

MESSAGING GUIDE ●●●●●

# Designing Effective Climate Change Education: Strategies for Deeper Learning and Positive Change

Education is essential to helping people of all ages understand climate change and take informed action in communities around the world. But what does well-informed climate change education look like? Researchers from the University of Florida conducted a **systematic analysis of peer-reviewed studies**<sup>1</sup> to identify effective climate change education strategies.

This document is designed to help highlight those strategies and provide tips for how to communicate about the importance of climate change education with different audiences.

When talking with any audience, it's important to understand their needs and what they care about. This messaging guide provides suggestions for how you can explain how effective climate change education can help them achieve their goals.

## Background & Summary of Message Points for Key Audiences



### ● K-12 Teachers, School Administrators, and School Boards

Framing climate science<sup>2</sup> and exploring local evidence of change and impacts using community values are important pillars of climate change education. High-quality climate change education can help students gain the knowledge, skills, and motivation to take an active role in working toward a more sustainable future.

Although teaching about climate change for the first time can be challenging, it also creates a great opportunity for your students to learn key concepts and develop 21st century life skills, such as critical thinking, analyzing information for accuracy, and engaging in dialogue with others who might have different points of view. As demand for formal climate change education increases, the field of environmental education is providing K-12 educators with high-quality **resources**<sup>3</sup>, **curricula correlated to national learning standards**<sup>4</sup>, and professional development and training for educators.<sup>5</sup>

While there is no one-size-fits-all approach for climate change education, the topic of climate change provides a number of educational opportunities throughout the curriculum. For example, it can provide a solid foundation for using well-tested science education methods, such as experiential learning and data collection. Opportunities to conduct classroom or community projects can help to build civic engagement and problem-solving skills that increase understanding and bring about change. Effective climate change education also prompts learners to critique their own ideas, talk through the evidence, and explain their thinking.

Understanding and applying some or all of these strategies can help educators deepen their students' learning. It can also improve educators' skills in addressing controversial topics and facilitating learning amidst disagreement and political influences.

Well-designed climate change education has the potential to provide students with foundations for understanding complex systems, prepare them to solve real-world problems, manage uncertainty, and empower them to seek possible solutions. Understanding what research tells us about effective strategies for climate change education can help guide educators as they continue to explore new approaches, understand the issues, improve their practice, and deepen their students' learning and interest in addressing complex real-world issues.



### ● Policymakers

A significant barrier to the implementation of policies that aim to restrict carbon emissions or put other policies in place is the lack of citizen support. Climate change education can help uncover and address misconceptions and help citizens identify and navigate their own biases and make more objective decisions.

Climate change education helps make citizens more engaged and informed on the issue. It can work in tandem with other strategies to help people understand the impacts of climate change on communities and how to address the impacts. Many effective climate change education programs guide participants to design and implement school or community projects to tackle some aspect of climate change. In this way, education is not only serving to furnish citizens with the knowledge and skills to understand the challenges of climate change, but it is also directly contributing to efforts to address the issues.



### ● Scientists, Curriculum Developers, and Teacher Trainers

Built upon foundational understandings of psychology, social learning, and human behavior, the field of environmental education has a substantive foundation for how to address controversial issues and facilitate learning when there are differing opinions and political perspectives. With a wealth of experience in designing resources that meet curricular needs, build critical skills, and foster behavior change, environmental education professionals can play a crucial role in shaping high-quality climate change education and help assist curriculum developers and teacher trainers.

The field is already contributing to this effort through the development of curriculum modules such as Project Learning Tree's **Southeastern Forests and Climate Change**<sup>6</sup>, Climate Generation's curriculum resources for grades 3–12<sup>7</sup>, and materials for educators developed by **NASA**<sup>8</sup>, and others.

Additional efforts across the field can assist curriculum developers and teacher trainers interested in climate change, such as the **Climate Literacy and Energy Awareness Network (CLEAN)**<sup>9</sup>. This collaborative effort includes over 630 members who assist in vetting climate education resources and providing resources and webinars for teachers. The **National Network for Ocean and Climate Change Interpretation (NOCCI)**<sup>10</sup> led by the New England Aquarium, is a national network of education professionals who are skilled in communicating climate change to the American public in engaging, solutions-oriented ways. NOCCI provides climate change communication tools, resources, training opportunities, and train-the-trainer workshops.



## ● Funders

Effectively engaging funders begins with understanding their mission and how environmental education can help achieve their objectives. For example, organizations that support conservation might be most interested in how quality climate change education can increase positive environmental behaviors and support for larger scale solutions to address climate change. Foundations that support education tend to be most interested in the interdisciplinary academic benefits and engaging teaching methods of climate change education.

Quality climate education can be used as a tool to enhance a broad array of funders' missions. For example, you can cite University of Florida's systematic research review focused on **effective climate change education strategies**<sup>11</sup> across a range of contexts and audiences. From enhancing science learning in the classroom to encouraging participation in local decision making, studies in the review demonstrated that climate change education can contribute to many different outcomes.

While specifically intended for the broader field of environmental education, this **brief guide for U.S. grantmakers**<sup>12</sup> provides additional tips and suggestions that can be adapted for approaching funders about climate change education.



## ● Parents

A lot of parents welcome their children learning about climate change. However, educators may find some parents who will not agree that the climate is changing or that this is an appropriate topic for their child. There can be disagreements about if and how it should be taught in schools or other learning environments, and these differences in opinion can be a challenge to navigate.

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**“The National Science Teachers Association (NSTA) acknowledges that decades of research and overwhelming scientific consensus indicate with increasing certainty that Earth’s climate is changing.”**

[https://static.nsta.org/pdfs/PositionStatement\\_ClimateScience.pdf](https://static.nsta.org/pdfs/PositionStatement_ClimateScience.pdf)

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The fact that quality climate change education can address these differences can be a good segue into a broader discussion with parents. For example, effective climate change education uses deliberative discussion to help learners better understand their own and others' viewpoints and knowledge. Deliberation helps learners weigh and examine the reasons for and against a choice, measure, or idea. Such discussions can not only guide students to improve their ability to evaluate new information, they can also improve their scientific understanding and help them think more deeply about other perspectives.

Talk to parents about the benefits of climate change education and how it can help their children practice new skills, learn about the connections between science and society, and not shy away from digging into complex issues. They will want to know more about the wide range of benefits that result from students getting involved in their communities and interacting firsthand with scientists and other experts. From academic performance to perseverance, leadership, tolerance, civic engagement, and more, climate change education can be described as a bridge for guiding students toward many important life skills.

## Detailed Messages for Key Audiences

- K-12 Teachers, Administration, and Board
- Policymakers ● Funders ● Parents
- Scientists, Curriculum Developers, and Teacher Trainers

**Effective climate change education can address political and social barriers.** Quality climate change education is built on research from a number of fields, including psychology, social learning, and human behavior. Environmental education professionals are applying the field's wealth of experience in designing resources that meet curricular needs, build critical skills, and foster behavior change. While there might be disagreement among educators, parents, and community members about if and how climate change should be taught in schools and other learning environments, EE professionals can help highlight the value education brings to helping to address controversial issues and promote skill-building.



**Effective climate change education makes learning personally relevant.** Even though climate change is complex, many successful climate change education programs focus on the local impacts of climate change to make a global issue more relevant to individual students. Sea level rise, the spread of invasive species, changes in water quality or quantity, and modified weather patterns make climate change more connected to communities that are experiencing these challenges.



**Effective climate change education engages students using experiential learning to actively involve them in the subject.** Climate change education can help students compare what's happening in their community to others around the country and the world, measure local changes, discuss how their local area can adapt to climate change, and use other strategies to build life-long skills. For example, in a number of the studies, inquiry-based science lessons helped students better understand climate science and systems interactions, including using a mix of large and small group discussions and worksheets that helped learners reflect on their experience and ideas.



**Effective climate change education addresses misconceptions.** The variety of commonly held misconceptions about climate change can present challenges. Science and social studies educators can work to recognize these common (and often subconscious) misconceptions and overcome them with research assignments, experiments, or thought-provoking questions.



**Effective climate change education engages learners in school or community projects.** Climate change education can provide an opportunity for helping learners make a difference by taking action in their own personal lives or by conducting projects in school or in their community to address local impacts of climate change. These projects help build problem-solving and citizenship skills, and can empower students. Climate change education can also be included across the curriculum—from science to social studies, language arts, and more. Some states, such as New Jersey, integrate CCE across the K-12 curriculum, and can be used as models for organizations that wish to do the same.



**Effective climate change education is high-quality education.** NAAEE's [National Project for Excellence in Environmental Education](#)<sup>13</sup> developed a series of guidelines that set standards for high-quality environmental education. Well-designed environmental education that meets these standards is balanced, scientifically accurate, and built on decades of research supporting effective practices in education, learning theory, psychological and socio-emotional development, and more. The field of EE uses these standards to create quality climate change education and other resources for classroom learning and discussion on the topic, such as the [Environmental Forums Issues Guides](#).<sup>14</sup> Climate change education is part of an effective environmental education portfolio, which overall is designed to help learners understand environmental issues.

For additional messages tailored to specific audiences about the benefits of environmental education, please refer to our [messaging guide](#)<sup>15</sup> about the benefits of environmental education for K-12 students.



## References

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- <sup>1</sup> Monroe, M.C., Plate, R.R., Oxarart, A., Bowers, A., and Chaves, W.A. (2017). Identifying effective climate change education strategies: A systematic review of the research. *Environmental Education Research*. Available: <http://www.tandfonline.com/doi/abs/10.1080/13504622.2017.1360842>
- <sup>2</sup> (July 2, 2019). Reframing Climate Change: Impact Brief | FrameWorks Institute. Retrieved August 12, 2020, from <https://www.frameworksinstitute.org/publication/reframing-climate-change-impact-brief/>
- <sup>3</sup> <https://cleanet.org>  
<https://naaee.org/search/site/climate%2520change?f%5B0%5D=bundle%3Aresource&retain-filters=1>
- <sup>4</sup> <https://www.plt.org/curriculum/southeastern-forests-climate-change/>
- <sup>5</sup> <https://naaee.org/our-work/programs/environmental-issues-forums>  
<https://www.plt.org/trainings/>
- <sup>6</sup> <https://www.plt.org/curriculum-offerings/high-school/>
- <sup>7</sup> <https://www.climategen.org/take-action/teach-climate-change/curriculum/>
- <sup>8</sup> <https://climate.nasa.gov/resources/education/>
- <sup>9</sup> <https://cleanet.org>
- <sup>10</sup> <https://climateinterpreter.org/about/projects/NNOCCI>
- <sup>11</sup> <https://www.tandfonline.com/doi/abs/10.1080/13504622.2017.1360842>
- <sup>12</sup> <https://naaee.org/eeopro/resources/environmental-education-brief-guide-us>
- <sup>13</sup> <https://naaee.org/our-work/programs/guidelines-excellence>
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- <sup>15</sup> [https://naaee.org/sites/default/files/eeworks/files/k-12\\_messaging\\_guide\\_final.pdf](https://naaee.org/sites/default/files/eeworks/files/k-12_messaging_guide_final.pdf)