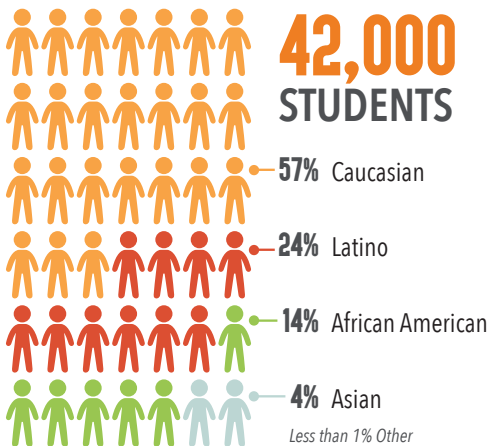


# ST Math

## Robust Math Performance Gains on a National Scale

Independent education research firm WestEd recently published the largest ever cross-state study evaluating a math edtech program on multiple state assessments. The results were greatest at the 239 schools that used ST Math<sup>®</sup> above minimum thresholds (where more than 85% of students used the program and on average completed 40% of their grade-level content by mid-April testing season). ST Math is a PreK-8 visual instructional program that leverages the brain's innate spatial-temporal reasoning ability to solve mathematical problems. ST Math's unique, patented approach provides students with more equitable access to deep conceptual learning.

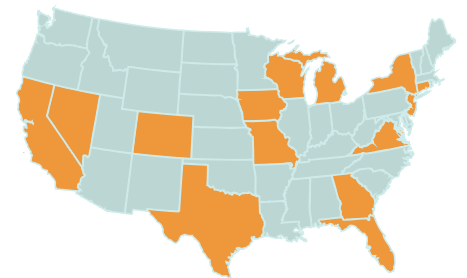


Low performing, high performing, large, small, urban, suburban schools that consistently implemented ST Math



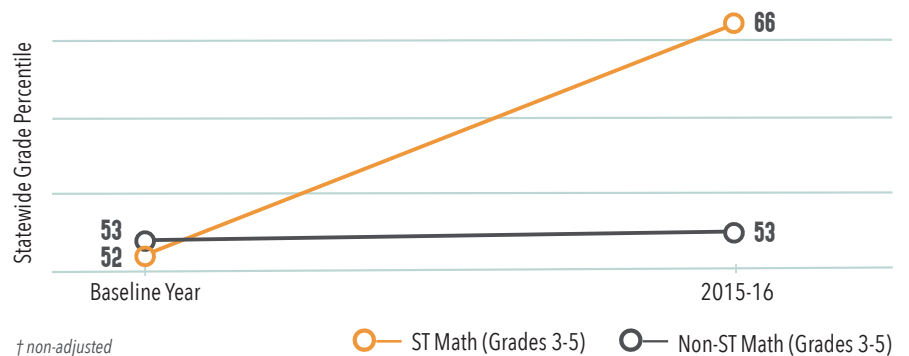
**2013-2016 SCHOOL YEARS**

**11 STATE ASSESSMENTS**  
Including SBAC, PARCC, STAAR, FSA, NYSTP



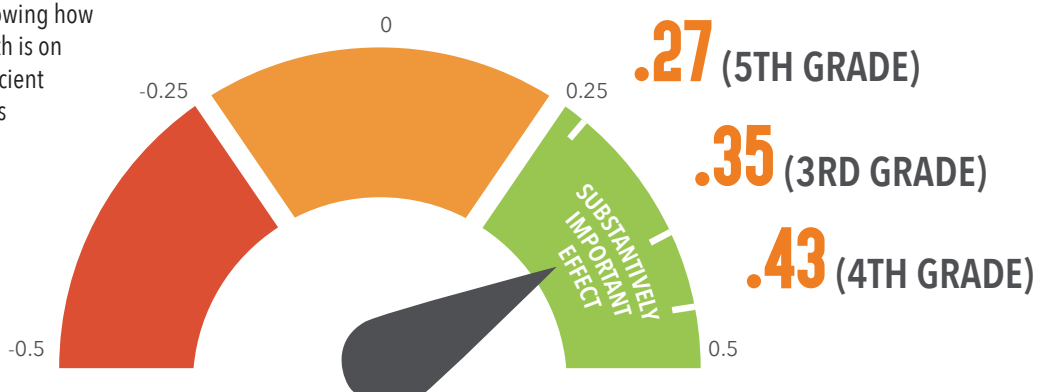
**14 STATES**  
CA, CO, CT, FL, GA, IA, MI, MO, NJ, NV, NY, TX, VA, WI

### Growth in Statewide Ranking of Math Scores<sup>†</sup>



### Effect Size on Percent of Students Proficient in Math

Effect size is a statistical term showing how meaningful the impact of ST Math is on percent of students scoring proficient or above on their state math tests compared to similar grades at non-ST Math schools.



# Unpacking the WestEd Study

## What are the key findings?

Two outcomes were evaluated: average math scale scores and the proportion of students who were proficient or above in math. For both measures, grades that consistently implemented ST Math improved significantly more than similar grades that didn't use the program. For example, a school that initially ranked at the 50th percentile in its state and then consistently implemented ST Math, would, on average, get a statistically adjusted boost of 14 percentile points in statewide ranking. The effect size of all grades combined equalled 0.35 at high statistical significance.<sup>1</sup> This means, generally speaking, that using ST Math made a meaningful difference in schools' math achievement.

## Which states were included in the study?

California, Colorado, Connecticut, Florida, Georgia, Iowa, Michigan, Missouri, New Jersey, Nevada, New York, Texas, Virginia, Wisconsin.

## How was it possible to compare different state tests?

Since every state has its own standardized test, comparing test scores across state lines is like comparing apples to oranges. To normalize them, the researchers z-scored each school, grade by grade, within the state – essentially providing a statewide ranking. They employed a z-score transform for the math performance of each grade within its own state to see how each grade at the school scored before and after using ST Math, and compared it to how matched grades' z-scores changed within the same state during the same timeframe. With all 14 states' math tests transformed to the same basis (intrastate z-score) it was possible to aggregate and compare data across any state or assessment.

## What grades and schools were included?

Rather than selecting specific districts or a single state, this study examined all grades 3, 4 and 5 using ST Math in 2015-16.<sup>2</sup> To be in the study set, schools had to have used ST Math for 1 to 3 years and state grade-average standardized test scores had to be complete and available for those years.

## What does it mean to consistently implement ST Math?

Schools were included in this group if at least 85% of students in the grade used ST Math, and if those students covered, on average, at least 40% of their ST Math content by April 15. As a general guideline, most students can complete their grade-level program if they use ST Math for about 20 minutes every weekday, or 90 minutes/week either at home or at school. The report also separately evaluated all 80,000 ST Math students regardless of their level of implementation and found a statistically significant effect size of 0.17.

## How was the control group created?

For this quasi-experimental comparison group study, WestEd researchers selected a matched control grade for every treatment grade that used ST Math. WestEd statisticians matched each ST Math grade at a school to the most similar grade at another school in the same state based on size, ethnic composition, percent free and reduced lunch, and baseline year test performance. Control schools were not filtered based on math programs being used.

Read the full report at: [stmath.com/wested](http://stmath.com/wested)

<sup>1</sup> P-value <0.05, two-tailed test and Benjamini-Hochberg critical value correcting for false discovery rate under multiple testing.

<sup>2</sup> In states with largest ST Math penetration. Subject to school demographics and scores availability.

# Third-Party Validation by SRI International

A first-of-its-kind independent review by nonprofit, research center SRI International determined that the 2019 WestEd study on ST Math meets Every Student Succeeds Act (ESSA) Tier 2 and What Works Clearinghouse (WWC) standards.

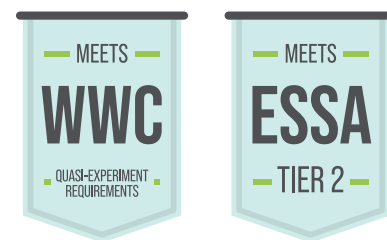
## Why validate the findings?

At MIND, we believe that full transparency is vital to improving the health of the education market. We believe that ESSA Tier claims about program effectiveness should be based on rigorous and transparent evidence and on independent review. That's why we developed a scalable, repeatable, high volume evaluation methodology; asked WestEd to perform and validate the method and report results; and asked SRI to formally review WestEd's study to specific federal requirements, providing an extra layer of scrutiny and accountability.

## What did SRI find?

SRI completed a technical review of the 2019 WestEd study against the WWC v4.0 Group Design Standards. SRI concluded that the WestEd ST Math study "fulfilled the design, analytic, and technical requirements" for 'Meets Evidence Standards with Reservations' according to the WWC standards.

SRI also reviewed the WestEd study design against ESSA levels of evidence provided by the U.S. Department of Education. SRI determined that the study provides moderate evidence (ESSA Tier 2) for ST Math efficacy in grades 3-5.



EN-180-191217

