

Testimony before the Board of Education for the Frederick County Public Schools

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W. Stephen Wilson

{Note: This is not *verbatim* as I was not reading from notes, but this is the essence of what I said.}

My name is Stephen Wilson. I am a mathematics professor at the Johns Hopkins University in Baltimore. I was one of the coauthors of the Fordham Foundation report on state standards in mathematics. I worked as the Senior Advisor for Mathematics in the U.S. Department of Education during 2006. I am presently part of a team finishing up the writing of the Washington state K-12 mathematics standards.

I am a research mathematician and it was never my intention to get involved in K-12 mathematics education. However, my son, who is now 16, started off his mathematics education using TERC Investigations. I had no concept of how bad mathematics education could be. TERC Investigations was beyond my wildest imaginings.

I have thoroughly reviewed the new TERC Investigations fifth grade materials. They do not cover the necessary mathematics for a student to be successful.

More than 80% of the high school graduates in the United States go on to college. What that means is that the middle 5th grader will go to college and drop out, frequently because of their mathematics training. TERC Investigations prepares students do do exactly that, drop out of college.

I am not really here today to talk to the Board, but to the parents. If your child goes to a school that uses TERC Investigations, you should understand that it means your child's school has abdicated its responsibility to teach your child mathematics. By doing so, the responsibility now rests with the parents. Good luck.

A brief review of the new version of TERC Investigations

TERC only goes to grade 5. I think it is enough to look at only grade 5 because that gives you a complete picture of what kids know when they finish elementary school and go to middle school. The answer, of course, is: not much.

Quirk's review of the new TERC should be enough for people and he has included a bit from me in it.

The bottom line is that TERC is "pre-arithmetic" and constitutes about $1/3$ of a course each year. (But does it with more material than can be got through in one year.) It does the pre-arithmetic problem solving that could motivate arithmetic. It never really gets arithmetic under control though (another $1/3$ of a course) and because of this, never applies arithmetic to problem solving (the last $1/3$ of the course).

TERC is all about how to solve math problems without knowing math, i.e. think critical thinking. They may or may not be any good at this. It doesn't matter. It doesn't constitute a math course. There are a number of complications associated with this approach. First, they think if you can solve math problems without knowing math, then why learn the math? Second, if they taught you the math, how would they know if you could work math using only critical thinking, you'd probably cheat and use math? So, they do not teach you the math or how to solve problems with math. It is all pre-arithmetic critical thinking.

A telling example that says it all about TERC Investigations is in the 5th grade student handbook. They give an example of adding two numbers. Remember, this is 5th grade and it wouldn't be unreasonable to leave addition out since it should have been mastered some time before.

However, they add the two numbers 6 different ways. 2 of them are special to the two numbers. 3 of them are incredibly inefficient. 1 is the standard algorithm.

TERC does not emphasize the standard algorithm. On the contrary, students are to "use the algorithm they are most comfortable with". That's the catch of course. Students should not get to pick. Once they have a comfortable algorithm they are not likely to give it up easily, but what is a comfortable choice for a 5th grader (or, really, for addition, a third grader) may not be all that comfortable, or useful, in college.