

4. Establish performance appraisal systems, and then terminate teachers in the lowest percentiles and grant pay raises to those in the highest (with pay raises leading to salaries in excess of **\$100,000 per year**).

Some of these suggestions are pure political sophistry. (I'm not sure how three years of high school science, instead of two, will yield an appreciable number of new Ph.D. scientists).

Nevertheless, Hergold's statement of the problem is a good one, even if his solutions are suspect. America **does** need more scientists and engineers. It can be argued that America's leadership in science and technology has driven its economic success. Conversely, a decline in America's role in science could very well lead to economic decline.

America's business and industrial leaders are an integral part of the Republican coalition. These *captains of industry* will clearly benefit from an increase in the number of America's scientists and engineers. Their call for more scientists, and better science and math education, is a sincere one.

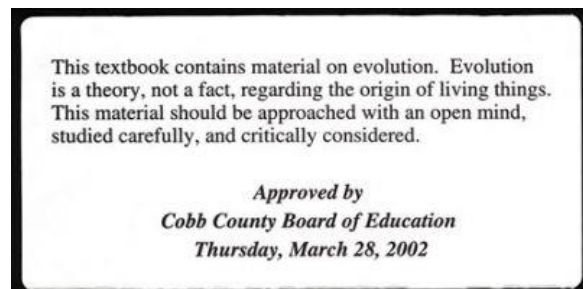
But how is this issue addressed by other members of the coalition? It seems obvious to some of us at the Café that elements of the Republican coalition are part of the problem, and not part of the solution.

We will take a quick look at three elements of this coalition.

1. The religious right and their war on science.
2. Those motivated politically and economically to suppress scientific research (particularly in the environmental arena).
3. The tax slashers and their antipathy towards public education.

Religious Right and Creationists

How about this method for improving science education and increasing the number of scientists and engineers in America:

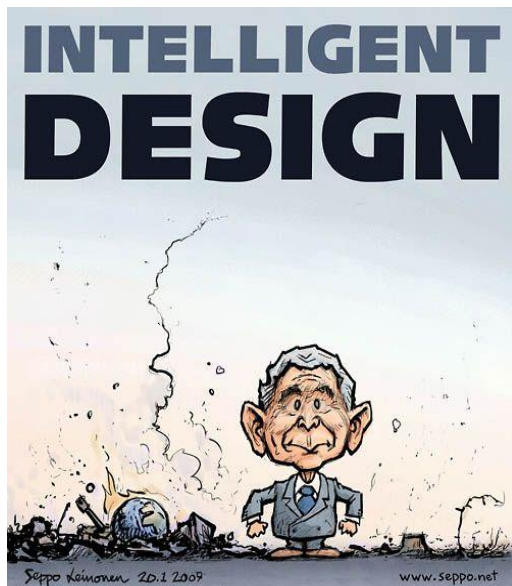


Put a sticker on every science textbook which states: ***"This textbook contains material on evolution. Evolution is a theory, not a fact, regarding the origin of living things. This material should be approached with an open mind, studied carefully and critically considered."***

This was the solution implemented by the Cobb County, Georgia, school district². Fortunately, this was declared unconstitutional by a federal judge, although the case did not get to court until after the stickers had been added to 34,000 textbooks in the county.

If you don't like this sticker, how about this one in use in Alabama³ until recently: ***"No one was present when life first appeared on earth. Therefore, any statement about life's origins should be considered as theory, not fact."***

If the stickers don't do enough for you, how about this one suggested by then-candidate George W. Bush⁴: Teach creationism alongside evolution since ***"I believe children ought to be exposed to different theories about how the world started."***



If those don't work, how about this: Teach *intelligent design* as a scientific alternative to Darwin's theory. [The Mackinac Center recently posted a "non-religious" justification for mandatory teaching of *intelligent design* in public schools. Note further: Even Bush's top scientific advisor concedes that intelligent design is not a scientific theory⁵.

Or finally this: Require biology teachers to read a four-paragraph statement to students, to discount the "theory" of evolution and plug "intelligent design" as the explanation for the origin of life. This is the approach of the Dover, Pennsylvania school district⁶.

There is a movement in virtually every state to either prohibit the teaching of evolution, or required "balanced" or "equal" treatment of creationism. About 140+ years of scientific research have shown little reason to doubt evolutionary theory.

² <https://www.sciencemag.org/news/2006/12/evolution-stickers-gone-good-cobb-county>

³ <https://www.newsweek.com/alabama-biology-textbooks-evolution-sticker-373662>

⁴ <https://slate.com/news-and-politics/2000/10/george-w-bush-the-last-relativist.html>

⁵ <https://www.sfgate.com/science/article/Furor-erupts-over-Bush-s-remarks-on-intelligent-2618904.php>

⁶ http://www.talkorigins.org/faqs/dover/kitzmiller_v_dover_decision.html

Will someone please explain how the denial of this research in the public schools will enhance the teaching of science, and increase the number of scientists and engineers in the United States?⁷

The Required Dover School District Speech

The Pennsylvania Academic Standards require students to learn about Darwin's Theory of Evolution and eventually take a standardized test of which evolution is a part.

Because Darwin's Theory is a theory, it continues to be tested as new evidence is discovered. The Theory is not a fact. Gaps in the Theory exist for which there is no evidence. A theory is defined as a well-tested explanation that unifies a broad range of observations.

*Intelligent Design is an explanation of the origin of life that differs from Darwin's view. The reference book, *Of Pandas and People*, is available for students who might be interested in gaining an understanding of what Intelligent Design actually involves.*

With respect to any theory, students are encouraged to keep an open mind. The school leaves the discussion of the Origin of Life to individual students and their families. As a Standards-driven district, class instruction focuses upon preparing students to achieve proficiency on Standards-based assessments."

Suppression of Scientific Research

Here is another way to jump-start science education and increase the number of American scientists: **Ignore or suppress any scientific research which is politically unpopular or economically painful.**

48 Nobel Laureates, 132 members of the National Academy of Science, and over 5,000 other scientists recently co-signed a report documenting numerous instances in which government agencies distorted or censored scientific research when it conflicted with political convenience.

The Union of Concerned Scientists has catalogued this suppression⁸. It includes distortions of scientific findings by high level Bush appointees, manipulation of the government's scientific advisory system to prevent the appearance of advice counter to the political agenda, and imposition on restrictions on what government scientists may say or write about.

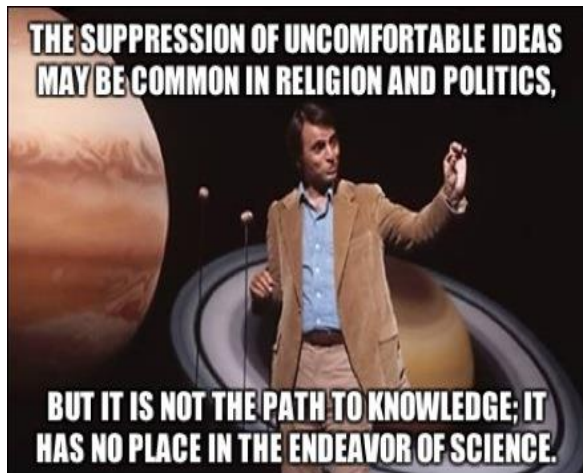
This *denial of science* is the most apparent in environmental matters generally, and in global warming in particular.

⁷ For a tracking of the various attacks on the teaching of evolution in the public schools, see the National Center for Science Education website, <https://ncse.com/node/16774>.

⁸ <https://www.ucsusa.org/our-work/center-science-and-democracy/promoting-scientific-integrity/abuses-science-case-studies>

Scientific evidence overwhelmingly supports the conclusion that global warming is well underway, and that this is not a “natural” phenomenon. One speaker at an annual meeting of the American Association for the Advancement of Science⁹ stated that: “*The debate over whether or not there is a global warming signal is now over, at least for rational people.*”

We are already beginning to see a Pacific island-nation disappear. The islands of Tuvalu are in danger of disappearing as global warming raises sea levels and whips up more intense tropical weather.



Virtually every nation in the world (including the U.S. in 1998) signed the Kyoto Protocol¹⁰. The treaty would not even reduce the amount of carbon dioxide in the atmosphere, but would slow the rate of increase. But the Bush administration repudiated the treaty and reneged on the U.S. promise to comply. The problem, now, is that the projected increase in U.S. greenhouse emissions will dwarf cuts by every other nation in the world. As one observer notes, Bush is *fiddling while the world burns*¹¹.

Why does the administration deny science? **Because it will be politically and economically painful to address the problem!** It will be especially painful to those in the fossil fuel industry who, coincidentally, provide the most financial support for the Republican coalition.

No one denies that the reduction of greenhouse emissions will be painful. No one looks forward to implementing the solutions to global warming.

But scientists suggest that we do not have a choice. If the U.S. is to be a science and technology leader, perhaps it should pay some attention to science.

Tax Slashers

Perhaps the worst word in the English language to many members of the Republican coalition is **tax**. Taxes, to some, are the root of all evil, and all of the world’s problems can be solved by tax reduction. [Maybe we are being a bit pejorative here, but the tax-cut mantra gets tiring at times.]

⁹ <https://www.wired.com/2005/02/experts-global-warming-is-real/>

¹⁰ <http://kyotoprotocol.com/>

¹¹ <https://www.globalpolicy.org/global-taxes/45241-bush-accused-of-fiddling-while-world-burns-by-ignoring-climate-change.html>

No one (and certainly no one at the Café) likes to pay taxes. However it is more than a bit disingenuous for any Republican to suggest that science and math teachers should earn more than \$100,000 per year, when the Republican coalition has not been supportive of public school funding.

Perhaps an elementary economics lesson is in order. Public school teachers are employed by public schools. Revenue for public schools comes from federal, state and local sources. These sources raise money by **taxes**.



The Mackinac Center for Public Policy is one of the conservative “think tanks” that looks at a lot of public issues, including education. It has come up with several good ways to increase efficiencies and reduce costs of public education. But like most ultra-conservative organizations, it has never suggested an increase in the funding of public education.¹²

The real motive of these folks may be to kill public education. Cutting taxes is a more saleable version of *starve the beast*. The most telling example of this is the Mackinac Center’s primer on *government education*. This article takes an extremely skewed view at history and credits most of America’s success to private education. The author has such disdain for public education that he cannot even use the word “public” to describe it. Instead, he refers to it as “government” education.

Should we look for efficiencies in the public school sector? **Yes!** Should we re-examine spending priorities at public schools? **Yes!** Should we look for fair and equitable ways to fund public schools? **Yes!** Should we reduce our financial support for public schools? **No!** - and certainly not if the goal is to increase the training and qualification of science and math teachers, and thereby increase the number of American scientists and engineers.

Michigan’s Conservative Institutions

Michigan may be a **blue state** but it is the home to two of the most conservative institutions in America: Hillsdale College¹³ and the Mackinac Center for Public Policy¹⁴.

¹² 2019 note: The 2005 posting included a link to an article which is an example of the *everything to fix public education except taxes* notion so dominant in conservative thinking, and a link to the article referred to in the next paragraph.

¹³ <https://www.hillsdale.edu/>

¹⁴ <https://www.mackinac.org/about>

Here is my imaginary response by the Mackinac Center to the question: **Should it be against the law to commit murder?**

1. NO: The government should not be in the business of regulating personal behavior or morality. What is murder, after all, but an extreme form of behavior.
2. NO: Murder has been against the law in civilized nations for thousands of years. And yet people still commit murder. This is proof that government regulation doesn't work.
3. NO: The government should get out of the murder-regulation business, and let free enterprise take over. If the free market would be permitted to operate, without government interference, murders would go away.

This response is not totally imaginary, since this is how the Mackinac Center responds to any question presented to it.