

I've been teaching 13th graders for over 35 years. What I bring to the table is a knowledge of what mathematics students must bring into college when they come.

I am primarily a research mathematician. I never intended to get involved in math education. I got involved because of my son.

My son was in the Friends School of Baltimore, and the math program was TERC Investigations, the same program used by Sidwell Friends. This is a 1989 NCTM standards based program supported by the NSF. They weren't really trying to teach him mathematics, they were trying to teach him something else that they thought was mathematics, but they just didn't know any better.

The program is written by people who do not know what mathematics is, who do not know what mathematics is for, and, who consequently miss all of the important content for elementary school. They believe they can teach students how to think mathematically without knowing any mathematics.

Arithmetic is the core of elementary school mathematics. TERC Investigations does what I call pre-arithmetic. They never develop arithmetic, don't want students to learn arithmetic, and so they never apply arithmetic.

They teach kids to solve elementary school mathematics problems without the benefit of learning elementary school mathematics. This works well if the goal is to never leave elementary school, but problems in elementary school, are, well, elementary, and this can be done. However, problems get harder and harder as you go along, and not knowing elementary school mathematics is more and more of a handicap as time passes.

TERC Investigations is passionately opposed to standard algorithms. This is complicated by the fact that they don't know what an algorithm is. They think that what they do teach constitute algorithms, but they are just ad hoc techniques instead.

Their program spends exactly one day on multiplication algorithms, and then only in the fifth grade, and the standard algorithm must share the stage with an inefficient algorithm as well (on the same day). Because they are opposed to the standard algorithm, the development is inadequate. They consider it mysterious, mainly because they refuse to clarify it.

TERC Investigations was developed for students who will not go to college.

TERC Investigations is passionately opposed to formulas, so, although they do teach kids how to find the area of a rectangle, they do not develop the formula for the area. Worse, even though the program goes up to fifth grade, they do not teach students how to find the area of a parallelogram or a triangle!

(I should point out that I have all of the TERC Investigations materials, K-5, in my home, because I have been asked to evaluate them for a county in Georgia and for the state of Washington.)

Fractions are central to mathematics, and it is where many in the US fall down. TERC Investigations contributes to this failure greatly. Their development of fractions is muddy, and in the end they do not teach students how to add arbitrary fractions because they do not even mention common denominators.

My guiding principle in my work in math education is that all 4th graders should have the option of taking serious math courses in college and being able to choose the major they want. Students taught using TERC Investigations have these options taken away from them by adults who should know better. These adults have no business making these career choices for kids. They should educate kids so the kids have career choices when they are older.

Sidwell parents tend to be well-to-do and well educated. They surely are happy their kids are in Sidwell Friends. However, many will spot the deficiency in math education in elementary school and will compensate for it at home or with tutors. This is absolutely commonplace where TERC Investigations is used in communities with intellectual and financial resources. One of my cohort's kids at Friends in Baltimore talked 6 of her fourth grade classmates into talking their parents into taking them (and paying for them) to go to Kumon tutoring. All the kids in the school knew who the "Kumon kids" were, because they were the ones who knew math. Sidwell can be no different. Sidwell's TERC Investigations will succeed despite itself because of the Sidwell equivalent of "Kumon kids".

Not only does Sidwell use TERC Investigations, but when TERC is attacked in the newspapers, as it is all over the country by parents who know mathematics, Sidwell defends their use of TERC on its web-site. The Sidwell defense is party-line TERC, including a failure to understand algorithms, a false belief in the existence of supporting research, the setting up of a false dichotomy of either TERC or rote memorization, and a general lack of understanding of mathematics. TERC is indefensible.