

Why Math, Why Now?

Factsheet

October 2022

Overview

The Bill & Melinda Gates Foundation's work in the United States is centered on a vision: That all people navigating U.S. education systems and job markets can develop the knowledge, skills, and agency needed to thrive in their communities such that race, ethnicity, gender, and socioeconomic status are no longer predictors of educational attainment and economic mobility and security.

One of the most powerful levers for young people to be able to bring this vision to life and take charge of their own futures is success in math. Math equips students with the critical thinking and problem-solving skills to be engaged citizens and to attain high-paying, in-demand jobs.

We must do more as a country to ensure students experience math as relevant, engaging, and rigorous. We also must ensure teachers have access to the high-quality instructional materials and professional learning and other supports they need to help students build positive math mindsets and achieve their potential. Unfortunately, too many students today—especially Black and Latino students and students from low-income backgrounds—experience math as a barrier to success rather than as a gateway.

That's why we are renewing and deepening our focus on math as the cornerstone of our K-12 Education program strategy over the next 10 years. This work builds on our previous investments in math, including 15 grants to organizations working to make Algebra 1 more accessible and relevant as part of our Balance the Equation Grand Challenge. Our strategy also incorporates key aspects and learning from our investments in Networks for School Improvement, many of which focus on improving math outcomes.

With this strategy, we will work with our partners to:

- Improve math instruction by supporting the development and use of **high-quality instructional materials** that increase student motivation, engagement, and persistence.
- Increase the number of teachers who are prepared and supported to provide high-quality math instruction. We will do this by investing in **strong teacher preparation programs and in high-quality teaching supports and ongoing, job-embedded learning** for teachers that aligns to high-quality math curriculum.
- Work with districts and schools to **help implement the practices, protocols, and systems changes most essential for supporting strong math instruction**. This includes accelerating the use of continuous improvement to implement systemic, coherent supports for math instruction and in other subject areas.
- **Better aligning high school and higher ed math pathways** to improve the success rates of students in postsecondary education and beyond.
- Continue to bridge the gap between what research shows and what happens in the classroom, investing in a **research and development agenda** and partnerships to develop new tools and breakthroughs that get translated into classroom practice.

FAQs

Why is math so important to student success?

Math can unlock students' curiosity about the world around them while also equipping them with the problem-solving and critical-thinking skills they need to be engaged citizens. Math opens doors to high-paying, in-demand careers that are critical to economic development and a skilled workforce.

Unfortunately, for too many students, the way we teach math isn't engaging and doesn't feel relevant to their lives and futures. They don't think—or haven't been shown—that they need math, and they don't see themselves as “math people.” We want to change that.

How was the strategy developed?

Our K-12 Education Team spent nearly two years developing this math strategy with guidance and input from educators, students, system leaders, researchers, curriculum providers, and other experts in the field, as well as parents and community leaders. The strategy also was deeply informed by learning from our past investments in areas such as Networks for School Improvement, Teacher Preparation, Coherent Instructional Systems and Middle Years Math.

How will success/results be measured?

While the foundation plans to continuously monitor the impact of our investments, we also will examine the impact of our work in a more comprehensive way every 3-4 years. We know that it can take years to understand the true impacts of efforts in education, and so that's why we're committing to this work for a full decade.

Proof Points

- While many factors impact students' opportunities and outcomes, research shows that students who pass Algebra 1 by 9th grade are twice as likely to graduate high school and more likely to enroll and graduate with a bachelor's degree and go on to well-paid careers.
- Students taught by math teachers who have received curriculum-aligned professional learning can accumulate additional learning of 0.2 standard deviations per year.
- Students using a higher-quality math curriculum for four consecutive years increased performance by 38 percentile points, compared to their peers using other curriculum.
- Research shows that when students engage with mathematics courses that are relevant to their programs of study—for example, a statistics course for a social science major or a quantitative reasoning course with a real-world mathematics in finance or citizenship for an English major — they are more motivated and more likely to succeed.

