Improving Math Education: State Actions to Strengthen Outcomes

Patrick Lyons, Senior Policy Specialist,
National Conference of State Legislatures
(NCSL)

National Math Trends

- National math proficiency has declined or stagnated on National Assessment of Educational Progress (NAEP)
- Declines are most pronounced among:
  - Median-performing students
  - Lower-performing students
- Nationally, only **about 28% of 8th graders are proficient** in math
- Math proficiency is a key predictor of college and career success

Montana NAEP Trends

Grade 8 Math (2024)

- Average score: 279 (above national average of 272)
- Proficient: 32% (similar to 2022, down from 2000)

Grade 4 Math (2022)

- Average score: 239 (above national average of 235)
- Proficient: 32% (down from 2019)

Proficiency rates remain below where they were in the early 2000s

Why States are Investing in Mathematics

Math proficiency is linked to:

- Higher graduation rates
- College participation
- Workforce readiness

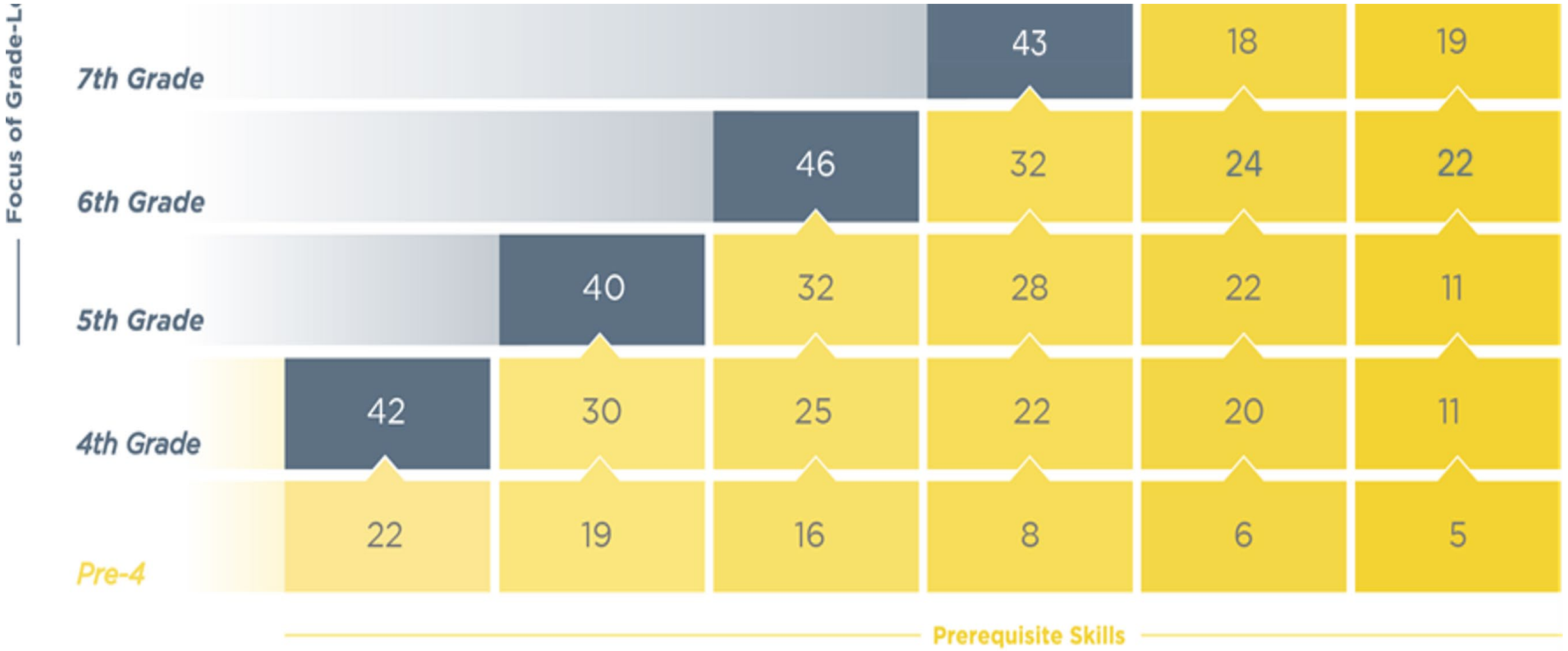
States control key levers for improvement:

- Standards and assessments
- Funding and accountability
- Teacher preparation and support

How We Learn Mathematics

Mathematics Learning is Cumulative

Students must master a sequence of foundational skills to be prepared for future content in mathematics.



Policies Should Consider Math Learning Trajectories

Assessment Quality Matters Greatly

Personalized and Coherent Learning Pathways

- Being prepared for **Algebra 1 by the end of 8th grade** is a key predictors of a student's future academic and workforce success. But the cumulative nature of learning math means we must keep our eye on student learning trajectory in every year along the way.

Limitations of "Grade-Level Only" Instruction

- Traditional instruction typically focuses only on age-based grade level content — but students often have skill gaps spanning multiple years.

High-quality Assessments are Key

- It is important to have sophisticated assessment that can identify key missing skills
- This allows for accelerated and targeted intervention, which helps students catch up and keep up by specifically addressing the missing skills relevant to Algebra 1, not every missing skill.

Early Math is the Foundation

Importance of Early Numeracy Support

Early numeracy (Pre-K–Grade 3) predicts later success in:

- Math
- Reading
- Overall academic outcomes
- College attendance

Many students enter kindergarten without foundational math skills.

- In 2022, over 30% of 3- to 5-year-olds were “off track” in both pre-literacy and math skills.

Early Math: State Actions

Utah – K-3 Benchmark Assessments (2020)

- Requires the development of a statewide K-3 mathematics benchmark assessment, approved by the state board.
- The assessment is to be administered three (3) times per year; optional for kindergarten, required for grades 1-3.

Alabama Numeracy Act (2022)

- Created an Office of Mathematics Improvement
- Requires the use of evidence-based math instruction and materials.
- Provides instructional coaches in all K-5 schools.
- Creates new accountability standards for schools.

Mississippi Beginnings (2022)

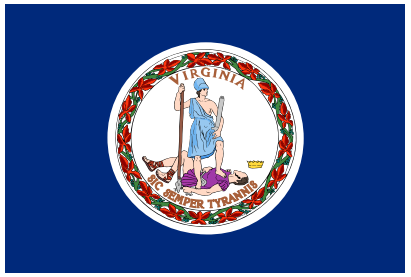
- The Mississippi Beginnings curriculum is adapted from Boston Public Schools' Focus on Early Learning framework. It integrates the Building Blocks curriculum to ensure every pre-K classroom includes **intentional, hands-on math instruction.**

Personalized Pathways: State Actions

North Dakota SB 2213 (2025):

Creates a pilot program to implement a math tool with three main components:

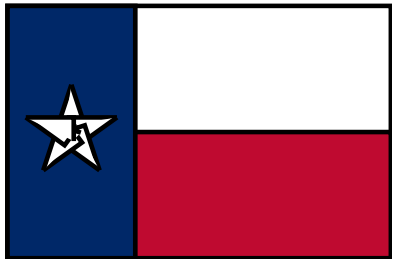
1. Provide teachers with data through a comprehensive **universal math screener**.
2. Give teachers individualized math learning tools that can precisely diagnose what a student knows and doesn't know and then create a personalized learning plan for each student.
3. Finally, it must give teachers access to supplemental programs to implement the learning plan.



Virginia FY26 Budget:

Requires the DoE to collaborate with school boards and division superintendents on the implementation of competency-based and evidence-based mathematics learning, including;

- Provide recommendations on best practices, and facilitate professional development opportunities for educators;
- Oversee the statewide professional development framework for evidence-based teacher training,
- Provide instructional guides and evidence-based resources,
- And facilitate regional professional development networks on improving mathematics



California's 2023 Mathematics Framework:
The framework includes a focus on how students need to master key predecessor skills before they can access grade-level content and recommends coherence between core and supplemental instruction.

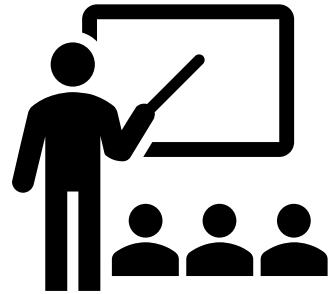
Indiana HB 1634 (2025):
Requires all students to take a math diagnostic screener, and if a student is found to be behind, they will receive differentiated interventions based on their needs.
The bill also requires automatic enrollment in advanced math courses for middle schoolers who score at certain levels of proficiency on statewide testing.

Texas (2024):
The Texas Department of Education released an RFP and accompanying rubric for evaluating supplemental instructional materials, encouraging tools that span multiple grade levels and adapt to diagnostic results.

Supporting Educators

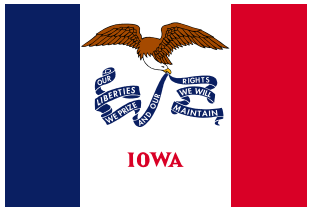
Supporting Educators in Math Instruction

- High-quality instruction depends on well-prepared educators
- Teachers need:
  - Ongoing professional learning
  - Coaching aligned with evidence-based assessments and curriculum
  - Advanced tools to better assess student learning and intervene quickly
  - Support in using data systems to guide instruction



Colorado HB 1231(2023) :

- Requires the Department of Education to offer free, optional training in evidence-informed math instruction for elementary and secondary educators.
- Updates teacher preparation and licensure by requiring evidence-informed math training for elementary, middle school, and secondary math endorsements, and adds early numeracy to preschool teacher professional development.



Iowa HB 784 (2025):

- Requires the development of a comprehensive state mathematics plan to increase proficiency.
- Requires the state DoE to develop and publish a list of valid and reliable mathematics screeners for K-6, to be used 3X a year.
- Provides professional development opportunities for teachers in schools with low proficiency rates.

Kentucky HB 162 (2024):

- Provides funding for professional learning and evidence-based instructional materials in pre-K – 3rd.
- Requires the state DoE to assist school districts by identifying high-quality math curricula, provide coaching and support for teachers, and offer numeracy screeners to help educators identify and address learning needs.

Key Takeaways

- Early math is foundational to long-term success.
- Assessment and curriculum quality matters.
- Personalized, multi-grade approaches help students catch up and accelerate.
- Teacher supports are essential for sustained improvement.

Thank you for listening!

Patrick Lyons

Senior Policy Specialist

Patrick.lyons@ncsl.org

www.ncsl.org

@NCSLorg

Denver
7700 East First Place,
Denver CO 80230

Washington D.C.

444 North Capitol Street, N.W.
Suite 515,
Washington, D.C. 20001