# GUIDANCE for
Middle School Mathematics

WHAT DO THE STANDARDS TELL US ABOUT MIDDLE SCHOOL MATH?

- Arizona Mathematics Standards shift in middle school to brand new concepts starting in grade 6, with new domains such as ratios and proportions, expressions and equations, the number system, statistics and probability, and functions.

- Secondary teachers too often introduce mathematical concepts using abstract numbers and symbols, emphasizing rules and procedures without providing students with a conceptual foundation or meaningful mathematical connections. This approach frequently leads to misunderstandings and misconceptions.

Balanced approach to rigor found in the Arizona Mathematics Standards
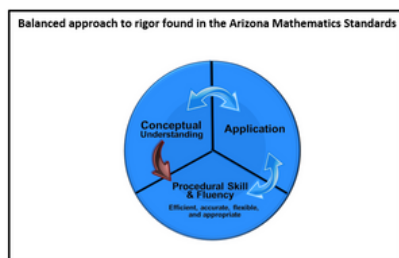
  - For example, when teaching quantity, kindergarten teachers begin with concrete objects and pictures to build counting skills, rather than starting with numerals and expecting memorization.

- Students who struggle in high school math often haven't developed proportional reasoning.

Ref: Proportional Reasoning- Institution of Education Sciences

HOW DO YOU DETERMINE WHEN STUDENTS SHOULD TAKE ALGEBRA 1 IN MIDDLE SCHOOL?

- Middle school students who demonstrate readiness should have access to Algebra 1. To determine "readiness", placement decisions are based on a combination of test scores, rather than subjective referrals or subjective grades, or using just one test score.

- Placement decisions that are based on students' current learning needs should be revisited regularly, create flexibility and strong academic outcomes. Moving away from rigid tracking systems that start in early grades reinforce existing opportunity gaps and have negative impacts.

Ref: Huffaker, Elizabeth (2025). Evidence-Based Practices for Algebra I Access, Placement, and Success. EdResearch for Action.

Quantitative Data	Qualitative Data
- Diagnostic assessment data - AASA data - 6th and 7th grade math scores - Student mastery of grades 6-8 math standards	- Conceptual understanding of mathematical concepts - Evidence of a math mindset, specifically a willingness to preserve through productive struggle

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WHAT LAWS ARE IN PLACE IN RELATION TO MIDDLE SCHOOL MATH?

House Bill 2477 (2018)- For grades 6-8, LEAs must notify parents if students were not proficient on the statewide assessment for Math.

- HB 2477 **requires** LEAs to provide parents with written notice that includes: What the student's mathematics deficiencies were on the statewide Math exam; and how those deficiencies are being addressed through services provided to the student, which could include supplemental instruction and any supporting programs designed to address the student's specific mathematics deficiencies.
- LEAs are **required** to provide notice to parents regarding the Spring statewide assessment results by the first half of the second quarter of this school year if students scored in the minimally proficient or partially proficient range on the statewide Math assessment. LEAs can identify how below mastery on the scoring category is being addressed through Tier 1 (first instruction), Tier 2 (supplemental instruction), and possibly through supporting programs, which could include but are not limited to after-school tutoring.

Ref: ADE Math Standards webpage Provides the bill requirements, as well as, a sample letter for schools to send to parents.

HOW CAN WE BEST SUPPORT STUDENTS IN MIDDLE SCHOOL MATH?

- Tutoring, especially when delivered in small groups, multiple times per week, and during the school day, is one of the most effective academic interventions.

- The best approach is to provide extra support to students who aren't quite ready for algebra through tutoring, offering two periods of math each day (also known as "double-dose") or providing summer programs, research shows.

- Tier 2 support is a necessary extension of Tier 1 instruction and should be directly aligned with it. It is most effective when it reinforces current Tier 1 lessons or prepares students for upcoming content, helping more learners stay on track and succeed.

Ref: TNTP (2025). Unlocking Algebra: What the Data Tells Us About Helping Students Catch Up.

Ref: Cameron, Laruen (2025.) Untangling Who Should Take Algebra — And When.

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