Unlocking Algebra Action Guide

TNTP

NEW CLASSROOMS

Algebra I represents a critical inflection point in students' academic journeys—one that often predicts whether they will stay on track for college and career success.

Students who master Algebra I by the end of ninth grade are far more likely to graduate from high school, enroll in college, and earn higher wages as adults. Yet across the country, too many students begin Algebra I without the foundational understanding they need to succeed. Despite major state investments in high-quality instructional materials, professional learning, and coaching, overall math proficiency has shown little improvement.

Unlocking Algebra: What the Data Tells Us About Helping Students Catch Up offers new insight into why that might be the case—and what can be done about it. TNTP partnered with New Classrooms to analyze three years of data from more than 2,000 Algebra I students. The research identified the following key findings.

1 Algebra proficiency improves when students learn new algebra-related concepts and skills, including those from prior grades.

As students learned more concepts and skills related to algebra—both from their current grade and from previous ones—they performed better on state tests.

Tier II instruction refers to intervention beyond core, grade-level materials and instruction (Tier I). In math, this might include adaptive learning tools or tutoring that targets individual skill gaps.

2 Learning new algebra-related concepts and skills requires applying key predecessor concepts and skills.

Students who started Algebra I with unfinished learning didn't need to learn every concept and skill they missed in prior grades before attempting something new. Instead, learning the most critical predecessors meaningfully increased their chances of acquiring new algebra-related concepts and skills.

3 Tier II intervention is most effective when students build on what they know.

Over the course of a year, students who start with unfinished learning can make up the most ground when their Tier II support is tailored to their knowledge of key predecessors.

This research suggests that states should complement grade-level Tier I materials and instruction with policies that **create the conditions for coherent Tier I and Tier II experiences in math**. When those conditions are in place, students can use Tier II support to address their unfinished learning–including from previous grades–in a way that builds directly toward grade-level mastery.

Policy Recommendations

Support Next-Generation Screeners and Tools

While screeners have often been supported at the state level for literacy, they are less common for math. To promote coherent Tier I and Tier II experiences, states can enact policies that require or encourage the development and use of next-generation screeners and tools that identify each student's predecessor gaps and connect them to targeted Tier II supports. These tools should provide clear, actionable data for students, teachers, and families.

> ***Indiana** passed HB 1634, which requires all students to take a math diagnostic screener, and if a student is found to be behind, they will receive differentiated interventions–including opportunities to address unfinished learning from previous grades–based on their individual needs.*

Expand HQIM Efforts to Include Tier II Tools Designed to Address Key Predecessor Knowledge from Prior Grades

Some states define high-quality instructional materials (HQIM) in math solely in terms of grade-level, Tier I content. This narrow definition can unintentionally discourage the use of Tier II tools that target key predecessor skills from prior grades—even though those supports are essential for helping students access and master grade-level math. By expanding the definition of HQIM to include high-quality, tailored Tier II tools designed to address those critical predecessors, states can create more coherent and effective learning conditions for students.

> ***North Dakota**'s SB 2213 includes a pilot program to implement a math tool with three main components. First, this tool must provide teachers with data through the use of a comprehensive universal math screener. Next, it must give teachers individualized math learning tools that can precisely diagnose what a student knows and doesn't know and then create a personalized learning plan for each student. Finally, it must give teachers access to supplemental programs to implement the learning plan.*

Develop HQIM Core and Supplemental Lists for Instructional Tools That Support Coherent Tier I and Tier II Experiences

State guidance for instructional materials often focuses on grade-level alignment for Tier I but lack clear guidance for Tier II experiences. State leaders can use Tier I curriculum lists to advocate for coherent interventions (e.g., Tier I materials must be adopted with appropriate supports) or add a dedicated Tier II list (e.g., solutions that are aligned to Tier 1 curricula). Alignment doesn't necessarily mean that Tier I and II materials are from the same provider, or that students work only on grade-level content in both settings. Instead, Tier II should address unfinished learning and build directly toward grade-level content.

> ***Texas** released a rubric for annually evaluating Tier II instructional materials annually, encouraging tools that span multiple grade levels, adapt to diagnostic results, and create a coherent student experience.*