica.

Dodgen, D., D. Donato, N. Kelly, A. La Greca, J. Morganstein, J. Reser, J. Ruzek, S. Schweitzer, M.M. Shimamoto, K. Thigpen Tart, and R. Ursano. 2016: "Ch. 8: Mental Health and Well-Being." The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment, 217–246. Washington, DC: US Global Change Research Program. dx.doi.org/10.7930/J0TX3C9H

Dooley, L., J. Sheats, O. Hamilton, D. Chapman, and B. Karlin. 2021. Climate Change and Youth Mental Health: Psychological Impacts, Resilience Resources, and Future Directions. Los Angeles: See Change Institute. seechangeinstitute.com/wp-content/uploads/2022/03/Climate-Change-and-Youth-Mental-Health-Report.pdf

Grennan GK, Withers MC, Ramanathan DS, Mishra J. 2023. "Differences in interference processing and frontal brain function with climate trauma from California's deadliest wildfire." *PLOS Climate* 2(1): e0000125. doi.org/10.1371/journal.pclm.0000125

Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., and van Susteren, L. 2021. "Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey." *The Lancet Planetary Health* 5(12): e863–e873. doi.org/10.1016/S2542-5196(21)00278-3

Mulholland, M. 2021. “None of us can go it alone if we want to make big change possible’: On finding solace and solidarity in a broken-hearted world.” *Earthjustice*. Accessed June 10, 2024. earthjustice.org/feature/gen-z-climate-crisis-none-of-us-can-go-it-alone

Ogunbode, Charles A., Rouven Doran, Daniel Hanss, Maria Ojala, Katariina Salmela-Aro, Karlijn L. van den Broek, Navjot Bhullar et al. 2022. “Climate anxiety, wellbeing and pro-environmental action: correlates of negative emotional responses to climate change in 32 countries.” *Journal of Environmental Psychology* 84. doi.org/10.1016/j.jenvp.2022.101887

UC (University of California) Center for Climate Justice. 2022. “What is Climate Justice?” Accessed June 10, 2024. centerclimatejustice.universityofcalifornia.edu/

Vaish, Amrisha, Tobias Grossmann, and Amanda Woodward. “Not all emotions are created equal: the negativity bias in social-emotional development.” *Psychological Bulletin*. 134(3): 383-403. doi: 10.1037/0033-2909.134.3.383

van Nieuwenhuizen, A., Hudson, K., Chen, X., Hwong, AR. 2021. “The Effects of Climate Change on Child and Adolescent Mental Health: Clinical Considerations.” *Current Psychiatry Reports*. 23(12):88. doi: 10.1007/s11920-021-01296-y. PMID: 34874507.

Vergunst, F., and H. Berry. 2021. “Mental health and climate change–a developmental life course perspective.” *European Psychiatry* 64(1): S231-S232. doi: 10.1192/j.eurpsy.2021.619

Lewandowski, R.E. Lewandowski, R. Eric, Susan D. Clayton, Lukas Olbrich, Joseph W. Sakshaug, Britt Wray, Sarah EO Schwartz, Jura Augustinavicius et al. “Climate emotions, thoughts, and plans among US adolescents and young adults: a cross-sectional descriptive survey and analysis by political party identification and self-reported exposure to severe weather events.” *The Lancet Planetary Health 8*, no. 11 (2024): e879–e893. thelancet.com/journals/lanplh/article/PIIS2542-5196(24)00229-8/fulltext

Climate Mental Health Network

NEEF National Environmental Education Foundation

ClimateMentalHealth.net

NEEFusa.org