

Assessment:

Alarmism dominates
climate teaching materials

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COMMITTEE FOR A
CONSTRUCTIVE TOMORROW

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Executive summary

There is a massive lack of balance in materials teaching climate science at the middle and high school level. A major 2016 poll [indicates that](#) about a third of middle and high school science teachers are skeptical of climate alarmism. They are teaching the real scientific debate. The poll was sponsored by the National Center for Science Education. But this means that maybe two-thirds do accept alarmism, which means we need to get the skeptical message across, if not to these teachers then at least to their students.

In fact a *New York Times* article provides [evidence](#) that skeptical parents and teachers are standing up to alarmist teachers. These people need supporting materials, which they presumably will not be getting in the classroom. Especially valuable will be materials that can be brought to class, either physically or electronically.

Course materials play a big role in teaching climate science. Given the widespread occurrence of climate skepticism, we would expect a good selection of skeptical content. But there is virtually none, because the vast majority of large portals are either federally owned or federally funded. This federal teaching material is uniformly alarmist. How to teach climate skepticism is nowhere to be found.

There are on the order of a thousand climate science lessons and related materials available online. The field is dominated by several dozen “large” to “very large” websites – but these websites and the content they provide are highly alarmist. They all falsely present dangerous human-caused global warming and climate change as though it were an established body of facts.

In this report we provide an overview and assessment of the state of support for teaching climate science, especially in middle and high school. These two levels are where most state teaching standards specify that climate science will be taught in public schools. Not surprisingly, they are also the education levels targeted by most teaching materials.

It is important to note that non-textbook materials play a special role in teaching climate science. This is because the science is data intensive and textbooks cannot supply large amounts of data. For example, state standards typically require students to use climate modeling data in high school. In this context the textbook is almost irrelevant. What counts is the online content -- and if that is alarmist, then the lesson will be too.

We will start big, then zoom in for some specific examples, a few among many. We will first look briefly at the needs of teachers, students, and parents. Next, we will examine the overall interlocking system of alarmist websites that presently provide climate science teaching materials. Some sites are repositories for actual materials. Others are portals that facilitate discovery by listing and linking to a lot of other sites. Many

teaching materials also include a lot of links to other websites or lessons. The net result is a monolithic and tightly woven system of alarmist content.

We will then look at two examples from the largest sites, one federal repository and one federally funded portal. These are, respectively, the NASA and CLEAN sites. The NASA repository consists of a number of different websites that collectively contain over a hundred items. These range from lesson plans to games and graphics. Students are targeted as early as fourth grade. There is very little actual science here. It is primarily a repetition of the standard alarmist arguments.

The CLEAN portal boasts descriptions of over 650 materials, many of which are detailed lesson plans. It also includes many pages of generic instructions on how to teach climate alarmism, which it stupidly calls "climate literacy." In fact, CLEAN stands for Climate Literacy & Energy Awareness Network. It is all about using the bogus climate change scare to force changes in our energy system and the lifestyle this energy makes possible.

All of the repositories and portals have this alarmist character. We can find none that provides materials that question alarmism or present balanced climate science. Given that many teachers and parents are skeptical of alarmism, this is a huge gap.

We then analyze two of the leading lessons, one from the National Academy of Sciences (NAS) and the other from Carleton College. The NAS lesson is portal-like in that it directs the students to a number of other websites in a structured way. The thrust of the lesson is not scientific instruction. It is for the students to become political activists.

Carleton is a major NSF-funded repository. The lesson in question uses computer-modeling data to project dangerous future climate change for the student's home state. The student is then encouraged to become politically active in response to these bogus threats. There is no science in this extensive lesson, just scary computer projections.

This reprehensible focus on activism over science is characteristic of many of the alarmist teaching materials. Teaching sound science is not the goal -- far from it. Even when the activist aspect is not overt, it is typically implicit because the focus is on the supposed adverse impacts of dangerous climate change.

In summary, what we presently have is a relatively large interlocking network of alarmist websites and teaching materials. There are several dozen major websites, presenting perhaps a thousand instructional items. The focus is political activism, not sound science. Most are federal or federally funded. There is virtually nothing to help the many teachers, parents, and students who are skeptical of climate alarmism. This is a sad situation indeed.

There is a great need for developing, collecting, and providing teaching materials that counter climate alarmism. At present, federal and federally funded alarmist teaching

materials dominate the education system, but many teachers remain skeptical, as do many parents, students, and school board members. This skepticism is being reinforced by the actions of the Trump Administration.

Thus there is a great opportunity to begin to create, collect, and disseminate sound climate science in a teachable format. The need is great, but the supply is almost nonexistent. This gap needs to be filled.

About the author

Dr. David Wojick brings a unique combination of experiences to bear on the issue of teaching sound climate science. He has done extensive research on science education, as well as helping to build several major websites for the collection and dissemination of scientific materials. At the same time, he has been an active climate change issue analyst and a vocal skeptic of climate alarmism. His Ph.D. is in mathematical logic and philosophy of science; he specializes in the logic of complex issues like the climate change debate.

I. Climate skepticism is widespread in middle and high school

A. Many teachers want to teach climate skepticism

In 2016 a [major poll](#) revealed that, among high and middle school science teachers, at least a third are skeptical of alarmism. They are teaching about the real scientific debate. This is good news indeed! The poll was sponsored by the National Center for Science Education. They are a mad dog climate alarmist group, so I suspect they were very [unhappy with the results](#), which makes the results that much more reliable. Of course, it would be much better if all teachers taught the truth about the climate debate; but, given the pressures to teach alarmism, one-third is a significant fraction.

These pressures are substantial. For example, the liberal media universally reported these poll results as bad news. The *Washington Post* [headline](#) was, "How teachers are getting it wrong on climate change." Telling teachers they are "getting it wrong" when they teach about the real climate change debate is an absurd bias. It is the ones teaching alarmism that are getting it wrong.

Unfortunately, this alarmist bias is not confined to newspapers. The major teacher organizations also share it. The bias came out recently when the Heartland Institute began sending a report -- *Why Scientists Disagree About Global Warming* -- to science teachers. Their efforts to provide much-needed information were denounced by several leading education groups, led by the National Science Teachers Association (NSTA).

These groups actually sent a joint letter to their members, calling the Heartland information campaign an "attack on reason." Clearly, given that something like a third of their members share Heartland's skeptical view, it is this letter that is unreasonable. How can a membership organization attack a position that a third of its members hold? This can only happen if zealots are in charge, for they are well aware of these poll results.

The NSTA is also high on [my list of 33 websites](#) peddling alarmist classroom materials. Even worse, the enormous National Education Association (NEA) has a site pushing alarmist content to teachers. The NEA's primary function is to lobby for public school teachers, and it has over three million members. That it should take the alarmist position on climate change is ludicrous, given that many teachers disagree.

Unfortunately, the NEA's website -- *Climate Change Education: Essential Information for Educators* -- is completely alarmist. It begins with this false claim: "The effects of human-caused climate change can already be seen." They also repeatedly use the term climate change to mean human-caused climate change, as though natural climate change did not exist, which is nonsense.

The NEA site provides links to a variety of alarmist teaching materials, going all the way down to 4th grade. It is also worth noting that many of these incorrect classroom materials are provided by federal agencies, including NOAA, NASA, NSF, USDA, and DOE. When it comes to teaching climate alarmism, the Feds are in the forefront.

Given all these pressures, it is impressive that many teachers still want to teach about the climate change debate, not just alarmism. They need all the help we can give them. Moreover, those who are promoting alarmism need to be called to account. It is time to stand up for skepticism in the schools.

B. Student and parent skepticism is common

The New York Times recently ran a long [article](#) complaining that President Trump quitting the Paris Agreement has emboldened high school students to be skeptical of climate change alarmism. This is good news, but of course that is not quite how the *NYT* puts it. They believe in climate alarmism, so they see student skepticism as a bad thing.

Their biased view is exemplified by their bogus headline:

"Climate Science Meets a Stubborn Obstacle: Students"

I would put "climate science" in quotes at best, because the *NYT* is doing the usual trick of falsely equating speculative alarmism with settled science. These students are indeed an obstacle to alarmism, but it is because they are being scientific and questioning dogma, which is good. Alarmism is not climate science, far from it.

The *NYT* article suggests that Trump quitting the Paris debacle has emboldened skeptical students. Let's hope so, but the reality is that student skepticism is not new. After all, the majority of parents question alarmism. Moreover, polls indicate that many high school and middle school science teachers are already teaching about the climate debate, rather than teaching alarmism.

The *Denver Post* ran a similar [story](#), with the same trick in the headline: *"How to teach kids about climate change where most parents are skeptics."*

Like the *NYT*, the *Denver Post* is basically equating bogus alarmism with real climate science, as though skepticism were somehow unscientific. Nothing could be further from the truth. Climate skepticism is science at its best. Even worse, both articles suggest that poverty might be a motive for skepticism, which has an element of truth because climate alarmism is a prescription for energy poverty, but the legion of skeptics includes all income brackets, including the President's.

It is worth noting that both articles refer to questionable data graphs from NASA as evidence for alarmism.

The Denver Post article says this: "Jacobson whipped out her cellphone and pulled up a NASA graph of global temperature records going back hundreds of thousands of years. With her pinkie, she traced the zigzagging line through the centuries, then pointed to where it shoots up sharply in the 1950s – right when humans started adding greenhouse gases to the atmosphere at a perilously fast rate."

We do not know what global temperatures were hundreds of thousands of years ago. They may well have been higher than today. We do have strong evidence that temperatures just a thousand years ago were as high, or higher, than they are today. It is no surprise that the Obama NASA graph does not show these high temperatures. Moreover, the temperature's "shooting up" in the 1950s is at odds with the standard estimates, which show cooling from the 1940s until the 1970s. In fact, the satellites show no warming until the late 1990s.

It would help the parents, students, and teachers if they had skeptical materials, written for their grade level, which countered these bogus alarmist claims. Unfortunately, the Web is full of sites offering one-sided alarmist teaching materials. Many of these alarmist education websites are federal, such as the NASA site, or federally funded. Here is a [sample list](#) that I compiled for CFACT. While there are numerous skeptical websites, there are no skeptical education sites at this time. This gap needs to be filled.

II. Alarmist teaching materials are available in abundance

(Below is just a sample of some of the leading websites.)

A. Federal or federally funded websites

1. Climate Literacy & Energy Awareness Network (CLEAN).

A collection of 650+ alarmist teaching materials geared for secondary through higher education classrooms. The CLEAN is funded by grants from the National Oceanic and Atmospheric Administration, the National Science Foundation, and the Department of Energy. This site is discussed below: See section III-B. "CLEAN teaches climate alarmism on a grand scale." The site's so-called "climate literacy" is pure alarmism.

<http://cleanet.org/>

2. U.S. Global Change Research Program, "Resources for Educators."

This is a small site with links to eight other alarmist federal sites, including Climate.gov and CLEAN. There is an emphasis on the National Climate Assessment, which the USGCRP runs.

<http://www.globalchange.gov/browse/educators>

3. Climate.gov's "Teaching Climate." Climate.gov is NOAA's massive alarmist website. In addition to teaching materials, the site presents a lot of scary data that teachers can use to push alarmism. It gets over 8 million hits a year.

<https://www.climate.gov/teaching>

4. "Going Green! - Middle Schoolers Out to Save the World" is funded by the NSF. It is a Wikispaces project that recruits middle school classrooms to save electricity in the name of climate change activism. It includes a lot of links to other alarmist websites.

<https://msosw.wikispaces.com/>

5. NASA's "Global Climate Change - Vital Signs of the Planet." NASA's extensive alarmist websites are discussed below: See section III. A. "NASA leads the Feds in teaching climate alarmism."

<https://climate.nasa.gov/resources/education/>

6. The National Ocean Service's "Talking to Children about Climate Change." The Ocean Service is a NOAA program office like the Weather Service. This site tries to tell teachers how to teach alarmism to children, including young ones. The message: "Their future depends on the actions we all take now." They feature short alarmist student essays plus some fact sheets that present the standard alarmist propaganda. There are links to EPA.gov and Climate.gov for more material.

<http://oceanservice.noaa.gov/education/climate-stewards/talking-about.html>

7. "Teaching about Climate Change" from Carleton College, sponsored by the NSF. Carleton partners with CLEAN and is a major repository for alarmist teaching materials, with over 100 items. A prominent example is discussed below: See section III. D. "Carleton lesson teaches activism with climate modeling."
<http://serc.carleton.edu/NAGTWorkshops/climatechange/index.html>
8. "Climate Change Live" says it is presented by the U.S. Forest Service and 26 other federal and NGO partners to do distance climate learning through a series of webcasts, webinars, and online climate education resources. The tone is decidedly alarmist, as are some of the non-federal partners.
<https://climatechangelive.org/index.php>
9. NASA's "Climate Kids." NASA's extensive alarmist websites are discussed below: See section III. A. "NASA leads the Feds in teaching climate alarmism."
<https://climatekids.nasa.gov/menu/teach/>
10. "Climate Change Activities" from UCAR, which is sponsored by the NSF. There are 22 stand-alone alarmist activities for students. For example -- "Through a simple online model, students learn about the relationship between average global temperature and carbon dioxide emissions while predicting temperature change over the 21st Century."
<https://scied.ucar.edu/climate-change-activities>
11. "Climate and Global Change" by the National Earth Science Teachers Association, sponsored by NASA and NOAA. A very large collection of semi-technical materials, including numerous videos. Includes political as well as scientific content, plus links to both federal and activist websites. The alarmist message: "The scientific consensus is that climate is warming as a result of the addition of heat-trapping greenhouse gases which are increasing dramatically in the atmosphere as a result of human activities."
<http://www.windows2universe.org/earth/climate/climate.html>
12. "Climate Change Education" by Stanford's School of Earth, Energy, & Environmental Sciences, funded by NASA. Here is the alarmist opening message: "A large body of scientific information indicates that global climate change is unequivocal, almost certainly is caused mostly by human activities, is already causing significant harm, and as it continues, holds great risks for our future. Addressing the risks of climate change requires global and local action to reduce greenhouse gases as well as to reduce vulnerabilities to climate change impacts." The site has detailed curricula for middle and high school, plus a number of supporting documents and videos. The school also runs teacher workshops.
<https://pangea.stanford.edu/programs/outreach/climatechange/>
13. "Climate Change" from the AAAS, sponsored by the NSF. This site consists of almost 50 annotated links to lesson plans, videos, short articles, and other climate-related materials. It begins with the K-2 grade level. The content covers the usual alarmist

topics, in keeping with the AAAS endorsement of climate alarmism.

<http://sciencenetlinks.com/collections/climate-change/>

14. "Teacher Resources" from the Alliance for Climate Education, which includes OSTP, NOAA, and the EPA as "Partners." The focus is on schools doing assemblies to promote climate alarmism. The site includes a link to CLEAN for follow-on materials.

<https://acespace.org/teachers/resources>

15. "Climate Change and Human Health Lesson Plans," by the National Institute of Environmental Health Sciences, which is part of NIH. This collection consists of four detailed lesson plans at the high school level. It uses content from the U.S. Global Change Research Program's highly alarmist 2016 report: "The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment."

<https://www.niehs.nih.gov/health/scied/teachers/cchh/>

16. "Climate Change Webquest," from the U.S. National Academy of Sciences. This is a lengthy lesson plan that links to numerous other alarmist websites. It is discussed below: See section III. C. "The National Academy of Sciences teaches advocacy, not science."

<https://www.koshland-science-museum.org/teacher-resources/webquests/climate-change>

17. "Educational Outreach Program," from the Atmospheric Radiation Measurement (ARM) Climate Research Facility of the Department of Energy. The site includes lesson plans, puzzles, and quizzes. The focus is on extreme weather events, which it wrongly attributes to climate change.

<https://education.arm.gov/>

B. Sites not known to be federally funded

Note that these sites are generally much smaller than the federal and federally funded sites listed above.

1. "Climate Change 101" (video) with Bill Nye | National Geographic. This is just one of Nye's numerous alarmist YouTube videos. It is promoted by National Geographic and has had almost half a million views to date.

<https://www.youtube.com/watch?v=EtW2rrLHs08>

2. "There is no Planet B," by Teach Climate Change. This is an extensive collection of alarmist Q&A pieces written at a very non-technical level. The message is that global warming "has gone to the point now where it is racing ahead at a pace no one can manage." Many pieces end with a link to an alarmist video from another site.

<http://teachclimatechange.org/>

3. "Classroom Resources," from the National Center for Science Education (NCSE), the leading activist political organization when it comes to attacking climate skepticism in schools. Most of their materials are blog articles for teachers.
<https://ncse.com/classroom-resources>
4. "Climate Science Resources," from the National Science Teachers Association. This site combines political material with some teaching materials, plus links to many other sites, both political and scientific. The NSTA is leading the ongoing attack on Heartland's mailing of skeptical material to science teachers.
<http://www.nsta.org/climate/>
5. "Climate Change," from Practical Action. This is an NGO doing adaptation projects in developing countries. The work may be useful, but it is all predicated on the myth of looming dangerous climate change.
<https://practicalaction.org/climate-change-resources>
6. "Climate Change Resources," from the National Wildlife Federation. This site has several alarmist lessons, plus links to other sites, especially some of the federal ones. This is part of a larger "Eco-school" initiative that recruits entire schools.
<https://www.nwf.org/Eco-Schools-USA/Become-an-Eco-School/Pathways/Climate-Change/Resources.aspx>
7. "Cornell Climate Change," from Cornell University, consists entirely of about 20 annotated links to other websites. Most of these are either the leading federal sites or political action sites. The site appears to be maintained by the resident USDA extension office.
<http://climatechange.cornell.edu/tools-resources/youth-education/>
8. "Teaching About Climate Change with *The New York Times*," by The Learning Network. This site has a lot of short lessons and other materials based on alarmist *New York Times* content. Left-wing politics and science are mixed together. The doctrine of dangerous human caused climate change is assumed throughout.
https://learning.blogs.nytimes.com/2014/04/02/teaching-about-climate-change-with-the-new-york-times/comment-page-1/?_r=0
9. "Climate Change - Student Resources," from Lehigh University's Environmental Initiative. This is a stand-alone site with about 30 short documents, mostly PDFs, that present and defend the scientific doctrine of dangerous, human-caused climate change in relatively non-technical language.
<http://www.ei.lehigh.edu/learners/cc/>
10. "Climate Change Education: Essential Information for Educators," from the National Education Association. The NEA is the leading lobbyist for teachers, so it has considerable influence. This site provides links to many other websites, especially the

leading federal sites. Their introductory materials are taken from NOAA.

<http://www.nea.org/home/65564.htm>

11. "Climate Change," from the University of California, Berkeley's, Global Systems Science, presents a single book of lessons that begins with the basic science of the greenhouse effect. It then, as the authors put it, "involves students in thinking about the economic, political, and ethical implications of regulating human activities to reduce the likelihood of global climate change." This is the standard alarmist transition from science to activism.

<http://www.globalsystemsscience.org/studentbooks/cc>

12. "Climate Change," by KQED Science, includes several dozen short, non-technical blog-like articles, plus an e-book series and links to some other sites, including the federal ones. It covers the standard alarmist topics.

<https://ww2.kqed.org/quest/tag/climate-change/>

13. "Activities for Responding to Global Climate Change," by the Nuffield Foundation, features 19 detailed lesson plans. As "responding" suggests, the focus is political as well as alarmist. The two introductory lessons offer the choice between this alarmist approach -- "Students collect and analyze topical news stories on any aspect from political arguments about international agreements to a hurricane, a flood, a drought or a dire warning on future climate" -- and this one -- "Students research the impacts of climate change on one community in a developing country of their choice."

<http://www.nuffieldfoundation.org/science-society/activities-responding-global-climate-change>

14. "Climate Change," from BP Educational Service (BP oil), provides five detailed, alarmist lesson plans for grades 5 to 10. It combines political and scientific content, including 100-year climate forecasts.

<http://bpes.bp.com/collection/climate-change>

15. "Climate Change Lesson Plans: Exploring the Evidence," by Michigan State's W. K. Kellogg Biological Station. There are six lesson plans, beginning in elementary school, plus links to the NASA and EPA websites. The alarmist message: "Climate change is a real phenomenon we can observe. And human activities are the dominant force behind it. Any attempt to obfuscate this reality is politically motivated and is NOT supported by unequivocal scientific evidence."

<https://www.kbs.msu.edu/2017/02/climate-plans-k-12/>

16. "Educators' Resource Corner: Climate Change," from the Wisconsin Center for Environmental Education. This site consists primarily of 15 annotated links to other collections, including NASA's.

<http://eeinwisconsin.org/resource/about.aspx?s=93380.0.0.2209>

17. "Education Resources," from Southern Oregon Climate Action Now. This is a small activist site with alarmist lessons beginning in grade 3, plus links to the leading federal websites.

<http://socan.info/education-resources/>

18. Climate Change Education.Org -- web portal. This appears to be a collaboration led by the University of California and several California science museums. The site is complex in structure and difficult to assess, but it provides numerous links to other alarmist climate change sites, including federal, plus a lot of political sites.

<http://www.climatechangeeducation.org/>

C. The EPA's deeply alarmist teaching materials are all still there

Officially, the EPA's climate change material has been withdrawn, but it is still readily available from the EPA website, as follows. The EPA's main education page is still there - "Lesson Plans, Teacher Guides and Online Resources for Educators."

<https://www.epa.gov/students/lesson-plans-teacher-guides-and-online-resources-educators>

There are links to various topics. There is a button for "Climate Change" which still works. Using it to go to the EPA climate change education website, one finds this notice:

"Thank you for your interest in this topic. We are currently updating our website to reflect EPA's priorities under the leadership of President Trump and Administrator Pruitt. If you're looking for an archived version of this page, you can find it on the January 19 snapshot [link]." Clicking on the snapshot link takes one to this page:

https://19january2017snapshot.epa.gov/climatechange_.html

It has a banner saying: "This is not the current EPA website. To navigate to the current EPA website, please go to www.epa.gov. This website is historical material reflecting the EPA website as it existed on January 19, 2017. This website is no longer updated and links to external websites and some internal pages may not work."

This page leads to an extensive website full of alarmist teaching materials, which are still readily available and easy to find. Moreover, clicking on any link to a specific old EPA webpage produces a similar result. The old page is simply one click further away than it used to be.

III. Examples of major alarmism teaching websites

A. NASA leads the Feds in teaching climate alarmism

We were very thankful when the EPA took down its deeply alarmist climate change "education" website. However, taken as a whole, NASA's climate alarmism websites are much larger and still there. In fact, they are still being updated. Here is a quick look at just some of these, which really need to come down. There are two major sites plus a number of smaller ones.

The first major pseudo-educational [website](#) is "NASA's Climate Kids." This is a vast collection, including games, projects, videos, and lots of fancy pictures. The basic message is [summarized](#) this way:

"What is making Earth's climate warmer?"

Scientists have discovered that humans are causing this warming.

But how do they know that? What are we doing that could cause the whole planet to get warmer? And how could warming happen so fast? What will happen to people and other living things if the planet keeps getting warmer? And what can we do to slow down or stop the warming?"

So, there it is, the alarmist credo: Humans are the problem but we can stop it. And, of course, the big culprit is CO₂. The entire Climate Kids website is devoted to answering the listed leading questions with alarmist dogma.

A lot of the content targets younger children, even though climate change is typically taught in middle or high school. In fact, the [games](#) range from coral bleaching and endangered species to renewable energy and carbon offsets, none of which are suitable for young children. But the presentations are artfully simple minded.

The second [huge website](#) is "Global Climate Change: Vital Signs of the Planet." This has somewhat more technical content, but there is a lot geared to middle and high school. As the alarming term "vital signs" suggests, the central theme here is also that humans are threatening the planet, especially with CO₂, but they can be stopped.

The Home Page prominently features five scary numbers: CO₂ level (going up), global temperature (going up), Arctic ice (going down), land ice (going down), and sea level (going up).

There is even a lengthy argument from authority, specifically a "scientific consensus" [page](#), which includes the ridiculous 97% claim, saying this:

"Multiple studies published in peer-reviewed scientific journals show that 97 percent or more of actively publishing climate scientists agree: Climate-warming trends over the past century are extremely likely due to human activities. In addition, most of the leading scientific organizations worldwide have issued public statements endorsing this position. The following is a partial list of these organizations, along with links to their published statements and a selection of related resources."

On the pseudo-education side, rather than presenting specific teaching materials NASA [presents links](#) to a large number of other websites that present such materials. Many of these are other NASA sites, plus NASA-funded sites, and a few others. In addition to the massive Climate Kids, here are some of the other NASA related sites, each quite large: [Climate Change Lessons: JPL Education](#)
[NASA Wavelength](#)
[ESSEA Climate Education modules](#)
[NASA Innovations in Climate Education](#)
[PBS/NASA Global Climate Change Modules](#)

Taken together, all of these supposedly educational, alarmist websites dwarf the EPA site, as well as every other federal agency site. Moreover, NASA is a science agency, unlike the EPA, which is a regulatory agency. NASA also markets heavily to children, especially using the lure of space stuff.

That NASA is still selling Obama-era alarmism to children is intolerable. It is also clearly inconsistent with Trump Administration policy. Unfortunately, the President, at the time of this writing, has yet to even nominate an Administrator for NASA. Instead, the acting Administrator is Robert Lightfoot, who was Associate Administrator under President Obama.

Clearly what is needed is to redirect NASA's sprawling climate education efforts away from alarmism. Either that or terminate them.

B. CLEAN teaches climate alarmism on a grand scale

1. Overview

CLEAN is the Grand Central Station when it comes to distributing alarmist teaching materials to American students. The CLEAN [portal](#) boasts links to over 650 items, many of which are detailed lesson plans. It also includes many pages of generic instructions on how to teach climate alarmism, which it stupidly calls "climate literacy." In fact, "CLEAN" stands for Climate Literacy & Energy Awareness Network. It is all about using the bogus climate change scare to force changes in our energy system and the modern lifestyle this energy makes possible. Scientific literacy has nothing to do with it.

Not surprisingly, CLEAN is federally funded. It began as part of the NSF-funded National

Science Digital Library, but then took on a life of its own. In this new life it is jointly funded by NOAA, the NSF, and the DOE. It is also integrated into the highly alarmist federal [Climate.gov](https://climate.gov) website. This means that CLEAN is not just federally funded, it is federally operational. One wonders what this operational contract looks like? This federal funding should end.

That CLEAN's many teaching materials are alarmist is guaranteed by its selection criteria, which it grandly calls the "[Guiding Principle](#)" of climate literacy. The Guiding Principle is this: "*Humans can take actions to reduce climate change and its impacts.*" This is as succinct a statement of climate alarmism as one can find.

CLEAN explains it this way:

"Humans cause climate change, and humans can address climate change too. Climate change can be a tough topic to teach. But talking about the solutions can bring a hopeful message to the classroom and empower students. It's essential that students understand the types of actions we can take, and the scale at which these changes are necessary. Humans need to reduce emissions of heat-trapping gases, while also preparing for impacts, planning for resilient communities, and protecting the ecosystems that sustain us. Addressing climate change will be a monumental challenge, and no doubt some of today's students will be instrumental in designing and implementing future solutions."

CLEAN's 650+ teaching materials are selected to advance this alarmist Guiding Principle. There is nothing here about understanding climate science, much less seeing the deep scientific debates that dominate that field. It is all about "empowering" students, which means training them to be political activists, to carry the banner of alarmism. In fact, the full formal title of the principle is this: "The Guiding Principle for Informed Climate Decisions." So it is all about decisions. This is climate activism, not climate science.

The idea is to scare the kids without depressing them to the point of inaction. This reprehensible focus on activism over science is characteristic of the alarmist teaching websites. Teaching sound science is not the goal -- far from it. Even when the activist aspect is not overt, it is typically implicit because the focus is on the supposed adverse impact of dangerous climate change, which is assumed to be human caused. That CLEAN gets its material from many other websites shows just how widespread this activism is.

CLEAN elaborates the alarmist Guiding Principle at great length, via a number of what it calls component concepts. These begin with the sound fact that the Earth's energy comes from the sun, but then get progressively more alarmist. The final concepts are these two:

"Human activities are impacting the climate system" and "Climate change will have consequences for the Earth system and human lives."

Note that climate change here means *human-caused* change. The idea of *natural* change is considered briefly, then quickly discarded and left behind.

Each of these questionable concepts gets a very long webpage of teacher guidance. Here are just two examples of CLEAN's instructions for teachers:

"It may be tempting to have a debate about this topic, but that may not be the most effective way to characterize it. A debate suggests that there are two credible, opposing viewpoints, when in fact the scientific community is virtually unanimous about the human causes of climate change. Secondly, debating a topic can reinforce misconceptions and cause unnecessary controversy in the classroom."

So no debate, no questioning, just pure alarmism?

"Keep in mind that alarming students and the public about the impact of climate hazards, such as droughts and extreme events, can be counter-productive and cause people to ignore the warnings, feel hopeless, or succumb to denial. However, glossing over the severity of the impacts and the enormous social and environmental ramifications of climate change can lead to a society that is ill-prepared to deal with change. Finding a balanced approach and avoiding a "despair deficit" is clearly a good practice, both inside and outside of the classroom."

So the threatened threat is severe, but not to despair? More pure alarmism.

CLEAN even advises that climate alarmism be taught in non-science courses, which means as propaganda. For example, they say this:

"Because climate change affects so many parts of our lives, the theme can be woven into a range of topics throughout a course or a unit. Subjects such as history, economics, or health can all touch on climate change. Climate impacts needn't only be addressed within the specific context of an earth science class."

There is [evidence](#) that this sort of rogue teaching of alarmism is in fact happening.

Conclusion: In short, CLEAN is a massive federally funded center for the delivery of alarmist teaching materials. The U.S. Government has no business supporting this activity. The federal funding of CLEAN should end.

2. CLEAN has a lot of materials targeting the Next Generation Science Standards

Using CLEAN's NGSS browse [menu](#), we searched for materials that specifically target the primary climate-related standards. The resulting numbers are large, especially for middle school. This appears to be in part because the high school standards are not as precise as the middle school ones.

NGSS middle school climate systems -- 152 items

https://cleanet.org/clean/educational_resources/ngss_ms_systems.html?q1=sercvocabs_316%3A153

NGSS middle school climate solutions - 64 items

https://cleanet.org/clean/educational_resources/ngss_ms_solutions.html?q1=sercvocabs_316%3A153

Middle school total = 216 items

NGSS high school climate systems -- 39 items

https://cleanet.org/clean/educational_resources/ngss_hs_systems.html?q1=sercvocabs_325%3A161

NGSS high school climate solutions -- 13 items

https://cleanet.org/clean/educational_resources/ngss_hs_solutions.html?q1=sercvocabs_325%3A160

High school total = 52 items

Combined = 268 items

The CLEAN homepage says 650+ resources, so less than half are mapped to the NGSS middle and high school climate systems and solutions standards. Many others are mapped to other NGSS statements. Plus, there are a lot of college-level materials.

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Also of interest are the CLEAN browse categories for "Climate system and climate change." Many of these are alarmist in nature.

Climate data

Ice ages

Greenhouse gases

Carbon cycle

Earth's energy balance

Ecosystems

Climate impacts

Scientific process
And more

Same for the browse categories for "Climate and energy solutions."

Clean energy
Efficiency
Policy, economics
Restoring habitats
Reducing waste
Agriculture
Adaptations
And more

3. The CLEAN guidance for teachers is very alarmist

To begin with, the CLEAN "Teaching Climate Science" [homepage](#) says this:

"Bringing Climate Science into your Classroom

*One of CLEAN's goals is to help teachers be as effective as possible when teaching climate science. This series of web pages introduces climate science in a sequence that illustrates different aspects of the climate system. Natural and human influences on climate are presented here, as well as the effects of interactions between parts of Earth's systems. Special emphasis is placed on the methods that scientists use to study the climate and make predictions about future impacts, as this is a topic that is sometimes misunderstood. **The overarching Guiding Principle states that humans can take actions to reduce climate change and its impacts, which is a key part of teaching climate science.**" (Emphasis added.)*

Note too that it says: **"Taken together, these concepts describe climate literacy."**

There are then links to separate pages that amplify the above. Here are excerpts from two of these pages.

1. The [page](#) on teaching Principle 6:

"Human activities are impacting the climate system.
Climate Literacy Principle 6

*Teaching about the human impacts on climate is supported by five key concepts:
Teaching this principle is supported by five key concepts:*

- a. *The overwhelming consensus of scientific studies on climate indicates that most of the observed increase in global average temperatures since the latter part of the 20th century is very likely due to human activities, primarily from increases in greenhouse gas concentrations resulting from the burning of fossil fuels.*
- b. *Emissions from the widespread burning of fossil fuels since the start of the Industrial Revolution have increased the concentration of greenhouse gases in the atmosphere. Because these gases can remain in the atmosphere for hundreds of years before being removed by natural processes, their warming influence is projected to persist into the next century.*
- c. *Human activities have affected the land, oceans, and atmosphere, and these changes have altered global climate patterns. Burning fossil fuels, releasing chemicals into the atmosphere, reducing the amount of forest cover, and the rapid expansion of farming, development, and industrial activities are releasing carbon dioxide into the atmosphere and changing the balance of the climate system.*
- d. *Growing evidence shows that changes in many physical and biological systems are linked to human caused global warming. Some changes resulting from human activities have decreased the capacity of the environment to support various species and have substantially reduced ecosystem biodiversity and ecological resilience.*
- e. *Scientists and economists predict that there will be both positive and negative impacts from global climate change. If warming exceeds 2° to 3° C (3.6° to 5.4° F) over the next century, the consequences of the negative impacts are likely to be much greater than the consequences of the positive impacts."*

"Helping students understand these ideas

The human impact on climate change is the most frequently misunderstood aspect of climate science. Some sectors of the public continue to debate whether these ideas can be true, despite the well-established science. There are several possible reasons why students may resist the conclusion that humans are altering the climate. This concept may be uncomfortable to students due to feelings of guilt, political resistance, or genuine lack of scientific understanding. Furthermore, projections of the effects of climate change on our society can frighten, overwhelm, or discourage students. This can result in denial or resistance to learning. Furthermore, even if a student possesses a firm grasp of this topic, it is nearly certain that at some point this knowledge will be challenged outside of class. Building a solid and careful scientific argument is essential.

Educators are encouraged to introduce this topic with generous scaffolding that establishes the foundations of the process of science, the underlying principles of climate science, and a reliance on the robust scientific research that supports this conclusion. Several strategies are presented on this page about [Teaching Controversial Environmental Issues](#) which emphasizes the affective and emotional aspects of student learning.

It may be tempting to have a debate about this topic, but that may not be the most effective way to characterize it. A debate suggests that there are two credible, opposing viewpoints, when in fact the scientific community is virtually unanimous about the human causes of climate change. Secondly, debating a topic can reinforce misconceptions and cause unnecessary controversy in the classroom. That said, careful discussion of diverse viewpoints is absolutely essential. Role playing can be one way to represent broad perspectives, while maintaining scientific accuracy."

There is a lot more along the same alarmist lines.

2. The [page](#) on teaching Principle 7:

"Climate change has consequences for the Earth system and human lives.
Climate Literacy Principle 7

Teaching the impacts of climate change is supported by six key concepts:

a. Melting of ice sheets and glaciers, combined with the thermal expansion of seawater as the oceans warm, is causing sea level to rise. Seawater is beginning to move onto low-lying land, contaminating coastal fresh water sources, and gradually submerging coastal facilities and barrier islands. Sea-level rise increases the risk of damage to homes and buildings from storm surges such as those that accompany hurricanes.

b. Climate plays an important role in the global distribution of freshwater resources. Changing precipitation patterns and temperature conditions will alter the distribution and availability of freshwater resources, reducing reliable access to water for many people and their crops. Winter snowpack and mountain glaciers that provide water for human use are declining as a result of global warming.

c. Incidents of extreme weather are projected to increase as a result of climate change. Many locations will see a substantial increase in the number of heat waves they experience per year and a likely decrease in episodes of severe cold. Precipitation events are expected to become less frequent but more intense in many areas, and droughts will be more frequent and severe in areas where average precipitation is projected to decrease.

d. The chemistry of ocean water is changed by absorption of carbon dioxide from the atmosphere. Increasing carbon dioxide levels in the atmosphere are causing ocean water to become more acidic, threatening the survival of shell-building marine species and the entire food web of which they are a part.

e. Ecosystems on land and in the ocean have been and will continue to be disturbed by climate change. Animals, plants, bacteria, and viruses will migrate to new areas with favorable climate conditions. Infectious diseases and certain species will be able to invade areas that they did not previously inhabit.

f. Human health and mortality rates will be affected to different degrees in specific regions of the world as a result of climate change. Although cold-related deaths are predicted to decrease, other risks are predicted to rise. The incidence and geographical range of climate-sensitive infectious diseases— such as malaria, dengue fever, and tick-

borne diseases—will increase. Drought-reduced crop yields, degraded air and water quality, and increased hazards in coastal and low-lying areas will contribute to unhealthy conditions, particularly for the most vulnerable populations."

"Climate change has profound impacts at home and afar, today and in the future

The importance of this principle is readily apparent: our climate is changing and so is our world. Symptoms of climate change are all around us: extreme weather, diminishing sea ice, year after year of record-breaking warmth, drought, fires, and stress to ecosystems. Many of these consequences will create hardship for humans. Some key points are:

The impacts of human-caused climate change are already being seen, from Polar Regions, to our backyards, to communities around the world.

Consequences of climate change will affect the biosphere on many levels, from coral bleaching, to dying forests, to species extinction.

Human infrastructure is threatened by a changing climate, such as encroachment of coastlines, stress to the energy grid, and shifting structures as a result of melting permafrost.

A warming climate threatens mountain snow packs, fresh water supplies, and hydropower that serve millions of people.

Changes in climate and precipitation patterns are impacting agriculture and food security.

Populations that are already vulnerable in terms of sea level rise and food security are poised for the greatest hardships. Political unrest, migration of refugees, and global economic impacts are all visible outcomes. Some of these effects are already evident."

"Helping students understand these ideas

Keep in mind that alarming students and the public about the impact of climate hazards, such as droughts and extreme events, can be counter-productive and cause people to ignore the warnings, feel hopeless, or succumb to denial. However, glossing over the severity of the impacts and the enormous social and environmental ramifications of climate change can lead to a society that is ill-prepared to deal with change. Finding a balanced approach and avoiding a "despair deficit" is clearly a good practice, both inside and outside of the classroom."

"Bringing these ideas into your classroom

Here are a few pedagogic strategies for teaching about climate impacts.

Because climate change affects so many parts of our lives, the theme can be woven into a range of topics throughout a course or a unit. Subjects such as history, economics, or health can all touch on climate change. Climate impacts needn't only be addressed within the specific context of an earth science class."

There is a lot more along the same alarmist lines. Of course, all the claims made in the above paragraphs are scientifically dubious. Connections between global warming and acidification, human impacts, ecological damage, etc., are by no means "open and shut" science – they are debated and disputed.

C. The National Academy of Sciences teaches advocacy, not science

The prestigious U.S. National Academy of Sciences ([NAS](#)) is off the rails when it comes to teaching kids about climate change. The Academy has an exhaustive lesson plan for middle and high school kids that teaches a great deal of alarmist advocacy and very little science. The NAS has clearly lost sight of its role as the trusted science advisor to the U.S. Government. Al Gore could have written this lesson.

The lesson plan is called Climate Change [Webquest](#). As the name "Webquest" suggests, it is basically a framework that ties together a lot of alarmist websites, which the students go to in order to find answers for specific questions. (Some of these sites are not suitable for middle schoolers, but then neither is the framework.)

The structure of the framework gives away the game. The Webquest is supposed to be undertaken by a group of five students, each of whom plays a specific role. Here are the roles:

1. Climate Scientist
2. Policy Analyst (!)
3. Economist
4. Energy Expert
5. Urban Planner

Clearly this is about policy, not science. In fact, the scientist's primary role is merely to say that CO₂ emissions are creating dangerous climate change. Then the other four players try to redesign society in order to solve this bogus problem. Their product is a "strategy portfolio," including proposed new laws.

To top this fiasco off, the students are working for the United Nations. I am not making this up. Here is the specific charge to the children:

"In this activity, you are being called upon by the United Nations to examine the causes and potential impacts of global warming and to develop policy recommendations for adoption by UN member nations."

In short, students are being trained to be global Green policy advocates. There is no science here to speak of. In fact, the worksheet that gives the questions that the students are to be graded on specifically asks about just two things -- CO₂ versus temperature, and computer model predictions of the future. Presumably this is designed to keep them from wandering into real science while on their quest.

Given this policy charge, it is not surprising that most of the links are to UN and U.S. federal websites. There are also links to some of the wacky State of California climate initiatives, which are presented as exemplars. Then, too, there are links to numerous advocacy groups, especially the radical Union of Concerned Scientists.

Among the book links we find these scaremongering specials:

1. "The Weather Makers: How Man Is Changing the Climate and What It Means for Life on Earth," by Tim Flannery.
2. "Big Coal: The Dirty Secret Behind America's Energy Future," by Jeff Goodell.
3. And, of course, "An Inconvenient Truth," by Al Gore.

Unfortunately, the many links to the alarmist Obama era EPA webpages all still work. Officially, the EPA says the pages are gone, but they are still there, just one click further away than they used to be. Clicking on an EPA link in the NAS student instructions takes one to an EPA page which says that page is being updated. However, that page includes a link to the "archived version" of the old page.

In conclusion, the U.S. National Academy of Sciences has no business pushing junk like this to children. The NAS is chartered by Congress to provide objective advice to the Federal Government, not to brainwash kids. This so-called Webquest is one of the worst alarmist lesson plans that I have ever seen, and there are a lot of contenders. It is no wonder that people are losing faith in the scientific establishment. Climate change alarmism is ruining science.

D. The Carleton lesson teaches activism with climate modeling

The Next Generation Science Standards [require](#) that high school students taking Earth science use climate model data to predict future climate impacts. One of the most prominent lessons for doing this, "*Exploring Regional Differences in Climate Change*," is from Carleton College's Science Education Resource Center, which is heavily funded by the NSF. This [lesson](#) is wildly alarmist in several important ways, beginning with its basic structure.

Carleton's [SERC](#) is the largest repository of teaching materials in the interlocking array of alarmist websites. It has over 100 lessons and related materials, which also [form](#) a core collection of the CLEAN portal. In fact, the SERC logo is prominently displayed on the CLEAN website.

Here is how the modeling lesson goes. The topic is 100-year projections of annual temperature and precipitation, made on a state-by-state basis by a climate model. The students are first taught to analyze this model output data for two states -- California and Minnesota. They then look at the state of their own choice, typically their own state. In addition to looking at the model predictions for this state, they are given a look at that State's present actions to "mitigate" these predicted impacts.

The first thing wrong is that a single model is being taught as true, which is doubly ridiculous. No climate model's predictions are trustworthy. Moreover, no two climate models agree in their 100-year predictions at the state level, especially in precipitation. For that matter, climate models do not forecast on a state-by-state basis. They use large grid cells which *might* contain pieces of a given state.

What should be taught is that these predictions are fictional and wildly varying. This means looking at a number of models, not just one. It also may require comparing past predictions with actual observations.

The transition from data analysis to looking at state policies shows that this lesson is designed to teach the fiction that the model predictions are true. It also exemplifies the typical alarmist move from pseudoscience to policy. The goal is not to understand climate models and their many limitations. It is to turn students into activists at the state level. Otherwise, the structure of the lesson makes no sense.

It is also worth noting that state-level forecasts are meaningless. Local California climates range from cool rain forests to hot deserts. Where the precipitation might change makes a lot of difference, good and bad. No doubt states are used as the fabricated forecast area because they are political entities, not climate zones.

In short, this lesson is alarmist propaganda from beginning to end. It is structured to teach that governments should act on 100-year climate model predictions, which is nonsense. There is no science in any of this. A sound science course would teach that climate models are computerized conjectures that merely play with hypotheses.

Unfortunately, to date this Carleton lesson is the only one that I have found, among hundreds of climate lessons from many [sources](#), that meets the NGSS standard. In fact, that standard may have been written with this lesson in mind. There is thus a critical need for a new lesson that teaches the truth about climate models. Plus, the NSF should stop funding this sort of alarmism.

IV. Impact analysis: Climate materials are getting a lot of attention

The selection of climate change teaching materials is often made at the individual classroom or home school level, so it is very difficult to see who is using what. We do, however, have some interesting proxy data points. These indicate that usage runs well into the millions per year.

One case is the visitation data for Climate.gov, which is reported to have had over 8 million visits for the last 12 months. Moreover, this is roughly a 25% increase over the previous year. Clearly there is a lot of interest, and it seems to be increasing significantly.

A particularly intriguing case is the YouTube viewing data for Bill Nye (the so-called "Science Guy"). Nye is arguably one of the leading spokespeople for climate alarmism among the lay public, and his videos are very likely used for teaching.

He has a number of videos designed to spread the alarmist doctrine. What is especially interesting is that he also has several videos that feature debates with skeptics. Contrary to Nye's intentions, these videos can be used to teach skepticism. This is because a central tenet of alarmism is that there is no serious debate over the claim that human activity is causing dangerous climate change. Thus, a video that shows just such a debate supports skepticism.

YouTube provides viewing numbers for all videos. While there is no way to tell how these videos are being used, the numbers in Bill Nye's case are quite large. Moreover, the numbers for the debate videos are roughly 10 times larger than those for the alarmist videos. This strongly suggests that the debate videos are being used in large part to see skepticism in action.

Here are the numbers for Nye's top four debate videos. There are roughly 12.5 million views. By coincidence, this is almost exactly 10 times the number for Nye's alarmist videos.

1. "Climate Change Debate: Last Week Tonight with John Oliver" (Oliver denigrates skeptics, but the existence of the debate is still featured)

LastWeekTonight 3 years ago
7,486,010 views

2. "Climate Realist Marc Morano Debates Bill Nye the Science Guy on Global Warming"

OnlyWaxing 4 years ago
2,013,591 views

3. "Tucker vs. Bill Nye the Science Guy"
Fox News 6 months ago
1,766,165 views

4. "Bill Nye Destroys climate change-denying Trump adviser William Happer" (clearly an alarmist title)
Politics Video Channel 4 months ago
1,228,413 views

Here are the numbers for Nye's top four alarmist videos. There are roughly 1.25 million views. This is almost exactly just 10% of the debate videos.

1. Climate Change 101 with Bill Nye | National Geographic
National Geographic 1 year ago
485,243 views

2. "CLIMATE 101 with BILL NYE"
Climate Reality 5 years ago
417,696 views

3. "Bill Nye Explains Climate Change with Emoji"
Mashable Watercooler 2 years ago
205,304 views

4. "Bill Nye and Bernie Sanders Discuss Climate Change (Full)"
Reflect 6 months ago
146,228 views

It is amusing to think that Bill Nye may be doing a much better job of teaching about the debate than he is teaching alarmism.

In any case, while the numbers above are just proxies for the use of teaching materials, they indicate a great deal of non-technical interest in the topic of climate change. It seems logical to think that a lot of this interest is coming from teachers, students, and parents. Between Climate.gov and Bill Nye videos alone, we are seeing tens of millions of views.

Yet these are just a small fraction of the available sources. It is clear that climate change materials are having a significant impact, at least as far as attention is concerned.

V. Conclusions

There is a great need for developing, collecting, and/or providing teaching materials that counter climate alarmism. At present, federal and federally funded alarmist teaching materials dominate the education system, but many teachers remain skeptical. So do many parents, students, and school board members. This skepticism is being reinforced by the actions of the Trump Administration.

Thus there is a great opportunity to begin to create, collect, and disseminate sound science. The need is great, but the supply is almost nonexistent. This gap needs to be filled.

For example, it looks like there are at least a thousand science videos that are skeptical of alarmism just on YouTube. This is a clear sign that there is great interest in skepticism.

The range of types, topics, and lengths is also telling. The primary types are presentations, lectures, Congressional testimonies, interviews, and news items, as well as scientific debates with prominent alarmists. The debates might be especially useful for teaching purposes. Lengths range from a few minutes to well over an hour.

The topics are quite varied, often general, but sometimes very specific. For example, there are detailed videos just on the false alarmist claim that ninety-some percent of climate scientists endorse the hypothesis of dangerous human cause global warming. There are many that just look at this or that specific hurricane or at hurricanes in general.

Cataloging all of these videos and making them searchable would be very useful. What is needed is basically a searchable database of tagged video URLs. The descriptive tags make the videos findable. The most important tag will be the topic. This allows people to quickly find all the videos on many varied topics like hurricanes, government bias, hot models, the 97% myth, the benefits of CO₂, etc. The topic list itself will be useful, including suggesting new videos. Other important tags might include author, type, length, venue, etc. Making all these videos easily findable will go a long way toward promoting climate change education.

Beyond this there are many other forms of potentially educational content that needs to be made findable. These include books, reports, articles, specialized blogs, etc.