

A Formula for Failure in L.A. Schools

Because they can't pass algebra, thousands of students are denied diplomas. Many try again and again -- but still get Fs.

By Duke Helfand
Times Staff Writer

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Each morning, when Gabriela Ocampo looked up at the chalkboard in her ninth-grade algebra class, her spirits sank.

There she saw a mysterious language of polynomials and slope intercepts that looked about as familiar as hieroglyphics.

She knew she would face another day of confusion, another day of pretending to follow along. She could hardly do long division, let alone solve for x .

"I felt like, 'Oh, my God, what am I going to do?' " she recalled.

Gabriela failed that first semester of freshman algebra. She failed again and again — six times in six semesters. And because students in Los Angeles Unified schools must pass algebra to graduate, her hopes for a diploma grew dimmer with each F.

Midway through 12th grade, Gabriela gathered her textbooks, dropped them at the campus book room and, without telling a soul, vanished from Birmingham High School.

Her story might be just a footnote to the Class of 2005 except that hundreds of her classmates, along with thousands of others across the district, also failed algebra.

Of all the obstacles to graduation, algebra was the most daunting.

The course that traditionally distinguished the college-bound from others has denied vast numbers of students a high school diploma.

"It triggers dropouts more than any single subject," said Los Angeles schools Supt. Roy Romer. "I think it is a cumulative failure of our ability to teach math adequately in the public school system."

When the Los Angeles Board of Education approved tougher graduation requirements that went into effect in 2003, the intention was to give kids a better education and groom more graduates for college and high-level jobs. For the first time, students had to pass a year of algebra and a year of geometry or an equivalent class to earn diplomas.

The policy was born of a worthy goal but has proved disastrous for students unprepared to meet the new demands.

In the fall of 2004, 48,000 ninth-graders took beginning algebra; 44% flunked, nearly twice the failure rate as in English. Seventeen percent finished with Ds.

In all, the district that semester handed out Ds and Fs to 29,000 beginning algebra students — enough to fill eight high schools the size of Birmingham.

Among those who repeated the class in the spring, nearly three-quarters flunked again.

The school district could have seen this coming if officials had looked at the huge numbers of high school students failing basic math.

Lawmakers in Sacramento didn't ask questions either. After Los Angeles Unified changed its policy, legislators turned algebra into a statewide graduation requirement, effective in 2004.

Now the Los Angeles school board has raised the bar again. By the time today's second-graders graduate from high school in 2016, most will have to meet the University of California's entry requirements, which will mean passing a third year of advanced math, such as algebra II, and four years of English.

Former board President Jose Huizar introduced this latest round of requirements, which the board approved in a 6-1 vote last June.

Huizar said he was motivated by personal experience: He was a marginal student growing up in Boyle Heights but excelled in high school once a counselor placed him in a demanding curriculum that propelled him to college and a law degree.

"I think there are thousands of kids like me, but we're losing them because we don't give them that opportunity," said Huizar, who left the school board after he was elected to the Los Angeles City Council last fall. "Yes, there will be dropouts. But I'm looking at the glass half full."

Discouragement, Frustration

Birmingham High in Van Nuys, where Gabriela Ocampo struggled to grasp algebra, has a failure rate that's about average for the district. Nearly half the ninth-grade class flunked beginning algebra last year.

In the spring semester alone, more freshmen failed than passed. The tally: 367 Fs and 355 passes, nearly one-third of them Ds.

All those failures and near failures have left a wake of discouraged students and exasperated teachers.

Fifteen-year-old Abraham Lemus, the son of Salvadoran immigrants, finally scraped by with a D after his mother hired a tutor. But he recalls how he failed the first time he took the course. "I was starting to get suicide thoughts in my head, just because of math," he said.

Shane Sauby, who worked as an attorney and stockbroker before becoming a teacher, volunteered to teach the students confronting first-year algebra for a second, third or fourth time. He thought he could reach them.

But, Sauby said, many of his students ignored homework, rarely studied for tests and often skipped class.

"I would look at them and say, 'What is your thinking? If you are coming here, why aren't you doing the work or paying attention or making an effort?' " he said. Many would just stare back.

Sauby, who now teaches in another district, failed as many as 90% of his students.

Like other schools in the nation's second-largest district, Birmingham High deals with failing students by shuttling them back into algebra, often with the same teachers.

Last fall, the school scheduled 17 classes of up to 40 students each for those repeating first-semester algebra.

Educational psychologists say reenrolling such students in algebra decreases their chances of graduating.

"Repeated failure makes kids think they can't do the work. And when they can't do the work, they say, 'I'm out of here,' " said Andrew Porter, director of the Learning Sciences Institute at Vanderbilt University in Nashville.

The strategy has also failed to provide students with what they need most: a review of basic math.

Teachers complain that they have no time for remediation, that the rapid pace mandated by the district leaves behind students like Tina Norwood, 15, who is failing beginning algebra for the third time.

Tina, who says math has mystified her since she first saw fractions in elementary school, spends class time writing in her journal, chatting with friends or snapping pictures of herself with her cellphone.

Her teacher wasn't surprised when Tina bombed a recent test that asked her, among other things, to graph the equations $4x + y = 9$ and $2x - 3y = -6$. She left most of the answers blank, writing a desperate message at the top of the page: *"Still don't get it, not gonna get it, guess i'm seeing this next year!"*

Teachers wage a daily struggle in classes filled with students like Tina.

Her teacher, George Seidel, devoted a class this fall to reviewing equations with a single variable, such as $x - 1 = 36$. It's the type of lesson students were supposed to have mastered in fourth grade.

Only seven of 39 students brought their textbooks. Several had no paper or pencils. One sat for the entire period with his backpack on his shoulders, tapping his desk with a finger.

Another doodled an eagle in red ink in his notebook. Others gossiped as Seidel, a second-year teacher, jotted problems on the front board.

"Settle down," Seidel told the fifth-period students a few minutes after the bell rang. "It doesn't work if you guys are trying to talk while I'm trying to talk."

Seidel once brokered multimillion-dollar business deals but left a 25-year law career, hoping to find a more fulfilling job and satisfy an old desire to teach. Nothing, however, prepared him for period five.

"I got through a year of Vietnam," he said, "so I tell myself every day I can get through 53 minutes of fifth period.... I don't know if I am making a difference with a single kid."

Seidel did not appear to make a difference with Gabriela Ocampo. She failed his class in the fall of 2004 — her sixth and final semester of Fs in algebra.

But Gabriela didn't give Seidel much of a chance; she skipped 62 of 93 days that semester.

After dropping out, Gabriela found a \$7-an-hour job at a Subway sandwich shop in Encino. She needed little math because the cash register calculated change. But she discovered the cost of not earning a diploma.

"I don't want to be there no more," she said, her eyes watering from raw onions, shortly before she quit to enroll in a training program to become a medical assistant.

Could passing algebra have changed Gabriela's future? Most educators would say yes.

Algebra, they insist, can mean the difference between menial work and high-level careers. High school students can't get into most four-year colleges without it. And the U.S. Department of Education says success in algebra II and other higher-level math is strongly associated with college completion.

Apprenticeship programs for electricians, plumbers and refrigerator technicians require algebra, which is useful in calculating needed amounts of piping and electrical wiring.

"If you want to work in the real world, if you want to wire buildings and plumb buildings, that's when it requires algebra," said Don Davis, executive director of the Electrical Training Institute, which runs apprenticeship programs for union electricians in Los Angeles.

Algebra, with its idiom of equations and variables, is more abstract than the math that comes before it. It uses symbols, usually letters, to represent numbers and sets of symbols to express mathematical relationships.

Educators say algebra offers a practical benefit: Analytical skills and formulas enable people to make sense of the world. Algebra can help a worker calculate income taxes, a baseball fan determine a pitcher's earned-run average and a driver determine a car's gas mileage.

"It's the language of generalization. It's a very powerful problem-solving tool," said Zalman Usiskin, director of the University of Chicago School Mathematics Project.

Rationale for Algebra

Although experts widely agree that algebra sharpens young minds, some object to making it a graduation requirement.

"If you want to believe you're for standards, you're going to make kids take algebra. It has that ring of authenticity," said Robert Balfanz, an associate research scientist with the Center for Social Organization of Schools at Johns Hopkins University in Baltimore. "But you're not really thinking through the implications. There may be no good reason why algebra is essential for all high school students."

Compulsory algebra is a relatively new idea in the faddish realm of education reform.

Until recently, high schools offered a range of programs. Students seen as academically able were placed in college-prep classes. Others were funneled into vocational courses in which they learned such skills as auto mechanics and office technology.

It was an imperfect system in which some bright students, particularly minorities, could find themselves trapped in classes that steered them away from higher education.

Then, about a decade ago, the pendulum began to swing as the state decided to raise academic standards for high school graduation.

The concept of algebra for all also was meant to elevate the level of U.S. high school students, whose math performance has long trailed that of peers in other industrialized countries where algebra is introduced at earlier grade levels.

Eager to close this competitive chasm, education and business leaders in California sought to re-engineer the state's approach to math. They produced new math standards they believed would foster a "rising tide of excellence."

This meant teaching algebra earlier, as soon as eighth grade for some students, even if instructors questioned whether younger students could handle abstract concepts.

"We didn't regard any of this as extreme," Stanford University mathematician James Milgram said recently, defending the 1997 math standards he helped write. "We need competent people in

this country. We're on our way to [becoming] a second-rate economic power."

Legislators joined the charge in 1999, creating a high school exit exam with algebra questions, which takes effect this spring. They then enacted the law requiring algebra for graduation, starting with the Class of 2004, to prepare students for the exam.

To its staunchest advocate in the Legislature, algebra stood for higher expectations and new opportunities.

"We have a problem with a high dropout rate. You don't address it by making it easier to get through and have the meaning of the diploma diluted," said state Sen. Chuck Poochigian (R-Fresno), who wrote the algebra graduation law. "It should be a call to action ... not to lower standards but to find ways to inspire. Our future depends on it."

'I Give Up'

Whether requiring all students to pass algebra is a good idea or not, two things are clear: Schools have not been equipped to teach it, and students have not been equipped to learn it.

Secondary schools have had to rapidly expand algebra classes despite a shortage of credentialed math teachers.

The Center for the Future of Teaching & Learning in Santa Cruz found that more than 40% of eighth-grade algebra teachers in California lack a math credential or are teaching outside their field of expertise; more than 20% of high school math teachers are similarly unprepared.

Recruitment programs and summer math institutes for teachers have been scaled back or eliminated because of budget cuts.

"It's a real collision of circumstance, and students are now having ... to bear the brunt of public policy gone awry," said Margaret Gaston, executive director of the Santa Cruz research center.

High school math instructors, meanwhile, face crowded classes of 40 or more students — some of whom do not know their multiplication tables or how to add fractions or convert percentages into decimals.

Birmingham teacher Steve Kofahl said many students don't understand that X can be an abstract variable in an equation and not just a letter of the alphabet.

Birmingham math coach Kathy De Soto said she was surprised to find something else: students who still count on their fingers.

High school teachers blame middle schools for churning out ill-prepared students. The middle schools blame the elementary schools, where teachers are expected to have a command of all subjects but sometimes are shaky in math themselves.

At Cal State Northridge, the largest supplier of new teachers to Los Angeles Unified, 35% of future elementary school instructors earned Ds or Fs in their first college-level math class last year.

Some of these students had already taken remedial classes that reviewed high school algebra and geometry.

"I give up. I'm not good at math," said sophomore Alexa Ganz, 19, who received a D in math last semester even after taking two remedial courses. "I think I've been more confused this semester than helped."

Ganz, who wants to teach third grade, thinks the required math courses are overkill. "I guarantee I won't need to know all this," she said, perhaps not realizing that if she were to teach in a public school, she could be bumped as a newcomer to upper grade levels that demand greater math knowledge.

Administrators in L.A. Unified say they are trying to reverse the alarming failure rates of high school students by changing the way math is taught, starting in elementary schools.

The new approach stresses conceptual lessons rather than rote memorization, a change that some instructors think is wrong. New math coaches also are training teachers and coordinating lesson plans at many schools.

The simplest algebraic concepts are now taught — or are supposed to be taught — beginning in kindergarten.

These changes appear to be paying off, at least in elementary grades. L.A. Unified's elementary-level math scores have risen sharply over the last five years, although middle schools and high schools have yet to show significant progress.

Searching for a solution in its secondary schools, L.A. Unified is investing millions of dollars in new computer programs that teach pre-algebra, algebra and other skills.

Officials are considering other costly changes, including reducing the size of algebra classes to 25, launching algebra readiness classes for lagging eighth-graders and creating summer programs for students needing a kick-start before middle school or high school.

Some schools have taken matters into their own hands.

Cleveland High, four miles from Birmingham, places ninth- and 10th-graders who get a D or F in algebra into semester-long classes that focus on sixth- and seventh-grade material and pre-algebra. Students then return to standard algebra classes.

Eighteen percent of Cleveland's 10th-graders were proficient in algebra on state tests last spring, compared with 8% at Birmingham and 3% districtwide.

But Cleveland's strategy comes with risk. The state can lower the academic rankings of schools that remove ninth graders from first-year algebra. Consistently low rankings can invite district audits and penalties, including removal of teachers and administrators.

Birmingham High, wary of these consequences, is attacking the algebra crisis the way many other schools do: providing students with extra help after school and on weekends. The school launched a round of Saturday classes last fall for 600 students who were failing beginning algebra. Only 100 showed up, even though administrators called each student's home.

The Saturday sessions start anew in February with a twist: separate algebra classes for parents who want to help their children.

But even as it tries to solve its algebra puzzle, Birmingham — along with the district's 50 other traditional high schools — will soon face the even more rigid graduation requirements passed by the school board.

The chairman of Birmingham's math department, Rick Prizant, said he believes the college-prep agenda is a noble but misguided policy dictated by district officials out of touch with the realities of the classroom. Where others see opportunity, he sees catastrophe.

"They're being very unrealistic in what they are asking.... We're spinning our wheels here," said Prizant, who doubles as the school's athletic director. "I think you're going to see more dropouts. It's frightening to me."

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Times staff writer Mitchell Landsberg contributed to this report.

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Go figure

Most Los Angeles ninth-graders find algebra difficult. A sample question from the algebra standards test:

A 120-foot-long rope is cut into 3 pieces. The first piece of rope is twice as long as the second piece of rope. The third piece of rope is three times as long as the second piece of rope. What is the length of the longest piece of rope?

A) 20 feet

B) 40 feet

C) 60 feet

D) 80 feet

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Correct answer: C

More algebra problems inside

Source: California Department of Education

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Algebra test

A majority of ninth-graders in Los Angeles fail algebra or pass with a D grade.

Algebra grades of LAUSD freshmen in fall 2004:

C and above 39%

D 17%

F 44%

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Sources: Los Angeles Unified School District, California Department of Education

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About This Series

Students drastically limit their prospects by dropping out of high school. To understand why so many do, Times journalists spent eight months studying Birmingham High School in Van Nuys. This series began Sunday. The remaining parts:

Friday: Fast friends — 11 started; three finished.

Saturday: The dropout industry.

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On the Web

An interactive algebra quiz, a photo gallery, a discussion forum and other multimedia features, as well as Sunday's article, are available at latimes.com/dropouts.

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On TV

"Class of 2005," a segment of the news magazine "California Connected" produced in partnership with The Times, will air at 8:30 p.m. Friday on KCET in Los Angeles and at varying times that night on other PBS stations. For a complete broadcast schedule, go to www.californiaconnected.org.

<http://www.latimes.com/news/education/la-me-dropout30jan30,0,3211437.story>

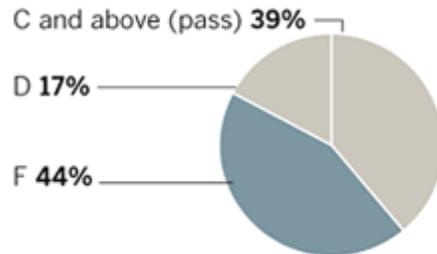
From the Los Angeles Times

<http://www.latimes.com/news/education/la-me-dropouts-series,0,7942897.special>

Algebra test

A majority of ninth graders in Los Angeles fail algebra or pass with a D grade.

Algebra grades of LAUSD freshmen in Fall 2004:



Here are sample questions from the California Algebra I Standards Test:

Q22. What is the solution to this system of equations?

$$\begin{cases} y = -3x - 2 \\ 6x + 2y = -4 \end{cases}$$

- A) (6,2)
- B) (1,-5)
- C) no solution
- D) infinitely many solutions

Q24.

$$(4x^2 - 2x + 8) - (x^2 + 3x - 2) =$$

- A) $3x^2 + x + 6$
- B) $3x^2 + x + 10$
- C) $3x^2 - 5x + 6$
- D) $3x^2 - 5x + 10$

Correct answers: Q22 = D; Q24 = D

Sources: Los Angeles Unified School District, California Department of Education

LORENA IÑIGUEZ Los Angeles Times

Algebra test

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“Feminised” physics a formula for failure, says Michelle Simmons. Also: Australia Day Address orator Michelle Simmons horrified at 'feminised' physics curriculum (SMH). Also: 'What a disaster': Leading scientist says high school physics is being 'feminised' - with difficult equations taken out of exams to make the subject more appealing to girls (Daily Mail). “In other words, to make it more appealing to girls, our curriculum’s designers substituted formulae with essays! What a disaster,” she said. As I mentioned, the price is that the whole high schools are turned into failures. Even this fact is being masked, as the article mentions: the requirements for college students at the universities are being lowered, too, in order to make the failure of the high schools look normal. What factors predict high school graduation in the Los Angeles Unified School District? (California Dropout Research Project Report 14). Santa Barbara: University of California. Daniel Silver, Moira Saunders, Eduardo A. Pretell *Rate. Medicine. 2008. Integrating assessment with learning: what will it take to make it work?* D. Helfand. Los Angeles Times, 2006. VIEW 2 EXCERPTS. Assessment of Teacher Learning and Development. Carol Kehr Tittle.