**Why are you forcing my son to take chemistry? Update**

By [**Valerie Strauss**](https://www.washingtonpost.com/people/valerie-strauss/)

The Washington Post

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*Clarification: The author of the post below wrote that an official at his son’s Maryland high school told him that chemistry was a required course in the state, and as a result, his son took chemistry. Bill Reinhard, spokesman for the Maryland State Department of Education, says there is no specific chemistry mandate, though high school students must take three credits of science to graduate, one of which must be biology. The author, David Bernstein, says the post is less about chemistry and more about the notion of mandating specific courses.*

Here’s a new post by David Bernstein, a nonprofit executive who lives in Gaithersburg, Md., and has two sons, ages 7 and 15. He has[previously written](http://www.washingtonpost.com/blogs/answer-sheet/post/how-schools-even-great-ones-fail-kids-with-adhd/2012/09/23/8e81c83c-f828-11e1-8253-3f495ae70650_blog.html) about how schools fail students with Attention Deficit Hyperactivity Disorder. Now he turns his attention to curriculum in public schools.

By David Bernstein

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I was recently informed by a school official at my son’s high school that the state of Maryland mandates that every student take chemistry in order to graduate. [It turns out that it is not, in fact, mandated by the state but that is what I was told anyway.]

I decided to do a little research of my own. After a lengthy five minute Google search, I discovered that a “Committee of Ten” academics was assembled in 1892 in order to [standardize the curriculum](http://www.washingtonpost.com/blogs/answer-sheet/post/why-kids-hate-school--subject-by-subject/2012/09/06/0bf1acc4-f5d6-11e1-8398-0327ab83ab91_blog.html) (how’s that for a bad idea?) and recommended that chemistry, among other subjects, be taught to everyone everywhere.

Even some of my smartest friends seem to be oddly loyal to the Committee of Ten. They are not able to imagine a universe in which my son does not take chemistry his sophomore year in high school.  Seriously guys, dig deep, and you may find some powers of imagination left over from all those years of industrialized schooling and, well, schooling.

Now I don’t begrudge chemistry, which has brought forth many of the great inventions of our time, from the pain killer I took an hour ago to the diet soda I’m sipping on now (I’m actually sipping on Scotch. In fact, my very own mother, who if I am lucky will never lay eyes on this article, is a chemist, and believes that chemistry is the most noble of human pursuits and doesn’t understand how I, a former philosophy major, was able to eke out a living.

Nonetheless, why is my 15-year-old son taking chemistry when he doesn’t want to? Here are a few reasons I’m given.

***In order for America to be competitive, we must produce more scientists.***

Agreed. And I know Bill Gates thinks it’s important. But my son is not going to be a scientist. The very thought of it makes me laugh. Your son should take five classes in chemistry so he can be a scientist and make America more competitive.

***Kids must be exposed to***[***different subjects***](http://www.washingtonpost.com/blogs/answer-sheet/post/our-cutthroat-curriculum/2011/05/05/AFuiFP3F_blog.html)***in order to know what they’re good at and interested in.***

Again, agreed. Maybe kids can survey several science classes over the course of a year or two, and explore various options. They can be given a taste of a veritable potpourri of subjects throughout their education. But my son is not being exposed to chemistry, he’s spending a year of his life studying chemistry every day, which translates into a year of misery for him and our entire family, and paying for tutors who just get him through the course. It doesn’t take a chemist to know that my son is not going to be a chemist. He’s 15, not 7. It’s really that obvious. You took chemistry (I’m not talking to you scientist). What do you remember from that year? Nada, I bet. Next time a school official preens about the importance of chemistry, I’m going to ask him or her how many elements there are in the periodic table. Hint: you can find the answer on Google.

***Chemistry will teach him analytical skills that he can apply to other fields.***

Great. So will a hundred other possible subjects that will be less painful and potentially even more interesting to him. An experimental physicist recently told me that at this phase in chemistry instruction “it’s all about memorization anyway.” There will be no other phases in chemistry instruction for my son. He will forget everything he “learned” a week after the class is over. I can’t remember a thing, and I was a pretty good chemistry student.

***Kids have to suffer through some classes they don’t like just so they can be prepared for the real world.***

Now you’re getting desperate. You’re really going to make my son spend a whole year in a subject he will never use so that he can prepare to suffer at a boring job some day? I don’t know what you do for a living but I love what I do and rarely engage in work I don’t enjoy. If we’re going to pressure him, let’s do it in subjects where he can grow and put to use some day.

There’s a concept in economics called “opportunity costs,” which you may not have learned about because you were taking chemistry instead of economics. Opportunity costs are the sacrifices we make when we choose one alternative over another. A family store may be turning a good profit by selling tomatoes, but it would turn a bigger profit if it used the same shelf space to sell cucumbers. There are opportunity costs of selling tomatoes.

When you force my son to take subjects which which he doesn’t connect, you are not allowing them that same time to take a public speaking course, which he could be really good at, or music, or political science, or creative writing, or HTML coding for websites.

Maybe he will learn something in chemistry somewhere along the way. But he will lose out on so many other more important opportunities, and so will our society, which will have deprived itself of his full contribution.

**Yes, students should take chemistry. Here’s why**

By [**Valerie Strauss**](https://www.washingtonpost.com/people/valerie-strauss/)

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*I published a*[*post*](http://www.washingtonpost.com/blogs/answer-sheet/wp/2012/10/16/why-are-you-forcing-my-son-to-take-chemistry/)*questioning*[*mandated curriculum*](http://www.washingtonpost.com/blogs/answer-sheet/post/no-algebra-isnt-necessary--and-yes-stem-is-overrated/2012/08/26/edc47552-ed2d-11e1-b09d-07d971dee30a_blog.html)*which was authored by a Maryland father who wrote that his 15-year-old son was taking chemistry even though the teenager had no interest in the subject. Here’s a piece explaining why chemistry is in fact an important subject for students to take whether they like it or not. It was written by  S. Raj Govindarajan, a Ph.D. student at the University of Akron in an interdisciplinary field that heavily involves chemistry. Govindarajan said he typically does not respond to articles, but had such a strong opinion that he felt compelled to write a rebuttal*[*to the original piece*](http://www.washingtonpost.com/blogs/answer-sheet/wp/2012/10/16/why-are-you-forcing-my-son-to-take-chemistry/)*.*

By S. Raj Govindarajan

I graduated in chemical engineering a couple years ago, and did rather well in high school chemistry, scoring a 5 on the AP exam without any major troubles. You may argue that I may be a little biased about the importance of chemistry. However, having thought about,  and having tutored a number of indifferent students on the subject, I feel that the combination of my recent exposure to the travesty that is our public school system and my firsthand experience of students’ apathy towards subjects they are forced to take give me some unique insight on this article.

I really took issue with [[David Bernstein’s] reasoning](http://www.washingtonpost.com/blogs/answer-sheet/wp/2012/10/16/why-are-you-forcing-my-son-to-take-chemistry/) as to why subjects such as chemistry are better left omitted by the obviously disinterested. I am sympathetic to his goals of need-based practical learning, and I understand his perspective on the need for school reform (though I am sure I disagree on the particulars). However, what was conspicuously absent from the article was the following explanation of why students should take chemistry.

One of my good friends was an apathetic chemistry-taker. He slept and slogged through it, scraped a ‘C’ and moved on with his life. A couple years later, he bought a few beautiful fishes and a tank. He took great care to add good water, to put good soil, etc. into this tank and give his fish a good home. Two days later, 3/4 of the fish had died. He couldn’t understand why. After some analysis, another friend and I explained to him a likely scenario: ammonia trapped in the soil that he had put in raised the pH to toxic levels for the fish. He didn’t consider, or understand, the concept that pH (that is, acidity or basicity) can be affected by the things you put in the water. Basic exposure to Chemistry (had he stayed awake in class) would have fixed this problem; it’s a fundamental concept of Chemistry that should be retained for future application.

 Nowadays, technology is progressing exponentially. There are amazing [new innovations](http://www.washingtonpost.com/business/technology/taking-a-cue-from-video-games-a-new-idea-for-therapy/2012/10/17/a0fb5e6a-1394-11e2-be82-c3411b7680a9_story.html) in the field of chemistry that will change our lives not too long from now. I would know; I’m in the field. At the same time, there are legions of politicians elected to higher office every election cycle that are as apathetic and ignorant towards fields such as chemistry as my poor friend with his dead fishes. Every year, these apathetic politicians write bills that can impact the safety of our waters, our stance on evolution, climate change, our endeavors in space, and even fundamental concepts such as the classification of birth control methods (such as the misunderstood science behind[Plan B](http://www.cnn.com/2012/10/09/opinion/stepp-new-york-contraception-schools/index.html)). Many times, science is misconstrued and twisted to meet political goals, and the public is none the wiser.

 I agree that school needs to be reformed. However, I suggest a different path, a path designed to instill a practical and useful understanding of science and its implications to the public. Should your son be forced to take chemistry? Absolutely. But the curriculum needs to be rethought in a way that would instill practical knowledge, curiosity about the world, and an appetite for at least understanding scientific achievement and its necessity/implications.

People don’t have to become scientists if they don’t want to, but they should have a fundamental understanding of scientific concepts. That way, people like myself need not be terrified that an ignorant public will vote to slash funding for scientific research and understanding. That way, iconic moments such as the landing of Curiosity on Mars will not be overshadowed in viewership by shows such as Honey Boo Boo.

**Directions: Use the RACE writing process to answer the following question:**

 **R –** Restate the question – use the question stem to write your topic sentence.

**A** – Answer the question – make sure to answer all parts of the question. IF there are two questions, you should answer each question in its own paragraph.

**C** – Cite evidence from the text. You MUST QUOTE THE TEXT. Use evidence based terms to begin your sentence.

**E** – Explain and extend – Explain how this evidence supports your answer. Give examples from connections you made.

**Should students be required to take chemistry in high school and why?**