National Council on Teacher Quality

# Solving for success: How to improve math instruction in Texas

Math matters. Higher math scores for elementary-age students translate to higher earnings as adults.[1] In fact, math scores predict future earnings better than reading scores. Early math skills are also a strong predictor of success in other subjects, like reading and science, and even predict grade retention from kindergarten through eighth grade.[2] Math skills are in high demand in the labor market. Among the fastest growing jobs are those that require quantitative skills.[3] Despite this evidence for how much math matters, state policy and support for strengthening math instruction severely lags nationwide.

To improve math instruction, we must bolster the capacity of **teachers**, especially before they enter classrooms. The solution starts with strong state policy.

The stakes for students in Texas

In Texas, 21% of 4th graders lack basic math knowledge and skills based on the most recent National Assessment of Education Progress (NAEP). That percentage is even higher for some of Texas's historically underserved students. This means an estimated 82,188 students in 4th grade likely cannot perform skills like adding and subtracting multidigit whole numbers, fractions, and decimals.

2024 NAEP Texas Grade 4 Math Results

■ Below Basic ■ Basic ■ Proficient ■ Advanced

| 21% | 36% | 34% | 9% |
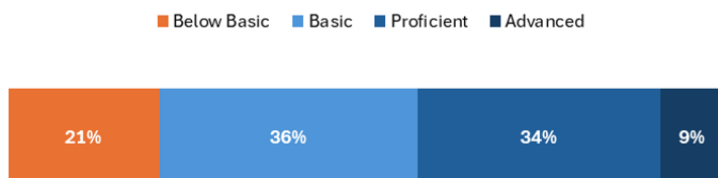
Mathematics knowledge is highly cumulative in nature, meaning that students who struggle to learn foundational math concepts are likely to continue to struggle well into middle and high school.[4] **A student who struggles in math early on may never catch up.**

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[1] Werner, K., Acs, G., & Blagg, K. (2024). *Comparing the Long-Term Impacts of Different Child Well-Being Improvements.* Urban Institute. https://www.urban.org/sites/default/files/2024-03/Comparing_the_Long-Term_Impacts_of_Different_Child_Well-Being_Improvements.pdf.

[2] Claessens, A., & Engel, M. (2013). How important is where you start? Early mathematics knowledge and later school success. *Teachers College Record, 115*(6), 1-29.

[3] U.S. Bureau of Labor Statistics. (2024, August). Math occupations. *Occupational Outlook Handbook.* https://www.bls.gov/ooh/math/

[4] Watts, T. W., Duncan, G. J., Siegler, R. S., & Davis-Kean, P. E. (2014). The groove of growth: How early gains in math ability influence adolescent achievement. *Society for Research on Educational Effectiveness*; Siegler, R. S., Duncan, G. J., Davis-Kean, P. E., Duckworth, K., Claessens, A., Engel, M., & Chen, M. (2012). Early predictors of high school mathematics achievement. *Psychological Science, 23*(7), 691-697

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Texas's performance on state policies to improve math instruction

NCTQ's *State of the States: Five Policy Levers to Improve Math Instruction* report provides a framework of actions state policymakers can take to ensure their teacher workforce can implement rigorous standards-aligned math instruction. States fall into one of four categories based on how extensively they have utilized five key policy levers at every stage of a teacher's career—from preparation to the classroom. Texas earned a **Moderate rating**, meaning the state has some policies in place across the five policy levers, but there is more to do.

Texas Rating:

Moderate

Strong   Moderate   Weak   Unacceptable
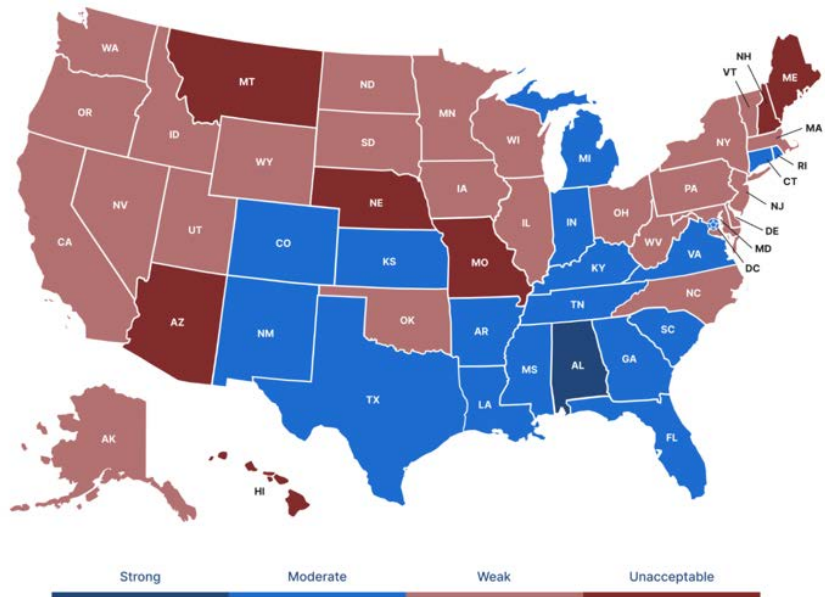
Policy actions are weighted equally. The chart below shows how Texas performs across the five policy levers.

How is Texas performing on the five state policy levers?

Texas ranks **slightly above** the national average.

1	Sets specific, detailed math standards for teacher preparation programs	Strong
2	Reviews teacher preparation programs to ensure they are providing strong math instruction	Moderate
3	Adopts a strong elementary math licensure test	Strong
4	Requires districts to select high-quality math curricula and supports skillful implementation	Moderate
5	Provides professional learning and ongoing support for teachers to sustain effective math instruction	Moderate

How does Texas perform on each of the actions?

To determine the ratings above, NCTQ identified 16 key actions within the five policy levers and analyzed the extent to which states are implementing them. The actions represent policies and practices states should employ to support the implementation of rigorous, high-quality math instruction across the teacher development continuum. This chart outlines Texas's performance across all actions.

✔ Yes   ○ Partially   ✘ No

Teacher prep standards	Does the state have math standards for elementary teacher prep programs that cover all four key math content topics (numbers & operations, algebraic thinking, geometry & measurement, data analysis & probability)?	✔
	Does the state require elementary programs to address math-specific pedagogy?	✘
Prep program approval	Does the state require the review of syllabi and/or coursework for math courses to determine the integration of math standards as part of the program review process?	✔
	Does the state require the inclusion of math experts in the review of teacher prep programs?	✘
	Does the state use math licensure test pass rate data as part of the program review process?	✘
	Does the state maintain full authority over prep program reviews and not permit outside entities to make the final decision on program renewal?	✔
Licensure test	Does the state use at least an acceptable math licensure test for elementary teacher candidates?	✔
	Does the state require all elementary candidates to pass a math licensure test?	✔
	Does the state publish math licensure pass rate data?	✔

✔ Yes   ○ Partially   ✖ No

High-quality curriculum	Does the state require districts to adopt and implement high-quality math curricula?	○
	Does the state provide guidance on how to select high-quality math curricula?	✔
	Does the state collect and publish data on the curricula districts are using?	✖
	Does the state require districts to post their math curricula on their websites?	✖
	Does the state allocate resources to help districts transition to and implement new curricula?	✔
Professional learning & coaching	Does the state financially support high-quality professional learning in mathematics instruction, especially in implementation of high-quality instructional materials?	✔
	Does the state provide financial support to districts for math coaches/specialists?	✖

Recommendations for Texas

Teacher prep standards:

- Require elementary teacher prep programs to address math-specific pedagogy to ensure that aspiring teachers learn how to translate their content expertise into effective instruction.
- Encourage elementary teacher preparation programs to prioritize math courses designed for educators over traditional higher-level math requirements.

Prep program approval:

- Include math experts as program reviewers, including for on-site reviews.
- Use math licensure test pass rate data to assess whether prep programs are sufficiently preparing aspiring teachers in mathematics content.

High-quality curricula:

- Require districts to adopt and implement high-quality math instructional materials.
- Collect and publish data on the curricula districts are using.
- Enact a policy that requires districts to publish the math curricula they are using to ensure transparency for parents and the school community.

Professional learning & coaching

- Provide districts with funds to support math coaches/specialists to improve instruction, and consider how the state can provide training and ongoing support for coaches to promote consistency in math instruction statewide.
- Conduct robust ongoing evaluation of professional learning.

The current teacher prep landscape in Texas

Elementary math teacher prep

Far too many elementary teacher prep programs fail to dedicate enough instructional time to building aspiring teachers' math knowledge—leaving teachers unprepared and students underserved. Put simply, teachers must deeply understand the math content they want students to learn and must have specialized knowledge about how to teach it (i.e., math pedagogy). This is why strong state policy related to teacher prep is so important.

In Texas, NCTQ evaluated 70 elementary prep programs to determine whether they dedicate enough time to key math content topics and pedagogy. The analysis shows Texas programs perform at the national average. (To learn more, see the *2025 Teacher Prep Review: Solving for Math Success* report.)

Only 6% of Texas programs earn an A or A+ by dedicating adequate instructional time to both math content and pedagogy
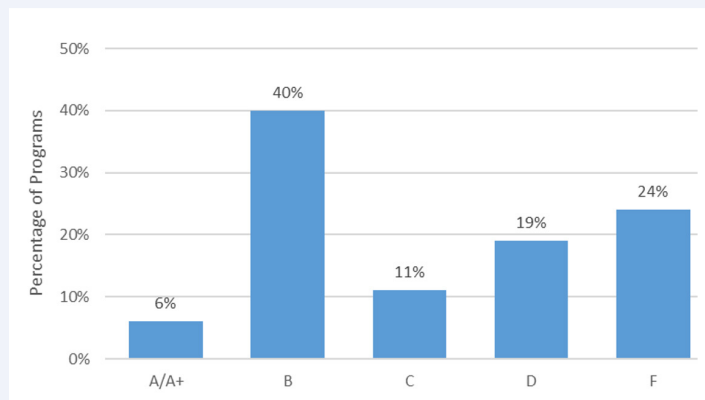
NCTQ looks for instructional hours dedicated to math pedagogy and four math content topics:

- *Numbers and Operations*
- *Algebraic Thinking*
- *Geometry and Measurement*
- *Data Analysis and Probability*

Grades are determined by the amount and distribution of instructional time

A+ Program requires at least 150 instructional hours across the five topics and 100% of the recommended target hours for each topic

A Program requires at least 135 instructional hours across the five topics and at least 90% of the recommended target hours for each topic

B Program requires at least 120 instructional hours (80%) across the five topics

C Program requires at least 105 instructional hours (70%) across the five topics

D Program requires at least 90 instructional hours (60%) across the five topics

F Program requires fewer than 90 instructional hours (<60%) across the five topics

Teacher Prep Program Grades in Texas

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
Abilene Christian University	UG	B	Fully Meets (69 hours)	Fully Meets (57 hours)	Does Not Meet (9 hours)	Fully Meets (68 hours)
Angelo State University	UG	C	Does Not Meet (45 hours)	Fully Meets (45 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Baylor University	UG	B	Does Not Meet (45 hours)	Fully Meets (45 hours)	Fully Meets (45 hours)	Fully Meets (90 hours)

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
Baylor University	G	B	Does Not Meet (52 hours)	Does Not Meet (20 hours)	Does Not Meet (12 hours)	Fully Meets (45 hours)
Concordia University Texas	UG	B	Does Not Meet (53 hours)	Does Not Meet (15 hours)	Fully Meets (23 hours)	Fully Meets (45 hours)
Dallas Baptist University	UG	B	Does Not Meet (45 hours)	Fully Meets (30 hours)	Fully Meets (15 hours)	Fully Meets (45 hours)
East Texas A&M University	UG	D	Does Not Meet (45 hours)	Approaches (23 hours)	Fully Meets (23 hours)	Does Not Meet (11 hours)
East Texas Baptist University	UG	B	Fully Meets (65 hours)	Does Not Meet (19 hours)	Fully Meets (17 hours)	Fully Meets (45 hours)
East Texas Baptist University	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
Hardin-Simmons University	UG	D	Does Not Meet (53 hours)	Does Not Meet (15 hours)	Does Not Meet (9 hours)	Does Not Meet (14 hours)
Houston Christian University	UG	B	Approaches (62 hours)	Fully Meets (25 hours)	Fully Meets (20 hours)	Does Not Meet (28 hours)
Houston Christian University	G	F	Does Not Meet (12 hours)	Does Not Meet (4 hours)	Does Not Meet (2 hours)	Does Not Meet (28 hours)
Howard Payne University	UG	A	Approaches (60 hours)	Fully Meets (36 hours)	Fully Meets (24 hours)	Fully Meets (45 hours)
Lamar University	UG	C	Does Not Meet (45 hours)	Fully Meets (45 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Lamar University	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
LeTourneau University	UG	F	Does Not Meet (15 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Does Not Meet (6 hours)
Lubbock Christian University	UG	C	Fully Meets (66 hours)	Does Not Meet (10 hours)	Does Not Meet (10 hours)	Does Not Meet (28 hours)
McMurry University	UG	D	Does Not Meet (48 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Does Not Meet (13 hours)

Note: Programs that meet or exceed the instructional target earn a "Fully Meets." Programs that provide at least 90% of the instructional target earn an "Approaches. For more information about instructional hour targets, review NCTQ's methodology and scoring rubric here.

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
Midwestern State University	UG	B	Fully Meets (75 hours)	Fully Meets (51 hours)	Does Not Meet (9 hours)	Fully Meets (45 hours)
Our Lady of the Lake University	UG	B	Does Not Meet (40 hours)	Approaches (23 hours)	Fully Meets (15 hours)	Fully Meets (58 hours)
Our Lady of the Lake University	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
Prairie View A&M University	UG	D	Does Not Meet (45 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Sam Houston State University	UG	A+	Fully Meets (87 hours)	Fully Meets (34 hours)	Fully Meets (15 hours)	Fully Meets (45 hours)
Southern Methodist University	UG	F	Does Not Meet (17 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (39 hours)
Southern Methodist University	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (56 hours)
Stephen F. Austin State University	UG	A+	Fully Meets (77 hours)	Fully Meets (29 hours)	Fully Meets (18 hours)	Fully Meets (56 hours)
Sul Ross State University	UG	D	Does Not Meet (34 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Does Not Meet (26 hours)
Tarleton State University	UG	D	Fully Meets (91 hours)	Does Not Meet (18 hours)	Fully Meets (27 hours)	Does Not Meet (0 hours)
Texas A&M International University	UG	B	Approaches (61 hours)	Does Not Meet (15 hours)	Fully Meets (30 hours)	Does Not Meet (30 hours)
Texas A&M University	UG	A+	Fully Meets (101 hours)	Fully Meets (69 hours)	Fully Meets (23 hours)	Fully Meets (63 hours)
Texas A&M University - Central Texas	UG	B	Does Not Meet (45 hours)	Approaches (23 hours)	Fully Meets (23 hours)	Fully Meets (45 hours)
Texas A&M University - Central Texas	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
Texas A&M University - Corpus Christi	UG	B	Does Not Meet (45 hours)	Fully Meets (45 hours)	Fully Meets (45 hours)	Fully Meets (68 hours)

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
Texas A&M University - Corpus Christi	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Texas A&M University - Kingsville	UG	B	Does Not Meet (56 hours)	Fully Meets (29 hours)	Fully Meets (19 hours)	Does Not Meet (36 hours)
Texas A&M University - San Antonio	UG	B	Approaches (62 hours)	Does Not Meet (20 hours)	Fully Meets (21 hours)	Does Not Meet (32 hours)
Texas A&M University - Texarkana	UG	B	Fully Meets (75 hours)	Fully Meets (33 hours)	Fully Meets (26 hours)	Does Not Meet (23 hours)
Texas Christian University	UG	C	Does Not Meet (23 hours)	Fully Meets (30 hours)	Fully Meets (30 hours)	Fully Meets (53 hours)
Texas Lutheran University	UG	B	Approaches (61 hours)	Fully Meets (31 hours)	Fully Meets (16 hours)	Does Not Meet (27 hours)
Texas Southern University	UG	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Texas State University - San Marcos	UG	B	Does Not Meet (45 hours)	Approaches (23 hours)	Fully Meets (23 hours)	Fully Meets (101 hours)
Texas State University - San Marcos	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
Texas Tech University	UG	C	Does Not Meet (23 hours)	Fully Meets (53 hours)	Fully Meets (15 hours)	Fully Meets (90 hours)
Texas Wesleyan University	UG	D	Does Not Meet (15 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Fully Meets (45 hours)
Texas Woman's University	UG	D	Does Not Meet (49 hours)	Fully Meets (29 hours)	Fully Meets (32 hours)	Does Not Meet (12 hours)
Texas Woman's University	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
Trinity University	UG	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
University of Houston	UG	D	Does Not Meet (45 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (90 hours)
University of Houston - Clear Lake	UG	B	Does Not Meet (55 hours)	Fully Meets (32 hours)	Fully Meets (19 hours)	Does Not Meet (29 hours)

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
University of Houston - Clear Lake	G	F	Does Not Meet (9 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (36 hours)
University of Houston - Downtown	UG	B	Approaches (60 hours)	Does Not Meet (20 hours)	Does Not Meet (10 hours)	Fully Meets (45 hours)
University of Houston - Victoria	UG	B	Fully Meets (65 hours)	Does Not Meet (12 hours)	Does Not Meet (13 hours)	Fully Meets (45 hours)
University of Houston - Victoria	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)
University of Mary Hardin - Baylor	UG	C	Approaches (63 hours)	Does Not Meet (18 hours)	Does Not Meet (9 hours)	Does Not Meet (23 hours)
University of North Texas	UG	D	Does Not Meet (45 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Fully Meets (45 hours)
University of North Texas	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (15 hours)
University of North Texas at Dallas	UG	B	Does Not Meet (54 hours)	Does Not Meet (18 hours)	Fully Meets (18 hours)	Fully Meets (45 hours)
University of St. Thomas	UG	D	Fully Meets (65 hours)	Does Not Meet (20 hours)	Fully Meets (20 hours)	Does Not Meet (0 hours)
University of Texas at Arlington	UG	B	Does Not Meet (51 hours)	Fully Meets (45 hours)	Fully Meets (28 hours)	Fully Meets (45 hours)
University of Texas at Arlington	G	F	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (0 hours)	Does Not Meet (5 hours)
University of Texas at Austin	UG	B	Approaches (60 hours)	Approaches (23 hours)	Fully Meets (26 hours)	Does Not Meet (27 hours)
University of Texas at Dallas	UG	D	Does Not Meet (16 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Fully Meets (45 hours)
University of Texas at El Paso	UG	B	Fully Meets (99 hours)	Fully Meets (51 hours)	Does Not Meet (6 hours)	Does Not Meet (25 hours)
University of Texas at San Antonio	UG	B	Does Not Meet (51 hours)	Fully Meets (26 hours)	Does Not Meet (13 hours)	Fully Meets (45 hours)

School	Program Level	Grade	Instructional Hour Targets for Math Content and Pedagogy			
			Numbers & Operations + Algebraic Thinking (combined)	Geometry & Measurement	Data Analysis & Probability	Math Pedagogy
University of Texas at Tyler	UG	B	Does Not Meet (45 hours)	Does Not Meet (15 hours)	Fully Meets (30 hours)	Fully Meets (90 hours)
University of Texas of the Permian Basin	UG	C	Does Not Meet (54 hours)	Does Not Meet (18 hours)	Fully Meets (18 hours)	Does Not Meet (23 hours)
University of Texas Rio Grande Valley	UG	B	Does Not Meet (45 hours)	Approaches (23 hours)	Fully Meets (23 hours)	Fully Meets (45 hours)
University of the Incarnate Word	UG	D	Does Not Meet (45 hours)	Does Not Meet (15 hours)	Fully Meets (15 hours)	Does Not Meet (15 hours)
Wayland Baptist University	UG	C	Does Not Meet (38 hours)	Does Not Meet (18 hours)	Fully Meets (18 hours)	Fully Meets (62 hours)
West Texas A&M University	UG	B	Fully Meets (66 hours)	Does Not Meet (15 hours)	Fully Meets (20 hours)	Fully Meets (46 hours)

Questions? Contact Shannon Holston, Chief of Policy at sholston@nctq.org or Ron Noble, Chief of Teacher Prep at ron.noble@nctq.org.