

Editor's Note: This report was prepared before the IPCC released the first part of its Sixth Assessment Report on August 9.

That report only adds to the urgency of the students' recommendations!

Climate Change Education

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Climate change disrupts our planet through severe weather events and other disasters. We can all see these changes, but it might not be clear that it is also disturbing our youth and younger generations. As local student *Dhara* Burak said at the 2019 climate strike¹ “...every time I think about the realistic future, all I see is the world ending. It’s the fact that I don’t get to dream because of greenhouse gases and big oil companies and a thousand things that I don’t have time to get mad about.” Dhara is just one of the thousands of young people who worry about how climate change is undermining our futures. If we want the world’s future leaders to keep on dreaming, we must equip them with the knowledge and tools to address the climate crisis we are facing.

We need to act. We need to be raising awareness and educating the public to help younger generations learn how to fight climate change, and one effective way to do this is through schools. Only 4% of students say that they’ve learned a lot about climate change, but 80% of parents support climate change education. 86% of teachers believe that schools should educate students about climate change and are eager to take up the challenge.² The barrier is not one of willingness, but one of mindset. Many teachers don’t teach about climate change because they believe it is outside of their subject area or worry about the administration’s reaction—but climate change affects all aspects of society. Climate change should not be taught only in environmental or science classes; it needs to be incorporated into all subjects of all grade levels. With the right training and preparation, teachers can teach climate change in any subject and at every grade level. While New Jersey is the first state to require climate change education throughout its curriculum, other states are working to bring climate change education to their schools.³

Environmental Justice

Environmental justice is an important topic to explore with students. Low-income families and people of color will bear the greatest burden of climate change — as will all children and future generations! We need to make sure that the people who will suffer the greatest burden of climate change have a voice in making decisions. We can teach students about environmental justice with books such as *No Planet B*⁴ which describes environmental justice issues and talks about young people being heard. A quote by Sophia Murphy was included in *No Planet B*: “I’m striking today so I can have a future and so I can graduate law school and have kids—so I can live to see 85. And so people who are in the position that I am in can have safe, healthy futures and time to live and not be terrified that they’re going to die in the next ten years.” Younger generations will face the worst effects of climate change, and we need to prepare them.

Aren’t schools already teaching about climate change?

We met with students and teachers in the Lehigh Valley, and many expressed concerns about climate change education. Many teachers said that they didn’t have time to add new topics when they already have so much to cover. Fortunately, climate change does not need to be an additional topic; it can be woven into the existing curriculum. For example, students in English classes can read and write about climate change. Teachers can use a book by Richard Bleach called *Teaching Climate Change in English Language Arts*⁵ to help them incorporate climate change in their curriculum. In history classes, students can research how climate change has affected history and when climate change started. In language classes, students could research and discuss the impact climate change has on the countries they are studying. Economy classes could teach students about the changes in the economy that will be influenced by the impacts of climate change. The climate crisis can be taught in any subject at any grade level.

Another concern is that many teachers feel they are not prepared to teach climate change. Schools need to provide appropriate training and professional development to empower teachers. Training programs do not need to be complicated, Washington has a statewide program called ClimeTime and 99% of teachers who completed their training program said they are now prepared to teach about climate change.⁶ NASA also provides a variety of online training programs.

Teach-climate.net is a website that provides information for various subjects and grade levels. It has examples of curriculum ideas for all classes and has recommendations for books, movies, and teaching points. The website also includes many links and resources for teachers.⁷

What Schools Can Do

A majority of students, teachers, and parents want climate change education — *so why isn't it happening?* There are many creative ways to teach about the climate at every grade level.

Elementary School

One effective way to make an impact is to start teaching climate change to young students, as climate change will impact them the most. The science of climate change might be too complicated for young students, but they can easily understand the concept of sustainability. A teacher in Oakland, California, used an eco-literacy approach, and had the students decorate the classroom with an ocean habitat and learn about the different animals. The next day, the teacher decorated the room as if an oil spill had happened; they then read a picture book about oil spills and how they affect the ocean and marine life. This method was effective because students learned about how oil spills affect ocean life and learned how to clean up an oil spill. Then as a class, they discussed what they learned and why it was important to take care of nature.⁸ Starting sustainable habits at a young age can create a sustainability mindset that students will carry with them throughout their lifetimes. Even simple activities like creating a school garden, creating a composting bin, or improving recycling will help develop a sustainable mindset.

Middle School

This is a great time to start teaching the science behind climate change. Students can learn the simple science behind climate change in chemistry, physics, and biology. In other subjects, climate change can be woven into the current lesson plans. In geography, students can research countries that have been impacted by climate change and do research projects on them. In English and writing classes, students can write essays, fiction, and poetry and read works about climate change. In art classes, students can make art that focuses on the environment, animal habitats, and envisioning the world of the future.

High School

During high school, students should learn the more complex science and policies behind climate change. The curriculum can incorporate big-idea questions like how climate change affects ecosystems and how an increased greenhouse effect will impact the Earth and all life. For example, Biology should include why animals are going extinct and how we could help save them. In chemistry, students can learn about photosynthesis and combustion, and the chemical basis of the greenhouse effect; in math and physics, students at every level can learn through problems related to climate change.

Students can develop a sustainable mindset by reading and writing about climate change or creating a school garden—even small steps like signing up for a park clean-up can help students connect to our environment. Encourage them to form action-oriented clubs, make waves, and take steps to raise awareness.

Action Steps for Fall 2021

You may think it would be good to convene a task force to address the complex issues of climate change education—but the catastrophe is already in progress, and we need to act *now* to prepare students.

1. Ask all teachers to integrate materials related to climate change in their teaching, classroom discussions, and assignments.
 - English Language arts teachers can easily incorporate material related to climate change in their reading, research, and writing assignments—essays, fiction, poetry, and journalism.
 - Social Studies teachers can use climate change—exploration of why governments have failed to act—in their reading and classroom discussions, including the latest IPCC assessment. (Note: The first part of the IPCC’s Assessment Report 6 was released on August 9, 2021.)
 - Science and Math teachers can use examples from climate science to teach concepts and skills in their subject at every age level.
2. Ask Principals, department heads, and curriculum coordinators to support teachers in the process of integrating climate change into their teaching. See the Resources section and teach-climate.net for more information and ideas.
3. Make sure your school library or media center includes materials related to climate change and sustainability, such as *No Planet B* and other materials in the Resources section and those on the teach-climate.net website
4. Develop or ask education departments at local colleges and universities to provide sample teaching units and lesson plans and to provide in-service programming modules to support teachers.
5. Ask high school teachers to engage students in a GHG inventory of their school and begin to develop a climate action plan. Bethlehem developed its CAP by engaging a large number of community members, and the school can find ways to engage many members of the school community. You can find specific steps, tools, and ideas at teach-climate.net.

To help raise public awareness, it is important to do all these steps publicly, to discuss them at school board meetings and with parent groups.

A group of Lehigh Valley students has started a [petition](#) for schools to teach about climate change, and they are seeking support from all members of the community.

Resources

[Magic School Bus series](#) – has a global warming episode and book for elementary school students.

[Movies that teach Kids About Climate Change](#) – lists documentaries for students from ages 5–13+.

[Social Justice Book website](#) – lists books for students in elementary, middle, and high schools.

[“A Natural Part of English Language Arts”](#) – discusses the urgency of teaching climate change. *American Educator* (Winter 2019–2020).

[No Planet B](#), edited by Lucie Diavolo talks about climate justice and young people being heard, and is written by and for young people.

[“Teaching Climate Change to Adolescents: Reading, Writing, and Making a Difference”](#). National Council of Teachers of English (2016).

(Resources, continued)

[Teaching Climate Change in English Language Arts](#). Richard Beach, Jeff Share, and Allen Webb describe how teachers can incorporate climate change into the Language Arts curriculum.

[Smart by Nature](#), by Michael K. Stone and [Center for Ecoliteracy](#). Explains how schools are teaching their students about sustainability. Watershed Media (2009).

[“Teaching About Climate Change”](#) – teacher Bill Bigelow describes his journey of teaching climate change to students. [Zinn Education Project](#) (2009).

[“How One Second-Grader’s Story Inspired Climate Justice Curriculum”](#) – teacher Rachel Hanes tells us about a second-grader who inspired her by writing about her Native American heritage and the Dakota Access Pipeline. [Rethinking Schools](#) (2019–2020 Winter issue).

About the Alliance and the 2021 Summer Internship Project on Climate Action Planning

The Alliance for Sustainable Communities–Lehigh Valley is a nonprofit organization that focuses on a wide variety of environmental and social justice issues that contribute to more-sustainable communities. Based in Bethlehem, PA, the Alliance has been active since 2003 and offers summer, fall, and spring internships to college students in the area to work on projects with the aim of creating a more sustainable Lehigh Valley.

In previous years, we’ve tackled Campus Sustainability, Sustainability in Healthcare, Interdisciplinary Teaching on Climate and Sustainability, Brewing Sustainability (sustainability for the craft brewing industry), and Sustainability for Independent Cafés and Restaurants, and Climate Action Planning for the Lehigh Valley.

The summer project on implementing the Climate Action Plan was completed by five student interns: Devon Jewell (Moravian Academy ‘23), Harrison Kim (Parkland High School ‘22), Alexandra Ludman (University of Delaware ‘21), Margaux Petruska (Lehigh University ‘21), and Isaac Weber (Dartmouth College ‘22) researched various strategies, developed priorities, and prepared recommendations.

The interns prepared three reports, all of which are available online:

- [Implementing Bethlehem’s CAP](#)
- [Build Sustainably — for Business Success and a Livable Future](#)
- [Climate Change Education](#)

To reach the Project Team, email climate-action@sustainlv.org.

Acknowledgments

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Endnotes

- 1 Dhara Burak. “The World is Ending, So Why Bother Dreaming?”. *Sustainable Lehigh Valley*, Alliance for Sustainable Communities–Lehigh Valley (2020).
- 2 Kwauk, Christina, and Rebecca Winthrop. [“Unleashing the Creativity of Teachers and Students to Combat Climate Change: An Opportunity for Global Leadership.”](#) Brookings Institution, 26 Mar. 2021.
- 3 Burney, Melanie. “In New Jersey Schools, Climate Change Education Will Be Mandatory.” *The Philadelphia Inquirer*, 2 July 2020, www.inquirer.com/education/climate-change-new-jersey-mandatory-curriculum-tammy-murphy-20200702.html.
- 4 Lucy Diavolo, editor. *No Planet B*. Hatmarket Books (2021). www.haymarketbooks.org/books/1518-no-planet-b
- 5 Richard Beach, Jeff Share, and Allen Webb. [Teaching Climate Change in English Language Arts](#). Routledge (2017).
- 6 “About ClimeTime.” ClimeTime, www.climetime.org/about/.
- 7 Alliance for Sustainable Communities–Lehigh Valley. “Interdisciplinary Teaching on Climate & Sustainability.” *Let’s Talk about Climate*, 5 July 2021, teach-climate.net/teacher-guide/.
- 8 Goleman, Daniel, et al. “Five Ways to Develop ‘Ecoliteracy.’” *Greater Good Magazine*, 2013, greatergood.berkeley.edu/article/item/five_ways_to_develop_ecoliteracy.