

Top 5 Reasons Why This Book Doesn't Belong in Classrooms



Tens of thousands of science teachers recently received, unsolicited, a booklet entitled *Why Scientists Disagree About Global Warming* and a related DVD. The sender, the Heartland Institute, urged them to “read this remarkable book and view the video, and then use them in your classroom.”

Using these materials in any science classroom would be a terrible idea. Everything about them—even the title—is designed to deceive the reader.

The Heartland Institute spent the 1990s arguing that second-hand smoke doesn't cause cancer. Today, funded by a consortium of right-wing billionaires and fossil fuel industries, Heartland applies its pro-tobacco playbook—touting alleged “experts” to question established science—to attempt to undermine the public credibility climate science. Their latest packet is part of that campaign—and teachers are the target.

“Heartland claims it knows better than 97% of the scientific literature and the scientists who produce it. In support of that extraordinary assertion it offers ... nothing.”

There are many reasons why teachers should not take this booklet seriously. Here are the top five:

1. Gets the Facts Wrong

Most of what this booklet claims is wrong. Take two central examples.

This booklet asserts that global warming would “probably not be harmful” and “many areas of the world would benefit from or adjust to climate change.” Overlooking the already visible effects of global climate change would be laughable were they not so manifestly harmful.

The booklet also asserts that contemporary climate change is inside “normal natural variability,” and that sea ice losses, sea level changes,

droughts, and extreme weather events are all happening as if no human was involved. These spurious claims fly in the face of what serious climate researchers are documenting worldwide.

The National Center for Science Education, a non-profit organization devoted to defending the integrity of science education against ideological interference, can help. Contact us at info@ncse.com, or visit our website at www.ncse.com



These, and other, claims have already been refuted in detail by trustworthy sources such as skepticalscience.com, a website that provides scientifically accurate (and exhaustively referenced) rebuttals of the most common misconceptions of climate science. Indeed, skepticalscience.com is an excellent resource for teachers seeking to refute climate change denial arguments their students might hear on the news or read on the internet.

2. Misrepresents the Scientific Consensus

Heartland spills considerable ink arguing that 97% of climate scientists do not, in fact, accept anthropogenic climate change. But they do.

Heartland squanders much of this booklet making spurious claims such as “[t]here is no survey or study showing ‘consensus’ on any of the most important issues in the climate change debate.” In fact, multiple independent studies using different sources, methods, and questions, have consistently produced estimates of the degree of scientific consensus among climate scientists at around 97%. And that consensus, based on mountains of scientific research literature, includes the important idea that global warming is caused mostly by human activities.

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assertion it offers ... nothing. No data sets from ice cores, no analysis of ocean sediments, no revolutionary interpretations of tree ring data. Nothing except vain attempts to undermine the consensus reached by those who do actual research.

3. Slanders the Gold Standard of Climate Science Review

One of this booklet’s suggestions is that “governments not rely exclusively on the IPCC for scientific advice.” This is an odd suggestion to make to science teachers, but what does it even mean? What is the IPCC? The Intergovernmental Panel on

Climate Change was established in 1988, and is supported by the United Nations and the governments of 195 countries. Every five years, hundreds of top climate scientists from dozens of

countries convene to evaluate the state of climate science. Together, they produce a consensus document—the IPCC Assessment Report—that provides policy-makers with the most up-to-date scientific information so that climate change policies are based on the best possible evidence. The scientists, who all volunteer their time, review thousands of papers and issue conclusions that are carefully documented. The degree of certainty about each conclusion is clearly noted. In short, few areas of science undergo the kind of rigorous and comprehensive review that the climate science community carries out every five

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years. It is a reflection of the seriousness with which world leaders take the challenge of climate change that they support this process and accept the conclusions arrived at by hundreds of generous, dedicated, and meticulous scientists. In recognition of its efforts, the IPCC shared the Nobel Peace Prize in 2007. Casting doubt on the IPCC is a clear sign of disrespect for the scientific process.

4. Contradicts State Science Standards, Textbooks, and Curricula

The information in this booklet contradicts state science standards (including the new Next Generation Science Standards), textbooks, and curricula.

For example, one NGSS high school standard, HS-ESS2.D, states that students shall understand that “[c]hanges in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate.” Everything in Heartland’s booklet argues against this standard.

Similarly, a NGSS middle school standard, MS-ESS3-5, instructs students to “[a]sk questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.”

Heartland’s position aims to confuse students about this issue.

There are similar requirements in non-NGSS standards. Plus, because state- or district-approved textbooks and district-approved curricula conform to state science standards, similar information about climate change will be found in textbooks and curricula.

As teachers know, the development and approval of science standards is a lengthy and exacting process, involving committees of educators and scientists who work together, often for years, to determine what students should be expected to learn over the course of their science education.

“Of the remaining references, many are to Heartland’s own publications, posts on personal blogs, fake news sources, and low-quality journals—the sort of citations that a teacher wouldn’t accept on a science assignment.”

When such scientifically accurate, pedagogically appropriate, and carefully developed standards for teaching climate change are available, with so many corresponding teaching materials carefully vetted for accuracy, why would anyone instead teach from a booklet received in the mail?

5. Uses Sham Citations and Dishonest Tactics

Heartland makes some extraordinary claims, asserting that virtually all the world’s scientists have climate change completely wrong. As Carl Sagan was fond of saying, extraordinary claims require extraordinary evidence.

In this respect, Heartland's book fails miserably. Heartland includes references at the end of each section to ape the format of real research. But a closer look reveals these Potemkin citations to have nothing behind them.

There are numerous citations in each section. Some of these citations are to real scientific papers in *Nature*, *Science*, and to IPCC reports. But when these sorts of sources are cited, it is often to misconstrue their conclusions or argue the papers are incorrect.

Of the remaining references, many are to Heartland's own publications, posts on personal blogs, fake news sources, and low-quality journals—the sort of citations that a teacher wouldn't accept on a science assignment.

The booklet itself is credited to the Nongovernmental International Panel on Climate Change, NIPCC—likely to be confused with the legitimate IPCC. And the envelope in which the mailing was sent reproduced a *New York Times* headline about “Climate Change Lies”—the same sort of lies, it turns out, that Heartland is concerned to promote.

In the end, the climate deniers at Heartland have nothing left but to lash out at the real scientific literature, contributing nothing except vitriol, achieving nothing except possible confusion for science students. Science teachers know better—and science students deserve better.