

Is algebra an unnecessary stumbling block in US schools?

28 March 2016, by Karen Matthews

Who needs algebra?

That question muttered by many a frustrated student over the years has become a vigorous debate among American educators, sparked by a provocative new book that argues required [algebra](#) has become an unnecessary stumbling block that forces millions to drop out of high school or college.

"One out of 5 young Americans does not graduate from [high school](#). This is one of the worst records in the developed world. Why? The chief academic reason is they failed ninth-grade algebra," said political scientist Andrew Hacker, author of "The Math Myth and Other STEM Delusions."

Hacker, a professor emeritus at Queens College, argues that, at most, only 5 percent of jobs make use of algebra and other advanced [math](#) courses. He favors a curriculum that focuses more on statistics and basic numbers sense and less on $(y - 3)^2 = 4y - 12$.

"Will algebra help you understand the federal budget?" he asked.

Many U.S. educators, including the architects of the Common Core standards, disagree, saying math just needs to be taught more effectively. It's fine for students to have quantitative skills, they say, but algebra is important, too.

"Every study I've ever seen of workers in whole bunches of fields shows that you have to understand formulas, you have to understand relationships," said Philip Uri Treisman, a professor of mathematics and of public affairs at the University of Texas. "Algebra is the tool for consolidating your knowledge of arithmetic."

Bill McCallum, a professor at the University of Arizona who played a lead role in developing the Common Core standards for math, said he would

oppose any division of K-12 students into an algebra track and a non-algebra track.

"You might say only a certain percentage of kids will go on to use algebra, but we don't know which kids those are," he said.

In New York City, home to the nation's largest public school system with 1.1 million pupils, just 52 percent of the students who took last year's statewide Regents test in Algebra I passed, mirroring statistics elsewhere in the country.

Rather than scaling back on algebra, New York City educators have announced an "Algebra for All" initiative that aims to keep students on track by providing specialized math teachers in fifth grade, before algebra is introduced.

"We believe in high standards," said Carol Mosesson-Teig, director of mathematics for the city Department of Education. "And we believe that the best way to serve the students is to strengthen the instruction."

Eighteen-year-old Isaiah Aristy took the algebra Regents test twice and failed it both times.

Aristy, now a freshman at the Borough of Manhattan Community College who is hoping for a career in law enforcement, said he was good at math until he hit algebra.

"When it came to x and y and graphing, that's when I started dropping, and it made me feel low," he said. "But we don't need to learn what x and y is. When in life are we going to write on paper, 'X and y needs to be this?'"

Like millions of community college students across the U.S., Aristy must pass a remedial math class with no college credit, and then pass at least one college-level math class, if he wants to get an associate's degree.

But Aristy isn't just repeating Algebra I again. BMCC is one of about 50 community colleges in 14 state that offer an alternative track called Quantway, developed by the Carnegie Foundation for the Advancement of Teaching, that seeks to develop quantitative literacy.

"It includes some basic algebra concepts, but you don't learn how to factor polynomials or solve complex equations," said math department Chairman Fred Peskoff.

Project director Karon Klipple said the foundation devised Quantway and a statistics track called Statway in 2011 because of the sheer numbers of students dropping out of community college due to algebra. Sixty to 80 percent of [community college students](#) nationwide test into remedial math, and most don't pass it, she said.

"This is where their hopes and aspirations go to die," Klipple said. "They're in college to try to make a better life for themselves, and they're stopped by mathematics."

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